

Informal learning in the era of Web 2.0

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1 Introduction

This article focuses on individual development through e-learning and learning in communities. Individual development through e-learning ranges from education to training-related activities, together with any other technology-enhanced learning activities not necessarily mediated by formal educational institutions. Participation in online communities can produce both intentional and unintentional learning. The latter occurs when communities do not foresee learning as their main objective but generate learning as a side effect. The three e-learning territories that this article covers are:

Individual development through e-learning involves education and training-related activities mainly at home, together with any other technology-enhanced learning activities not necessarily mediated by formal E&T institutions. This territory is characterised by non-formal learning processes and especially by means of informal learning activities.

Learning communities are communities organised by individuals or groups of people to meet, share and learn about a specific subject. The learning taking place is non-formal, in the sense that it is not mediated by a teaching institution. The learning purpose is explicitly perceived and agreed on by the members, although not necessarily leading to formal recognition. Learning taking place in these communities may contribute to the development of skills and competences for the workplace, but also for private and social life.

Communities generating learning as a side effect do not foresee learning as their main objective. Establishing a relationship with other members of these communities is prompted first and foremost by a common interest or common value commitment resulting from either geographical or intellectual proximity, demographic similarity, common hobbies, belonging to the same NGO or charity, to name a few. These communities may take the form of popular chat rooms, blogs and fora in which informal learning takes place.

The constantly developing Internet environment has been shaped over the past years by applications and services based on Web 2.0 technologies. This is changing how we obtain, share, create, and organise information, communicate and participate and, through these activities, how we *learn*.

This article presents the findings of the Learnovation territory reports dealing with informal learning in both individual and collaborative contexts. The paper shows the recent changes and developments that have shaped informal learning opportunities and the ways in which innovation is fostered. The article concludes by presenting recommendations that should be taken into account to enhance and support informal learning and innovative development within informal learning.

2 Informal learning in the Knowledge Society

What do we mean by informal learning?

According to the vocational training policy (Tissot 2004) terminology, informal learning is:

“Learning resulting from daily activities related to work, family or leisure. It is not organised or structured (in terms of objectives, time or learning support). IL is in most cases unintentional from the learner’s perspective. It typically does not lead to certification.”

Furthermore, according to the European Commission (2000) *“Informal learning is a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning, and so may well not be recognised even by individuals themselves as contributing to their knowledge and skills.”*

Unlike formal and institutionalised learning, informal learning is not organised or structured, nor is it necessarily intentional from the learner’s perspective, and it can be said that informal learning is characterised by “unintentional learning” contrary to expected learning outcomes. All of this makes informal learning a barely-

defined or investigated area of learning. From a business point of view, training solutions can provide comfortable offers for expected and intentional learning; however, when it comes to unintentional informal learning, it is difficult to establish the exact target users/clients and the appropriate solutions. Different sources claim that up to 70-90% of all learning activity is informal.

The following table sets out the main differences between formal and informal learning:

Formal learning	Informal learning
Typically provided by an education or training institution	Resulting from daily life activities related to work, family or leisure
Structured in terms of learning objectives, learning time or learning support	Not structured (flexible) in terms of learning objectives, learning time or learning support
Leads to certification	Typically does not lead to certification
Intentional	May be intentional, but in most cases is non-intentional (incidental/random)

Table 1: Formal vs. informal learning (European Commission 2001)

The information society that surrounds us provides endless informal learning opportunities. New technologies have made information searching and processing faster and easier, and the efficient publication and dissemination mechanisms contribute to a broader circulation of information. This is explored further in the following section.

New ways for learning citizens

When Time magazine declared “you” as the person of the year in 2006, it focused the spotlight on the role of people to promote issues they consider important and the crucial role that technology can play in the process of individual empowerment.

“It’s a story about community and collaboration on a scale never seen before. It’s about the cosmic compendium of knowledge Wikipedia and the million-channel people’s network YouTube and the online metropolis MySpace. It’s about the many wresting power from the few and helping one another for nothing and how that will not only change the world, but also change the way the world changes.” (Time magazine, 2006)

Nowadays, it is impossible to speak or read about the Internet and its social impact without mentioning “Web 2.0”. In the daily life of Internet users, Web 2.0 technologies establish, through blogs and forums, virtual peer-to-peer network sites (professional or non-professional), wikis, bookmarking and sharing tools, tagging, own content creation and distribution portals, etc. Most of these activities support learning in an informal way, which offers people a vast and practically infinite universe of informal learning situations and practices with the aid of Web 2.0. With the aid of these technologies, people can create, share, exchange and remix their own content. The Internet is no longer a medium for learning, but a big playground in which people can search for whatever tools and contents they like.

Peer-learning and changing roles in terms of who teaches whom are also typical of the new virtual environments. The provider-consumer roles are changing, and learning is no longer about “consuming” the learning products, but more about each learner being able to create his/her own knowledge and learn with the aid of versatile resources and peers. For example, in a community, members can co-produce content and learn from the co-production process at the same time.

Furthermore, the activities related to Web 2.0 technologies, including informal learning, have highlighted the rapid development of new innovations, adaptation of new ideas, technologies and trends and their popular use: when a new tool or application is available, it is most probably first tested and used in the informal learning zone by “early birds” rather than in an institutionalised learning context. These new online services are user-centred and often even “user-co-built”.

The following table shows some of the popular applications used by millions of people around the globe.

Wikipedia en.wikipedia.org (Wikis)	A wiki is a collection of web pages designed to enable anyone with access to contribute or modify content. Wikis are often used to create collaborative websites and to power community websites. The collaborative encyclopaedia Wikipedia is probably the best-known wiki. It is written jointly by volunteers from all around the world. Wikipedia has also customised national sites. There are currently over 10,000,000 articles written in more than 260 languages.
YouTube	YouTube is a video-sharing site based on user-generated and rated content. Unregistered users can watch the videos, while registered users are permitted to upload an unlimited

<p>www.youtube.com (video sharing)</p>	<p>number of videos. Accounts of registered users are called "channels".</p>
<p>Weblogs (blogs)</p>	<p>Weblogs cannot be used only as an information database, but are also used as a medium for community building, communication and reflection. Among the various possibilities for interaction, weblogs usually offer a commentary function for feedback from readers and the opportunity for different authors to interconnect with one another's contributions by hyperlinks called "trackbacks".</p> <p>Learners on a course can use a personal weblog to document their own work or texts chronologically and publish their methods or results for their classmates or ask them for feedback and thereby gain new input and perspectives for the continuing learning process.</p>
<p>Digg.com and Delicious www.digg.com www.delicious.com (folksonomies)</p>	<p>Folksonomies are bottom-up classification systems that are produced by tags provided by users. The folksonomy tags (keywords) are usually freely chosen but can also be based on suggested vocabulary.</p> <p>Delicious (formerly known as del.icio.us) is a globally used social bookmarking service that allows users to tag, save, manage and share web pages from a centralised source. It is currently owned by Yahoo!</p> <p>Digg.com is a social news website made for people to discover and share content from anywhere on the Internet by submitting links and stories and voting and commenting on submitted links and stories. Voting stories up (digging) and down (burying) is the cornerstone function of the site. It has been argued that users have too much control over content, allowing sensationalism and misinformation to thrive.</p>
<p>Facebook www.facebook.com (social community)</p>	<p>Facebook is perhaps the best known social networking website.</p> <ul style="list-style-type: none"> – Facebook is made up of over 55,000 regional, work-related, collegiate and secondary school networks; – More than half of Facebook users are not students; – The fastest growing demographic is among people aged 25 and above; – It maintains an 85% market share of four-year US universities. <p>Looking at these data, one might say that Facebook is the biggest learning community the world has ever seen. Of course, some caution is needed: the majority of the activities that take place online have an extremely low learning value; nevertheless, the community is active and exchanges knowledge in a continuous and growing way.</p>
<p>Second Life www.secondlife.com (social community)</p>	<p>Joining an ICT-intensive community such as Second Life immediately exposes one to a number of learning possibilities and, at the same time, to a number of learning needs:</p> <ul style="list-style-type: none"> – In terms of language, since the most interesting events in the community seem to take place in English; – In terms of ICT skills, since one must master the Internet and PC skills for meaningful involvement; – In terms of social and communication skills (since the way in which people interact in Second Life definitely differs to the way they do so in the real world) and in terms of jargon, attitudes and behaviours. <p>Therefore, participating in such a community definitely has an indirect learning effect and raises a number of learning-related issues.</p>

Individual development through e-learning

Individuals acquire skills and knowledge, but also attitudes and values, from daily experience and from all educational resources and influences in their own environment: at home, at work, through hobbies, through conversations, through the media, etc. Informal learning takes place through spontaneous and self-managed activities.

With the emergence of Web 2.0, the e-learning 2.0 concept was launched rapidly. Advocates of Web 2.0 suggest that the Internet is moving from passive publication to active participation, that the Internet is one of the major knowledge repositories for personal knowledge acquisition (or informal learning) and will consequently put increasing pressure on traditional, formal E&T systems. Furthermore, it can be assumed that informal learning is already triggering non-formal or even formal learning processes. The following comparative table summarises the characteristics of e-learning 1.0 and 2.0, of which the latter benefits from Web 2.0 technologies.

(e-)Learning 1.0	(e-)Learning 2.0
Learning Platform & Learning Management Systems (LMS)	Personal Learning Environments (PLEs)
Acquisition processes	Participation processes
Multimedia (interactivity)	Social networks / Communities of Practice (CoP)
Externally provided content	User-created content
Curricula	Learning diaries/e-portfolios
Course structure	Communication
Tutor availability	Learner and peer interaction
Quality assessed through experts	Quality assessed through learners and peers

Table 2: From (e-)Learning 1.0 to (e-)Learning 2.0 (Ehlers et al., 2008)

The main issues that affect individual development through e-learning are summarised below:

- Educational content convergence is being developed through grassroots-based interest groups, using social computing amongst other things. The effects of these emergent “convergence dynamics” on social relations and on learning (providing opportunities for and barriers to learning) are not yet well understood.
- Recent studies show that, despite significant investment by the EU and Member States, around 43% of EU citizens are still classified as “non-participants” in the knowledge society.
- A further alternative position argues that new technologies provide a space for individuals to create a profoundly individuated social space that is insulated from others and external reflection, and is merely centred on “egocasting”.
- A key challenge is to acknowledge and try to reconcile these conflicting and sometimes paradoxical dynamics within goals based on active citizenship and participation.
- A more difficult set of challenges is faced by technology design when cultural contexts, as well as social relationships, are considered. Although it is becoming well accepted that social networking technologies require cultural embedding, practical ways of achieving this are not well developed.

Learning through communities

Two types of communities are addressed here: (non-professional) learning communities and communities generating learning as a side effect. Both are usually Communities of Practice (CoP). According to Wikipedia, a CoP is a “*process of social learning that occurs and shared sociocultural practices that emerge and evolve when people who have common goals interact as they strive towards those goals*”.

Web 2.0, which promotes more sophisticated social dynamics online, is not just a technological progress but, more importantly, a social and cooperative “lever” enabling advanced common knowledge creation, sharing and interchanging. This promotes learning and “collective creativity”. Communities of Practice based on Web 2.0 are typically built from the bottom up and they enable more effective exchange of tacit and explicit knowledge and building of personal relationships between individuals and groups that would otherwise be very unlikely to interact. Changing roles, not only in content provision but also in traditional roles of “novice” and “master”, are mixed, and this is replaced by the peer-to-peer approach and recognition system. Most of these Communities of Practice would not exist without the current technology.

The following table illustrates the positive impact that ICT can have on communities:

Role of ICT in communities	Characteristics
Enhancing learning and creativity	<ul style="list-style-type: none"> - ICT enhancing creative expression - Improving learning effectiveness with multimedia - Immersive environments - Game-based learning
Supporting sociability	<ul style="list-style-type: none"> - Showing and experiencing presence - Networking tools - Collaboration tools - Gathering and making implicit knowledge visible
New ways for accessing, organising and interacting - empowered learner	<ul style="list-style-type: none"> - Easy access to a great diversity of resources - New ways for participating - Lifelong personal knowledge management

Table 3. Role of ICT in communities according to Ala-Mutka (2009).

Also, the new technologies provide versatile and effective means of communicating which affect learning indirectly. Different tools, such as e-mails, mailing lists, blogs, forums, chats, videoconferencing, etc., offer endless means of asynchronous and synchronous communication. The communities can also be much wider and larger, favouring thematic and geographical extension.

The present challenges of communities are twofold: on one hand, policies should seek to better understand the learning dimension embedded in any offline and online community activity and uncap the learning dimension of this work. On the other hand, this should be done discreetly, focusing on transferring learning awareness from sectors in which it takes place openly to others in which it does not. At the same, learning should be made visible and available by fostering knowledge management approaches that fit with the dynamic and unpredictable nature of today's communities.

3 Innovation paradigms of informal learning

As mentioned above, Web 2.0 has significantly changed the ways of obtaining, sharing, creating and organising information, communicating and participating, thus favouring informal learning. The following table presents a comparison produced by the HELIOS e-learning 2000 and innovative e-learning 2010 projects. Furthermore, to exemplify the current practices in informal learning, some examples are provided on how Web 2.0 technologies already in use encompass a great deal of the i-e-2010.

<i>e-L 2000</i>	<i>i-e-L 2010</i>	<i>Web 2.0 and i-e-L 2010</i>
Distributes consolidated knowledge	Generates new knowledge	Personal and community weblogs, Slideshare, YouTube, Wikipedia, Wordpress, Flickr.
Is still e-teaching	Is owned by the learner	Personal Learning environments, weblogs, ePortfolios, collective ownership of results
May isolate the learner	Creates learning communities	Facebook, MySpace, Twitter, LinkedIn, thematic communities
Is delivered by a single provider/institution	Is the result of and a tool to support partnership	Communication tools. Exchange and benchlearning
Ignores the learner's context and previous achievements	Builds on the learner's contexts and previous achievements	ePortfolios, Del.licious, archives, tagging, folksonomies, restoring
Depresses the learner's creativity through transmissive logics	Stimulates the learner's creativity by enhancing the spontaneous and playful dimension of learning	Edutainment, game based learning
Restricts the role of teachers and learning facilitators	Enriches the role of teachers and learning facilitators	Peer-to-peer sites, asynchronous/synchronous communication
Focuses on technology and contents	Focuses on quality, processes and learning context	Focuses on the role of users in supporting their own learning and the learning of peers
Substitutes classroom sessions	Is embedded in organisational and social processes of transformation	Embedded Web 2.0 applications
Privileges those who already learn	Reaches and motivates those who were not learning	Enhanced accessibility

Table 4: From e-Learning 2000 to Innovative e-Learning 2010.
Source: HELIOS (2007) + examples of ICT (own adaptation)

By pushing for the proactive role of users in content and knowledge sharing and creation, Web 2.0 solutions and social networking are supporting the emergence of the learner-centred paradigm in informal environments. Monitoring and investigating the underlying processes as well as the outcomes of this phenomenon are key, as they could provide significant inputs for innovation in formal education and training systems. Particular attention should be given to the following dimensions:

- **Bottom-up - top-down.** The bottom-up approach implies that the initiative to act is taken by the individuals and groups themselves and is not dictated by authorities or directed institutionally. The bottom-up approach is self-managed, peer-supported and community-based. This applies, for example, to self-initiated portfolios, blogs and entire communities starting out as individual or small group initiatives.
- **Non-professional - professional.** Activity, and learning through it, takes place outside the professional context, although the skills obtained can naturally also be used professionally. The (learning) needs and objectives can be related to any trivial or day-to-day matter about which a citizen is curious.

- **Learning-centred - value-centred.** In value-centred action, learning is a secondary output after other purposes and not necessarily formally expressed. Value-centred actions develop a sense of affiliation, e.g. political/environmental/social activity group or a community of people suffering from the same disease.
- **Community-driven - individual-driven.** These two characteristics are not mutually exclusive, but rather reinforce one another. Although community-driven, the outputs of an activity are accomplished by individuals. Within communities, both the individual and the group dimensions are fostered and, while a member may have personal learning objectives, these interact with and are influenced by other community members and contribute to the “collective intelligence” of the community itself.

4 Conclusions and recommendations

Based on the above, we can present several conclusions that can also serve as recommendations for policy, practice and research.

- **Support for bottom-up, spontaneous initiatives.** Balance between supporting bottom-up community initiatives and institutional inputs to sustain the effectiveness of the communities.
- **Broadband access and digital literacy.** It is important to continue the support for the acquisition of digital skills and the support of multi-modal (mobile, wireless, cable) access to the Internet for households. It is important to spot and support segments of the population with poor e-skills.
- **Inclusion challenge.** Make sure that online communities are equally accessible by the entire population, especially when dealing with interaction. This can be done through actions on the provision of general ICT infrastructure to ensure e-access, greater emphasis on issues of e-accessibility and usability aspects, the building of individual capacity or e-skills, e-content and e-services development and the promotion of e-participation, e-democracy and active citizenship.
- **Support for content quality.** Market dynamics seem to lead the way forward. Most of the applications that enable the creation of these communities and the underlying learning are spontaneously created either by commercial or non-profit entities and, therefore, follow private interests. Support should be given to Open Educational Resources (OER) initiatives and any other scheme that leads to quality content.
- **Recognition and certification.** Recognition of informal learning and providing certification schemes that have the capacity to validate acquired skills, even if these are acquired through informal learning communities, should be developed. Learning should be made explicit in these communities without negatively affecting the attractiveness of these communities.

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