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# COMPETENCES FOR COLLABORATION AND KNOWLEDGE SHARING IN DIGITAL SOCIETY - A CASE STUDY WITH AN ERASMUS INTENSIVE PROGRAMME

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## Abstract

In this paper we will present the results of a case study carried out with attendees of an Erasmus Intensive Programme, which has promoted the development of digital literacies among participants. The Programme took place during 2013 summer and involved students and teachers (of teacher education and social service fields) from 3 different countries. The classes covered different tools and 12 tutors were involved. At the end attendees were able to: master the different tools & services; be capable to use and select the most adequate web 2.0 tools & services; create and manage their PLE; share and work collaboratively; be digitally skilled. The working methodology was hands on workshop based and a package of 13 sessions covering a variety of web 2.0 tools, prepared and offered to the participants.

Keywords: digital literacies, ICT skills education, collaborative tools, web 2.0.

## 1 INTRODUCTION

With the advent of social and collaborative environments, students became more active and participative - they not only have access to contents but also create and share them, becoming proactive.

Communication has evolved, and with this evolution came the new media and the possibility of live conferencing, video sharing, social networking, collaborative tools, allowing the student to create, work collaboratively and communicate in a more direct way with their peers and their teachers. Instead of merely searching for information, today's Web, with applications such as bookmarking, feeds, twitter and pinboards, digital portfolios, etc., along with the possibility of creating your own personal webpage, gives students the chance to also create a PLE - A Personal Learning Environment, where the individuals are responsible for the management of their own learning environment and for the selection of the tools and contexts where learning will take place.

However, students need to acquire certain skills and competences, specific of a digital and connected society, in order to "effectively benefit from e-government, e-learning and e-health services, and participate actively in the knowledge society as co-creators, and not simply consumers, as highlighted by the European e-skills strategy" [9]. To only possess hard skills (that comes with experience and formal education) may not be enough to get someone a job. Besides e-skills and e-literacy competences, soft and social skills are also required. These can be practiced and enhanced in virtual environments. Digital literacy, and therefore e-skills, are transversal competences needed to every citizen.

## 2 STATE OF THE ART

According with European Commission lifelong learning is defined as "*all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competencies, within a personal, civic, social and/or employment-related perspective*" [9]. Web 2.0 and 3.0 brought us the opportunity for a closer contact with digital tools, virtual environments and immersive worlds, allowing citizens to acquire and gather information and therefore achieve knowledge and learn. Web 2.0 and 3.0 has already changed the way students interact with each other and with the world and is changing the way they learn [8].

Social web is part of their daily lives, giving them the possibility to connect and share with peers their experience, through social networking. Furthermore, they are using Internet to read the news, listen to

music and also gather information about school related subjects. In fact, they are used to gather information simultaneously from diverse types of media, giving them a new profile, as students who find traditional teaching uninteresting. Having this into account e-learning environments, such as VLE (Virtual Learning Environment) or PLE (Personal Learning Environment) are now used to complement traditional teaching, giving students access to live conferencing, video sharing, and other collaborative tools. Students are proactive in using the web to gather information and this is no longer a mere possibility to the teacher; students are doing it regularly. And so, the teacher's role changes, including giving competences to guide them in knowing where, how and what information to select from all what its available. Another crucial competence is that of networking (i.e. being connected). The more relevant connections one has in one's study field, the more relevant information one accesses and therefore, social networks play an important part in gathering sources for valid contents.

Considering all this, one can say learning activities are at a distance of a click, for those digitally savvy. Although, to actually learn and retain knowledge there is the need of acquire digital skills (e-skills), soft skills and have digital literacy. Only in possess of those competencies will students be able to do a better research, select information, reflect, collaborate, produce and share knowledge.

So that students develop e-skills, some action is needed. Therefore "*Tertiary education is the right place to start, because it is the right context to think of generating not only the brains that Europe needs, but also the minds that it deserves*" [9]. Students with e-skills are capable of critical thinking, multitasking and collaborating in team work. Our society needs "*e-skilled people to provide the infrastructure and e-skilled people to use it. An e-skilled society is thus a precursor to a knowledge-based society*" [9]. Most of these institutions have implemented LMS (Learning Management System), CMS (Open Source Course Management System) or VLEs (Virtual Learning Environment) in order to better manage, organize and deliver learning contexts. However, VLE visually have a static appearance, don't allow individual personalization and therefore are not very motivating to students. Learning environments' aim should be encouraging students how to use meta-cognitive skills, how to ponder on relevant content in order to create knowledge.

Considering today's networks and VLEs, students can access live conferencing, video sharing, social networking, collaborative tools, all directly from their computers, without the need of VLEs. Students can now create content, work collaboratively, socialize, interact and communicate in a more direct way with their peers and teachers with web 2.0. Instead of only being possible to search for information, applications such as bookmarking, RSS feeds, twitter and pinboards, digital portfolios, etc., along with the possibility of creating their own personal website, today's Web gives students the chance of creating their own Personal Learning Environment (PLE). As Attwell (2007) suggests, a PLE "*recognizes that learning is continuing and seeks to provide tools to support that learning*" [1].

In PLE students are responsible for managing their own learning environment, by selecting the tools and contexts where learning will take place. According with Schaffert & Hilzensauer (2008), learning with PLE implies certain changes, such as the role of the student, changing to become more proactive and self organized in constructing and sharing his own knowledge, while supported by data retrieved from countless and varied information, made available by community peers; therefore social involvement plays an important role, as the more social software tools multiply sources and connections the more information is attainable. PLEs are therefore environments undergoing continuing change, evolving not only with students' knowledge interests, but also keeping up with all new applications that appear on web. PLE can be seen as "*mash-up in a single portal for the purpose of learning. (...) Examples for PLE applications are Netvibes15 or WordPressMU16 (a multi user Weblog), but also I-Google17 or Flock18 could serve as a PLE*" [11]. In short, a PLE is a set of Web 2.0 tools or services, gathered and chosen by the user, in a single webpage - which allows to derive from other different websites.

An e-learning environment's main goal is to convey knowledge to anyone who wants to learn, regardless of where you are in the world. Most of the users look for e-knowledge due to geographical distance, economic limitations or limited time schedules; however few tend to follow through the entire course. Motivation is therefore a central topic when creating an environment for e-learning. With a PLE students are independent of a closed environment, but in a space where one can still collaborate, share, learn and search with a broader community, leading them to develop an attitude of independent learning. Furthermore, personal networks appear to be emerging environments, providing channels of communication, sharing and distribution that enrich communication between e-learners.

By creating their own personal networks, and engaging in different services, communities, groups and networks, according with their needs, interests, likes and motivations, students are leading us into a

modern learning approach: Connectivism. Described as the learning theory for the digital age, this approach states that *“knowledge – and therefore the learning of knowledge – is distributive, that is, not located in any given place (and therefore not ‘transferred’ or ‘transacted’ per se) but rather consists of the network of connections formed from experience and interactions with knowing community”* [4]. According to Siemens, theories most often used to describe the learning process, like Behaviorism, Cognitivism and Constructivism, do not take in account the way learning is impacted by technology, a fact one cannot ignore in the digital age we now live into. Technology already *“has reorganized how we live, how we communicate, and how we learn”* [12], therefore new learning theories should consider the widely influence of social environments on learning and reflect about the type of connections that the web 2.0 and 3.0 allow. As Vaill said, referred by Siemens, *“learning must be a way of being – an on-going set of attitudes and actions by individuals and groups”* [13], and so we must perceive the learning process as the one which transforms *“experience into knowledge, skills, behaviours, and attitudes”* [3]. To learn is to *“acquire certain patterns”* [4]. The connections within a personalized environment shapes the knowledge one creates, by collecting and sharing information from varied sources, enriching the learners personal data collection, and contributing to the evolution of the students’ learning profile from being a mere information gatherer to an active and reactive user, developing and sharing content and information, influencing the build of knowledge of the other users (Semantic Web). As social beings each one of us has an intrinsic need of being part a community, of being known by our peers, an unfulfilled eagerness for communication, and to share our ideas, needs and knowledge. We are now emerged in the *“real time, co-creative Web”* [5]. Students are now content builders, information sharers, communicators, belonging to a common space with no barriers, made of links, nodes and connections. Every day students establish new contacts, increasing their networks, sharing and collecting new information, rebuilding knowledge, and therefore learning [6].

As digital technology continues to evolve, a wider range of technological solutions arise. Students are able to engage in different structures, groups and communities, making their own connections and creating their personal learning networks. With this IP we intended to provide students with information and communication technologies (ICT) skills for a digital society that should help them create and use their own PLE with efficiency.

### 3 THE E-SKILLS IP

The e-skills IP is a partnership between four different European countries (Portugal - as coordinator, Denmark, Germany and Romania), requiring students’ mobility from the mentioned countries (18 students and 4 teachers). Its aim is to promote the cooperation between four different European Higher Education Institutions (HEI) - Instituto Politécnico de Santarém, UC Syddanmark, Paedagogische Hochschule Schwaebisch Gmuend, Universitatea de Vest din Timisoara - allowing the exchange of ideas and enabling networking amongst participants.

The e-skills IP was designed and built as an outcome, involving a set of workshops (e-skills pack) that can be used, reused, customized and updated by different HEI at different levels and for different purposes and subjects, making possible the knowledge transfer between more than just the participants of this IP, reaching a wider audience.

The objectives of the IP were to provide students with information and communication technologies (ICT) skills for a digital society, and to do so, six steps were required:

- Identification of students’ competencies in ICT;
- Present students with different available collaboration tools by exploring the web 2.0;
- Selection of specific tools to create students’ personal learning environments (PLE);
- Acquire necessary knowledge to master the selected tools;
- Work collaboratively with the web 2.0 tools;
- Establish methods for instruction and course design based on Web 2.0 (teacher education) with the goal to integrate technology enhanced learning and individual knowledge management in educational processes.

The target group were higher education (HE) students (social work, health, teacher training - primary, ICT secondary teachers).

As results after this intensive program students were able to use, master and select the most adequate web 2.0 tools and services required to create and manage their own PLE, being able to share and work collaboratively using web 2.0 tools.

As for outcomes with this program, when designing it, certain outcomes were expected, such as:

1. Scientific papers – to disseminate the project results;
2. Blog - to help students and tutors to create, develop and maintain a community of practice around the IP course theme;
3. Seminar with plenary and poster sessions - students have the opportunity to present their work to the community;
4. Define a set of web 2.0 collaborative tools (e-skills pack) to serve as a model to other students interested in collaborative work in digital society; the e-skills pack will be prepared to serve as training module so that in the future more teachers can use it with their students in classroom and workshop situations;
5. Wiki (as a community of practice);
6. Website of the IP.

### 3.1 Methodology

In order to acquire the necessary e-skills we proposed a range of different activities, such as online meetings as pre course activities, to explain the course main purpose and what was expected students to do before they attend the course (prerequisites + registration in different tools). The IP begun with a fishbowl, in order to identify students' competencies in ICT. During the IP, lectures and workshops were held to present the potentialities of web 2.0 tools for knowledge sharing and collaborative work, as well as giving them the opportunity to explore, get to know and understand, in a hands-on strategy, the available 2.0 web collaboration tools. After the workshops, a speed mentoring session was provided to help students understand what competencies and tools they need to share and work collaboratively in digital society, having into account their areas of interest.

As web 2.0 tools, this program proposed to explore several tools, that when mastered allowed students to become more digitally savvy and prepared to have their own PLE. *Wordpress*, was the first tool to be introduced, to be used as a logbook, where students wrote their experiences, on the end of each day, and later on, can continue using to write about their impressions while creating knowledge with these tools. *Diigo* and *Mendeley* were also introduced as a tool that can help students collect, organize, share and access anywhere bookmarks about their research interest. *Google Drive* was explored, in order to give them the possibility to create and share online documents, presentations and spread sheets collaboratively. To help them create a drag and drop website students got acquainted with *Weebly*, so they could create a personal or project website or blog. *Prezi* was introduced so students could create collaborative cloud based presentations, and *Slideshare* was presented to make them able to share and archive online presentations made with *PowerPoint*. As an instantly messaging tool *Twitter* was chosen, for easy and fast news sharing online. *Facebook* and *Google+* were presented as socialization, communication and interaction tools.

Hands on workshops were given for all these tools, giving the students the opportunity to experience them before choosing which ones they intended to use for their PLE. Once these tools were chosen, *Netvibes* was presented as a personalized homepage, to allocate and access the selected tools and services of web in a single page. In the end of each day group therapy sessions were held to sum up each days' work, and work with possible group issues. At the final session all students presented the developed materials and explained how they have applied the knowledge acquired throughout the IP course.

This methodology has as basis a Danish model called SMTTE to assess whether students have achieved the intended learning outcomes, it translates in English to CGSAE which stands for:

1. Coherence – background and prerequisites;
2. Goals – what will we achieve;
3. Signs – how do we see hear or sense that we are on the way towards the goal;

4. Actions – what will we do to reach the goal. After every practical lesson with some ITC tool, each student was invited to produce short essay, using *Wordpress*, showing what they understood and they could use that specific tool for their PLE. Their work was then assessed by a teacher or a group of fellow students as respondents. In the end all their essays were collect in *Wordpress*, as digital logbook (a blog), shared with the teachers, and which can later be published after the IP course.
5. Evaluation – students' outcomes were assessed by teachers by reading the essays on *Wordpress* and analysing the developed materials. Also the students were given a questionnaire about their expected and real outcome in ICT, in European understanding, their own work attitude and how they expect to utilize the outcome of the IP in the near future.

This was then collected and reported by the organizing institution and reported to all partners.

Considering all the learning activities taking place we've decided that the curricular activities should endure for 6h30 per day during 14 days (except for two afternoons, put aside for social activities). This gave us a total of 81,6 hours of full contact, plus the pre-course (10 hours) and follow up (20 hours) activities. The benefits of the IP for students was highly recognized by the involved partners' institutions. A letter was written and sent by the partners' institutions recognizing the validity of the IP to the students' curricula.

### 3.2 Results

The aims and objectives of the IP were achieved. In each session, learners had to produce content using the tools that were presented and the tutors gave feedback about their work. At the end of the IP, learners had to choose some tools according with their own needs to build their personal learning environment. It was asked to each learner to write a daily reflection in a blog. At the end of each working day, learners had group dynamics to discuss about the activities undertaken. At the end of the IP was asked learners to point out the positive and the negative aspects of the IP.

The IP tie in with the existing teaching programmes of the participating institutions:

To our Romanian partner: students are supposed to learn and use different tools in ICT both in their studies and in their future work. It is essential to their future work to be aware of present possibilities, know how to use them and be able to justify the use based on specific needs. This IP allowed students to incorporate ICT in their future work since that in their own country they don't have ICT tools in their curricula.

To our German partner: students from the PH Schwäbisch Gmünd were used to work with LMS like Moodle. As in Baden-Württemberg ICT are seen as a basic competence influencing all other school topics, all students in teacher education have to be aware of the state of the art in ICT and have to develop basic skills at their time at the University. Students were used to work with the ICT in a standard national way and with the IP they had the chance to contact with new tools and learn how to use and apply it to their professional needs.

The use of ICT is not limited to national borders; social communities extended first to Europe and later to the whole international society. This requires knowledge and understanding of ITC to be able to create new ways of communication, to use existing methods in innovative processes in order to bring new methods to communicate across European borders. The integration of an international view was necessary, especially in the teacher education and social work, to help the students develop skills and competencies in international, cross cultural social networking, in data exchange and interaction with partners from abroad.

The e-skills IP was designed bearing in mind the idea of facilitate the interaction and multidisciplinary. The tools that were explored can be applied in many different disciplines and adapted or used according with the needs and specifications of a particular subject and/or audience. During the learning sessions students were invited to work in pairs (mingling the nationalities) to facilitate the group interaction and to promote the group cohesion. During the group dynamics all the activities were purposed and played in order to set aside some group tensions and to promote socialization, the communication was encouraged and the participants were invited to have an active role in these group dynamics.

As already mentioned, the programme was composed by 13 different sessions based on hands on workshops approach. According with the tool/tools explored we had a tutor specialized in that topic. Each session was conducted by two tutors to help on the flow of the session and for a more close contact with the students that may have more difficulties (allowing a peer-to-peer approach). For each session the tutors provided an abstract with the main ideas to be developed on the workshop and access to some study materials, available through the website of the IP (<http://eskills-ip2013.weebly.com/workshops.html>) [6]. The students were requested to develop some contents in each session in order to apply what they were learning. The results were posted in the individual blogs of each student. At the end of each day students were also invited to write on their blogs a reflection about the day, addressing the positive and negative aspects, explaining how they could use the tool of the day in their future and given suggestions to improve the programme.

As mentioned above, the students' assessment took place during the IP – through exercises made during the workshops; and by a final presentation on the last day of the IP – sum-up. The results are very positive for the majority of the students, they all were able to identify the potentialities of the tools explored on the workshops and to set their own personal learning environments by selecting the contents they need. The learning outcomes were achieved; participants were able to develop competencies on digital literacy and soft skills, enhance their social, communication and presentation skills, and to improve language skills (English) – all transversal and multidisciplinary competences.

To foster communication among participants online social spaces were set and are maintained by the whole group – to share information (*Facebook*) and to share pictures (*Flickr*). The contacts of the tutors involved in the workshops are also available on the e-skills IP website for future contact.

The evaluation of the e-skills IP was made by the students through the evaluation forms and through their daily reflections on the blog and through the discussions on group dynamics. Teachers also had meetings during the IP in order to monitor the flow of the course.

The results are in general very positive. We can quote some examples:

*“Well organized IP, a wonderful country, very nice people, very good teachers. I have been very pleased with everything”; “I think that this IP was very good. Personally, believe that it was too much hours of teaching, but I like very much the teachers.”*

Some suggestion/recommendations were also made, and we will try to accommodate them in the next edition, such us:

*“The courses to be more interactive.”*

*“The program to be more flexible.”*

*“Not so many games (maybe a walk in the group is more appropriate).”*

*“Not so many hours in front of laptop.”*

*“A few more in depth sessions.”*

*“Maybe some other software's, something more advanced.”*

*“Participants from host university.”*

*“Trying to have participants from more countries (rather than big groups from a single culture), this will enhance the inclusion of the IP in the European objectives linked to intercultural communication.”*

The Website with all the contents (from the workshops) is online and available to everyone who wants to explore or use/reuse them. The video about the e-skills IP is on the *Youtube* ([http://www.youtube.com/watch?v=ckj28\\_DHDJs](http://www.youtube.com/watch?v=ckj28_DHDJs)) and the pictures were shared in *Flickr* (<http://www.flickr.com/search/?q=eskillsip>). In order to better disseminate the IP, a paper and a poster are being developed to be presented in conferences.

An Erasmus teacher mobility to the Universitatea de Vest Timisoara, in the aim of the topics developed in the IP (e-skills), is predicted for January 2014 in order to give the chance to the peers to develop competences in digital literacies and therefore to transfer it to their students and colleagues. This is only possible because digital literacies by its scope are transversal and with an impact in

multidisciplinary activities, therefore it can be transferable for other beneficiaries and stakeholders, with minor adjustments (according with audience and needs).

The main constraint encountered by the coordination was related with the difficulty to organize the IP in such a short time and due to this issue the only date that was possible to set the IP was during summer holidays and final exams season, which made it impossible to the Denmark partner to participate, the German partner could only bring six students, the host institution (Portugal) was out of teaching activities and was unable to have students, only the Romanian group was able to bring more participants (majority).

The second was related with some misunderstanding from part of the Romanian group. The beneficiary partner arranged and covered the cost of accommodation and full meals and social events for the entire period of the IP, therefore no pocket money was available but the Romanian group was demanding for it.

Another difficulty was related with the group cohesion and the lack of ability to mingle even with the efforts undertaken during the e-skills IP activities (workshops and group dynamics) – this restriction was felt in half of the Romanian group.

#### **4 FINAL CONSIDERATIONS**

The e-skills IP had a positive impact in the participants since they saw their digital, language and social skills enhanced. They had the opportunity to know about different cultures through the nation nights and to discover a bit more about cultural aspects of the host region/country through the social events.

It could have been much better if we had students from every partner in a balanced number.

Students and teachers are now able to share their knowledge with their peers in their institutions, contributing to a collective intelligence through a mass collaboration.

The IP gave an intense overview about the different tools that are available in the web 2.0 and that can be very useful for teaching/learning activities. Digital and information literacies are key competences in nowadays society, with an impact not only in our daily lives but also in our professional and academic careers.

After the IP course a report was written and sent to the National Agency. The evaluators have considered *“the IP as a good example of a course that could be continued enabling an application to strategic partnerships in the next Erasmus+”* [2]. Bearing in mind this excellent feedback from European Commission we intend to renew and submit the e-skills IP to Erasmus+ partners are welcome and we are open to discuss around new ideas too. In the meanwhile a second edition is already ongoing and all the arrangements are being set the e-skills IP 2014 edition. This second edition will take place in the Universitatea de Vest Timisoara from 29 March to 16 April 2014. All the partners are able to participate in this second edition and the programme will allow the mobility of 6 teachers and 18 students - recalling that local organizers (Romania) are not eligible for funding.

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