E-SKILLS IP – MASTERING THE 21ST CENTURY SKILLS

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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 (e-skills IP - Competences for Collaboration and Knowledge Sharing in Digital Society – 2nd edition), which has promoted the development of 21st century skills among participants. The 21st century skills are a set of abilities that students need to develop in order to succeed in the information age. The Intensive Programme took place during 2014 spring in Timisoara, Romania involving the participation of teachers (with skills in the areas of ICT, digital literacy, non-formal education and intervention, design & illustration and teacher education) and students (of teacher training, social education and intercultural relations and migration fields) from four different countries. The classes covered different tools and six tutors were involved. At the end, attendees were: able to master the different tools & applications; capable to use and select the most adequate web 2.0 tools & applications according with a specific situation; able to create and manage their PLE/N; able to share and work collaboratively in a synchronous and asynchronous way; able to communicate an idea and to interact with peers from different countries. The working methodology was hands on workshop based and a package of a two and a half weeks of sessions covering a variety of web 2.0 tools was prepared and delivered to the participants.

The e-skills IP had a positive impact in the participants since they saw their 21st century skills enhanced along with foreign language skills improvement. They had the opportunity to learn about different cultures through the nation nights activities and to discover a bit more about cultural aspects of the host region/country through the social events. A website was built in order to aggregate all the contents and results of the IP.

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. Learning, literacy and life skills are key competences in this information age, with an impact not only in our daily lives but also in our professional and academic careers.

Keywords: E-skills, literacy skills, erasmus intensive programme, 21st century skills, information age.

1 INTRODUCTION

Today's society is considered to be digital, due to the proliferation of computer and communication technology. Computers, cellphones and Internet have become more accessible for personal use, and a requirement of the workplace. Castells (2005) states: "the network society is not the emerging social structure of the Information Age: it already configures the nucleus of our societies". In the past few years academic researchers developed various studies that show "the commonality of this nucleus across cultures, as well as the cultural and institutional differences of the network society in various contexts" (Castells, 2005).

Students learning processes and profiles have changed with digital technology, no longer relying only in formal learning contexts for acquiring knowledge, they became more proactive in their search for information and turn to the contents they can find in the Internet. The search for online courses has grown and it's not showing signs of stopping, "more than one in four education students now take at least one course online" (Allen & Seaman, 2010). Students are in a continuous process of learning, through their personal networks and connections they update throughout their lives. Learning is no longer formal, it is informal, non-formal and natural. It occurs in several and different contexts.

Social and collaborative web are making changes in the way students learn, especially in a distance learning format. In a digital society students use simultaneously diverse types of media in their daily lives, therefore to them traditional teaching is poorly stimulating. Education is in need of a change, becoming more personalized, reflexive, social connected, involving and permitting instant gratification to embrace both native and digital immigrants (Prensky, 2001).

Social Web, virtual environments and Web 2.0 tools, by nature, are spaces that allow a closer contact between users, enhancing cooperation, collaboration and socialization among them. Students daily use it, but to actually learn and retain knowledge available on the web there is the need of acquire digital skills (e-skills), social (soft) skills and be digitally literate.

This paper presents the results of a case study carried out with attendees of an Erasmus Intensive Programme (e-skills IP - Competences for Collaboration and Knowledge Sharing in Digital Society), which has promoted the development of 21st century skills among participants.

2 THE 21ST CENTURY SKILLS

Being digitally literate is a key factor to achieve success. Being a citizen with skills in digital literacy is essential. Nowadays we are online like 24/7. However, the fact that everything can be shared online carries some risk - both for users and for authors. Cases of theft and plagiarism may be more frequent. Therefore, having the ability and insight to achieve search and select the most credible information is a requirement and an essential skill in a networked society. In this paper we will discuss the concepts of digital literacy and information literacy as key competences in a networked society. Loureiro & Rocha, 2012)

2.1 Digital literacy

Digital literacy or e-literacy, more than one skill is a group of competences that allows an individual to acquire knowledge through digital processes. It refers “to the awarenesses, skills, understandings, and reflective approaches necessary for an individual to operate comfortably in information-rich and IT-enabled environments” (Martin & Ashworth, 2004).

To better understand digital literacy, first is important to understand the literacy concept - the ability to comprehend what we read, to give meaning, understand written language. Not having any relation to the fact of one being educated or not.

So being digital literate does not refers only to the capability to use a computer or an email, but to the capability to gather, understand, interpret and share information available in all digital media. Being digital literate gives us the ability to communicate and work more efficiently, because it involves understanding how all digital devices work and how they can be used to interact with society. Digital literacy is "A person’s ability to perform tasks effectively in a digital environment (...) Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments" (Jones-Kavalier & Flannigan, 2006).

According to the California ICT Digital Literacy Assessments and Curriculum Framework, to be digitally literate involves: (i) to have access to information and know how to collect it in digital environments, (ii) to manage and organize information for future application, (iii) to evaluate, integrate, interpret and compare information from multiple sources, (iv) to create and generate knowledge by adapting, applying and authoring information, (v) and to communicate information to various audiences and through use of an appropriate medium.

Being in the possess of the above mentioned competences, a person will be able to learn, work and interact effectively in the digital networked society, and also have the life-long ability to locate, evaluate, use and create information - Information Literacy.

2.2 e-Skills

In a digital society the demand for e-skills has been growing fast. These are “crucial to boost competitiveness, productivity and innovation as well as the professionalism and unplayability of the workforce” (McCormack, 2010).

There is more to e-skills than the basic ICT skills. Actually we can find three major types of e-skills: (i) ICT practitioner skills; (ii) ICT user skills; and (iii) ICT business skills.

ICT practitioner skills are those required to make research, design and develop, manage and maintain ICT systems. Most of the times to do this its required profound knowledge of ICT systems, hence one must have some level of academic formation. ICT user skills is the most common of all. It relates to the capabilities that allow an individual to use the ICT systems and devices, giving the user the confident and critical use of ICT to support their work, leisure, learning and communication. ICT user

skills also cover the use of common software tools. E-Business skills relate to the capabilities one needs to exploit opportunities provided by ICT, notably the Internet, to enhance the efficiency and effectiveness of an organization performance on different grounds; this type of skill includes also the capability to explore possibilities for new ways of conducting business processes and/or to establish new businesses.

According with Lenvin, so that students acquire the needed 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" (cited in McCormack, 2010).

Students with e-skills are capable of critical thinking, multitasking and collaborating in team work. As McCormack (2010) says, 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".

2.3 Soft skills & social skills

Besides hard skills students also need to acquire soft skills. Soft skills are personality traits, qualities and also social skills which every student possesses although in varying degrees - it is related with emotional intelligence. On the other hand social skills are the set of skills that allow students to communicate, relate and socialize with others. Socialization is a key factor for learning - and that means connecting, communicating, interacting and establishing relationships. According with Schultz (2008), the most important soft skills are related with:

- communication skills (proficiency in spoken and written language as well as to know what to say and how to say it in different occasions);
- critical and structured thinking along with analytical skills (problem solving capability);
- and creativity (ability of "thinking out of the box", often needed to find innovative approaches to problem solving).

In most tertiary curricula students graduate with a high level of knowledge in a certain field - hard skills. But nowadays most companies also look for soft and social skills. Soft skills are what shapes our personality, enable social competences, for they complement the technical skills required to do a job, and so are equally as important as to have technical and scientific knowledge.

3 THE E-SKILLS INTENSIVE PROGRAMME

The e-skills IP is a partnership between 4 different European countries (Portugal - as coordinator, Denmark, Germany and Romania), requiring students' mobility from the mentioned countries (22 students and 6 teachers). Its aim is to promote the cooperation between 4 different European Higher Education Institutions (HEI) – ESE/Instituto Politécnico de Santarém; UC Syddanmark; Paedagogische Hochschule Schwaebisch Gmuend; Universitatea de Vest Timisoara - allowing the exchange of ideas and enabling networking amongst participants. The IP had a 1st edition in 2013 (hosted in Portugal) and a 2nd one in 2014 (hosted in Romania).

The e-skills IP designed and built - as an outcome - 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, 5 steps were required: (1) Identification of students' competencies in ICT; (2) Present students with different available collaboration tools by exploring the web 2.0; (3) Selection of specific tools to create students' personal learning environments (PLE); (4) Acquire necessary knowledge to master the selected tools; (5) Work collaboratively with the web 2.0 tools; (6) 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).

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.

Regarding the IP's organization, and in order to carry it out, the beneficiary had to establish some contacts with local entities; all the involved ones are mentioned in the IP Website (http://eskills-ip2014.weebly.com/organization.html).

For a better collaboration at a distance some documents were created by the beneficiary and made available to the participants to interact:

- List of Participants: https://docs.google.com/document/d/15KRrGf0OqbK-anOorEfNl6Gbrvwg5ZBxWlD4sX510ME/edit?usp=sharing
- Timetables: https://docs.google.com/document/d/11UivgXOXqowr_eyPZSrDrVCYWIKfKhlpnEgwBCHIFF4/edit?usp=sharing ; https://docs.google.com/document/d/1-qb9tYC300cDwa1Cx6vaHK8auaF5jgnS9ZsyW52vTDw/edit?usp=sharing
- Participant's web accounts: https://docs.google.com/document/d/1SRP3h0-jXmKAKLqCuUT--ZrE0nDofXn4O2sGrbZXsEo/edit?usp=sharing

To promote group cohesion a facebook group was created by one of the German students (https://www.facebook.com/groups/1432616030309196/) and dynamics were promoted by all the participants.

Regarding the financial aspects, the beneficiary partner took care of everything with the help from the Romanian partner (as the host of the IP).

The Workshops were defined and planed by the beneficiary partner with the full support of Denmark partner (http://eskills-ip2014.weebly.com/tutors.html).

The group dynamics and reflection sessions were designed and implemented by students and teacher from beneficiary partner.

In order to promote social interaction and to let all participants to get to know each other better, four Nations evenings were prepared by students from all partners.

The social events were taken care by the beneficiary partner, namely the welcome and farewell dinners, with the help of the Romanian partner. Romanian partner took care of the guided tour's organization.

Some extras such as non-planned social activities were provided by students from all partners.

The Videos were made by students from Portugal and students from Denmark.

The pictures were provided by all the IP participants.

The logo design was from a teacher of the beneficiary partner.

All the merchandising and printings was in charge of the Romanian partner.

The accommodation and meals arrangements were made by the beneficiary partner.

As for the travelling arrangements, each partner took care of their own travelling.

3.1 Pedagogical and didactical approaches

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 working 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. Their students were used to work with the ICT in a quite national fashion and with the IP they had the chance to contact with new tools and learn how to use them.

To our Denmark partner, despite the fact students are used to learn and use different ICT tools, it is essential to their future work that they are aware of present possibilities, know how to use them and are able to justify the use based on pedagogical and didactic theories. This IP will enable teacher students to incorporate ITC in their future teaching work based on European teaching and learning goals and pedagogical thinking.

The use of ICT is not limited to national borders; social communities extend 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 IP was designed bearing in mind the idea of facilitate the interaction and multidisciplinary at all levels. 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 mixed teams (mingling the nationalities) to facilitate the group interaction and to promote the group cohesion. During the group dynamics all the activities were proposed and played in order to set aside some group tensions and to promote socialization and reflection, the communication was encouraged and the participants were invited to have an active role in these group dynamics.

The programme was composed by 12 different sessions based on hands on workshops approach. According with the tool/tools explored we had a tutor specialized in that topic. The sessions were conducted by two tutors at a time to help on the flow of the sessions and for a more close contact with the students that may have more difficulties (peer-to-peer). 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-ip2014.weebly.com/workshops.html). 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 (http://eskills-ip2014.weebly.com/logbooks.html) 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 that tool in their future and given suggestions to improve the programme.

In the following Table (cf. Fig 1) we present all the activities undertaken during the e-skills Intensive Programme in Timisoara.

Fig. 1 – Activities undertaken during the e-skills IP

Stage of the project (start-end dates and hours worked)	**Activities undertaken**
Day 1 **Date**: 29 & 30/03/2014 **No. hours**: all day… according with participants arrivals	Participants' arrival; Accommodation.
Day 2 **Date**: 31/03/2014 **No. hours**: 8h + evening	Group dynamics for presentation of participants and trainers (Name and Gesture); Energizer Mosquito Game; Welcome session; PechaKucha; Blanket Game (for checking that everyone knows the name of everybody); Wandering around Timi (take pics and collect info from Timisoara. Dk group focus on buildings. PT focus arts monuments. DE Focus on shop windows. RO focus on people, nature and traffic. Every video and photo will be shared among all others); Welcome dinner.

Day 3 **Date**: 01/04/2014 **No. hours**: 8h + evening	Timi-Action: a) Warm up Game Circle and cross; b) ...the day before… reflection; E-skills diagnosis | Pimp my IP; Digital Literacies & PLE; Storytelling 7 men and 1 woman; The thin red line narratives | storytelling, life stories; Students' PT team - nations evening.
Day 4 **Date**: 02/04/2014 **No. hours**: 8h	Timi-Action: a) Group dynamics Chief of Clan b) Wall of discoveries reflection Create your personal learning gate | Blog; Photo Sharing | Fickr.
Day 5 **Date**: 03/04/2014 **No. hours**: 8h + evening	Timi-Action: Energizer Rhythm and chairs Storytelling | Video & Audio; Students' DK team - nations evening.
Day 6 **Date**: 04/04/2014 **No. hours**: 8h + evening	Timi-Action: a) Energizer blind bikes b) Handmade Reflection Smilebox; Joint Project; Students' RO team - nations evening.
Day 7 **Date**: 05/04/2014 **No. hours**: 3h	Guided Tour to the City
Day 8 **Date**: 06/04/2014	Free day
Day 9 **Date**: 07/04/2014 **No. hours**: 8h + evening	Timi-Action: Non formal education method for Intermediate Evaluation (Circle and Speak); Storyjumper | Creating a story based on the cultures of the IP participants; Presenting the projects in progress: blogs (weebly), video storytelling, post cards (smilebox); story/ebook (storyjumper); Students' DE team - nations evening.
Day 10 **Date**: 08/04/2014 **No. hours**: 8h	Timi-Action: Fish Game Energiser; Online & Dynamic Presentations | Prezi; Image edition | Pixlr.
Day 11 **Date**: 09/04/2014 **No. hours**: 8h	Timi-Action: Green Light, Red Light Energiser; Reference Managing / Mendeley; Continuing the presentation of projects in progress: blogs (weebly), video storytelling, post cards (smilebox); story/ebook (storyjumper).

Day 12 **Date**: 10/04/2014 **No. hours**: 8h	Timi-Action: Shark Attack; Infographics; Joint Project.
Day 13 **Date**: 11/04/2014 **No. hours**: 8h	Timi-Action: Chair Game; Infographics; Finishing projects; Speed mentoring.
Day 14 **Date**: 12/04/2014	Free day
Day 15 **Date**: 13/04/2014	Free day
Day 16 **Date**: 14/04/2014 **No. hours**: 8h + evening	Timi-Action: a) Energiser Animated images b) Sharing Images (videos & photos) between participants; Blogs Presentation; Closing ceremony; Filling in forms & certificates delivery; Non formal education method for Final Evaluation - Trees and clouds; Farewell Dinner.
Day 17 **Date**: 15/04/2014 **No. hours**: all day… according with participants departure	Participants' departure

The activities can be found in more detail in the e-skills IP portal (Loureiro, 2013).

3.2 Outputs

The IP generated some outputs, accordingly with the initial proposal. Therefore we had:

- Facebook Group [https://www.facebook.com/groups/1432616030309196/?fref=ts] - This website was created as a platform for the IP, a place for the participants gather information and share their PLEs as well as contacts and other tools they find interesting for this activity.
- e-skills Pack [http://eskills-ip2014.weebly.com/workshops.html] - All the tutorials and learning materials used in the IP were gathered in a training package, to be used in future classes and workshops, by anyone who wishes to learn or teach how to create a PLE.
- e-Skills Wiki [http://e-skillsip.wikispaces.com/] - To be carried out now that we have the results from this IP edition and we can now share the good practices achieved with our experience. This wiki will be created as a workspace to discuss and share ideas about good practices in the usage of PLEs and the benefit of e-skills to future professionals.
- e-skills & PLEs Blog [http://eskills-ip2014.weebly.com/logbooks.html] - The blog of the IP will be used for teachers' reflection about the educational practices implemented in the IP. After each day each teachers must reunite to discuss the session and write their reflection. All students' blogs will be connect to this blog as well as the IP website. The PLEs (given its nature) are private.
- e-skills & PLEs Seminar - On the last day (Monday) of the IP each student presented their PLE and Blogs, having the opportunity to discuss about their choices

3.3 Results & impact

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 (http://eskills-ip2014.weebly.com/logbooks.html).

The learning outcomes were achieved; participants were able to develop competencies on digital literacy and on soft kills, enhance their social, communication and presentation skills, and to improve language skills (English) – all transversal and multidisciplinary competences.

Some 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 online for future collaboration.

A new project idea to be submitted is being prepared by the involved partners.

The evaluation was made by the students through the evaluation forms and through their daily reflections on the blog and through the discussions on group dynamics which occurred throughout the whole IP. Teachers had meetings during the IP in order to monitor the flow of the course, the notes were written collaboratively for further discussion and analysis (https://docs.google.com/document/d/1MJOFt-aL5FZxacD_7n8Gz9iT-_1Y7VHW1-qSQuLd9Gk/edit?usp=sharing).

The results are in general very positive and students felt the IP as a good experience. We can quote some examples:

> "*I think it was a good program and a good experience. This initiatives should continue.*"
>
> "*I think this IP was one opportunity to develop our skills, and learn more about life, and other cultures. It was a nice experience and I enjoyed. It was also good to open your mind to others mentalities. I hope that more students have this opportunity.*"
>
> "*I loved the intercultural contact between the students. It was a awesome experience being together with other nationalities over such a long time. It was an important and interesting experience. Thanks for it*"

The Website with all the contents (from the workshops) is online and available to everyone who wants to explore or use/reuse them (http://eskills-ip.weebly.com/).

The videos about the IP are on the Youtube (https://www.youtube.com/watch?v=tus5o0atqQk / https://www.youtube.com/watch?v=YJrufvdLkIQ).

The pictures are in Flickr (https://www.flickr.com/search/?q=%23eskillsip_2014)

As mentioned, a new IP is being draw and the partnership with UVT was strengthen.

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 difficulty was related with the organization of the IP in a different city/country that was not the one of the beneficiary.

The second was related with food arrangements – some students didn't like the meals that were provided, despite the efforts done to make it as much European as possible.

Another difficulty was related with the level of communication of some of the participants – as all had different levels of English language domain.

4 CONCLUSION

The e-skills IP, as in last year edition, "had a positive impact in the participants since they saw their digital, language and social skills enhanced" (Messias e Loureiro, 2014). 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.

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+” (Messias e Loureiro, 2014). 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.

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