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RESEARCH-ARTICLE

## Emerging informal learning 2.0 practices: a preliminary exploration

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# Emerging Informal Learning 2.0 Practices: a preliminary exploration

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## ABSTRACT

This paper investigates a specific technology-enhanced learning scenario where formal and informal practices intertwine and contribute to the improvement of individual learning.

In particular, we have explored how the students attending a distance learning higher education course (Cognitive Psychology, Uninettuno) have spontaneously started to adopt a set of Web 2.0 resources, commonly used for entertainment and socialization, to organize their learning activity.

The wide availability of resources (people, contents, services) and their accessibility is affecting how the learning process can be managed and guided: control of the contents is shifting from the tutor to an increasingly more autonomous learner.

Learners not only have access to these resources, they also have the possibility to create groups and negotiate with peers contents and meanings. Spontaneous Facebook groups and other self-organized learning communities are emerging as side-products of formal on-line learning courses: hybrid networks of learners exchange information, contents, resources.

## Categories and Subject Descriptors

H.5.3 [Group and Organization Interfaces]: *Collaborative computing, Computer-supported cooperative work, Evaluation/methodology, Web-based interaction*

## General Terms

Computer science education, Curriculum, Information systems education

## Keywords

Technology-enhanced learning; Web 2.0; Informal learning.

## 1. INTRODUCTION

Since 2003, there has been an impressive development and use of Social Networking technology, also starting to transform learning

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patterns [1].

A recent study [2] from the European Joint Research Center Institute for Perspective Technology stresses the fact that Web 2.0 tools (i.e. wikis, blogs, social networks) enable learners to contribute with their personal views, ideas, and reflections and to collaboratively create, negotiate and edit collective online contents. Two main features have been identified that make Web 2.0 technologies suitable for facilitating online collaborative learning: one of the features is the relatively simple and intuitive use of Web 2.0 tools, which enable learners to easily contribute and experiment in online learning communities [3], the second one is that Web 2.0 technologies contribute to change the role of learners from being passive recipients of knowledge to active participants in the construction of knowledge [4].

Networking and collaboration give rise to new interaction patterns between and among students and teachers, changing the roles of participants in the learning process. Teachers become designers, coordinators, moderators, mediators and mentors, rather than instructors or lecturers, while students not only have to assume the role of (peer) teachers, supporting each other in their learning endeavors, but also jointly create both the learning content and context, developing their own rules and strategies for cooperation and content production. Especially the collaborative creation of learning contents in the shape of Open Educational Resources (OER) has been recognized as the most visible impact of the Internet on education, providing free access to a wide range of educational materials to anyone who wants to use them [4]. The European project OER-HE Innovative Open Educational Resources in European Higher Education (<http://www.eadtu.nl/oerhe>) has provided a dedicated space of research to explore the impact of OER to formal higher education and their instrumental use also to improve informal learning.

Most of the studies related to the understanding of the role of Web 2.0 technologies in learning practices analyses formal initiatives elaborated by education and training institutions as part of their specific educational programs. However, the adoption of Web 2.0 services by students outside the formal learning context as means for self-organization, discussion, creation and negotiation of learning material remains under explored.

It is a common practice among students to exchange notes or other materials created by themselves to facilitate studying or other learning activities; groups of students are used to meet to carry out homework together. These are only examples of the many different strategies that students adopt beyond the formal

learning practices to organize, share and negotiate learning materials.

This paper aims to investigate informal learning 2.0 practices that spontaneously emerge around the formal educational activities; we are interested in exploring the role and the potentialities of Web 2.0 services in supporting spontaneous students' initiatives related to the creation, negotiation and sharing of informal learning resources.

In particular, we have explored how the students attending a distance learning higher education course (Cognitive Psychology, Master Degree in Psychosocial Disciplines at the International Telematic University UNINETTUNO) have spontaneously created a set of web 2.0 resources for supporting their learning activities.

The UNINETTUNO University courses are delivered by means of the Internet-based learning environment ([www.Uninettunouniversity.net](http://www.Uninettunouniversity.net)), designed to allow learners not only accessing the educational resources, but also to use the official platform to create groups and negotiate contents and meanings with peers. However, spontaneous Facebook groups and other self-organized learning 2.0 communities have emerged as side-product of formal on-line learning courses resources.

The paper is a preliminary exploration to reflect on the relevant dimensions to take into consideration when studying this phenomenon.

## 2. CASE STUDY

The Internet-based learning environment of the Uninettuno University stems from the innovative distance learning psycho-pedagogical and didactic model designed and developed by Prof. Maria Amata Garito© [5][6].

Through the learning platform, the psycho-pedagogic model is giving adequate answers to the need for flexibility, diversification and internationalisation of the teaching-learning processes. Cognitive and connectionist theories constitute the theoretical basis upon which the whole teaching and learning process is carried on in the "Didactic Cyberspace" area of the Internet portal.

In the following sections, the psycho-pedagogic model will be described as it results from the application in the UNINETTUNO distance learning platform.

### 2.1 The UNINETTUNO Model

The didactic and psychopedagogic model [5] is characterised by the shift:

- From teacher's central role to the student's central role;
- From knowledge transfer to knowledge creation;
- From integration between practice and theory
- From a passive and competitive learning to active and collaborative learning

The UNINETTUNO psycho-pedagogic didactic model is characterised by the highest degree of flexibility for the student. By this model the student can build his own learning path in function of his educational needs and of his skill-level. A learning environment developed in such a way does not limit itself to offer rigidly pre-established courses, but it offer dynamic contents that can be enriched by other contents existing on the web.

The communication services adopted in formal learning scenarios are Discussion Forum and Chat allowing teachers and students to share opinions, ideas and information about different subjects linked to distance courses. Forum and chat help in setting up perfect virtual Learning Communities.

#### 2.1.1 Student active participation

Students become the "managers" of their own learning process in terms of space and time management. They are members of a virtual learning group engaged in cooperative and collaborative tasks giving their personal contribution to the interactions of the group by analysing the subject and contents from different perspectives.

Throughout collaborative learning students learn to transform theoretical skills into practical abilities, shortly said they transforms themselves from a passive receivers of knowledge to active constructors and into complex problems solvers.

#### 2.1.2 Role of the Telematic Tutor

The UNINETTUNO psycho-pedagogic model foresees that the tutor has to:

- Encourage the structuring of knowledge exchange networks, in a complex system, comprising telematic tutors, students and technologies, which is capable of working better than the sum of the single parts
- Select the didactic material in order to guarantee access to information in an adequate format and level for the skills and knowledge of the various students. The resources will have to be grouped, perhaps in databases organised by level of complexity, in order to guide people who are not used to navigating [7].

The tutor must support the student motivation by encouraging the creation of an *open and positive social environment*. The type of environment that is created must stimulate reciprocal co-operation and help between students, allowing everyone to express himself and participate.

The following paragraph describes the research on Learning 2.0 stemming from the investigation on UNINETTUNO students community formal and informal learning practices.

## 3. Research

### 3.1 Objectives

The present research aims at investigating informal Learning 2.0 scenarios in order to understand such pervasive phenomenon by answering to questions like:

- Why is this phenomenon interesting? Is it different from the spontaneous groups of students that communicate via call-phones or that do homeworks together?

The second goal is to describe how informal emerging learning2.0 practices bridge with structured formal learning, by tackling questions like:

- How emergent and spontaneous learning process, spreading across social networks and micro-blogging websites are related to formal learning context?

The third goal of this research is to inform the development of integrated formal and informal learning 2.0 practices, and this exploration is guided by questions like:

- What is the role of the tutor? Does she have to moderate these groups or does she not have to participate at all? Does she have only to observe, collect data, and then reshape the formal learning process?

This paper describes the initial and exploratory phase of the research aiming at depicting the current informal learning 2.0 scenario within a specific distance learning UNINETTUNO community of students.

### 3.2 Method

Following an ethno-methodological approach, the investigation has been carried out by an online survey involving students from the Cognitive Psychology course of the Degree in Psychosocial Disciplines at UNINETTUNO. The questionnaire was designed to gather qualitative data about three main topics:

1. Web2.0 tools' adoption and familiarization.
2. Principles of the sharing of educational resources.
3. Actual practices of informal learning 2.0.

Each investigated topic has been expanded through a set of open questions. A sample of the questionnaire is demonstrated below:

#### *ADOPTION*

- What are the tools of Web 2.0 that you uses in your informal learning path (eg, Facebook, Twitter, Wiki, etc..)?
- How often do you use these tools?
- Did you know/already use these tools for other purposes?

#### *SHARING*

- Are the shared educational resources self-produced? Or from what sources are taken?
- Is the quality of self-produced educational resources evaluated? If so, by whom and through which criteria?
- Are the shared educational resources modified and improved by the individual contribution?

#### *LEARNING 2.0 PRACTICES*

- Do you use the Web 2.0 tools predominantly in individual or collaborative way?
- How are study and discussion groups created? On which basis?
- Do you think that the use of these tools is beneficial for your learning process? If so, how?

A random sample of 15 students attending the Cognitive Psychology course has been selected for the exploratory investigation. We followed a Grounded Theory (GT) inspired approach [8] in order to start the research from the data, without being biased by our own believes, preconceptions and theories. The GT case-oriented perspective helps us in exploring the field, categorize and conceptualize the data by having only the inspiring research questions in our mind. Results are presented in section 3.3 following a critical analysis approach.

### 3.3 Results

Results regarding the three main topics described above are described in this paragraph.

#### *ADOPTION*

The tools used range from instant messenger applications, to social networks to institutional web tools and sharing editing document services: Facebook, Google docs, ImindMap Skype, Messenger, utiu-students.net peer-to-peer students dedicated platform, Wiki, Podcast, Forum.

Subjects were already familiar with all of them as they regularly adopt them on daily basis for socialization and communication and gathering of information.

The adoption of these tools in learning activities serves the following purposes:

- Sharing resources and opinions;
- Sharing information about the didactics (deadline for exercises and exams' schedule);
- Ease students' teamwork;
- Support inter-personal dialogue;
- Allow textbook exchange.

More specifically, each tool supports different activities. A variety of activities from information management and schedule, to discussions on methods and approaches and opinion exchange, until personal and intimate communication and future perspectives are all covered by Facebook.

Even though allowing cooperative text document editing, Google Docs suite is used by the students targeted in this research to collect and exchange resources but not for collaborative editing and production yet.

Students use ImindMap to create conceptual map online, and the dedicated students' platform (utiu-students.net) to upload and share self-generated educational material.

Among the prior motivations to adopt social networking tools outside the formal platform, there are other advantages like the easy-to-use and quick adoption, and mail notification and organization by thread for Facebook; clear and synthetic presentation of information for WIKI-like platforms; exploitation of resources contemporarily to other activities for Podcast and ease to meet the others by multiple videoconference for Skype.

The Utiu-students.net e-learning platform represents a dedicated and collectively owned peer-to-peer platform to share educational resources (e.g. personal notes, synthesis, brief report, links).

#### *SHARING*

Coherently with recent definitions of Open Educational Resources (OER) [9][10], we can consider the materials Cognitive Psychology students produce and exchange as OER. In fact they have an educational purpose in themselves and are produced to help anyone is approaching learning with possibility of reuse, rework, remix and redistribute [11].

Students share materials like PowerPoint presentations, links to textbooks, scientific articles and additional materials, YouTube videos, notes, transcriptions of the lectures, personal comments and contributions, etc.) but also proper OER like self-generated contributions about specific topics and summaries.

Basically two main categories of resources are used: those provided by the university and those personally created (Self-

generated). The former are considered trust proof by default, the latter are not subject to any evaluation.

Self-generated OER are collectively and collaboratively improved and modified by the students and their quality results from bottom-up informal collective evaluation against the following implicit criteria: correctness, completeness and clarity of exposition.

Shared OER do not constitute the exclusive educational material students adopt. They use OER as complementary material to official course textbook and presentations. There is quite a heterogeneity in the use of the educational resources during the study process. Basically two trends can be observed: the personal resources can be used to have a first overview of the most important topics of the course to guide the study of the official course material, or they can be used to resume the most important concepts to retain towards the end of the study.

The use of shared resources and tools helps increasing the awareness of the knowledge achieved about the topic (auto evaluation means); they can contribute to the motivation of the student allowing also the sharing of personal feelings and experiences (emotional support); provide different perspectives on the topics of study, stimulating a critical attitude (learning means); offer an environment to support the organizational practices related to the study activities (management means).

#### *LEARNING 2.0 PRACTICES*

Above described Web 2.0 tools are adopted within bottom-up collectively generated learning practices towards implicit learning objectives.

The collaborative potential of Web 2.0 tools is rarely exploited to simultaneously work/study on shared resources. Except for instant message tools (skype and messenger) used to exchange information, and multi users discussions, all the tools 2.0 mentioned are used to support asynchronous collaboration mainly based on the sharing of live resources based on the *persistence* of the web.

In particular “structured” informal learning 2.0 sessions are regularly organized by groups of students that negotiate the selection of specific tools (i.e. Skype), engage in creating personal account and in planning informal discussions through videoconference or chat conference.

Students’ discussion groups created on Facebook for the different courses (i.e. Cognitive Psychology, Social Psychology, History of Psychology) represent the second meaningful example of autonomous informal learning 2.0 initiative. Students participate to the groups basically according to academic year and individual interests.

Students engage spontaneously in structuring such informal learning sessions and recognize that learning 2.0 practices are beneficial for their individual path and essential for improving academic performance. This is then one of the easiest ways they have to connect with other students. Group discussions are spontaneous and collectively moderated; there are not established mediators or facilitators.

Utiu-students.net portal represents a different case where students have collaboratively and collectively negotiated rules for adoption and purpose of the platform (i.e. regarding authorized and legal exchange of resources and copyright management). Registration and access to the platform is allowed by the administrator only on the basis of enrolment to UNINETTUNO University.

However, as entailed by the nature of a distance learning University, the students rarely experience real cooperation during the study process. If distance in space is relatively well covered using 2.0 learning tools, spontaneous “discussion groups” are the solution to answer the need for confrontation and discussions and dialogic interactions as a crucial moment of the learning process as a generative knowledge activity.

## **4. DISCUSSION**

The impact of Social Networking services in users’ role on teaching and learning models and capabilities has been subject of studies since 2005; S. Downes [12] was the first to write about Learning 2.0; in his studies, the emphasis has often fallen on the informal aspects of learning, meaning with “informal learning” a form of learning independent from the formal course design, occurring in everyday life through social interactions and individual experiences. Attempts to formalize the new learning models taking into account the changes brought by social media on cognitive styles and approach to information for students [11], when concretely applied have often led to technology-centered reflections and projects. The results of this preliminary investigation outline informal cycles of knowledge creation, usage and re-mix that instantiate those ‘open knowledge exchange zones’ [4] able to provide venues for sharing experiences and evidences that improve learning.

In this analysis we try to keep the focus on emerging informal practices and learners’ experience. According to the Blended e-Learning model of five learning activity techniques [12], students mainly follow two learning approaches: the assimilative activity, i.e. managing and structuring information by mean of narrative media (e.g. Office products, Social bookmarking, Forum, Blogs) and the communicative activity, i.e. sharing and discussing through widely adopted tools like Skype, IM, Facebook. The assimilative activity is indeed finalized to support concept mapping, brainstorming, buzzwords, defining and web search, while the communicative activity is oriented to reasoning, arguing, coaching, debate, discussion, negotiation and performance.

We hypothesize that participation and triggering by the tutor could also favor the systematic development of the productive and experiential activities [14] within the learning 2.0 framework. Tutor involvement as expert peer may in fact encourage the structuring of collaborative creating, producing, composing, mashups activities. By suggesting educational resources, she can guarantee access to information in an adequate format and level for the various students. Tutor mediation and guidance competence could also ground experiential learning 2.0 activities such as practising, applying, mimicking, exploring, investigating, performing which represents critical pedagogical challenges for technology-enhanced learning.

## **5. FUTURE WORKS**

As already stated, this paper represents only the first step of a research planned to be held in the future months. Following the Grounded Theory strategy we plan to carry out other small-scale experimentation in order to collect more data. Future explorations will also involve traditional universities technology-enhanced learning initiatives (i.e. distance learning experiences at University of Sassari).

Collecting more data is vital to provide answers to the stated research questions and to tackle also more questions that extend the scope of this article, like how personal life aspects and

connections that characterized social networks are reproduced within auto-organized informal learning groups?

The extension of the research also implies the definition of an assessment model integrating an heterogeneous and differentiated set of methods ranging from the monitoring of the user behavior parameters (i.e. by mean of social network based solutions to extract large data sets) to the adoption of user research methods like direct observation, direct participation, interviews and focus groups.

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