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PEDAGOGICAL AND DIGITAL TOOL FOR THE TERTIARY LEVEL: THE LEARNING EPORTFOLIO

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Digitalisering skaper dype endringer i samfunnsøkonomiens produktive kapasitet og struktur. Da oppstår det spenninger i forhold til en overbygning av etablerte vaner, etablerte organisasjonsforhold, etablert tenkning og etablerte maktforhold. Det skjer i smått som stort og særlig i det tekstlige universet.

Digitalisation creates deep changes in society and the economy's productive capacity structure. There is tension in relation to a superstructure of established habits, established organizational relationships, established thinking and established power structures. It happens in small to large and especially in the digital medium.

Latina/lab

The 21th century student network includes a wide range of connections, each one a new learning opportunity

The Networked Student

AKNOWLEDGEMENTS

To God for let me reach this point in my life, without that hope inside me, nothing could be possible.

To my Supervisors Charo and Içara who have known how to guide me. They have shown as persons of values who have enriched my formation.

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To my Sister for her advices and comprehension. I share this educative process with her. I know she also will reach that goal very soon.

To my love Arild, time together is a a constant learning to be better persons an admire the beauty of life.

ABSTRACT

This is a descriptive study about electronic portfolio and its utilisation in Higher Education. It presents and reflects upon the conceptual framework, purposes and benefits of e-portfolios and analyses the different implications of its implementation in the process of learning at the tertiary level of education.

The study has been guided by the following research question: How can teachers and students make use of e-portfolios in the process of teaching and learning? Therefore the importance of the utilisation of e-portfolio as a tool for learning has been in the centre of the study and discussions about its applications. This study examines in depth the process and products of e-portfolios and how they can be used as a pedagogical tool integrated to "learning to learn" activities.

The author has kept the focus on three main purposes, which are followed throughout the study:

- To present a practical experience about the use of student e-Portfolio at the tertiary level;
- To contribute to the search for improvement of teaching practice at tertiary education covering the new demands European convergence;
- To raise discussions about the use and design of e-portfolio as a valid tool for teaching at the university level.

The practical activities carried out in two different universities located in two different countries provided the author with the opportunity to examine the implementation of e-portfolios in two totally different contexts. Both experiences are described and reflected upon in the study.

The main conclusions point out to the importance of using e-portfolios in Higher Education. If properly implemented and used well, e-portfolio can be a powerful tool for capturing student learning because it allows mentors, lecturers or trainers to keep the trace of the students learning. Institutions need to be aware of the impact that electronic portfolio development can have. Results suggest that it is recommendable to integrate e-portfolios with the new forms of pedagogy oriented towards student centered contexts.

Keywords: ePortfolio, eLearning, Higher Education, Working Portfolio, Portfolio assessment, Spain, Norway, Europea Higher Education Area

CHAPTER 1

INTRODUCTION

Education and Information and Communication Technology (ICT) are increasingly becoming more integrated and complementary. Among different applications of ICT to education, e-Learning is often used as a pedagogical support for teaching and learning. However, reaching a good balance in the use of ICT for pedagogical purposes is still reason for concern among educators. Advances in technology and an easier access to web connections facilitate the application of technology to teaching and learning today. However an adequate use of ICT in education requires, first, the availability of a number of technological tools that are Web-based, Web-distributed or Web-capable and, second, the possibility to apply them to various contexts where learning takes place. Many e-learning projects start often with the intention of using the best technological means, and do not consider that when education is the main concern, the pedagogical aims have to prevail over the means.

The widespread use of ICT in education has created many new opportunities for introducing innovations in teaching and learning forms. Institutional, social and political experiences may be helpful to justify e-learning investments, but they do not suffice on their own. To succeed in the application of technological tools and ensure a long term commitment to their use requires that they are properly implemented and, most of all, that their utilisation will improve the learning process (Nichols, 2003). However, the heart and the soul of any e-learning experience is not the technology itself, but how it is used to support effective teaching and learning. This means that pedagogy needs to evolve in order to make an appropriate use of technological tools that have the potential to facilitate teaching and learning. Many teachers are looking today for innovative teaching practices that will have a positive impact on students' learning through the proper application of ICT means.

Among different e-learning approaches, the e-portfolio stands out as one that can innovate teaching and learning through its application to new pedagogical approaches that make use of electronic devices. The e-portfolio provides the integration of a wide variety of new ICT means which expand the possibilities for increased participation, interaction, collaboration, and social networking of web 2.0[1]. E-portfolio is a digital tool for reflection (Barrett 2000) which provides wide possibilities for reflections in action, before action, after action, in solitude, or in consultation with instructors. It is also a very powerful pedagogical tool that can support learning in higher education and its utilisation might increase students' motivation and their engagement in learning. However, it is important to keep in mind that e-portfolios require suitable e-learning environments for enhancing the students' learning. Different studies (Becta, 2007; JISC, 2008; Ravet, 2009) suggest that the application of e-portfolio in the academic context is very important because it provides an updated environment that can foster learning in higher education.

The utilisation of electronic portfolios has been increasing at all levels of education in the European context of higher education. Findings from the literature indicate that there is a great variety in portfolio concepts and uses and their implementation might be strongly influenced by each institution's context and evaluation system, which, in turn, can affect significantly the teaching and learning processes. Thus the e-portfolio is a very powerful tool that makes explicit the lifelong learning path and professional career trajectory of each individual. In addition, many universities around Europe are making implementations around

[1] Web 2.0 is a cluster of technologies that allow web sites to become interactive.

the ePortfolio concept. Examples are, the Vienna University building an institutional portfolio around a eLearning strategy and the Bologna Process (Roemmer-Nossek,2008), the Politecnic University of Catalonia with an ePortfolio based competence (Valero Garcia, 2007). Those are few cases of many that are working with the topic. At the National level like United Kingdom a policy was established to provide a 'personalised online learning space for every learner that can encompass a personal portfolio' to every school by 2008 and by 2009, all awarding bodies should be set up to accept and assess e-portfolios (Becta, 2007). According to Dysthe (2006) the use of e-portfolios fits very well in the educational reforms that started after the Bologna Process. The e-portfolio, as a digital tool, can be used to facilitate the attainment of several aims that were agreed upon in different European declarations and whose purpose is to develop the European Higher Education Area (EHEA)[2]. It ought to be noticed that e-portfolios could support meeting demands related to quality of teaching and research, quality of assessments, and lifelong learning, which are specified in these documents.

1.1 Purpose of the study

The overall purpose is to study e-learning and analyze the different implications of the implementation of e-portfolios during the process of learning at the tertiary level of education. The increasing need for more effective pedagogy encourages teachers and students to experiment new methods and digital tools. Digital portfolios as an innovative technology can increase the students' awareness regarding their own processes of knowledge construction and support their lifelong learning experiences.

The following research question guides this study: How can teachers and students make use of e-portfolios in the process of teaching and learning?

1.2 Methodology

To answer this question, the author followed a methodological approach that was based on a comprehensive literature review about e-learning and its applications, with a specific focus on e-portfolios. In addition, the author used the information gathered during two internships. The whole study has been heavily influenced by the author's participation in teaching and learning activities supported by e-learning applications in two different academic contexts, one in Norway and the other in Spain. In Norway, the author was involved in the activities of the LATINA lab in the Learning Centre of Oslo University College (OUC). The experiences in Spain were acquired during the practicum carried out at the Education Resource Centre (Servicio de Recursos Educativos/SRE) at the Rovira I Virgili University (RVU).

As a whole, this is a descriptive study. However, due to some of the study's features, such as its aim on improving strategies, practices and knowledge in communities of practice, it can be included in the category of action research. Such approach permits the close involvement of the researcher with participants of the organization, who establish an interactive inquiry process in a collaborative context.

The information collected and analysed during the internships realized in two universities of two different countries – Spain and Norway – together with the literature survey, constitute the basis for this study about the implementation of ePortfolio in the higher education areas of

[2] Appendix 1 presents a summary of the agreements made under the European Convergence for building the European higher Education Area (AHEA)

Norway and Spain. These were the two main factors for deciding on the focus of this study. However, it ought to be mentioned that my formal education and previous work experiences triggered my initial interest and motivated me to carry it through. Such interest is explained in the next section, where I present my personal connection with the study which also justifies my choice of the topic.

1 1.3 Personal connection with the study

I am uniquely convinced, positioned and motivated to research the topic of e-Portfolio and investigate its integration to the process of learning, for at least three reasons. First, I did studies in Computer & Systems Engineering, and later on I worked in the education and business sector, which is closely associated with technology. Second, I worked for an academic project at the university level on the implementation of a web based application in a research department at the institutional level. Third, being a student of the Erasmus Mundus Mundusfor, I have become more interested in studying innovation and its relation to technology and education. Through the experience gained with the two different educational systems where the studies took place – Spain and Norway - I developed specific knowledge and skills to deal with the topic.

Through my formal studies in engineering and previous work experience, I have often reflected about the various possibilities that exist for utilization of technology. My education and work experiences provided me knowledge and practice in the utilization of computer technology. Such background provided me to develop myself in the area of application of ICT to education, which was my initial motivation to start in the Erasmus Mundus master degree. Working with ePortfolios has given me the possibility to work with a project that is related to my field of interest in my professional life.

I have previously been involved in a project aimed at the systematization of the data information for the research department in my home university. During the project I had different roles and had technical, pedagogical, institutional, as well as collaborative responsibilities. For developing this research project, I have used my previous educational and work experiences in combination with the knowledge and experiences acquired during the master degree. This background provided me the basis for analyzing the use of e-Portfolios as an e-Learning application for a learning centred environment and for reflecting on the topic.

Finally, although I have had short experience as educator, I consider after being a student of the Erasmus Mundusfor Master Degree for nearly two years I have developed my knowledge and understanding about education in Europe and European Higher Education system. The experiences I gained through my volunteer contribution to the learning events related to e-learning during my internship at the Latina Lab, at Oslo University College, and during my internship at the Educational Research Centre, at the University of Rovira I Virgili were very important for my future career as educator. Despite my initial lack of experience in pedagogy, I have overcome the barriers through support received from the educational institutions and my autonomous learning. I believe that all these factors made it possible that the barriers detected became, later, opportunities for learning. Therefore, this study has the following purposes:
To present a practical experience about the use of student e-Portfolio at the tertiary level
To contribute to the search for improvement of teaching practice at tertiary education covering the new demands European convergence

To raise some points about the use and design of e-portfolio as a valid tool for teaching at the university level

1.4 Structure of the Dissertation

This study is organised into seven chapters, beginning with this introductory chapter. The practical aim of this study resulted in a decision to organise the analysis around a theoretical and conceptual framework. The structure following these frameworks describes the implementation on ePortfolio with institutional and individual experiences.

Chapter 2 reflects why and how the relevant parts of the theories are fundamental for the conceptual framework.
Chapter 3 provides the conceptual framework for the ePortfolio concept.
Chapter 4 provides an analysis of ePortfolio implementation at the Institutional level. Describing the participation with ePortfolio study of adaptability in teaching and learning in the Rovira I Virgili University.
Chapter 5 presents the ePortfolio for learning framed in an eLearning environment. This is described with an experience in Norway.
Finally, **Chapter 6** provides the general conclusions and recommendation. Also it is presented the future challenges on ePortfolio implementation.

CHAPTER 2

THEORETICAL FRAMEWORK

This chapter presents the theoretical framework regarding construction of knowledge. This aspect is close related with the ePortfolio process. Students become producer of knowledge and consumers. Also, eLearning principles support the ePortfolio when is applied to an institution and when is integrated to a process of learning enhanced with environments supported by the Web based tools and the Information and telecommunication technologies.

2 2.1 The learning and teaching perspective towards construction of knowledge

We are now in times where advances in technology are changing the traditional learning (Høivik, 2009). The amount of information in Internet is growing with an accelerated rhythm.
The new generations are choosing more often on finding sources of learning through the big cloud of information. Thus, the concern that the information management will be a major challenge in the 21st century is present.

How do new students of the new era of information determine what is useful among all that knowledge? How can they choose what is more valuable for them? Which changes are the institutions making to guide students and to complement face-to-face classes with distance teaching? Do teachers and lectures have to change their roles and competences in order to adapt to that change?

Teaching practices are likely to face this transition that is considered imminent. As stated by Downes (2008, p1):

> *With the changes that have occurred as a result of increased accessibility to information and a rapidly evolving technological landscape, educators in higher learning institutions have been forced to adapt their teaching approaches without a clear roadmap for attending to students' various needs. The wide range of approaches and learning paths that are available to redesign curricula cause friction for educators and instructional designers who are required to deliver course materials in accordance with learning outcomes prescribed and mandated by educational institutions.*

Students of technical professions can integrate the collaborative use of technology to enhance their learning methods, the effectiveness of acquiring updated topics and information. This process requires connections with many forms in which knowledge is present. The academic institutions, colleagues, peers, classmates, experts are only a few examples.
However the possibilities that other means provides are infinitely which is expressed in many forms through the World Wide Web and Web 2.0. Consequently they are reshaping the intellectual, political, and commercial landscape. (Keen, 2007, p 185).

Web 2.0 applications (podcasts[3], Weblogs[4], wikis[5], mashups[6], etc.) offers signal changes in the learning landscape, where learners are active participants, creators of knowledge, and

[3] Digital media files, usually either digital audio or video, that is made available for download via web

seekers of engaging personal experiences (McLoughlin & Lee,2008, p1). By participating in a culture of sharing, learners become creator of knowledge and not only receivers of knowledge. They become what is called "prosumers" (MacLoughlin&Lee, 2008) when they are actively creating and sharing to use their valuable time adding these changes in their teaching practice, content and ideas.
This culture of consuming and producing is more evident now. Tim Berners-Lee (2000), the inventor of the World Wide Web stated, "I have always imagined the information space as something to which everyone has immediate and intuitive access, and not just to browse, but to create".

According to (Carl Bereiter, 2007) the knowledge construction paradigm can be appropriately applied to learning environments where digital affordances and tools enable engagement in self-directed activities. There is place for learners exercise agency in moving beyond mere participation in communities of inquiry to become active creators of ideas, resources, and knowledge artefacts.

The newcomers to a community of practice; they not only are limited for the action that the community imply as itself, but they can develop their own mastery of knowledge and skills through interaction with experts.
They can also have a responsibility to play a part in the continued advancement of the community's existing body of knowledge as they progress toward full participation in the socio-cultural practices of the community (Lee, Eustace, Hay, & Fellows, 2005).

In addition to the openness of Web 2.0, there is an "architecture of participation" (Barsky & Purdon,2006; O'Reilly, 2005), which entails sharing of digital artifacts by groups, teams, and individuals. This ensures that the Web is responsive to users. It thrives on the concept of collective intelligence, or "wisdom of the crowds". (Surowiecki, 2004). It acknowledges that when working cooperatively and sharing ideas, communities can be significantly more productive than individuals working in isolation. For example, in Wikipedia (2008), users create and evaluate content for other users, resulting in a dynamic and expanding repository of shareable, communal information. Then when knowledge is no longer acquired in the linear manner, it is necessary to have an understanding of the learning theories and their movement into a digital age (Siemens, 2004).

The conceptions provided by the eLearning theory, connectivism have great contributions to learning by participation, communication, personalisation and productivity (Jonassen 1999, Nichols 2003, Siemens 2005), the explanations of these contributions are very important to reach a clear understanding of the implications of these theories to the development of e-Learning. It also includes complementary learning, and teaching through technologies as ePortfolio.

Developers of e-learning (Siemmens 2004) propose that the increasing influence of the Internet and online connectedness of people will have implications for educational practice. The rapid development of technology and exponential growth to the use of the Internet, along with Web 2.0 and mobile developments, make new and different educational structures,

[4] Weblog is a type of website, usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order
[5] A wiki is a website that uses wiki software, allowing the easy creation and editing of any number of interlinked Web pages, using a simplified markup language.
[6] A digital mashup is a digital media file containing any or all of text, graphics, audio, video and animation drawn from pre-existing sources, to create a new derivative work[

organisations, and settings a possibility. The online and face-to face networks that people build-up throughout their lives can provide expertise and knowledge, in addition to the guidance that local or online tutors give. Learners are the centre of the learning experience, rather than the tutor and the institution. Learners can be instrumental in determining the content of the learning, in addition to deciding the nature and levels of communication, and who can participate.

It seems that the role of the tutor is changing. People can move from a learning environment controlled by the tutor and the institution, to an environment where they direct their own learning, find their own information, and creating knowledge by engaging in networks away from the formal setting.
They still communicate with others, but their personal interests and preferences – rather than institutional requirements and choices – are the main drivers for their engagement. However, educators do not usually feel comfortable with the new developments. This may be because they haven't been trained adequately, or explored for themselves, how the new and emerging technologies might enhance their working practice.
Furthermore, school systems have not yet developed a connectivist model within which to deliver curricula. This is due to the fact that educational staff and institutions have not caught on to the possibilities that digital technology have to offer. It is also because not all people are autonomous learners (Kop, 2008, p11). However, making educators aware of the opportunities for enhancing learning within a collaborative environment can create an initial phase for understanding the new era of learning. Learning that is influenced by changes in traditional focus of teaching as it is today.
Such awareness might possible enhance the process of changing the teaching in the traditional institutions.

Additionally, school systems tend to value education that is grounded in traditions of the past, steeped in values that have developed over centuries. If, however, learners' worlds inside and outside education become too disparate, new learners who are familiar with the opportunities for learning on the Internet will be able to find their experts elsewhere. There is a need for educators to closely follow and influence the developments and the debates, and seriously research how their institutions can evolve using the emerging technologies. This is both to their and their learners' advantage. In doing so, they would ensure that education can secure its role as critical engager, and at the same time make the best use of technology. This is in making connections with information and knowledgeable for others all over the world to enrich learners lives and the communities in which they live. Also '*institutions need to change because of the increasing complexity of society and globalization. Schools and universities play a dual role: accommodating learner's method and mode of learning and transforming learners and preparing them to function in the world that is unfolding*' (Siemens, 2007b p 6).

The new role of learners as owners of their own learning is emerging in more visible ways; however, not all academic institutions are making this possible. Maybe, it is because of the strong traditional tendencies that persist making new technology to be adapted to the old settled methodological and behaviour habits of teaching and learning. These old traditions can make the same style of learning to pervade.
Nevertheless, learners are more visible with the emergence of new technologies that comes with a wide variety of tools. This allow people to participate and have a voice, recognition within communities, social groups, and academic environments. This is evidenced through materials produced and published in the web, or private systems in local net.

This material need to be authored, and organized for a determined purpose; in that sense, this same process of producing and publishing material, is a learning process by itself. It means that an academic tool enhanced and supported by the integration of technology, can be used to promote students autonomy. It can enhance creativity by the design of learning tasks, constructing knowledge making connections between specialized nodes of information, that can be stored and reused. Then it can be managed over the time for a determined purpose, for the continuing of their own learning and the self assessment of the process, as a cycle of learning (MacLoughlin; Lee 2008)

3 2.2 eLearning as a theory

The meaning of e-learning for education does not lie in its technical dimension (e.g. the platform used) but rather in the control and meaning assigned to conditions or situation. This is such as:
How contents are presented
The role of the teacher and students
The synchronic[7] and asynchronic[8] communication tools used and their application in the teaching act
The didactic strategies used
The attention paid to organizational features
The e-activities provided and many others.

That is, all the educational acts that uses the web as a medium and resource, independently of the fact that other instruments can also be used. For examplevideo, audio conferencing, multimedia, television. (Cabero, 2006, p1)

The reason of meaning eLearning from the perspective offered by the theory is because, it gives us the possibilities to compare the practice with the theory. Additionally to prove that the actions and decisions taken over the practice are not random or based on the circumstances. The guidelines for the models based on sound principles can be validated by a theory. '*It seems that the best justification for a theory of eLearning is that so many seem to practice eLearning without making reference to the considerable body of education theory that is directly relevant. An eLearning theory can at least point practitioners to education principles'* (Nichols 2003).

A theory can be described as a set of hypotheses that apply to all instances of a particular phenomenon, assisting in decision-making, philosophy of practice and effective implementation through practice. Theory provides a yard stick for evaluating practice, though it in turn may be adjusted by findings from practice that show the theory to be inadequate. Theories are therefore at the same time static and firm enough to build on for practitioners and living, dynamic and open to challenge by theorists. As Garrison (2000, pa 3) states, "It is theory that provides a coherent ordering of relevant variables and relationships to guide both practitioners and researchers."

[7] Synchronous communication direct communication, where all parties involved in the communication are present at the same time (an event)
[8] Asynchronous communication does not require that all parties involved in the communication need to be present and available at the same time

According to Nichols (2003) There are 10 fundamentals principles in which eLearning can be based:

1. *eLearning is a means of implementing education that can be applied within varying education models (for example, face to face or distance education) and educational philosophies (for example behaviourism and constructivism).*
2. *eLearning enables unique forms of education that fit within the existing paradigms of face to face and distance education.*
3. *Whenever possible the choice of eLearning tools should reflect rather than determine the pedagogy of a course; however as a general rule how technology is used is more important than* which *technology is used.*
4. *eLearning advances primarily through the successful implementation of pedagogical innovation.*
5. *eLearning can be used in two major ways; the presentation of education content, and the facilitation of education processes.*
6. *eLearning tools are best made to operate within a carefully selected and optimally integrated course design model.*
7. *eLearning tools and techniques should be used only after consideration has been given to online vs offline trade-offs.*
8. *Effective eLearning practice considers the ways in which end-users will engage with the learning opportunities provided to them.*
9. *The essential process of education, that is, enabling the learner to achieve planned learning outcomes, does not change when eLearning is applied.*
10. *Only pedagogical advantages will provide a lasting rationale for implementing eLearning approaches.*

The ten principles are considered essentials for the purpose of this study. However, special attention must be given to the *third, fourth, fifth, sixth and ninth principle*. These principles will be explained in order to provide an understanding of the topic of this study and its relation with the practice. This is with regard to the question whether or not the ePortfolio product is an innovative technology for e-learning in higher education, pros and cons arguments will be presented and discussed in detail in the following chapter.

> *The third principle. Whenever possible the choice of eLearning tools should reflect rather than determine the pedagogy of a course; however as a general rule how technology is used is more important than* which *technology is used*

The third principle emphasis on the importance of pedagogy, as conceiving a "new" pedagogy articulated by the statement; If eLearning is a means to education, then it can be applied in accordance with varying pedagogies Weller (2002) lists the following as pedagogies: Constructivism, resource based learning, collaborative learning, problem based learning, narrative based teaching, situated learning, experiential learning[9].

Being pedagogically neutral; technology can therefore be applied to all of the pedagogies listed above. It follows then that the poor implementation of technology must reflect poorly implemented pedagogy, or an over-estimation in technology's potential. The selection of education approach or philosophy is therefore more important than the selection of the technology itself. If this hypothesis is indeed true, then the responsibility for eLearning failure rests on those who chose the technology tools to use and how they were implemented.

[9] **Experiential Learning** is the process of making meaning from direct experience.

However the reverse is also true. Effective pedagogical decisions can make simple technologies extremely useful. There are multiple examples that illustrate this conception (One of them is the Open University's use of the simple online discussion forum CoSy documented by Mason, 1989. another one is the Reintroduction of the Wolf scenario described by Jonassen et al 1997, which makes use of nothing more complicated than linked Web pages). The many communities of practice throughout the globe who *collaborate* and *communicate effectively,* another example is the vast communities built over the *Elgg*[10] *platform* such as the social environment supporting classes at Catalunia University, the UNESCO follow up community[11] and many others[12] . These examples confirm that the form that a technology is used is more important than the technology itself.

The fourth principle: eLearning advances primarily through the successful implementation of pedagogical innovation.
As a general rule the breakthroughs in teaching practice and not in technology that will make eLearning more useful. The latter can provide opportunities for the improvements in the former. As noted by Laurillard (2002), instructional designers should drive eLearning, not technologists. Those who are innovative educators will be those who maximise eLearning and ensure its further development. Reeves (2002) argues that, in the main, technology is not being used innovatively in education. It is both strength and a weakness that technology can sit quite comfortably within current approaches to education.
The strength in that we can stay with those educational practices that we are most used to, but this is also its weakness.

Ravenscroft (2001, p 134) argues that "we cannot truly transform educational practice for the better through using new technologies unless we examine the roles the computer can play in truly stimulating, supporting and favouring innovative learning interactions that are linked to conceptual development and improvements in understanding." Future progress in eLearning will come from a better understanding of the dynamics of teaching and learning and not from more improved or functional technology.
However, the latter does provide opportunities for new, innovative pedagogies to develop.
All of this means that eLearning practitioners need to scan technological developments in the context of the substantial resource base available in the fields of psychology and education.

The fifth principle: eLearning can be used in two major ways; the presentation of education content, and the facilitation of education processes.

- The fundamental applications of eLearning include
- Digital materials storage and distribution (presentation)
- Synchronous and asynchronous communication
- Simulative interactivity
- Multimedia and access tracking (processes)

Each of these are subject to multiple applications of use and innovation.

In other words eLearning can both make information available and play a part in students' self-construction of knowledge (Boot&Hodgson, 1987). It is important to note that

[10] Elgg is open source software for Internet users. It allows the application of the electronic portfolio to a variety of subjects depending on the client's needs: http://www.elgg.net/
[11] http://www.wsis-community.org/
[12] http://news.elgg.org/pg/blog/Dave/read/70/a-few-more-elgg-powered-sites

technology is not content, and technology is not process; rather, it can be used to provide access to both.
It is important to note that this hypothesis only describes eLearning tools as they are currently available.

The sixth principle eLearning tools are best made to operate within a carefully selected and optimally integrated course design model.
Practice-based literature is at least clear that the 'build it and they will come' approach does not work with online discussion boards, for example. However making resources and grades available to students online does make them accessible when they otherwise may not be. Beyond these simple enhancements it can be confidently stated that it is not sufficient to simply add eLearning tools on to an existing course if eLearning's true benefits are to be realized (Oliver 1999). Instead, attention must be given to the contribution eLearning can make to learning so that any use of eLearning becomes a seamless component of the overall course design and delivery package.

Clear design is a feature of successful online learning (Swan 2001), and a responsive instructor who facilitates learning and encourages students to explore their learning at a conceptual level is a must for effective conceptual change (Ramsden, 1992). There is evidence that learners require prompting from an instructor for conceptual reflection to occur (Hartley 1998 in Ravenscroft 2001).

Oliver (1999) *lists content, learner supports and learning activities* as the three critical design elements for online teaching and learning. There is general agreement across existing education literature that collaborative dialogue and communication with instructors are major contributors toward successful learning; Nichols (2001) adds further course design considerations (a variety of learning resources, opportunities for reflection and simulative interaction). He also proposes a course design framework within which technology can be made to work effectively.

Principle nine: The essential process of education, that is, enabling the learner to achieve planned learning outcomes, does not change when eLearning is applied.
eLearning tools can certainly be used to encourage students to further explore topics on their own and take ownership of their learning. It is often desirable to assess things such as bulletin board participation in order to encourage the sharing of ideas online, for example, however caution is required. The learning outcomes still need to be the point of reference. If participation in a bulletin board is not relevant to the curriculum, then its use as an assessment tool should be questioned. Overall it is how the students measure against the learning objectives, not whether or not they can use the technology that will determine their success in the workplace. The learning outcomes not their use of technology, is the standard (Nichols, p7).

4 2.3 Connectivism a learning theory for the digital age

The theory of connectivism is supporting the notion of elearning and its contribution to the field of students' self-construction of knowledge and a networked society (Siemens, 2005). According to this theory, knowledge as composed of connections and networked entities. The concept of emergent connected and adaptive knowledge provides the epistemological framework for connectivism as a learning theory.

Educational research and theory have long recognized that learning processes are socially situated and networked. It has also recognized thatd ideas are generated as a result of collective intelligence, efforts, and collaboration (Scardamalia & Bereiter, 1994; Tharp & Gallimore, 1988).

Siemens' theory builds on these ideas by conceiving of learning as a process that occurs within multiple overlapping environments of dynamic core elements that support the "amplification of learning, knowledge and understanding through the extension of a personal network". Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to the individual.

This brings the possibility for a "new" pedagogy (Maclouglin & Lee, 2008) that is not a matter of simply offering learners the technologies they are likely to use in the knowledge economy. This 'new' pedagogy involves learners in apprenticeship for different kind of knowledge practice, new processes of inquiry, dialogue, and connectivity. Practices underpinning effective, innovative pedagogy will differ. This is depending on the subject area or professional discipline in which learners seek to become proficient but are likely to include some or all of the following:

- Learning and knowledge are generated by accessing a diverse blend of opinions;
- Learning is a process of making connections between specialized nodes or information sources;
- Currency (accurate, up-to-date knowledge) is the focus of all connectivist learning;
- The integration of cognition and emotions in meaning making is highly important.
- Decision-making is in itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

Connectivism is a theoretical framework for understanding learning. In connectivism, the starting point for learning occurs when knowledge is happening through the process of a learner connecting to and feeding information into a learning community. Siemens (2004) states, "A learning community is the clustering of similar areas of interest that allows for interaction, sharing, dialoguing, and thinking together."

In the connectivist model, a learning community is described as a *node*, which is always part of a larger network. Nodes arise out of the connection points that are found on a network. A network is comprised of two or more nodes linked in order to share resources. Nodes may be of varying size and strength, depending on the concentration of information and the number of individuals who are navigating through a particular node (Downes, 2008).
Connectivism asserts that knowledge - and therefore the learning of knowledge - is distributive, that is, not located in any given place but rather consists of the network of connections formed from experience and interactions with a knowing community.

The thesis of connectivism proposes that knowledge is distributed across a network of connections, and learning consists of the ability to construct and traverse those networks. This interpretation of learning occurring through participation in a network or community is assumed can improve the teaching. It can give the possibility for innovation and creativity by

exploring new forms or getting the same knowledge. By taking suggestions from other environments That are also connected to the same net or group of nodes that share the same resources. Additionally, it is very important to consider the efficacy and effectiveness that educators give to a network learning environment. This involves how it can change the everyday teaching if they accept to adapt, and value the importance of this kind of teaching.

In this case, it is necessary that lecturers rate the aspects that are influenced in their practice, such as
Technology integration
Preparation of classes
Preparation on the pedagogical trends related
New competences and roles of the teacher.
Last but not least if they consider that is worth to use their valuable time adding these changes in their teaching practice.

Since information is constantly changing, its validity and accuracy may change over time, depending on the discovery of new contributions pertaining to a subject. By extension, the understanding of a subject, one's ability to learn about the subject in question will also change over time. Connectivism emphasises that the ability to seek out current information, and the ability to filter secondary and extraneous information are two important skills that contribute to learning. Thus, according to Siemens (2008, p. 6). "The capacity to know is more critical than what is actually known". This means that the ability to make decisions on the basis of information acquired is considered part of the learning process, which is cyclical. Dukring this learning process learners will connect themselves to a network to share and find new information. Then they might modify their beliefs on the basis of new learning, and will then connect to a network to share these realizations and find new information once more. Learning is considered a ". . . knowledge creation process . . . not only knowledge consumption." One's personal learning network is formed on the basis of how one's connections to learning communities are organized by a learner.

Downes (2007a) contends "that 'understanding' is a distribution of connections across a network. To 'know P' is therefore equated with 'a certain set of neural connections' that entail being in a certain physical state" unique to the experienced state. The physical state in question is not distinct from the other physical states with which it is intertwined within that individual. Downes asserts that in connectivism, 'deep thinking' or 'creating understanding' are equivalent to the process of making connections. Downes also states that there are no mental models per se (i.e., no systematically constructed rule-based representational systems), and what there is (i.e., connectionist networks) is not built. This is like a model. Instead, it is in constant development.

Learning is then a process of making connections. It seems that Connectivism is adopted by many authors as a theory. However, as a new theory it is still in the process of being discussed, validated, and compared with the theories of learning that complement or form the foundation for Connectivism.

In the 'connections' approach, personalization typically means less. There are fewer rules and fewer constraints. There is a need to grant the learner autonomy within the environment. The notion of a "new" theory for learning based on network structures, complex changing environments, and distributed cognition has drawn criticism. Pløn Verhagen (2006), in his critique of connectivism, specifically argues for the ineffectiveness of a theory based on

"unsubstantiated philosophising". Bill Kerr (2007) postulates that connectivism is an unnecessary theory, for in his opinion, existing theories satisfactorily address the needs of learning in today's technologically and connected age. Despite detractors, proponents of connectivism, and more generally networked learning, are exploring a model of learning that reflects the network like a structure, which is evident in online interactions.

Additionally to state Connectivism as a theory, Mergel's (1998) provides a framework to organize it with the theories of behaviourism, cognitivism, constructivism, connectivism through "five definitive questions to distinguish learning theory"

1. How does learning occur?
2. What factors influence learning?
3. What is the role of memory?
4. How does transfer occur?
5. What types of learning are best explained by this theory?

Property	Behaviourism	Cognitivism	Constructivism	Connectivism
How learning occurs	Black box— observable behaviour main focus	Structured, computational	Social, meaning created by each learner (personal)	Distributed within a network, social, technologically enhanced, recognizing and interpreting patterns
Influencing factors	Nature of reward, punishment, stimuli	Existing schema, previous experiences	Engagement, participation, social, cultural	Diversity of network, strength of ties
Role of memory	Memory is the hardwiring of repeated experiences— where reward and punishment are most influential	Encoding, storage, retrieval	Prior knowledge remixed to current context Adaptive patterns	representative of current state, existing in networks
How transfer occurs Stimulus	stimulus response	Duplicating knowledge constructs of "knower"	Socialization	Connecting to (adding) nodes
Types of learning best explained	Task-based Learning	Reasoning, clear objectives, problem solving	Social, vague ("ill defined")	Complex learning, rapid changing core, diverse

				knowledge sources

Table 1 Theories based on Mergel comparison implemented by Siemens 2008

These epistemologies in turn form the foundation of the most common theories of learning:

1. Behaviourism, which asserts that learning is a "black box" activity, and that we do not know what occurs inside the learner's brain. It focuses its efforts on managing external, observable behaviours, and finds much of its existence in objectivism.
2. Cognitivism, which spans a continuum from learning as information processing (a computer model) at one end. In the other end, to learning as reasoning and thinking on the others. It finds much of its identity in pragmatism.
3. Constructivism, which covers a broad spectrum of research overlapping with cognitivism. It contends that learning involves each individual learner making sense and constructing knowledge within his or her own context. Its foundation lies in interpretivism.

A central tenet of most learning theories is that learning occurs inside a person. Even social constructivist views, which hold that learning is a socially enacted process. It promotes the principality of the individual (and her/his physical presence – i.e. brain-based) in learning. These theories do not address learning that occurs outside of people (i.e. learning that is stored and manipulated by technology). They also fail to describe how learning happens within Organizations

Collaborative Learning	Pre-grade Research
Cooperative Learning	**Portfolios**
Problem based learning	Senior Capstones
Learning – Service	Magazines
Case Method learning	Multicultural Learning
Methos base on peer	Leadership Learning

Table 2 List of Learning Pedagoges ('Powerful Pedagogies') elaborated by T. Marchese (1997)

5 2.4 Connectivism and ePortfolios

Connectivism continues to play an important role in the development and emergence of new pedagogies, where control is shifting from the tutor to an increasingly more autonomous learner. The conception of knowledge creation has an important role for the "new" pedagogy in which technology and new forms of learning arise. This construction of knowledge with a set of connections with specialised nodes of information, either in every personal learning environment or with the networks that form the external communities that a person belong, given origin to varied forms of learning and eLearning which is complemented with the arise of user-generated content between peers on the Web, dubbed "personal publishing" as a result of the massive outpouring of information (Downes, 2005),

ePortfolio (Abrami & Barret, 2005) provides a strategy for capturing and organizing student-generated content. This includes completed project/assignment work or deliverables, and also incorporation of evidence to the process of learning.
Student-generated content may also include discourse such as

Chat logs and discussion board postings

Reflective writing in the form of blog-based diaries
Summaries
Reviews, created by students working individually or in teams.

This can represent the complexity and "messiness" of an authentic problem based learning experience, such as successive drafts of solutions, descriptions of mistakes made, or difficulties encountered.
Connectivism represents this 'messiness' in the set of connections that the learners construct during the process of learning within a community. This is a community that enhance dialog and feedback supported by the educational ICT. Therefore, connectivism is likely to represent the set of connections build through the cooperation and collaboration by the community during the ePortfolio creation. Also, the importance of connectivism on ePortfolios lies on the maintenance of these networks through time. This is with the intention of the continuous learning, which goes beyond the academic institutions to professional life.

6 2.5 Higher education perspective, European convergence

At the international level at the beginning of this decade, UNESCO (2000, pp. 30-31) asserted that the concept of quality in higher education was multidimensional. It should include all functions and activities needed to address this objective.
Then, as the perceived need for a new paradigm of higher education, which should be directed to the student. Therefore it would have to restructure the curriculum and go beyond simple cognitive mastery of disciplines and include acquisition of technical skills and communication skills. This is creativity, critical analysis, independent thinking and teamwork in multicultural contexts.

This approach is reflected in a wide sense with the approach of the European convergence of building European Higher Education Area (EHEA, hereafter). Due to the agreement raised by the European responsible in education, who considered the necessity to follow common points in study curriculum and disciplines. This inside the framework of institution autonomy and disciplinary diversity.

From 1998 to 2006. EHEA has been conducting numerous meetings between those responsible for education in different European countries. Proof of this are the different events held at the Sorbonne, Bologna, Prague, Salamanca (Spain), Berlin, London and Norway. The challenges to Higher Education in the XXI century is posed by the adoption of new teaching methods. These are methods that allow students to learn, to select, within a wide variety of knowledge, the most important aspects to solve a problem throughout his life. This implies a change not only in relation student teacher; but on the methodology and of course on ways to plan the work of students at the university.
The meeting held in the Italian city of Bologna (1999) is a reference point in the consolidation of the movement, which has incorporated twelve countries. In the subsequent years several meetings were conducted. The meeting in Prague (2001) brought together representatives from several countries; in 2003 at the Berlin meeting brought together a total of 40 countries. The meeting in Norway was attended by 45 countries.

As the table show, there has been a series of changes. Although many aspects are addressed this study will relate the notion of ePortfolio supporting the mobility, lifelong learning. The role of the tertiary level teachers to break with the canons laid down in the traditional

institutions. It also includes the planning of the subject that involves other didactic considerations which have not been taken into account. These aspects are followed in detail in chapter 4.

CHAPTER 3
E-PORTFOLIO

Since the early 1990s portfolio has been given a more increasing use. Two tendencies in contemporary education underlie this phenomenon. The first of these is the rise of constructivism. This is a pedagogical school of thought which emphasizes learning by experience and self discovery, where the student has to construct information in his/her own mind. Portfolio is a tool which addressed tightly these forms of learning and assessment. (Shullman 1998, Barret 2003, Jonassen 1999, Callens 2007). A second factor is the rise of information and communication technology (ICT) which is represented by the eportfolio as a strategy for teaching and learning with the use of educational technology in university teaching. This is addressed as the activity-reflection-eportoflio. (Laurillards 2002)

A constructivist paradigm is evidence in ePortfolios when the purpose is assessment for learning or the lifelong learning, where reflection and student ownership are key points for both. The student construct the situations derived from the practice, the knowledge, the strategies and action procedures and all the world of values and beliefs that compound the professional competence (Schon 1992)

The e-portfolio has been related with the view of the constructivist or learner-centred implications of ICT in education (project-based learning, authentic assessment, collaborative learning, etc.) (Richards 2007). This is underlined with the important factor of the increasing affluence on the use of the information and technology in education.

ePortfolio gain support with the increasing advances on information and technology applied to education. The digital tool as an online environment support processes that allow individual, group or organization, to reflect and document the skills, activities, experiences, challenges, competences, values, in order to become lifelong learners. At the heart of e-Portfolio is a learner-centered-model allowing a greater degree of personalization of learning. This will empower students to become confident and competent 21 century citizens.

The e-portfolio is a powerful tool to aid inclusion in both social and educational terms as it encourages the celebration of achievements - the wide pallet of skills and interests that a young person has gained both in and out of school.

A set of definitions are introduced in order to make a clear picture of the ePortfolio concept. After this, they are organized by types, purposes, and contextualized meaning for various organisations.

Eportfolio can be classified as a *student portfolio*, *teacher portfolio*, and *professional portfolio*.

For Shane Sutherland director of the ePortfolio project at University of Wolverhampton United Kingdom 2007

> *A student Portfolio is a system which allow learners, in any of their learning identities, to selectively record any abilities, events, plans or thoughts that are personally significant; it allows these records to be linked, augmented or evidenced by other data sources and allows the user to integrate institutional data with their*

personal data. It facilitates self-awareness, promotes reflection, support enrichment through commentary and feedback from the recipients of shared assets. It grows, develops and matures as the user accesses it, without constraint, over time. It provides tools for aggregating assets in multiple forms; for telling myriad stories to diverse audiences and ensures absolute user-control over what is shared, with whom, for what purpose and for how long. It is a personal repository; a personal journal; a feedback and collaboration system; and a digital theatre - where the audience is by invitation only.

Some of the existing ePortfolios tool offers to faculty and students enhanced opportunities to share and demonstrate knowledge online through the following features.

Learning: Document performance over time. Include reflections on the learning process.

Showcase: Create a professional and personalized collection of work (e.g. employment portfolio, best works portfolio) to organize and showcase learning achievements. Share these presentation portfolios within the digital or publish to the Web.

Organisation: Create and archive digital collections of resources that organize files, links and media. Email, publish and distribute these collections to others and manage them in real-time.

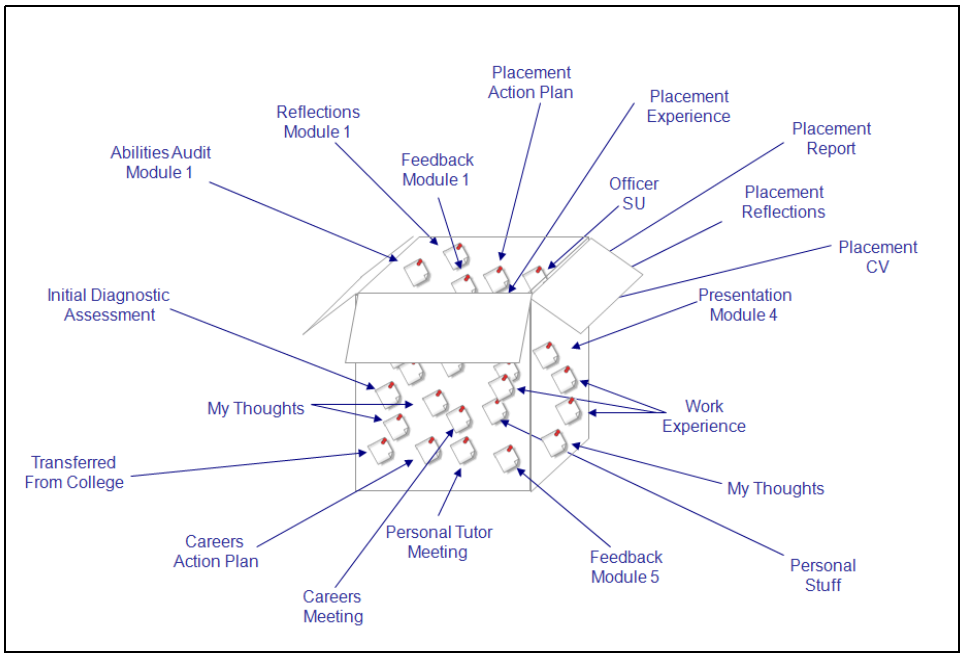

Figure 1 Shane's definition of ePortfolio University of Wolverhampton United Kingdom 2007, supported by Pebble Pad[13]

Electronic portafolios allow students to track their own learning process and demonstrate the skills and abilities to college and employers. In addition, ePortafolios can provide digital resources relevant to the specific area of study (personal information) and the ability to link them with colleagues or peers to establish cooperation and feedback.

[13] Pebble Pad is a company that designs e-Portfolios in order to support learning at different levels. The company offers its services to educational institutions: http:/www.pebblelearning.co.uk/

As a *teacher ePortfolio*, it can take various forms as a Professional Development and training ePortfolio. It can have the approach of a Curriculum ePortfolio with multimedia based resources, teacher team characteristics - based ePortfolio to create subject specific units of work. A teacher ePortfolio can be also a compilation of information and documentation of a lecturer product of a reflective practice through time, allowing him/her to describe teacher competences and their interest in teaching.

The objectives of a teacher portfolio are:

- To facilitate the discussion and analysis of the teaching activity for improvement.
- To accredit the skills as a teacher and an interest in teaching assessment processes.

It is important to note that according to some studies the interpretations given by the teachers and students are diverse. Additionally the overall framework of understanding about the subject of personal application and their use varies across different institutions and disciplines (Dysthe, Engels, Lima, 2006). These variations include a set of factors that can determine the usability of the tool as well as the influence on its development.

7 3.1 The ePortfolio concept

3.1.1 What is a Portfolio?

The Northwest Evaluation Association offers a definition:

> *'A purposeful collection of student work that illustrates efforts, progress, and achievement in one or more areas [over time]. The collection must include: student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection'*

Which (Ravet, 2009) has adapted to *"a collection of authentic and diverse evidence, drawn from a larger archive, representing the capital(Competencies, knowledge, social netweorks) developed by a reflective learning individual or organisation designed to exploit/valorise their assets in a particular context.*

Stiggins (1994) also adds that a portfolio is "a means of communicating about student growth and development" and "not a form of assessment" (p. 87).

The portfolio from the RAE dictionary (1992) is an adaptation of the word portfolio, which means hand book for papers. Hence if we add this term student, the result is student-portfolio (student's folder), understanding that we are talking about different jobs that a student is doing throughout the course, subject, or degree. This collection of evidence, statements and decision-making arguments reflect that the student performs throughout their training process while studying the career. It shows not only the knowledge of the strengths and weaknesses of the student, but also improvements to the curriculum and contributes to the image of the institution. This portfolio doesn't have the characteristics with a learning enhanced by technology.

What does the 'e' add to portfolio?

- The paperless portfolio: Dematerialises documentation

- The workflow portfolio: Supports processes – e.g. learning, assessment, recruitment
- The knowledge portfolio: Provides the elementary bricks of KM systems
- The socialite portfolio: Interconnects digital clones of knowledge workers

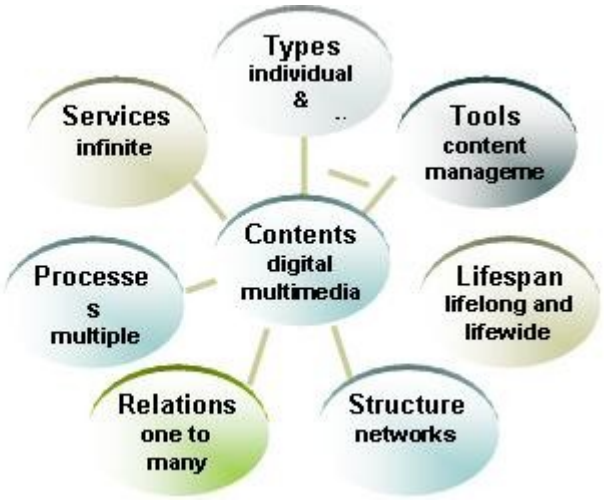

Figure 2 Sergi Ravet EIFEL community. Integration of the 'e' to Portfolio

In my definition, ePortfolio can be defined as a strategy to collect the evidence gained in the past and in the present, in and out of the education context. That is in form of a digital product, or that can be transformed into a digital form. This evidence let that the ePortfolios has a meaning for the learner which is constructed through reflection. No matter the discipline, but with the purpose of showing a determined audience, ***what you have done along your process of learning*** that has a value for you. It shows in the best form your real interests, your feeling, your styles of learning, your passions and the ups and downs that you have experienced in order to get to the point you are in the present. This is either as a professional or as a person, and that can form the path for your future learning or practice.

To define an ePortfolio, is a complex activity. There are many aspects that affect the clear meaning and can lead to some confusion:

- The context where is developed
- The audience to whom it is presented
- Tts purpose, the technology utilized
- The pedagogic understanding of the tool
- The agents that use it
- The planning for the future

These are some of the aspects that make it difficult to find on a single definition.

This difficulty of making a clear picture of this new concept was also evidenced in the JISC (UK Joint Information Systems Committee) project for *Effective practice with e-Portfolios* (2008) carried out by the university of Bristol. This was aimed at investigating the effective use of eportfolios to bringing an insight on the potential of e-Portfolios. The study highlighted: 'The picture has often been a complex one, with confusion over what an e-portfolio is. More recently, consensus is gathering, and clarity is being brought to the discussions, as our

experience with using e-portfolio tools grows'. So it is clear, that coming out with some of the many definitions of an e-Portfolio can be complex.

The following are some definitions that I have selected in order to give a first insight to the concept. For those who has never experienced with it, a list of definitions is presented next.

Starting with the use of the term portfolio. It comes from the world of architecture and the fine arts, where portfolio constitutes and extensive curriculum vitae with which the artist or architect presents his or her work. In business the term portfolio denotes a range of products and services offered. The connecting thread running through all the diversity of specific meaning is the idea of a portfolio first and foremost as a collection or inventory.

> (*Barret 2005) an educational portfolio contains work that a learner has collected, reflected, selected, and presented to show growth and change over time, representing an individual or organization's human capital. A critical component of an educational portfolio is the learner's reflection on the individual pieces of work (often called "artifacts") as well as an overall reflection on the story that the portfolio tells.*

Barrett goes on to identify how an electronic portfolio differs from the more traditional portfolio process through the use of technology.

Traditional Portfolio Processes incluye	***Adding ICT allows enhancement through:***
• Collecting • Selecting • Reflecting • Connecting • Publishing	• Archiving • Linking/Thinking • Storytelling • Collaborating • Publishing

Table 3 The traditional portfolio and ePortfolio adding ICT

Barrett (2005) refers to evidence in the ePortfolio as being not only the completed work that the learner puts in the ePortfolio, but also the "accompanying rationale that the learner provides: their argument as to why these artifacts constitute evidence of achieving specific goals, outcomes or standards." She goes on to explain that in some cases the evidence requires validation by the teacher against a clearly defined rubric[14] with specific criteria to complete the process. She represents this process with a simple formula:

Evidence = Artefacts + Reflection (Rationale) + Validation (Feedback)

(Barrett 2005, P7)

[14]Rubric. Instrument used for continuous assessment , based on the hierarchy of different levels of complexity in learning. To evaluate the student according to the degree of knowledge expert reached and the implementation of activities.

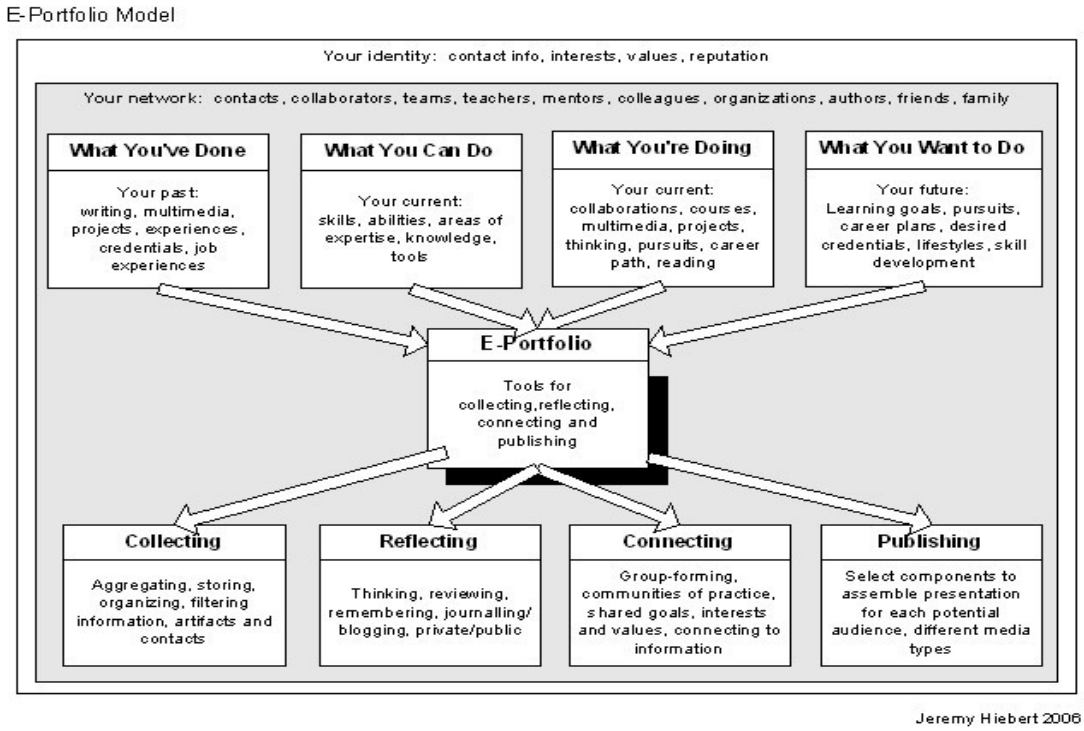

Figure 3 Diagram developed by Jeremy Hiebert and adapted by Helen Barret to conceptualize the ePortfolio within a Personal Learning Environment using

This is a model that is common for many entries within current portfolios. They consist of student work, preferably with some part of the process included, the student's reflection and the teacher or evaluator's follow up feedback against a predetermined assessment rubric. Students have a copy of the rubric prior to commenting their work so that they also know the performance standards being sought.

3.1.2 Definitions by context

Some definitions from different authors can provide a wide view of an ePortfolio also from different points of view constrained by the context.

ePortafolios (or e-Portfolios) may also be known as portfolios 'electronic' or 'digital' 'webfolios' or even 'personal development' in line or 'digital notebook' or 'folder'. The portfolio can be referred in several languages with different names in Catalan has adopted the term "portfoli" "carpeta" "dossier". In castellano will adopt the term "ePortafolio" and will handle the name "Portafolio del estudiante" which refers to the (student portfolio) and "Portafolio docente" in relation to the (teaching portfolio). At the moment there are many definitions of ePortafolios, but it is important to remember that an ePortafolio is better defined by its purpose.

Consistent with this, it is important to note that according to some studies the interpretations given by the teachers and students are diverse. The overall framework of understanding on the subject is necessary because their use varies across different institutions and disciplines (Dysthe, Engels, Lima, 2006). An ePortfolio is a collection of electronic components that are used to display, highlight and document qualifications and work experience, formal study and extracurricular activities. (Høivik, Helge, 2008). In the field of education focused on learning

achievement, the portfolio appears in the nineties of the twentieth century as a teaching strategy based on monitoring the skills of students to demonstrate their learning. (Kankaanranta, Barrett & Hartnell-Young, 2001; Niguidula, 1993). The portfolio of student learning, the teaching portfolio and the portfolio of the teacher credentials, curriculum vitae form, are applications of the portfolio concept in the field of education (Wilkinson, 2002).

In the context of Catalonia, Elena Barberà (2005) defines 'student's portfolio' as a selection of works organized for the student with the aim of documenting by reflecting on the process and achievements of their learning. Van der Vleuten (2004) argues, the teaching portfolio is an instrument related to the process of collecting information and material contained and not a uniform method of assessment.

Elena Cano (2003) states "the teaching folder" includes the efforts and results of a teacher in order to improve his teaching. It is a compilation of evidence of learning that has both the teacher to show the process followed in their training to be evaluated and working promotion. According, to the Center for Teaching and Learning at the University of Wolverhampton UK (2007). An ePortfolio is an aggregation of digital items that can be ideas, evidence, thoughts, opinions, data that provide information on the purpose thereof to a selected audience.
This collection of evidence can be done through simple stories that require simple tools. Some stories are developed over time and are related to a single hearing. These stories can be supported by the tools of progress reports, marking of steps and validation from others.

Some stories deal with the routines and are based on personal commitment and contribution of others. Such stories are supported by tools to share with a degree of confidence, maintaining control over parts of the story not yet ready to be exposed.

Some other stories speak of group experiences and achievements, add these global ideas and evidence of their thoughts. Ultimately, it may be necessary to 'freeze' so that the group and its observers can only see what is done in a given moment. Complementary collaboration tools that provide the permits and allow the file versions and can be useful for owners of the portfolio. Some of the stories will be shared with others or supplemented with data from other systems. However the distribution and consumption of services are not the ePortfolio, they are simply tools that enhance the power of history when history itself allows.

The ePortfolios allow students to track their own learning process and demonstrate the skills and abilities to college and employers. In addition, ePortafolios can provide digital resources relevant to the specific area of study (personal information) and the ability to link with colleagues or peers to establish cooperation and feedback. The ePortafolios allow students to follow their own learning process over time and to demonstrate these skills to the university and its employees.

3.2 The Purpose of ePortfolios

Complicating research and literature regarding portfolios in education is the fact that there are many purposes for portfolios in education; there are portfolios that center around

- Learning
- Assessment
- Employment
- Marketing

- Showcase or best work.

With so many purposes for portfolios it becomes clear that the term "portfolio" should always have a modifier or adjective. Following are some definitions that are grouped into three main categories: Those focusing on demonstrating ***professional competence***, those on ***improving student/professional learning***, and those focusing on ***creating a record of 'lifelong learning'***.

The use of " assessment ePortfolio" in education emerged in the late 1980s, primarily in college writing classrooms (Belanoff, Elbow, 1991) to address the needs for accountability: the emphasis on portfolio assessment.

A central part of *assessment ePortfolio* is the collections of writing considered as a special case of a class of new performance assessments known as "portfolio assessments." Although models of portfolio assessment differ; it is common practice that students' classroom work and their reflections on that work are assembled as evidence of growth and achievement. The goal is to produce richer and more valid assessments of students' competencies than are possible from traditional testing (Barret 2005).

While assessment systems use to record evidence of student's progress towards meeting standards in contrast student-owned eportfolio emphasize the utilization of eportfolios as a showcase for learning. Additionally, the need to develop a comprehensive system in which accountability can be demonstrated at many levels related to student achievement. This is through the use the use of electronic portfolios. Conclusions given on the REFLECT report (Barret 2006) about the effective use of eportfolio, make emphasis on the need to establish a culture of evidence. This is not only the artifacts that a learner places there, but also the accompanying rationale that the learner provides, which can be also interpreted as reflection. The artifacts constitute evidence of achieving specific goals, outcomes or standards.

3.2.1 Learning/Process of Portfolios

Intended for improving student/professional learning involve the focus on Plato's directive, "know thyself" which can lead to a lifetime of investigation. Self-knowledge becomes an outcome of learning.

A portfolio study was conducted with student and pre-service teachers who were developing portfolios to document the process of learning Elizabeth Webre (2001). The results shows that the process promotes self-reflection and self-evaluation and give support to the development of organisational skills necessary for effective teaching. The result from this study reinforces the importance of reflection in learning. John Zubizaretta (2004) in his approved book on Learning Portfolios in higher education describes the primary motive of a learning portfolio:

'to improve student learning by providing a structure for students to reflect systematically over time on the learning process and to develop the aptitudes, skills and habits that come from critical reflection.' (p.15)

He borrows from Peter Seldin's work on teaching portfolios, and identifies three fundamental components of learning portfolios, as shown in the following diagram.

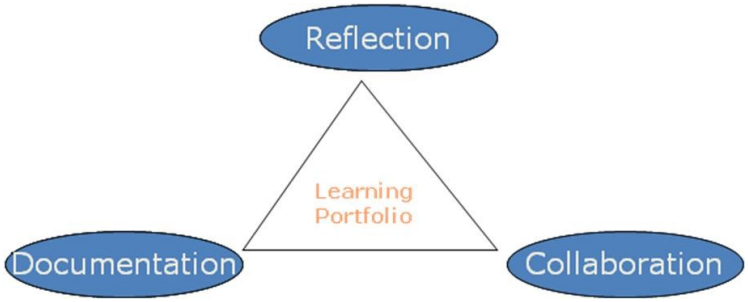

Figure 4 The Learning Portfolio (Zubizaretta, 2004, p.20)

In comparison, the assessment portfolio with the learning portfolio can converge in one with the concept ***assessment for learning*** as Barret propose;

> *The drive toward standardized and state testing requires us, as researchers and practitioners, to find ways to learn from tests and portfolios in order to develop a comprehensive assessment system in which accountability would be demonstrated at many levels related to student achievement. ...In a more generalized way, I offer a design for a comprehensive system which combines formal, informal, and classroom assessment, including portfolios, to inform the state, the district, the school, and the teacher. The goal for each district is to carefully construct a comprehensive assessment system, with a collection of assessments that allow many stakeholders to use these data to improve both student learning and teachers' teaching, Without portfolios to make visible what students do and what teachers teach*

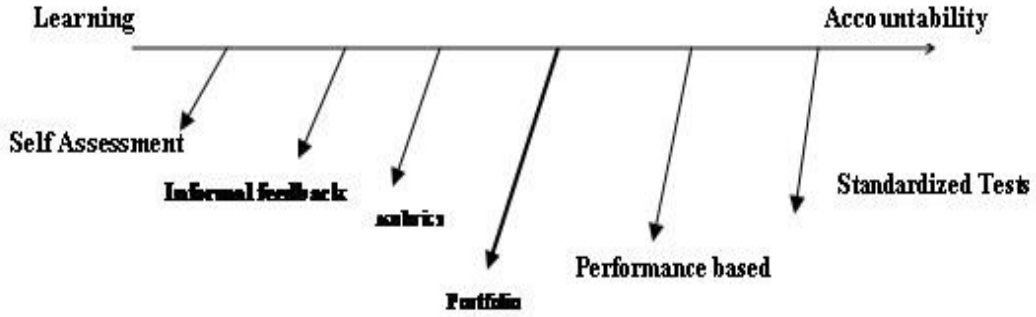

Figure 5 Presents Barret's representation for an assessment for learning continuum. (p.137)

According with the literature, there is an ongoing discussion regarding the paradigms of ePortfolio for assessment or "of learning". This is an important topic that is discussed separately in the section 3.3.1, thus a deeper approach has to be made in order to get a good approximation of the ePortfolio for learning due to the easily confusion bringing out from this aspect. In addition this study is focusing on the portfolio for learning and lifelong learning, The distinction with the assessment portfolio is important to get a clear definition of the concept.

3.2.2 Portfolio as Lifelong Learning/ Professional Development Tool /Professional Development Tool

The tools used to develop the portfolio should be accessible to a learner throughout their chosen career. The electronic portfolio development process should help students build the skills necessary to maintain their e-portfolio as a lifelong professional development tool.

The awareness of learning and the ability of learners to direct it for themselves is of increasing importance in the context of encouraging lifelong learning.

Eportfolios will support a lifelong learning journey if they are meaningful in a social context for both learners and audiences. The tools now available challenge these relations. Assessment is the formal means by which eportfolios are judged, although there are other contexts. For example employment applications, in which audiences must recognize, acknowledge and value material that displays new literacy (Hartnell-Young)

E-portfolio development must encompass the whole learning experience and be perceived as the basis for lifelong learning.

One of the major pressures behind the development of e-portfolios is facilitating lifelong learning, which is hardly a new idea originally rooted in the workers' movement. In the UK, the Mechanics Institutes, the inners Halls and organisations like the Workers Educational Association organised classes and courses for workers to improve their own education, knowledge and skills. This was in addition to provide access to learning resources and social activities, which this provision aim at developing technical and labour market related skills and knowledge. It was guided by a wider belief in the power of education for emancipation.

During the last thirty years, the focus on lifelong learning has been oriented towards the adoption and implementation of new technologies in the workplace. The increasing instability of employment with the computer information revolution, and the workers needs for continuous learning throughout their work-life to update their occupational skills and knowledge or to learn new occupational competencies.

The responsibility for continuous vocational training has been in charge of employers while the state had played a leading role in the provision of continuing education and training. In contrast, it is now often argued that individuals play an important role of being responsible for maintaining their own employability, translated on the continuous learning. Moreover, there is a need for individuals to record and present their learning achievements and competencies. This is beyond formal course certification, so they can keep track of their own goals.

While vocational courses provide a reasonable indicator of skills and competencies, they still fail to record how someone has used those competencies after initial training. It also involves what new competencies that have been gained in that process.

I consider that the ePortfolio in its essence provide to the individual the autonomy for his or her own learning. Recognizing that learning is continuous, used to develop a life plan for learners where it is recorded and organized that the person uses it, the various aspects of their life, whether academic professional or personal.

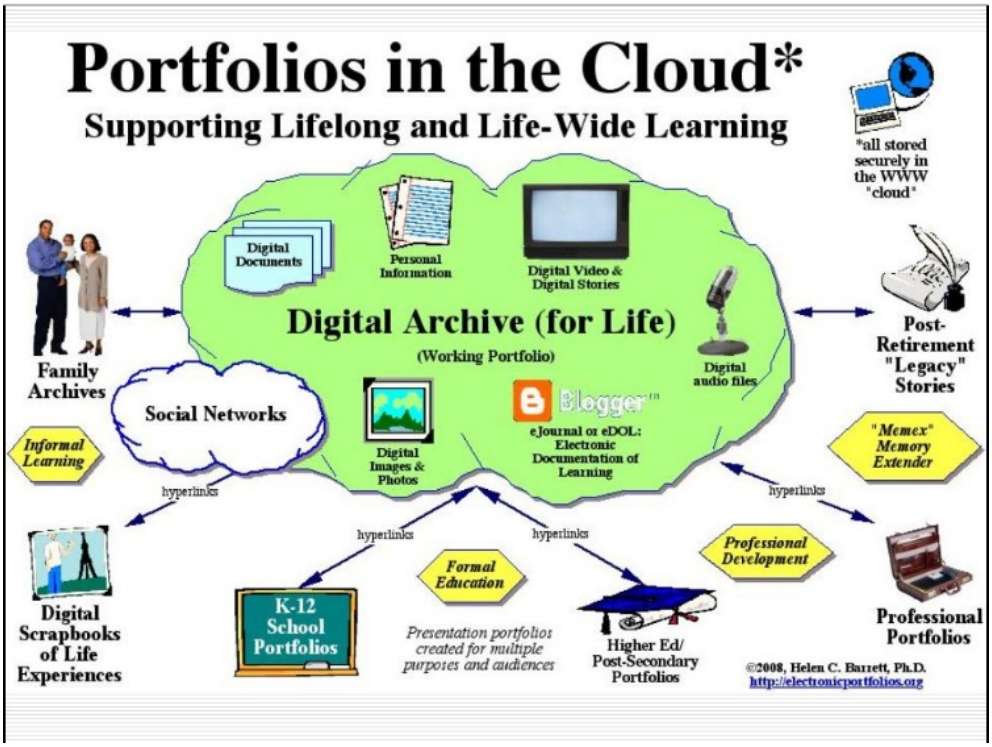

Figure 6 Model developed by (Helen Barret, 2008) of the integration of ePortfolio supporting Lifelong and LifeWide Learning

The education policy context of lifelong learning has been defined as 'all learning activity undertaken throughout life. This is with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective' (Commission of the European Communities 2001, p. 9). This is an extensive goal, and in order to achieve it, policy makers have considered ways in which people might be assisted to record their growing knowledge, skills and competences.

In England, the e–Strategy intends that learners will have 'a digital space that is personalised, that remembers what the learner is interested in and suggests relevant web sites, or alerts them to courses and learning opportunities that fit their needs' (Department for Education and Skills, 2005, p. 2). As well as using such spaces in schools, colleges and universities, the intention is to enable the development of 'electronic portfolios that learner can carry on using throughout life' (Department for Education and Skills, 2005, p. 26). In Higher Education settings, eportfolios have grown out of the process known as Personal Development Planning, rather than from a discipline-based activity. Thus the provenance of ePortfolios in the UK is rather different from that in Norway, where ePortfolios are linked with structural reform including modularised courses.

3.2.3 Four key pillars of LifeLong Learning

Lifelong learning is understood as cyclical process with four key pillars. ePortfolios can support them all.*'Knowing the learning (Self awareness)*' focuses on understanding learner's prior knowledge, motivation for and attitudes towards learning. A portfolio can serve as a mirror helping the learner understanding themselves and see their growth over time. '*Planning for learning (Self management)'* refers to the setting of goals and the development

of a plan to achieve these goals. There are different typologies of learners, depending on their underlying motivation. The typology includes

- Social relationship
- External expectations
- Social welfare
- Professional advancement
- Escape/stimulation
- Cognitive interest.

Key decision points for self planned learning projects, are:

- "Deciding what detailed knowledge and skill to learn"
- "Deciding the specific activities, methods, resources, or equipment for learning"
- "Deciding where to learn"
- "Setting of specific deadlines or targets".

A portfolio can serve as a map for future learning, '*Understanding how to learn Metalearning*' describes the awareness that a learner has developed with respect to different approaches to learning (deep, versus surface learning; rote versus meaningful learning) and different learning styles[15]. '*Evaluating learning (Self monitoring)*' refers to the systematic analysis about of all aspects of the learner's performance 'Self monitoring is synonymous with responsibility' to construct meaning … very much associated with the ability to be reflective and think critically. While the above pillars are of importance in any effective teaching and learning process, the main characteristic of lifelong learning is the reflective nature of the entirely cycle. A portfolio provides the best environment for that reflection. Depending on the goals set initially, the outcomes can be of qualitative, quantitative or affective nature.

[15] 'learning style' is the complex manner in which, and conditions under which, learners most efficiently and most effectively perceive, process, store and recall what they are attempting to learn".

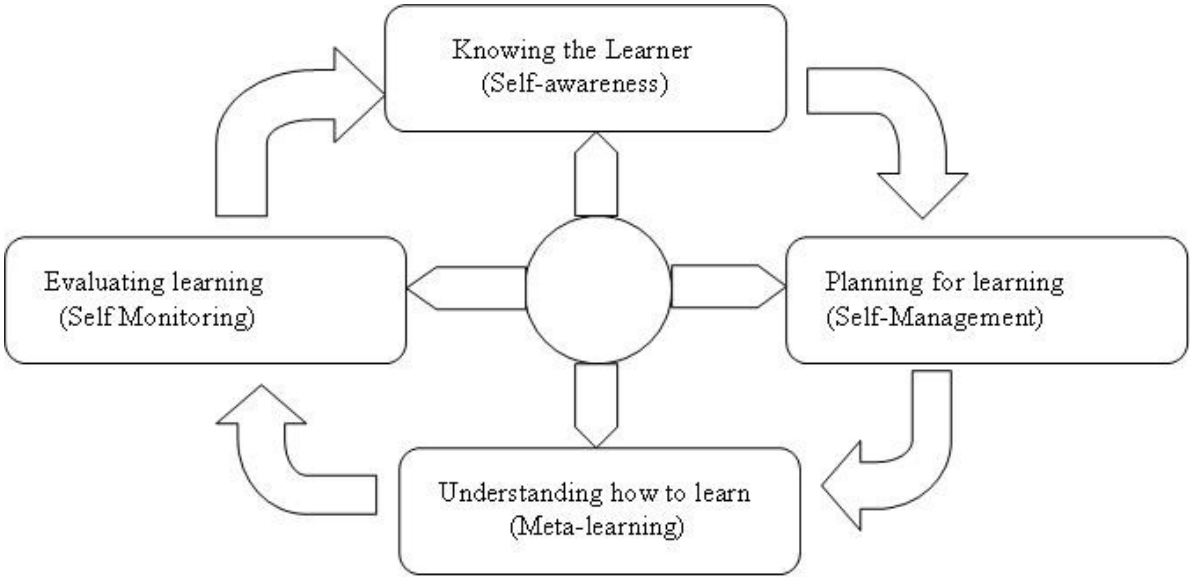

Figure 7. Model of lifelong learning. Barbara Stäuble, Curtin University of Technology, Australia

Knowing the learner (Self-awareness)

Knowledge the learner (Self-knowledge)	Portfolio = mirror
Planning for learning (Selg-Management)	Portfolio = map of the future learning
Understanding how to learn (Meta-Learning)	Portfolio = diverse elements
Evaluation of reflective (Self-Monitoring)	Portfolio= learning journal

3.2.4 Why Eportfolios matter?

The characteristics of *application*, *transition*, *learning*, *teaching and assessment* intrinsic to the tool summarize explain why ePortfolio is considered and effective approach for learning in this sense the terms has to be clarified in terms of the use

Application – providing evidence in support of an application for a job or for admission to further study

Transition – providing a richer and more immediate picture of learners' achievements and needs as they progress to a new environment. It is also supporting them through the process of transition

Learning, teaching and assessment – supporting the process of learning through reflection, discussion and formative assessment. It is also providing evidence for summative assessment Personal development planning (PDP) and continuing professional development (CPD) – supporting and evidencing the pursuit and achievement of personal or professional competences.

e-Portfolio is considered important and effective because of the following: the use of e-portfolio systems and tools to support *application* and *transition* is emergent rather than embedded practice, and dependent on learners' access to personal online spaces which can be updated (Richards, 2007). It represents an approach which encourages students to be more

active, reflective and innovative learners in potential or actual contexts of application. This is in contrast to learning as the mere acquisition of information or skills in isolation on one hand, or as privileged abstraction and theorizing on the other.

Additionally, '*Feedback*' is important for *Learning and teaching* in an e-portfolio. It can be used to collaboratively develop a piece of work with other people. This makes the work a living and breathing entity. You can see it growing and know how it grew and why as they progress from one institution or stage of learning to another. The role of e-portfolios in PDP is more firmly established (Emma Purnell, Institute for Learning Enhancement, University of Wolverhampton Passports).

8 3.3 The ePortfolio Advantage

At any one of these points, the ability to own and manage e-portfolio content could prove beneficial to learning. An e-portfolio system or combination of tools that supports reflection, collaborative activity and the preparation and presentation of evidence of achievement provides crucial opportunities for personal development. The accumulated store of reflections, experiences and achievements – which might include aspects of informal, unstructured learning as well as that resulting from formal education – may be called upon to present as evidence. However it may also be retained as a personal document, an unfolding narrative of a unique learning journey. Eportfolio content developed purely for personal reflection and not shared with others can still support formal and more public forms of learning.

The principle that learners should own the content of their e-portfolios, and the processes behind their development, is of increasing importance. e-Portfolio development is in fact viewed in some instances as the centre of student learning rather than as a peripheral activity or by-product of learning.

According with the findings of the (Becta,2007) study on impact of ePortfolios for learning, the impact can be visible on the learning outcomes and the learning process. These foundings where encountered among the academic institutions in United Kingdom using ePortfolios

3.3.1 Impact on learning outcomes

• The e-portfolio processes support both social needs and curriculum outcomes.

• E-portfolio processes and tools for organisation and communication support the learning outcomes of students with a wide range of abilities. Learners also develop ICT skills through using these tools, thus achieving curriculum outcomes through purposeful activity.

• E-portfolios make progress and attainment more obvious to both teachers and students because viewing and revisiting the repository of work reveals development, achievements, strengths and weaknesses.

• The combination of software tools that allow learners space for experimentation, and the expertise of teachers who can scaffold further learning, has the potential to develop creativity. But there is a potential tension between facilitating creativity and designing supportive structures for students to enter information.

• Institutions that had recently achieved their 'best-ever' results believe this was the result of an integrated, whole-school or authority-wide approach to teaching and learning support that included online tools and repositories.

3.3.2 Impact on learning processes

• The individual and group processes of capturing and storing evidence, reflecting and planning that many institutions currently encourage – even where they do not use the term e-portfolio – have great potential to support future individual or group e-portfolio development.

• There are some learners in all age ranges who find that software that includes structured processes and organisational tools (such as templates for planning, calendars and goal-setting exercises) scaffolds their learning until they are confident enough to progress to working independently. Some value seeing e-portfolio exemplars before embarking on their own.

• Tools that support the important learning process of feedback from teachers and peers, and collaboration within class groups and across institutions, are much appreciated by learners and teachers. These include tools for commenting, discussion forums and 'wiki-type' spaces for group projects.

• There is great potential to make connections between e-portfolio processes, such as storing, reflecting and publishing, and learners' use of emerging social software tools used outside formal education

3.3.3 Competence development

The conceptual references that underlie the term 'competence' are quite broad. Below, is presented one of many possible definitions, proposed by the European Commission for the Tuning Project[16]. It illustrates with clarity what should be considered regarding competence:

Competence represents a dynamic combination of attributes, in terms of knowledge, skills, attitude and responsibilities, which describe the learning results of an educational programme, or what the students are capable of demonstrating at the end of an educational process[5]

One of the major promises of e-portfolios is to recognise record and bring together the learning outcomes from formal learning programmes, non-formal provision and from informal learning. An e-portfolio can record and support learning taking place in different contexts, including work-based learning and incidental learning taking place as a result of personal interest. To fully utilise such a development requires new understandings of qualification that go beyond satisfactory completion of a course or learning programme. In this respect, an important development in education in the past period has been the translation of qualifications into learning outcomes[17] and competencies. Competence conceptualizations are generally referring to an individual's potentiality for action in a range of challenging situations. It is thus a concept that foremost indicates a

[16] Tuning Educational Structures in Europe
http://tuning.unideusto.org/tuningeu/

[17] Learning outcomes relevant for employability, so-called *generic competencies*, encompass competencies such as will to learn and ability to learn self-directed, ability to work autonomously, ability to work in a team, reflective skills, written an oral communication skills, numeracy, as many others.

precondition for future problem solving and coping (including the use of adequate tools) in a particular area of action
This is where the old notion of qualification which is based on requirements. Analysis oriented in the past and on the acquisition and performance of standardized procedural skills and factual knowledge, clearly shows its limits.

From the point of view of the e-portfolio the importance lies in the separation of the outcomes which form a qualification of a learning programme, which develops competence for such outcomes. This means that learners are no longer necessarily locked in to a particular course in order to gain a qualification. They are able to present their learning to prove they possess such competencies or able to achieve those outcomes. This means that learners could select evidence and artefacts from the e-portfolio for presentation for qualification purposes.

The ePortfolio support the autonomous learning and the assessment is intended to be for learning when the ePortfolio is intended for summative assessment purpose. The direction that it has to follow has to be determined by the competences and the outcomes learning system approach in which the eportfolio is used. Thus, it is not clear that an outcomes driven system is what students require. Many valuable skills and aptitudes – art appreciation, for example – are not identifiable as an outcome. In the future, competences will be just one way (and an unusually employer-centred way) to select learning opportunities. (Siemens 2008, p14).

9 3.4 Model of learning with e-portfolios

E-portfolios may be best seen as a pedagogical process – as an approach to teaching and learning. It is the pedagogical approach that provides the main focus for this report. In viewing e-portfolios as a pedagogical process, we will examine what competencies are required by learners to develop an e-portfolio. This also involves what competencies are required for teachers and trainers and others supporting the development of e-portfolios in order to support learners.

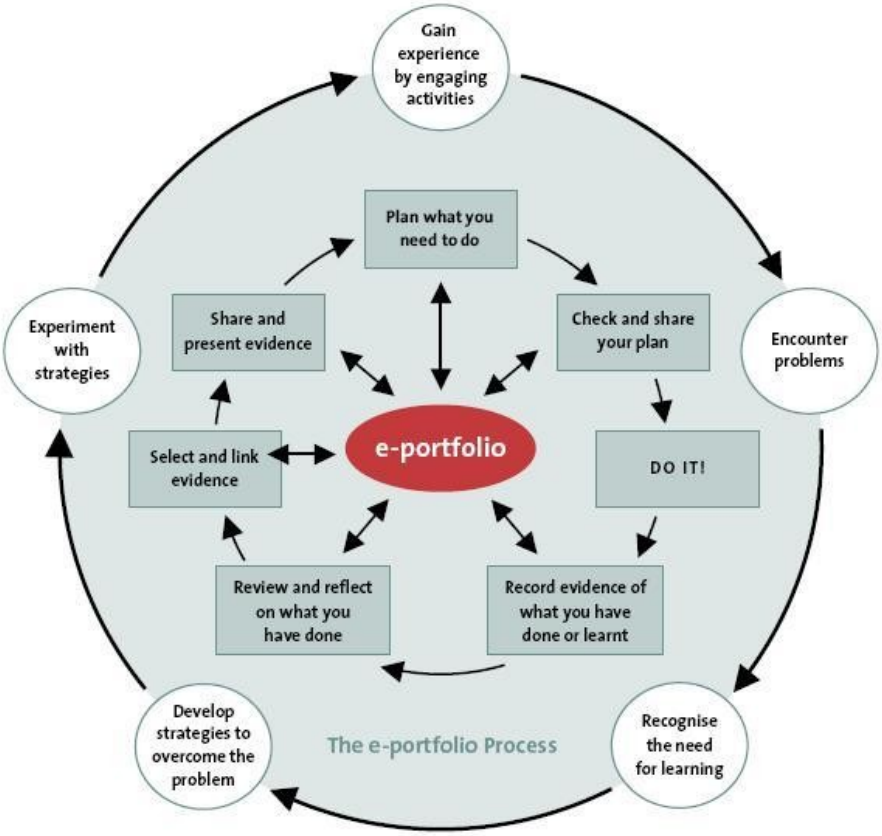

Figure 8. The ePortfolio process as 'Plan-Do-Review' cycle (adapted from Mosep Project, 2007

The e-portfolio process encourages the learner to review and reflect on what they have done, made, experienced or learnt. They are encouraged to record their reflections in their eportfolio and share them with others. This gives value to reflection and requires reflection to be explicit and more visible. This in turn might result in the learner deriving more benefit from the reflection stage, previously something of an invisible process. The e-portfolio process informs and supports the planning process. The learner uses their reflections to plan what it is that they must do to move forward, to learn something, and to achieve or produce something.. It simply adds the Record stage to the Plan, Do, Review cycle. The Record stage is very important in that it can make the reflection more 'explicit' which in turn enables and encourages the learner to share their reflections with others. The sharing process might help the learner to take more from the learning experience, but more importantly if a learner has to spend time preparing their thinking so that they can share it with others they might engage in 'deeper' thinking as they try to make sense out of their experiences and fit it into their existing thinking, memories, structures etc, hopefully enabling them to take more out of the learning experience. The different stages of the learning process (derived from Kolb's learning cycle) can be combined with the e-portfolio processes. When doing a new conceptual approach

3.4.1 Learning to learn approach

Much has been written about the need for a paradigm shift in education (Duffy, 2007). Many have emphasised the need for education to shift from the teacher centred model of the Industrial Age to a learner-centred model. The rationale is to meet the needs of knowledge workers and lifelong learners in the Information Age. This has given rise to the concept of learning to learn which appeared at least 30 years ago. Primarily as a way of emphasising that young people could become better students by being taught how to study more effectively

(Claxton, 1999).The increasingly rapid structural changes that began to occur in society and the economy led to a realisation that educational institutions were having difficulty in providing young people with what they needed to cope with life. This is because educators (and society as a whole) did not know what that would be. Thus, added emphasis began to be placed on the need to help young people to be more flexible and resourceful (Claxton, 2004a; Tuomi, 2001).

In general, there is an expectation that what students are taught at various levels of schooling will help them to succeed as adults, citizens, and workers. Today, this includes a growing emphasis on learning to learn and an education that emphasizes lifelong learning. Kegan (1994) suggested that the rapid and pervasive changes affecting cultures and traditions made it necessary for individuals to construct personal frameworks. This can help them to make sense of the complexity they face in the real world and the concomitant opportunities and choices they encounter on a daily basis. No longer can individuals simply rely on external frameworks offered by tradition, society, and culture. Taking this as a backdrop, young people need to have the capacities to create their own frameworks through which they can learn, evaluate and develop alternative strategies for learning.

At present, the learning to learn concept has moved beyond teaching intellectual skills and has embraced a host of emotional, social, and cognitive aspects that are needed for lifelong learners. This is such as perseverance, curiosity, self-knowledge and collaboration (Claxton, 1999; 2004a).The concept is not about the content of what one learns but about how one learns. There is a fallacy that one must give up one for the other (Claxton, 2004a). Since content and process are both critical to develop the capacity to learn and master important bodies of knowledge.

The portfolio's primary purpose is to assist students understand that learning is something they do, it is not something that is done to them. Learning is a partnership between the learner, the teacher, and the family, and as such each member of the partnership has a key role to play in ensuring the learner's success. The learner must be actively involved in this process (Fox, 2003).

The "Learning to Learn" portfolio model (Fox, 2003) outlines three key areas where a portfolio can assist with this process (See Figure 9). The first phase consist in helping with the learner's *metacognitive development* through student goal setting and critical reflection as well as through the introduction of thinking and learning models These strategies can help students develop the ability to think about their own thinking.

The second section of the model has a focus on *assessment for learning* rather than simply assessment of learning. Many students have little understanding as to how to go about assessing their own work. They wait for the teacher to tell them whether the work is of an appropriate standard or not. They do not have the skills to self assess, or to reflect on their own performance. A portfolio can provide structures that enable students to become involved in self-assessment and reflection so they begin to understand the criteria for 'good' work. Students can be encouraged to become actively involved in the assessment process through the provision of clear performance standards. This is now more commonly known as success criteria, along with opportunities for them to self-assess against this clearly defined criteria. It is a matter of ensuring that the students have the 'magic formula' for success.

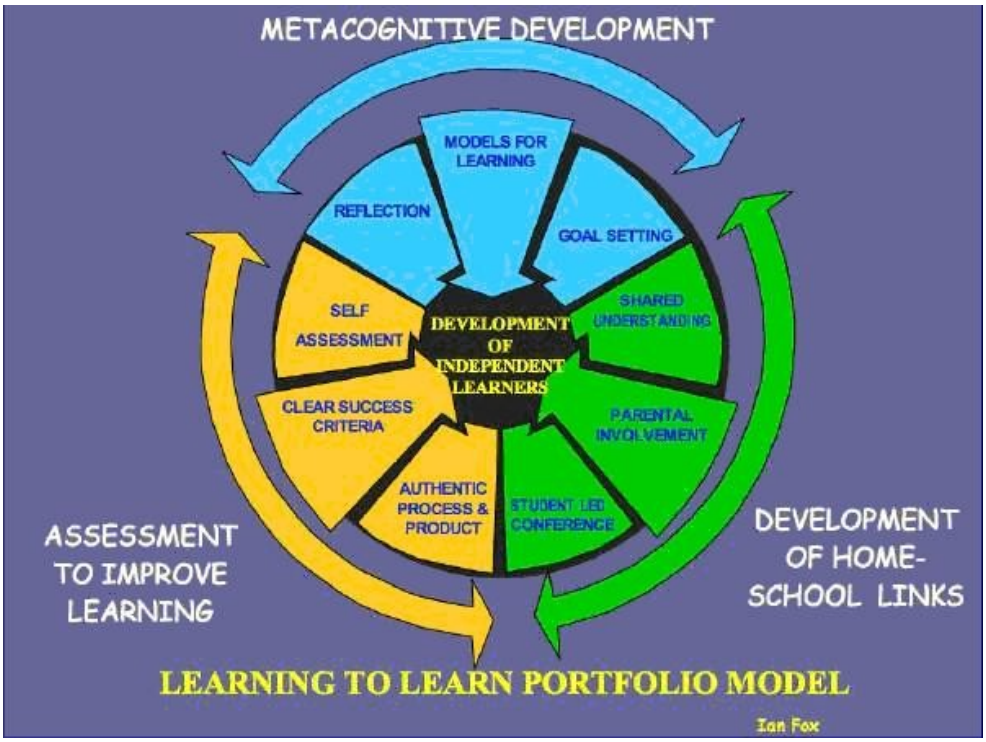

Figure 9 (Ian Fox, 2008) Learning to Learn Portfolio Model

Students should ask themselves:

> *"What is it I have to do to be successful with this work, and how will I know I have been successful?"*

Authentic learning opportunities are also crucial in ensuring students see the relevance of what happens at school and how this in turn relates to their daily lives. Students frequently fail to see the relationships between their experiences at school and what they do outside of school. Invariably this can lead to students 'switching off learning, resulting in a lack of motivation and frustration which may manifest itself in significant behavioural issues.

The third section of the Learning to Learn model focuses on how the portfolio assists with the *building of closer links between the school and the home*. This process is aided where there are strong patterns of communication between the school and the home with the portfolio being a vehicle to assist this process. The portfolio helps engage parents in their child's learning by providing a focus for discussion and feedback around student achievement. The goal here is to create opportunities that will encourage focused dialogue between the child and the parents at home.

Taking into consideration the validity of this model the author of this study has implemented a model of learning to learn approach through ePortfolios for the tertiary level.

This model can be applied to Higher Education when the support is linked with the University being interpreted in this sense.

3.4.2 e-Portfolio based learning

Is important for the purpose of this study, take into account the circumstances in which e-portfolio development can:

- *-Improve understanding of the self*
- *-The curriculum engage*
- *-Motivate learners both individually and as part of a community of practice*
- *-Personalise learning*
- *-Support models of learning appropriate to a digital age*
- *-Promote reflective practice.*

Considering the ePortfolio as a continuous personal development program this statement is emphasized by (Geoff Rebbeck e-Learning Coordinator, Thanet College, 2007)

'The e-portfolio is the central and common point for the student learning experience… It is a reflection of the student as a person undergoing continuous personal development, not just a store of evidence.'

Concerning the pedagogy around ePortfolio

There are some questions that come up with the use of ePortfolio in an academic context,

How does ePortfolio ensure that its use is based on what we know about learning? How do we integrate learning objectives (graduate attributes and professional requirements), learning activities, skills and assessment into the ePortfolios in a way that reflects the learning process and in a way that is meaningful and relevant for students? Are there common pedagogical principles that underlie portfolios? Do they exist?

Firstly, the characteristics that an ePortfolio needs to have in order to assure an effective pedagogy are taking into account. The general characteristics of an ePortfolio are described by the Centre for Recording Achievement (CRA) as being (Ward & Grant, 2007)

- *A "repository" for "artefacts"*
- *A means of accessing personal information, perhaps held in distributed databases*
- *A means of presenting oneself and ones skills, qualities and achievements to others*
- *A means of collecting and selecting assessment evidence*
- *A guidance tool to support review and choice*
- *A means of sharing and collaborating*
- *A means of encouraging a sense of personal identity.*

For the purposes of ePortfolio as an application, it can inevitably include a wide variety of information, like:

- Personal information
- Education history

- Recognition — awards and certificates
- Reflective comments
- Coursework — assignment, projects
- Instructor comments
- Previous employer comments
- Goals and plans
- Personal values and interests
- Presentations and papers
- Personal activities — volunteer work and professional development

It is stressed that the content of and artefacts included in an ePortfolio 'should have a purpose — they should demonstrate a skill, an attribute, and learning acquired from experience' (Siemens, 2004). Siemens discusses the attributes of 'an ideal ePortfolio system'. It should allow for flexibility in input, organization, retrieval and display of content and artefacts to support the needs of all stakeholders. This is including learners, teachers and academic managers.

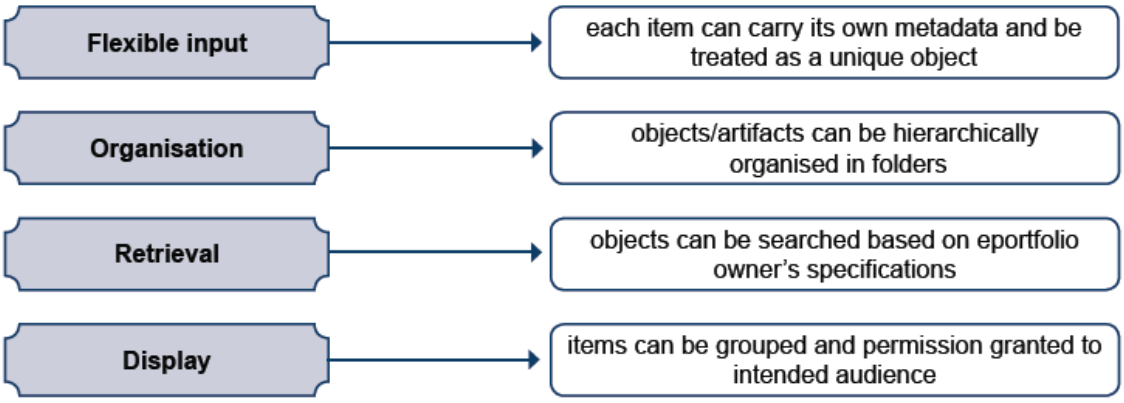

Figure 10 Attributes of an ideal ePortfolio system. Siemens 2004

The ePortfolio tool needs to be sufficiently versatile to ensure that all four functions effectively meet the needs of all potential stakeholders. Stefani, Mason and Pegler argue that, when compared with paper-based portfolios, it is the digital environment that specifically offers the flexibility 'to rearrange, edit and combine materials'. This is 'to connect documents together' (for example, through hyperlinking of internal and external resources) and to be 'portable and mobile'. This is that the content 'can be transported and transferred with ease … can be accessed and used in a variety of locations and can be replicated and shared with others' (Stefani, Mason, & Pegler, 2007, p. 17).

Despite, there is too much theory regarding the ePortfolio, as the findings among the literature, few have been developed concerning the pedagogic of the ePortfolio (*Attwell, 2006*). This is understood as the means using the digital tool for the process of learning. However, the author considers that certain aspects need to be considered important for the learning process, as following:

- Goal - setting
- Auto-construction of modules
- Organizational flexibility

- Space for creativity
- Components for a guided reflection
- Levels of flexible support and feedback

10 3.5 ePortfolio Process

The Learning to Learn model outlined earlier (Figure 9) may provide some assistance in helping determine the purpose for the ePortfolio. It may also give a starting point of determining the ePortfolio implementation. Moreover, Dr Helen Barrett (2005) outlines several stages in ePortfolio development for both teachers and student ePortfolios.

1 Collection - teachers and students learn to save artifacts that represent the successes (and growth opportunities") in their day-to-day teaching and learning

2 Selection - teachers and students review and evaluate the artifacts they have saved, and identify those that demonstrate achievement of specific standards

3 Reflection - teachers and students become reflective practitioners, evaluating their own growth over time and their achievement of the standards, as well as the gaps in their development

4 Projection (or Direction) - teachers and students compare their reflections to the standards and performance indicators, and set learning goals for the future. This is the stage that turns portfolio development into professional development and supports lifelong learning.

5 Presentation - teachers and students share their portfolios with their peers. This is the stage where appropriate "public" commitments can be made to encourage collaboration and commitment to professional development and lifelong learning.

When looking through the vast array of work which students can complete during a course of instruction each would have ample material to share within their own personal learning spaces. A form to manifest the five staged of ePortfolio is establishing a home page, with personal information a student is happy to record. I t is simply a matter of hyperlinks to work selected for archiving that best provides evidence of their learning and indicates their growing development as a learner. These could simply be stories or essays written and stored in the ePortfolio along with reflective comments and teacher feedback. It may be exemplars of work from a whole range of curriculum areas with each piece accompanied by reflection and feedback.

To gain the true benefits of using an ePortfolio over more traditional paper portfolios. it is expecting to see the increasing use of multimedia and web2 tools. Student work would include the use of tools as wikis, blogs, and video or digital images that could all help to the process. There would be music and sound files, maybe some through podcasts, where the student's voice could be heard clarifying process. This is along with their personal reflective thoughts. It could be the recordings of their goals with follow up reflection, stored as a sound file. Teachers could record their feedback comments on sound files and attach these to the completed work rather than having them in the more traditional written form.

Once the purpose for having the ePortfolio is clearly understood, decisions can be made as to what to keep in the ePortfolio; i.e. *the collection*. It should be more than simply a traditional

paper portfolio collected and stored electronically. It should not seek to replicate what has been done in the past or little value will be gained from the potential advantages the available technology provides. To take time and trouble to scan in material so that it can be stored electronically is of little value, unless there is a very good reason to do so.

Careful *selection* is required to ensure that the ePortfolio does not become a mass of student work with no clear focus. It is a case of less is more! A little less in the ePortfolio illustrating the student's growth and development over time is far more valuable than looking to ensure every curriculum objective is covered. An ePortfolio should be a 'big picture' document rather than being bogged down in the miniscule. A further key decision in the development of ePortfolios will be to determine its format (Fox, 2008) .

The academic institutions has to ensure that a web based ePortfolio follow a set of protocols developed with clearly defined procedures, known and agreed by all, this could be in the form of a contract and could simply be an extension of the contracts most schools have in place

11 3.6 ePortfolio as a process and product

The two major purposes of ePortfolio as a process and as a product. Both can be used to enhance learner engagement with the ePortfolio Process, finding the balance as Dr Helen Barret explain.

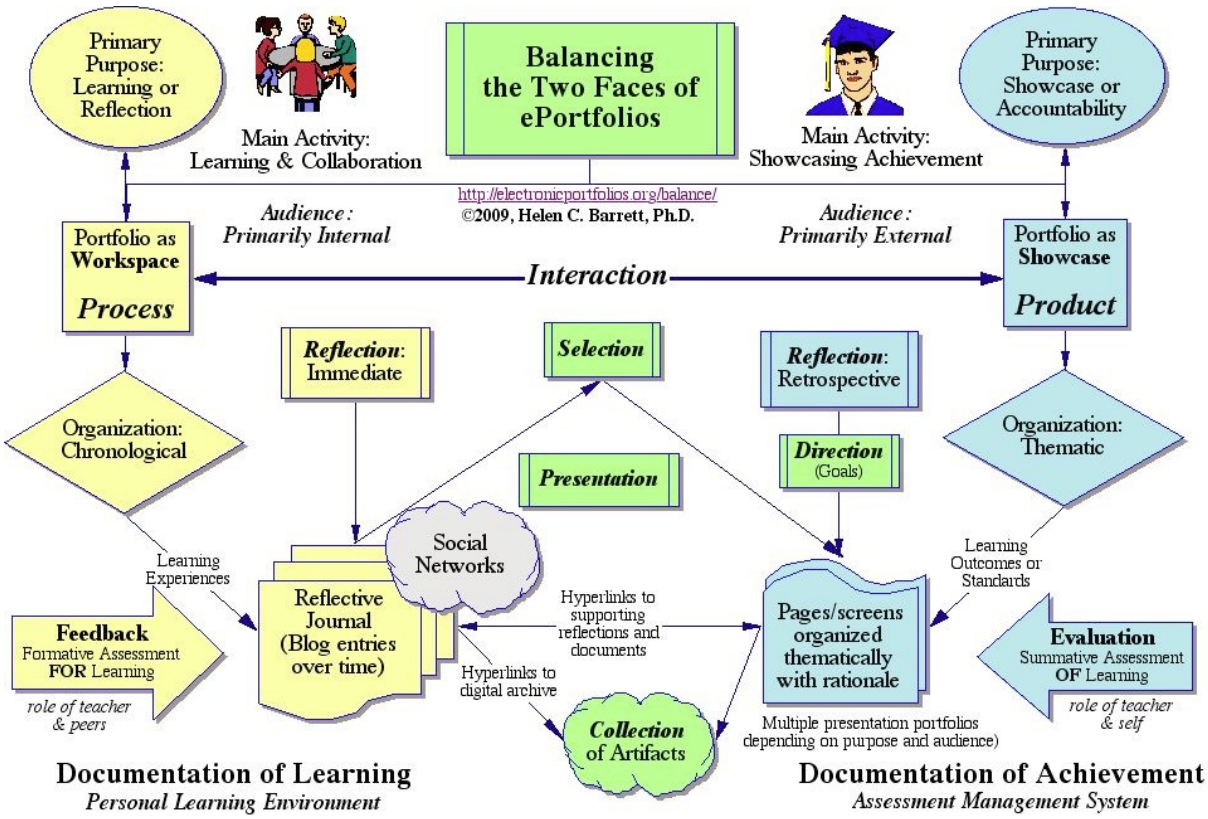

Figure 11. Balancing the Two faces of ePortfolio. (Barret, 2006)

To provide an understanding of the ePortfolio as a process and ePortfolio as a product, the former is interpreted from its objective of reflection and learning where the learning activities are the evidences that raise this process together with a collaborative and a teamwork. This is

achieved by sharing information and working in a range of time establishing communication links with peers to achieve a specific activity. The stage of the portfolio as a process is directed initially to an internal audience, i.e., this audience represents the circle of people who have knowledge of this ePortfolio and also play different roles interacting with it. This audience represents the institution or environment around the learner and the owner of this content, and in that sense, it provides an assessment and feedback on its content. The process ePortfolio as reflection becomes a main component of learning, which is reflected in the learning experiences in the reflective journal (blog). The ePortfolio as a product uses the retrospective reflection over the past experiences and is organized as a showcase following a thematic organization. Its content s usually defined by objectives. The presentation must be consistent with standards or learning outcomes, whether on the technological tool or the guidelines established by the institution that assess the portfolio and accepts it as a personal showcase. E-portfolios are generally presented on Web pages, organized thematically and supported by a diverse collection of artifacts or devices that enhance the dynamics of the digital tool, The components of e-portfolions can be understood as a collection of files, project demonstration, academic videos, image collection, or productions in general.

Barret has explained the concept of two portfolios that have called; *the portfolio of work or working space (workspace)* and *the portfolio as a process*. Also the wide variety of portfolios for showcase are classified according to purpose and audience or demonstration of achievements (Showcase). To achieve its purpose the presentation requires the collection of digital files (Collection)), their selection and inclusion in the presentation
These levels are described below

- Level 1: ePortfolio as Storage
- Level 2: ePortfolio as Workspace/Process
- Level 3: ePortfolio as Showcase/Product

Level 1: ePortfolio as Storage - Collection regularly – weekly/monthly)

- Focus on Contents & Digital Conversion
- Artifacts represent integration of technology in one curriculum area

The most basic level of creating an electronic portfolio is the collection of work in a digital archive, stored on a server, whether locally or on the Internet. At this basic level, the teacher or the student stores the artifacts in folders on a server.
At this level, teachers choose one curriculum area to store student work samples and provide students with guidance on the types of artifacts to save.

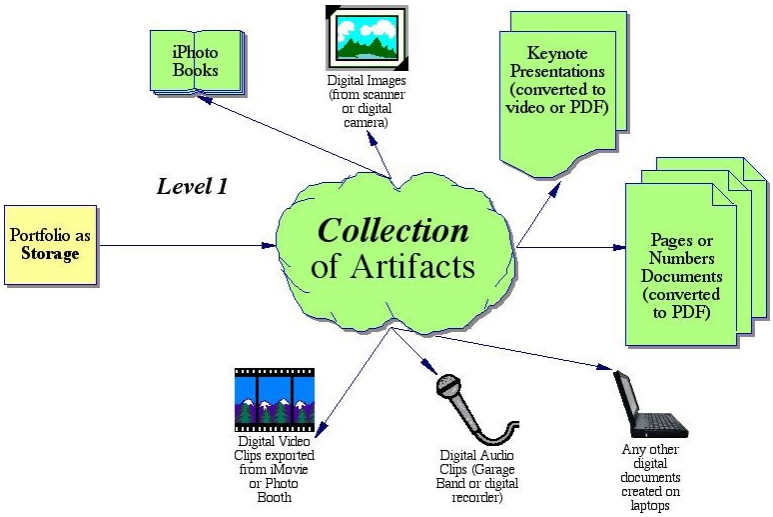

Figure 12 Level 1 Collection of artifacts

Level 2: ePortfolio as Workspace/Process - Collection + Reflection (Immediate Reflection on Learning & Artifacts in Collection) (regularly)

A Focus on Process & Documentation of Learning

• Organized chronologically (in a blog) -- "Academic MySpace"
• Captions focus on individual assignments (Background Information on assignment, Response)
• Artifacts represent integration of technology in more than one curriculum area (i.e., Language
Arts, Social Studies, Science, Math)
• Reflections on Service Learning Activities

At this level, the artifacts should represent more than a single curriculum area, and demonstrate the many ways that students are using technology across the curriculum.

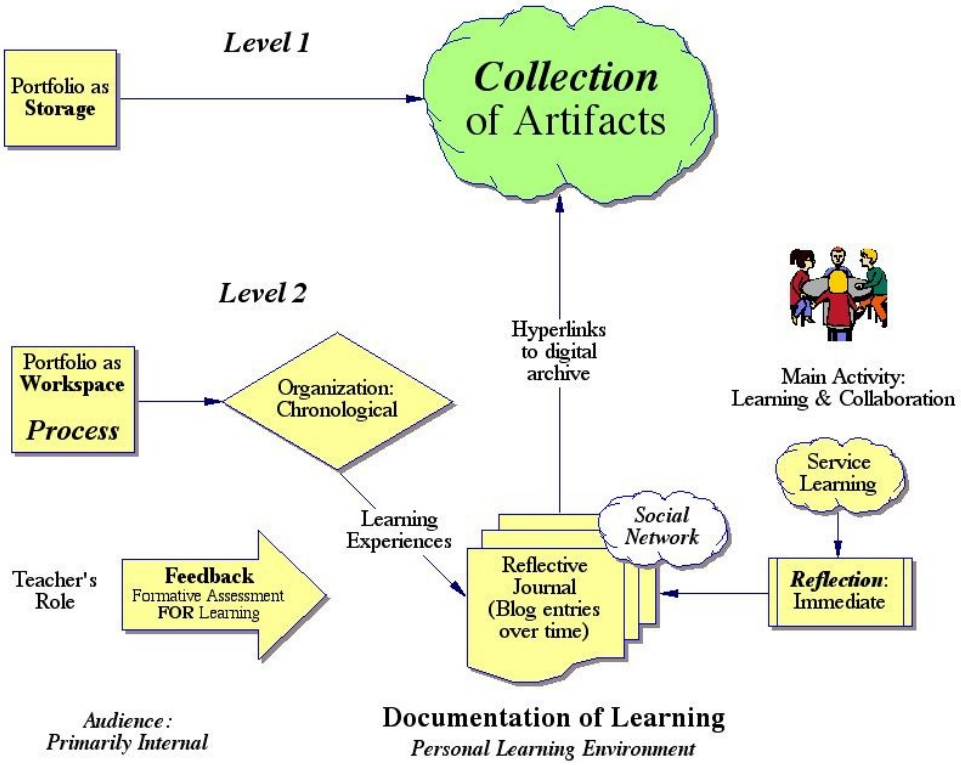

Figure 13 Level 2 Implementation of ePortfolio

Level 3: ePortfolio as Showcase/Product - Selection/Reflection + Direction + Presentation (every period)

This level of portfolio development requires the student to organize one or more presentation portfolios around a set of learning outcomes, goals or standards (depending on purpose and audience). The presentation portfolio can be developed with a variety of tools. However it usually consists of a set of hyperlinked web pages. Some schools may choose to have the students use a web page authoring tool. The student reflects on the achievement of specific outcomes, goals or standards, based on guidance provided by the school. This level of reflection is more retrospective (thinking back over the learning represented in the specific artifacts selected as evidence of learning). Students should also address the "Now What?" question, or include future learning goals in their presentation portfolios.
The teacher's role at this level is not only to provide feedback on the students' work, but also to validate the students' self-assessment of their work.

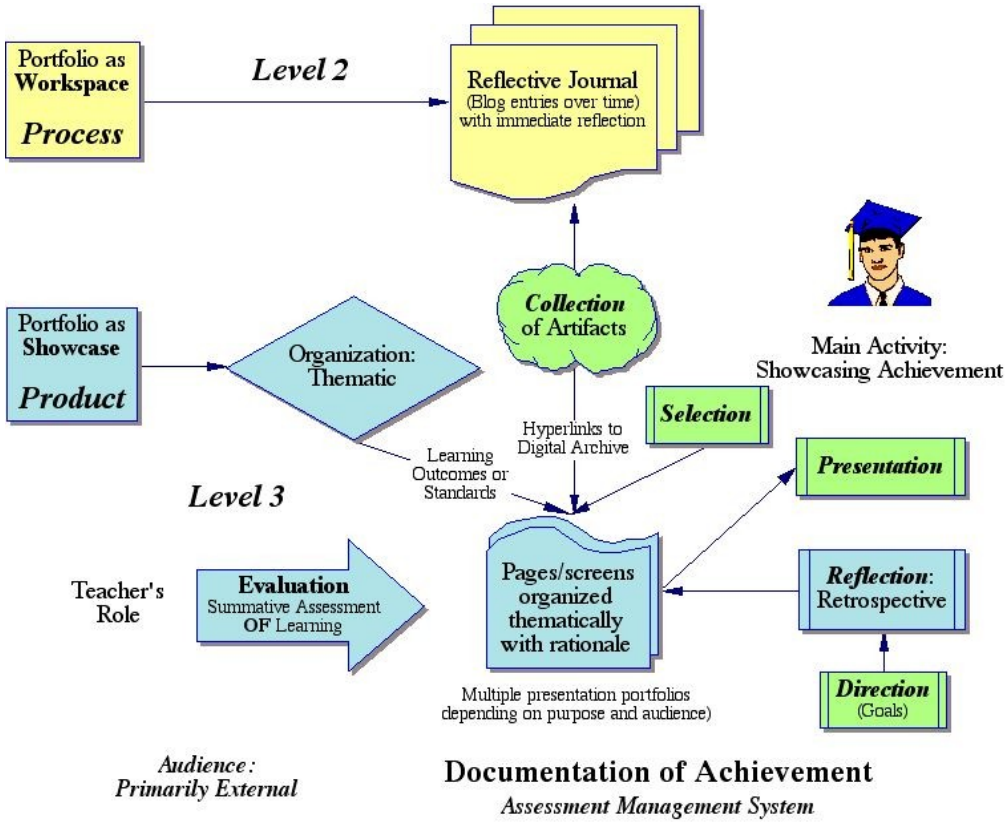

Figure 14 Level 3 ePortfolio as a Showcase

Additionally, an electronic portfolio system cannot be implemented without consideration of how the portfolios will be assessed. Electronic portfolios can be used for both formative purposes, to facilitate student learning, and for summative purposes, to assess how much a student has learnt over a course of study (Beck et al., 2005; Klenowski et al., 2006). Beck et al. (2005, p. 235), however, argue that the best use of electronic portfolios is for formative assessment, as they make use of strategies "such as reflective inquiry, individual student and lesson narratives and professional and peer support".

CHAPTER 4
E-PORTFOLIO FRAMEWORK FOR THE ROVIRA I VIRGILI UNIVERSITY (RVU)

During the second internship of the master degree Mundusfor, the author analysed the adoption of an ePortofolio tool by the Rovira I Virgili University. This activity was developed inside the Educational Resource service where the pedagogical and technological plans aimed at the adoption of the European Higher Education Area EHEA are initiated.

This analysis pretends to give a guide and general aspects for its adaptation in the RVU. Thus, the ePortfolio concept defined in the last chapter give use the basis for its interpretation in the Rovira I Virgili Context. Also, The Digital toll pretends to be aligned with the key elements of the teaching plan of the RVU, and the guidelines for its adoption into the European Higher Education Area EHEA that the URV has initiated.

This study is the results from the participation of the author with the Educative Resource Service (ERS)(S.E.R), administrative unite of the RVU. Is in this place where the pedagogical and technological plans are developed for the transformation towards the Higher Education Area.

The practicum provided a general scheme of the teaching methodologies and educative practices. This knowledge was acquired through several meetings with the persons working in this area, documentation provided regarding the developments around this thematic, such us, procedures, plans, evaluation, quality and methodological strategies . All this carried out for the EHEA integration and the Bologna Process initiatives.

The importance of the implementation of an ePortafolio at the Rovira i Virgili University, lies supporting *lifelong learning* taking into consideration that this is one of the objectives of the adaptation to the EHEA.
Also, Development of working and professional skills for continuous learning that should allow the identification of these skills, and they development as a life project.

Additionally, the implementation of the ePortfolio should be aligned with the eLearning principles, the connectivism theory approach to construction of knowledge, and framed inside the European Higher Education EHEA.

The purpose of the approach selected is to fulfill the demands established in the Bologna process, concerning *mobility*, *lifelong learning*; *the role of the tertiary level teachers to break with the canons laid down in the traditional institutions*, *the planning of the process of learning that involves other didactic considerations*.

12 4.1 ROVIRA I VIRGILI CONTEXT

Educational Resource Service at Rovira I Virgili University

The Education Resource Service is an administrative unit of the Rovira i Virgili University. It was established in 2002 as a service aimed at supporting the processes of incorporation of the Information and Communication Technology (ICT) to the teaching at the tertiary level. At

this time, the service has expanded its scope to support all the processes defined by the University Rovira i Virgili (URV) to improve teaching. All in connection with the deployment of the Strategic Plan of Teaching (PLED) taking as reference the configuration of the European Higher Education Area (EHEA).

The service is organized into two units. The methodological unit which has the mission to support the design and teacher development from a methodological and pedagogical point of view, and the technical unit which has the mission to foster and promote the incorporation of ICT to improve teaching.

The ePortfolio adapatation to the URV, is intended to be aligned with the mentioned Insitutional Strategic Plan of Teaching and the Mentoring Action Plan (PAT). The PLED Project was born from a commitment expressed in one of the main objectives of the program at the government level: "To define a strategic plan for teaching and deploy a plan of action to focus the collective efforts in an innovative educational project to make its utmost teach to learn and that set to the students their training and learning as the nuclear part of any university activity"

This commitment was reaffirmed in the new Statute of the RVU, in which is defined a solid organization, structurally and functionally, to the service of a new educational model.

This determination is consistent with the capacity that the lecturers have been demonstrated by the faculty of centres and departments of the RVU. They introduce significant improvements in teaching, some of which have been recognized with awards and honours in the autonomous state areas.

As it has been expressed in the institutional PLED text written by the methodological team of the SRE (2003);
From the standpoint of educational planning, PLED is focused in the need to define the *formation process*. For this reason there is a need to take into account factors that promote the effectiveness of the training:

- The active contact between teachers and students
- Cooperation between students
- Understanding the student's value of time and dedication
- Expectations about the general process of learning and the global dimension of the training process.

Regarding the context, there is a need to change references to place students in Europe by coming within the definition of a European Higher Education Area. Additionally, since the Bologna Declaration (1998), The SRE started to define a joint framework of working and university cooperation, not only in terms of structural and organizational view, but also from the teaching model. This model is clearly moving from the perspective of the teacher (teaching) to the perspective of the student (learning).

URV puts all this in two specific areas: *education training project*, defines the academic profile and training goals of each degree, and the specific skills and abilities of each program.

4.1.1 Implement a teacher-oriented learning and student-centered

To move the core of the training program from teaching and learning perspective is necessary to design a curriculum plan in a
different way. The definition of professional and academic profiles of each discipline is the key beginning point. Structuring training action according to the basic principles of the EHEA will be the guarantee of the transparency with other university systems.
The overall objective of the URV must promote a training process where the student and their needs at the center. The responsibility to create awareness and continued forward as the engine of intellectual society. This set the goal for a URV stamp from the point of view of educational processes.

4.1.2 The training project of the URV

Defines the transversal competences and abilities, in addition to the specific ones that all graduates of the URV must obtain, and that should shape the core curriculum of the URV.

Support for the principle of Learning for Life one of the principles that European education advocates, is the most important aspect that stands out for implementing the ePortafolio in the Rovira i Virgili university RVU.
Furthermore, to develop job skills and continuous professional learning, their identification at the beginning of the training cycle of higher education and its development as a life project.

The Portfolio goes on to seek to be framed within the guidelines of the European Higher Education Area.
Cover some of the demands set out in the Bologna process, this approach leads to a process of adoption of the digital tool.

These demands are identified in terms of:

- Learning throughout life
- The role of teachers in higher education to break the established canons of traditional education
- The planning of the learning process that involves others didactic cooperations

Also the core curriculum of the RVU defines the basic competences that the student must have obtained at the end of the academic periods. Also formation in this aspect the formation is given by language courses, Training Course for oral and written communication, Course of entrepreneur, Training in ICT , Career Guidance Workshop, Introduction to the European Higher Education Area, study techniques and skills.

Core Competences

The Nuclear Curriculum presents a series of basic skills needed for all students of the URV.

The nuclear competences are defined in a single domain level set by the lecturers and they have to be achieved along the career.

In the case of the C3 core competence – the information management level domain refers to:
- The student is able to use a strategic (awareness, when and why), and sufficient variety of formats and types of information sources, both paper and electronic version, and has been able to make a personal synthesis of information that has being obtained by bringing new concepts and relate them with other knowledge, using a creative presentation to an audience or its application on diverse situations.
Following, the core competences of the RVU

C1) Foreign Languages; C2) ICT competence;C3) Written and oral skills; C4) Humanities and Technology; C5) General Knowledge C6) Mobility.

The Teaching Model PLED

The overall objective of the URV in terms of teaching should encourage a process of formation in which the student is the axis core upon the process of learning is dynamic, this means that students move from being a passive recipient of content and knowledge to be an actor who has roles and functions (SRE, 2003).
To define the learning processes of students the teaching model takes into account:

- The knowledge of the student.
- The formative experiences that have had to reach the university.
- The need for learning activities that enable them to establish relationships between what they know and what they are learning and will learn.
- Learning is a highly social activity that becomes more significant when is made in a cooperative way.

In addition, The training of the graduates not only must be based on content but must give the students the acquisition of a plan of formation fully integrated with the academic competences (based on disciplines) and specific (disciplinaries), as well as general (transversal) across the core curriculum of URV (language, oral and written expression, and interdisciplinary ICT).

In this sense, the lecturers would understand the teaching and organization of the elements in order to gain the success of the process, as it is represented in the next model.

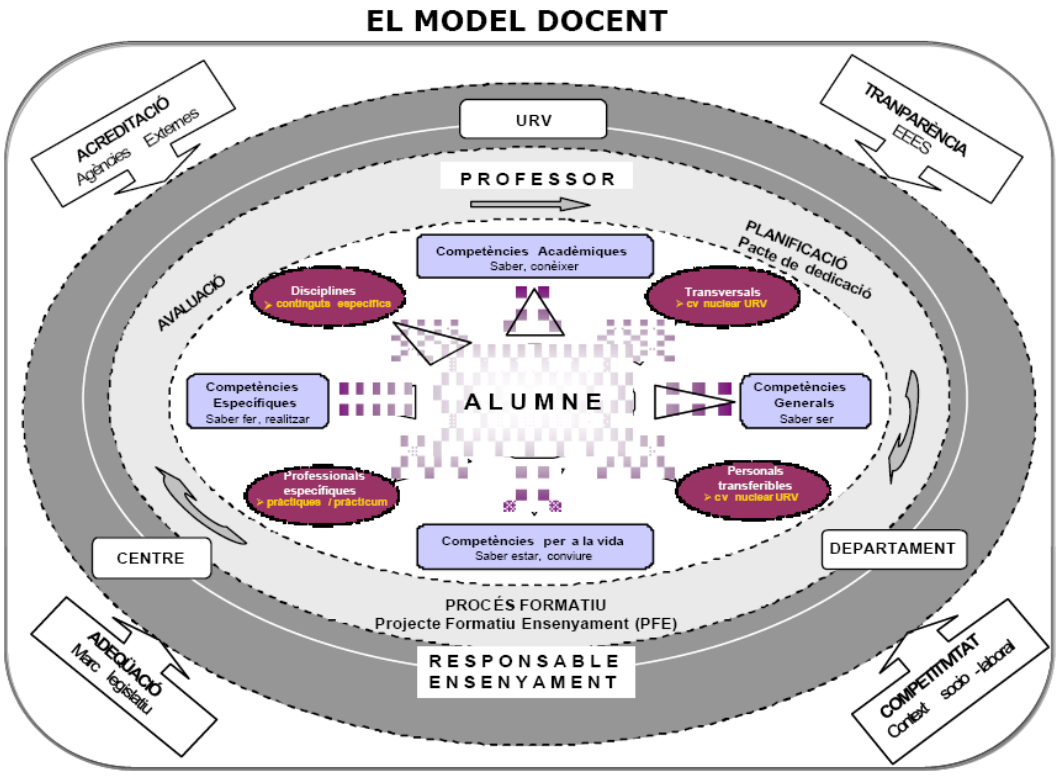

Figure 15 Teaching Model in the Rovira i Virgili University developed by the SRE Methodological Team

In addition, the URV intends to implement formal mentoring process that promotes a comprehensive training and provides a quality learning model. This model is focused on the student and where the Information Technology and Communication plays an important role. As part of this process it is included the PAT (Action Plan for Mentoring) and the VET (Virtual Space for Mentoring).

The Action Plan for Mentoring is one of the actions arising from the deployment of the Strategic Plan for Education. It is in an advance process of implementation. Beginning in 2004 with 2 centres and 2 degrees at that time and through 8 faculties and 22 degrees, also supported by the use of ICT with the Mentoring Virtual Space which the SRE offers a methodological and technological support.

To propose a digital tool that support key elements of the PLED and the PAT, is necessary to analyze how the teaching model is being established. How its components can be integrated so that they can be effective through an institutional ePortafolio innovative tool. This tool can be adopted according to the cultural and contextual requirements, as with the integration to the actual ICT development with educative purposes in the URV.

Concerning the adaptation to the EHEA The governing bodies of the URV set the guidelines that all faculties need to make to set the parameters towards the European Higher Education Area (EHEA) integration.
The objectives are:

- Develop educational plans aligned with the European Higher Education Area

This general objective is accompanied by other objectives that implicitly or explicitly are linked to this process:

• Reflecting on teaching practice for improving.
• Innovation in teaching methods, in the processes of assessment, the definition of objectives and content selection.
• Become familiar with the nomenclature of Bologna.

Also, The URV have introduces a methodological guide with the objective of helping the responsible of the URV faculties with the design of the formative projects oriented to the adaptation to the European Higher Education Area.

The introduction of the EPortfolio tool as a product is defined into the URV context with the definition given of a competent professional. It is a competent professional that one who has assumed the professional competences that he/she has integrated and transferred to a concrete professional activity (transfer) and is effective in context and professional situations different of that (transferability).

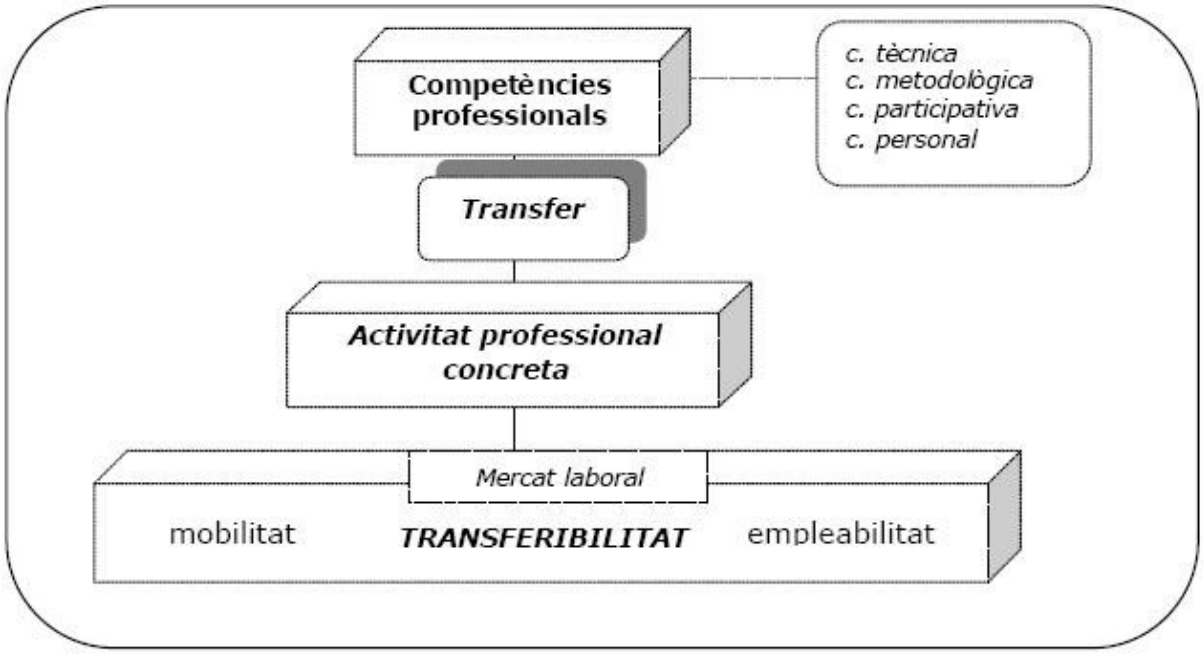

Figure 16 Competent professional taken from methodological guide to the faculties adaptation to the EHEA in the RVU

The student ePortfolio is intended to be uses as a showcase of evidences chosen by the same students to a determined labour market audience.

13 4.2 The PAT Tutorial Action Plan and the EVT

The Mentoring Virtual Space, is a strategic action plan derived from the teaching model (PLED, 2003), to be a cornerstone of the student training.

The Tutorial Action Plan project defines the actions that the university might undertake to ensure the monitoring and guidance to the student.
The academic mentoring is part of the PAT as one of the actions to be developed by tutors and mentors to facilitate the student training.

In order to facilitate the implementation of the PAT, a process of institutional support has been developed since the 2004-05. This process has been led by the Vice President for Academic Policy and Convergence of the EHEA and coordinated from the Education Resource Service (SRE).

Through this process has tried to respond to various challenges such as cultural changes, organizational changes, structural and curricular changes, technological resources and psychology, recognition of the role of the tutor. It is clear for the SRE that this changes requires all the institutional support.

The Roviraq I Virgili university pretends through the PAT that every student can be able to *defines and develops their own academic and professional profile.* This competence is part of the core curriculum of the RVU[18] and is defined through the following learning outcomes.

1. Each student could be able to develop their own interest/motivation in the academic and professional field
2. Each student could be able to identify and respond to the training needs
3. Each student can define and develop the academic route considering their formative needs, interests, and academic and professional motivations.
4. Each students can develop resources and strategies that facilitates the transition to work

The strategies planned to support this competence are

- Through a tutor / academic / student mentor
- In an integrated way in the final grade and / or practices outside of the curriculum.
- Through seminars and activities for training and informative purposes

The ePortfolio characteristics can be aligned to the learning outcomes for the core competence that the PAT supporting

ePortfolio characterisitics	**Learning Outcomes supported by PAT**
Student Centered	Each student could be able to develop their own interest/motivation in the academic and professional field
Competence Oriented	Each student could be able to identify and respond to the training needs
Action and reflection	Each student can define and develop the academic route considering their formative needs, interests, and academic and professional motivations.

Table 4. ePortfolio characteristics

The EVT Virtual Space for Mentorning

[18] Curriculum Nuclear defines those skills that professors considered basic and necessary for all students of the RVU. These skills complement the specific and transversal competences of each degree.

The functionalities developed by the EVT are:

* The EVT facilitates communication between teachers and students not only with face to face meetings but also providing more opportunities for communication.
* The EVT was designed with the same features of a Moodle course, but with a block called tutorials with specific functionality to facilitate the mentoring activity.

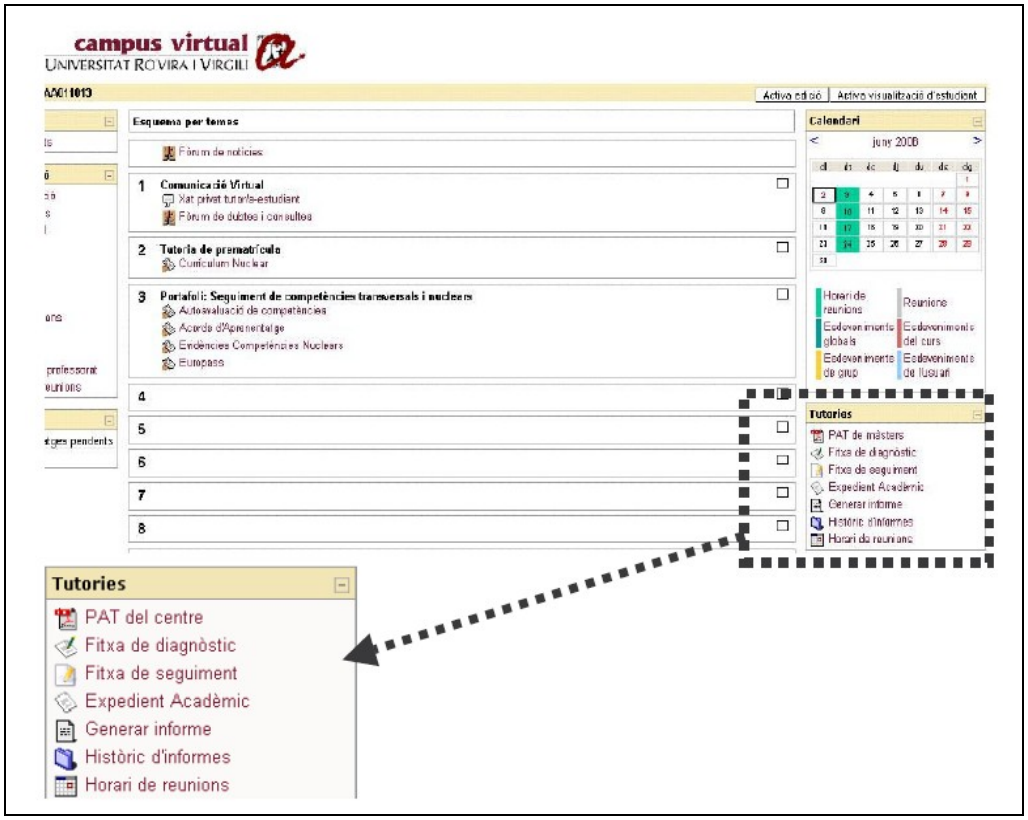

Figure 17 Screenshot of the tutorial activity of the EVT in the URV Virtual Campus

Some of the functionalities enhanced by the tool are

- The diagnosis template
- The tracking template
- The academic file
- The meeting calendar
- History report
- Meeting schedule

ICT supporting the ePortfolio process

It is suggested that th e ePortfolio might be integrated with the actual Learning Management System of the University which is implemented over the Virtual Campus Moodle supported by open source software.

This suggestion is also being made from the literature review and cases studies, where ePortofolio should be based on the personal interaction of ePortfolio organisers and organisational ePortfolio Management Systems (Ravet, 2009)

One reason for using the Institutional LMS lies in the local management of data and the local structure and storage of each ePortafolio, also the compatibility with the current configuration of the courses as well as other systems adapted to the institutional needs.

Following, there is a description of the implementation of this tool and the educative purposes that it covers.

Moodle's name comes from its modular design, Modular Object-Oriented Dynamic Learning Environment (Dynamic Learning Environment and the Modular Object Oriented), easy to quickly add dynamic content to motivate the student.
In addition to adding content also includes communication tools such as forums, which can be used as a distribution list to send news simultaneously to all students, and an integrated tool of communication as synchronous (IM) type as asynchronous email.

The Virtual Campus is an Internet Space enhanced that supports teaching.
This space provides the content published by the teachers and that can be downloaded by students, it has the activities proposed by them and it allows communication with peers and lecturers using different tools such as forums and messaging.

The URV Virtual Campus is the training environment where teachers and students can use to support face-to-face teaching or virtual teaching. Moodle is a tool based on constructivist pedagogic principles and is distributed under open source license.

A suggestion for an ePortolio implementation as an extension of the Moodel system is advisable. Also the German ministry of education made an application for an additional module for the Moodle-platform "EXABIS"[19] that can be taken as a example for the RVU ePortfolio. This module provides every learner with an individual portfolio block. This block is independent from the courses and enables learners to reflect their steps of learning, record individual documents of their history of learning and to categorize them as well as the communication between the teachers.

Also, the ePortfolio must have the following components; either is going to be developed over Moodle or over other tool compatible with the Learning Management System Moodle, which the recommendation is made by this study.

1. Component that supports the *learning process,* like diary, reflections, communication
2. Component for assessment, with dual purpose summative and formative
3. Component to record *activities* and *learning projects*
4. Component to support the record of internships, apprenticeships and practicum
5. Component to support other activities in school such as sports, music, etc.
    - Componenet that allow to record volunteer involvement and community service
    - Diary

[19] Moodle - Exabis Modul: http://moodlekurse.org/moodle/

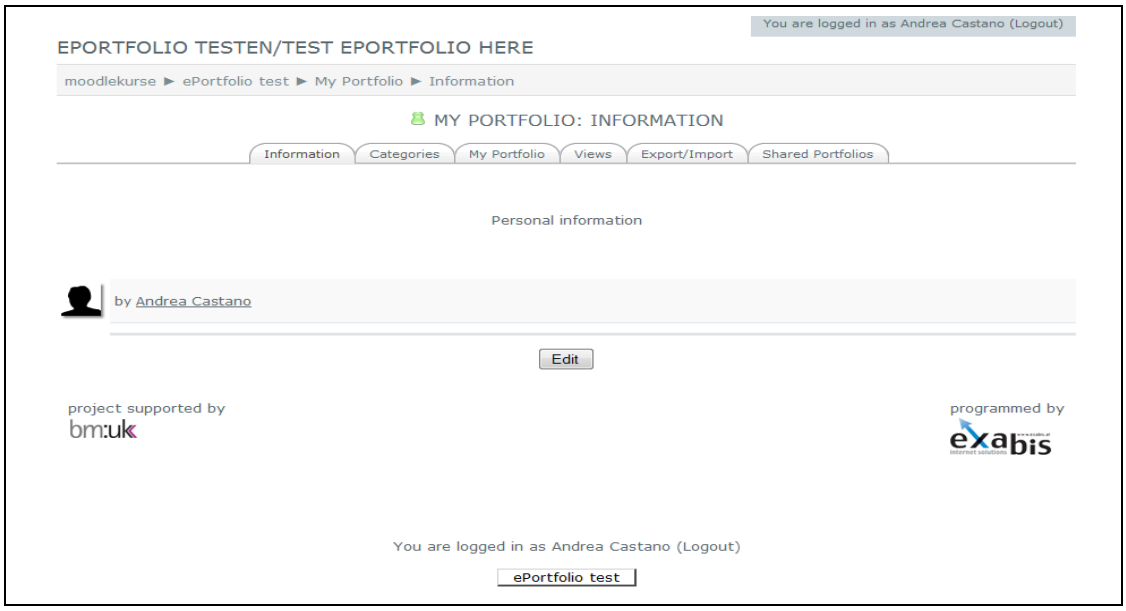

Figure 18 Example of ePortfolio implementation of the EXABIS module for Moodle.

Figure 19 ePortfolio exabis, views created for my ePortfolio for the practicum

Also, The ePortfolio should be semi-structured, in terms of process and outcomes, with a clear structure, that allow students to decide the content and format of the final portfolio, and also the spaces for the mentoring process.

14 4.3 ePortfolio for the RVU aligned with the teaching plan PLED

It is important that the ePortfolio could be integrated with the principal aspects defined by the different methodological and pedagogic development implemented within the URV, following there is a synthesis and relation of these main aspects with the ePortfolio chosen to be developed in the Rovira i Virgili University

EHEA	URV-EHEA	PLED	EPortfolio
LifeLong Learning	Education Training project, goals, specific skills.	Lifelong learning	Development of working and professional skills for continuous learning
The change on the traditional teacher	Training project URV, transversal competences, core curriculum	Implement a teaching model oriented learning and student-centered (objective)	Provides the tools to develop a life plan for learners, recording and organizing the student's necessities
Planning of the process of learning that involves didactic considerations	Teaching Model centred on the student	Process of learning and the training process	Self-Awareness Planinig for learning-self management Understanding how to learn-Metalearning Evaluating learning (self monitoring) Feed-back
	Reflect over the practice to improve it	Cooperation between teachers and students	Personal Development Plan
	Develop innovative processes with the teaching methods, the assessment process definitions of objectives and content selection	Employability	Providing the assistance to record of the peoples growing knowledge, skills and competences
	Increase effectiveness and efficiency of the processes of graduate training	Learning cooperatively, social activity	Competence based learning using ePortfolio
		Incorporation of TIC to the university	Learning to learn.

Table 5 Considerations of the EHEA, PLED, URV-facing EHEA covered by the ePortfolio purposes organized by the author

15 4.4 Guidelines for a student learning ePortfolio

The ePortfolio should be structured in three main sections, according to the structure proposed by Helen Barret (Selection, Reflection and Projection) there should be also a blog diary and the assets.

The *selection* can be supported to upload documents. Those can take the form of text, video, sound, animations or another extension file. It is possible to associate a comment to each document selected explaining the motivation of the choice.

The reflection this is the most important part of the ePortfolio process, this step include reflect and discuss over the individual's learning. The auto-reflection is a process in which the person searchs for a level of understanding, this takes place at several levels of perception, from the perception nature of the person facing different activities to the general perceptions related with the individual projected as a whole.

The *projection* consists of explaining the objectives, the level reached and the level to reach in the learning process, also the learning outcomes and assets are defined in this aspect. The publication of this work in the ePortafolio system takes place in this phase.

The ePortfolio has the potential to establish connections among the different phases of life, either labour or academic. (Siemens,2006) regarding this aspect has included the fourth step

1. Collect the elements of the ePortfolio
2. Select the elements that best show a competence
3. Reflect upon the elements selected with the aim to show the learned through the experiences
4. Connect the various aspects of the life – personal, labour, and community.

To search for the meaning of this connections, (Barret, 2008) present the following questions

- What ?(The past). What has been collected from the working and academic life (the elements and artifacts)
- Now What? (The present). How these same elements show about I have learned? (My actual reflections on mi knowledge and skills)
- For What (The future). What direction I want to take in the future? (My future objectives and learning)

The blog-diary allows to insert messages in chronological order while the rubric, inserted by the teacher, puts in evidence the competences addressed by the learning path: such a rubric can be customised by each student choosing the competences in which he/she wants to be visualised in the ePortfolio.
Such a structure provides scaffolding to the creation of the e-portfolio and encourages the reflection processes.

However, to reach the mentioned objectives and, at the same time, to plan a portfolio that has to be "sustainable and effective", not only the suggested structure, but also the following guidelines should be kept in mind, the following aspects are based on the (Rossi and Magnoler,2008) guidelines for ePortfolio practice:

The e-portfolio contains structured (compulsory) activities and voluntary activities The construction of the e-portfolio should include structured activities and other activities that the student can decide to fulfil with no obligation; there are free writings, blog-diaries and narrations both in writing and audio.

The e-portfolio has redundant and flexible tools The e-portfolio gives access to the users to different tools allowing them to follow different processes or similar functions with different media; the user chooses the tools according to the personal needs and styles and, thanks to the tool's flexibility, it can be used in customised modalities.

The learning path should be coherent with the reflection objectives The learning path, in which the e-portfolio is included, is coherent with the objectives of the e-portfolio itself; for example it establishes a reflective processes, adds value to the professional skills, it suggests cyclical paths between theory and practice; moreover it foresees an osmosis between the collaborative activities and the individual reflection.

Mentoring. Teachers, tutors, provide scaffolding with two modalities: they suggest studying materials. They clarify modalities and functionalities of the reflection and of the e-portfolio and they encourage, at least during the initial phase, the acquisition of auto-evaluation and reflective competences.

Presenting the owner's work
The opportunity to produce a specific view of the ePortfolio for a potential employer may provide a useful interface to the labour market. The main benefit in the context of a higher education institution is the opportunity to present ones work to an intra university public.

Alongside with community functionalities this public space provides a protected environment which has the potential to offer recognition to student work beyond the grade and the classroom.
Here it is suggested the ePortfolio as an instrument that supports valuing students not only as recipients of their teachers' knowledge, but as producers of their own works while documenting the development of their own voice in a community.

The ePortfolio should provide with spaces to add value (free spontaneous writing, representations, significant choices and documents), that stimulate the collaborative activities, requiring an interaction between theory (knowledge acquired during the formal path), practice (interpretation of the theoretical knowledge in the daily practice) and the theory born from the practice.

One important aspect of maintaining an ePortfolio is to keep the motivation in maintaining the ePortfolio, through the academic periods, motivation can be linked with competences and learning outcomes set with the planning of the tool, however another aspects has to keep in mind like including free activities, entering texts focused on the role, the function and the advantages in using the portfolio, as the free writings included in the environment of reflection. Also Motivation can be encouraged through enabling student decision-making, ensuring students have ownership of their portfolios, and public access to and recognition of students' work over the web

The ePortfolio proposed will take characteristics of a structured one formalised by reflection and characteristics of the "free" ones. Also the author sees the importance given to a range of spontaneous autonomous management of the digital tool.

The first ones facilitate and guide the reflection during the path following the learning outcomes, while the portfolio-diary facilitates a deeper investigation and a complete personal reflection, related to a specific professional field or a specific content.

The reflective practice might be developed into two different modalities: a reflection aimed to an improvement of the practice and to the building of a shared knowledge and a reflectivity connected to a personal project.

4.4.1 EPortfolio Competence oriented

The process portfolio organizing the course content, modules, and eventually the curriculum with a special focus on generic competencies encompassing reflective skills, self-directed learning, and competency planning, ePortfolio is not only an instrument for fostering the individual development of the student, it may also give valuable feedback to the institution whether specific generic competencies have been acquired.

Despite the fact, this study doesn't aim to develop ePortfolio towards formal assessment. The transversal competences are aimed to be evaluated trough the ePortfolio, so it is suggested that a partial integration with an institution's assessment management system will be considered at least in the first phase of the ePortfolio implementation.

Also, *the assessment of the ePortfolio should count only in terms of the delivery,* if ePortfolio can work as an integral part of the curriculum and therefore part of the course work and accounted for ECTS, it should merely be considered in terms of delivery, but not in terms of content, which first experiments with this approach have been shown successful (Logar et.al., 2007).

Practice of the end of career

The ePortfolio might be a methodological strategy and a tool for the assessment of practice of work at the end of carrier, as the establishment of the rubric in the ePortfolio activity. The necessity of new forms of evaluation for these area was settled in the document for evaluation of competences (SRE,2009, p8).
Several centres of the university has proposed to use the ePortfolio as a strategy for the tracking and evaluation of the student competences. This is a very interesting proposal that is going to be valued to be incorporated at the institutional level.

The student competency ePortfolio

As it is tested in other several universities in Spain, Barcelona University, Pompeu Fabra University, Casteldelfels university, Canarias University) it has proved the didactical purposes of the tool, with its own characteristics stimulating reflection over the practice and the autonomous learning habilities (Driessen et al., 2003).

A student competence ePortfolio for the RVU can be a challenging idea; however this section aims to suggest a student competence ePortfolio consisting in a structured collection of samples and study material that the students have acquired during their career.

From the professional point of view, the ePortfolio can be used to demonstrate the abilities acquired by students. Following there is a sample of abilities that can be addressed with the ePortfolio.

This abilities can be decided by the URV to be used as assessment of core competencies C1 dominate an intermediate in a foreign language C2. Use of advanced information technologies and communication. C3. Managing information and knowledge. C5. Commitment to ethics and social responsibility as citizens and as professional. C6. Define and develop the academic and professional project.

And that can be used as an example (Document de treball RVU,2009, p13), for a specific course
C1) Foreign Languages; C2) ICT competence;C3) Written and oral skills; C4) Humanities and Technology; C5) General Knowledge C6) Mobility.

So, the student ePortfolio become both, a tool which will help students to reflect about their own learning and how to improve it, and a tool to accredit to future employers the professional skills embedded within the degree.

The following are the competences that student can acquire with the ePortfolio development.

Communicate effectively. Oral and written. To write scientific and technical texts, papers, communication, technical reports and product datasheets using a clear an effective ideas; group conflict solving; active listening; arrange and carry out working plans for the group; assess group behavior; establish norms; and decision making;

Learn autonomously. Determine what has to be learned and establish clear goals; search, classify and select relevant information in papers, books, web sites, databases; assess the weak and strong points of the own self.

Ability to project as a professional. Identifying strong motivation for areas of the professional, carrer, setting goals, motivation. This for the improvement of determined areas of the discipline. Evidence of practice and outstanding projects during the career

Support for the improvement of another language. Ability to write and express in other language, many different media tools allows developing this ability, such us podcasts, vodcast, movies, videos, as to collect material that support improving a foreign language. Development of technologies and communication abilities. The nature of the ePortfolio supported by eLearning allows the student to use different media technologies. So, The evidence collected by the student can be supported by ICT.

This ability is implicit in the utilization of the ePortfolio itself. Is in this area where the university has to support the ePortfolio maintenance with the actual formation on ICT or the development of new formation courses for the specific tool. The proliferation of Web 2.0 applications for education can support the development of these ability, such us bookmarks del.ici.ous, mind mapping i.e mindmeister, gliffy, bubbl.us, presentations i.e slideshare, wikis

i.e wetpaint, Wikipedia, Sound recording i.e Audacity, surveys i.e Polls, web authoring i.e NVU, the same blog journal that the tool provide.

4.4.2 Continuing Professional Development CPD

These are some group of question that a student can reflect upon them in order to set a plan for a continuous professional development.

- I consult a statement of competencies for my professional sector
- I carry out an analysis of where I am now and where I want to go
- I link the contents ot the competency statement to evidence for my professional activity
- I produce a reflective statement in which I describe what I have learned and how this can have an impact on my organsation/ environment
- I ask for feedback from my classmates and mentors
- I can obtain a validation of my CPD to maintain/advance on my professional path

4.4.3 The Learning Process

The individual learning process can be supported by fostering the student's active construction of knowledge across different modules within a course as well as over time, using ePortfolio as a tool for individual development, contextualization, and "sense making". Where students are actively involved in the *production of knowledge*, either individually or with peers, supported by tutors or teachers. The resulting artifacts may be presented to the intra university audience, thus documenting the competencies acquired.

ePortfolio Framework at URV

Levels ePortfolio **Dimensions**	***Individual***	***Course and Module level***	***Institution***
Competency Planning	Meta Reflection Individual competency Planning Reflection	Implementation of Meta Reflection Reflection process in course modules as a bracket to the curriculum	Enhancing employability
Learning Processes	Active knowledge construction Contextualization Production of knowledge -Individually -with peers	Integration of EPortfolio with existing blended learning concepts. Cooperative knowledge production on course module level	Curricular quality development process
Knowledge Representation	Documentation of competences Representation of work	Content base - Module level - Curricular level	Interface to Institutional content and teaching data base

Infrastructure	Interaction with ePortfolio Software	Design of ePortfolio based on teaching and learning concepts. Interface to LMS	Providing an EPortfolio tool Interfaces to other central services, LMS.

Table 6 ePortfolio Framework - levels and dimensions of the ePortfolio implementation at Rovira I Virgili University based on the Vienna University Implementation

The integration of the ePortfolio with existing blended learning concepts also has an obvious, but conceptually non-trivial implication concerning infrastructure: the deeper the ePortfolio-integration into the curriculum the more important the question of interface to an eLearning environment (LMS, Wikis, Weblogs, etc.) becomes.

The approach made at the institutional level, compiles those stakeholders, who do not work with the ePortfolio directly, but utilize the results of an implementation on a different level. They are study program directors or others concerned with curriculum development and running study programs, eLearning representatives, executives at department, faculty, and university level. Their interests lie in using ePortfolio for enhancing employability and curricular quality development processes. They are responsible for the infrastructure and provision of interfaces to institution-wide IT-systems, as the labor that the RSE has in charge

4.4.4 Learning to learn model

The ePortfolio is a tool that can support the learning planning process, or PDP (personal development planning). The ePortfolio provides an environment that facilitates the self-management of learning.

Success Criteria

- Familiarity with the portfolio concept, including an understanding of both the process and the product of portfolio construction;
- Clear framework and guidelines;
- Structure tempered with freedom for creativity;
- Feedback during the evidence collection process;
- Understanding of the value of reflection;
- Understanding of the value of the portfolio for future use, such as employment;
- Motivation to learn and achieve good marks;
- Student ownership of the portfolio;
- Making connections between the portfolio content and the outside life of the student;
- Consideration of the target audience; and a
- Sense of achievement at overcoming initial struggles to understand the portfolio concept

The rise of Web 2.0 technologies, the availability of support for high quality open source products, the teaching model, and the adaptation of the virtual campus, are causing technological changes and opening new opportunities.

In this context ePortfolio is seeing as an instrument to pursue the implementation of eLearning in curricula and quality development. The university might develop as an eLearning strategy.
The overall goal of an eLearning strategy – should be a quality development in teaching, qualification and support structures that are continuously adapted to the changing environment.
Taking into consideration the ePortfolio should be an eLearning tool in accordance with the eLearning principles.
Not only teachers and researchers, but also student's work should be offered the opportunity to license and maintain their work in the digital Portfolio.

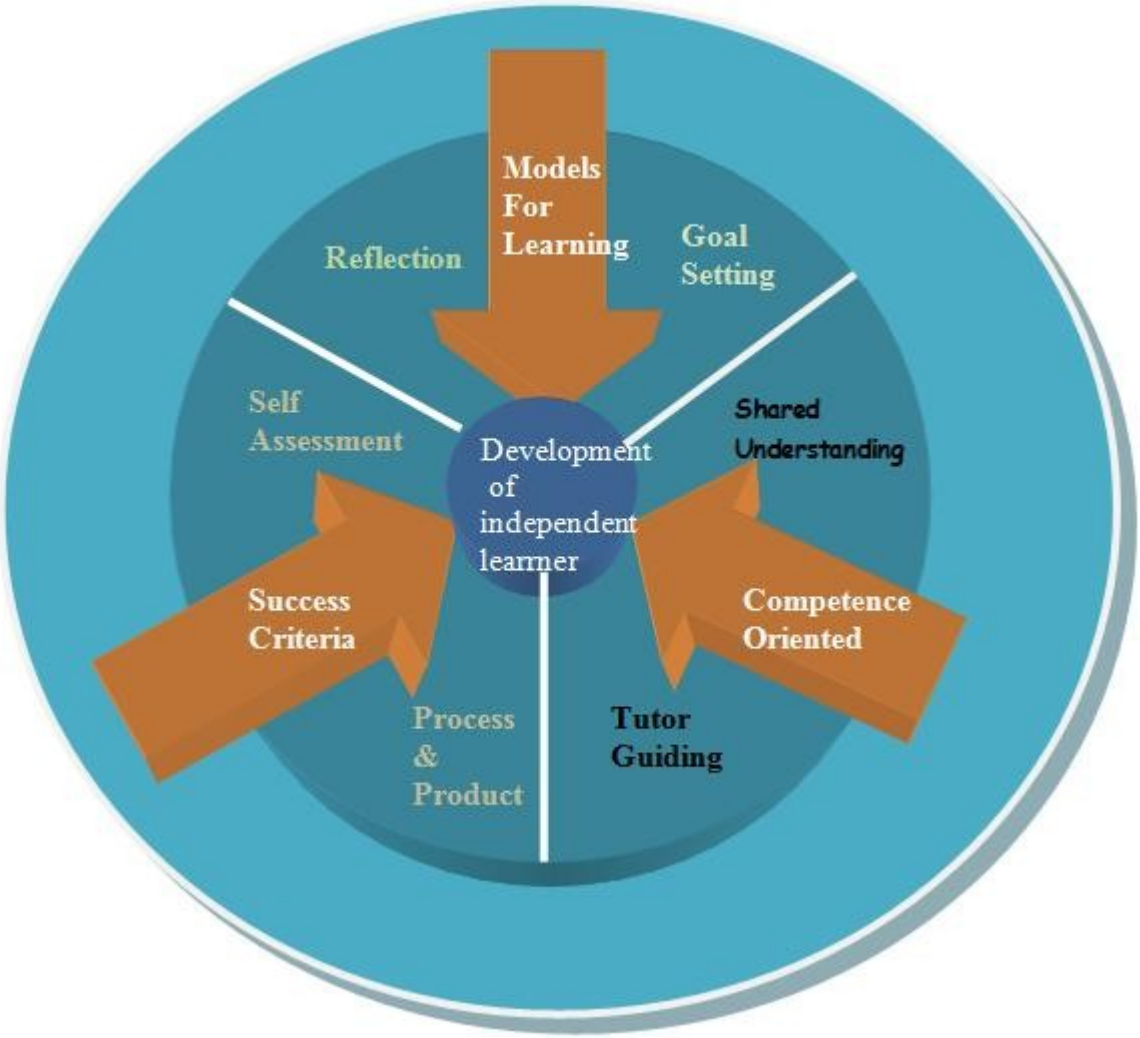

Figure 20 Model of Learning to Learn URV based on Ian Fox Model

4.4.4 The Assessment

The ePortfolio used for assessment means can be utilized to record the obligatory learning evidences and the possibility to develop the optional ones, as to have a record of the acquisition of the core competences
The assessment of the ePortfolio, should be included at the initial phase of the programs, and for the practice at the end of studies, initially can be established as an optional evaluation on a pilot course.

The ePortfolio can be built throughout the career program and delivered in three revisions:
Revision1. After completion the selective phase or the first two semesters
Revision2. After completion of all core and obligatory subjects
Revision3. After presentation of the thesis before graduating.

The student's academic advisor will be the teacher in charge to assess each revision and suggest feedback to improve it when necessary. Students might receive free elective credits after finishing portfolio revisions. A set of guides templates and rubrics (Stevens, 2005) can be prepared for developing and self-assessing the portfolio.

The criteria for the approbation of the ePortfolio might be:

- Construction of evidences showed in the electronic ePortfolio in accordance with the minimal learning objectives, and the global reflection over the learning during the course
- The content can be composed of at least the obligatory learning evidence and the reflection associated with this evidences
- The evidences should be demonstrated following the criteria of assessment specified for each course and that will be facilitated for its elaboration

If the purpose of the ePortfolio is the competence assessment, then some common elements could be included in the revisions, such us:

-Evidence showing what has been learned and in which way, with reference to the competency.
-What has to be improved and in which way to produce better results for the next revision.
- A set of representative materials and evidence documented
-Use of creativity and personalization with the tool.
- Control sheet where to annotate the major points or changes discussed with the advisor.

4.4.5 Electronic implementation

The aims is to have an electronic portfolios that serves as a "showcase ePortfolio", which students can use when applying for employment or as a continuous professional development CPD. Therefore some considerations are suggested.
Which will be the software to produce the final version of the ePortfolio? The University might decide whether open source software is more convenient than commercial tools.
Where will be the student ePortfolio located? School technicians and computers will support the project.
Consideration regarding the euroPortfolio and compatibility with the Standards applied to ePortfolios, which due to its wide analysis and development carried out also from the E-ifel Elearning European consortium, open the possibility for a complementary study.
Open the possibility for creativity this means not following a template, but allowing certain freedom for each use. Howevers considerations have to be make regarding the influence of this characteristic in the assessment of the ePortfolio.
Including Reflection and space for media ICT use inside the ePortfolio.
Sharing the ePortfolio view with advisors and students, following the objectives and criteria in the first phase od the implementation as the assessment for learning and of learning with the tool, making room for obligatory and optional evidence.

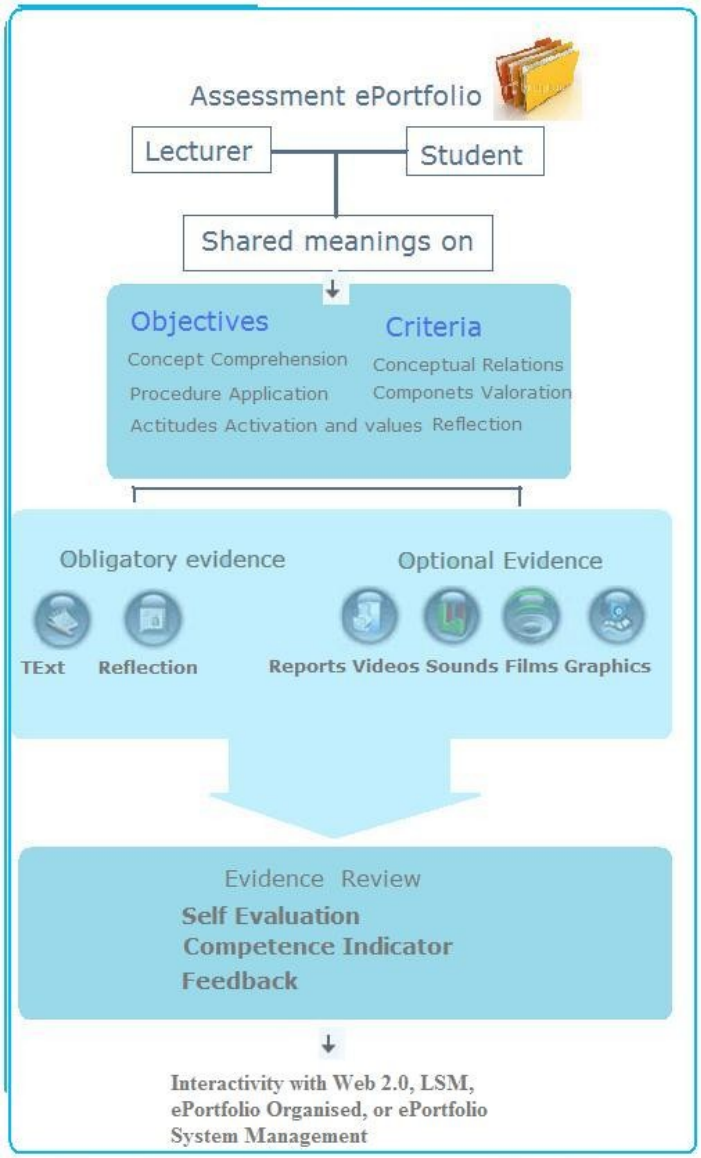

Figure 21 Example of the ePortfolio functionality and assessment shared by Lecturers and Students adapted from Barcelona University ePortfolio Model

An ePortfolio definitely is not considered inside the traditional teacher-centred learning system based exclusively in lecturing. If such will be the way, the student will be able to collect only proofs of individual technical knowledge, normally using the results of examinations.
APortfolio as a process and Product, based on learning and in higher education application throught the competence assessment integration. This ePortfolio can go far beyond. So, obviously, in order to facilitate the collection of evidence, an integration of the ePortfolio with the learning methodologies has to be planned from the administrative of the university. This integration also in conjunction with the convergence towards the EHEA: the systematic introduction and development of student-centred learning methodologies.

This document offers a first set of guidelines and the opportunities for an ePortfolio implementation to the Rovira I Virgilli University. Even though, there are still many questions around the integration of the ePortfolio concept introduced from the administrative unit of R.S.E.

For this reason, the author gave a presentation introducing the ePortfolio topic to the administrative staff of the SRE. This led to the viewpoint of managers, both methodological and technical equipment. Also, question around the topic raised from this meeting were recorded. They show the point of view from the institution and raised questions like: Whether the ePortfolio should be implemented to assessment or formative purposes? What kind of competences should be assessed and tracked in a ePortfolio system? Which technology could be the best to support that mentioned ePortfolio? Is it important an ePortfolio for the student of the Rovira I Virgili University? Who can own the ePortfolio, who can read it? Who determines how the ePortfolio is used, the tutor or the student? How has to be the role of the tutor guiding the ePortfolio?
Also, An analysis of the ePortafolio software applications is offered. This can offers a first insight of the criteria for choosing or developing an ePortfolio system application that can support the ePortfolio concept. The appendix 3 shows the table with the characteristics that every software or implementation can offer.

Then, the ePortfolio topic should be possibility for research and study in the Rovira I Virgili University. For that purpose cooperation with other universities with similar experiences, both in the Catalonia - Spain Context and in the European Context is needed.

Cooperation with projects developing the ePortfolio concept in Catalunia

In Spain the "Network on ePortfolio" led by the university Oberta de Catalunya(UOC) has been interested in the investigation and the practice of ePortfolios in Spain, also the "Student Portfolio Group" (GPoE) from the Politecnic University UPC funded by the Catalan Government. It has been doing studies on student ePortfolio integration into the curriculum. Also, there is a national network on ePortfolio Development coordinated by the lecturer Elena Barbera from OUC Open University of Catalonia.

CHAPTER 5

EPORTFOLIO FOR ELEARNING – OSLO UNIVERSITY COLLEGE EXPERIENCE

This chapter describes experience regarding the teacher and student ePortfolio. This experience is the point of view of an eLearning methodology in the LATINA course at Oslo University College.

16 5.1 The ePortfolio as a learning event in the LATINA course

The LATINA is presented by the LATINA / lab. This is a laboratory for research and production of e-learning for Oslo University College (OUC) and partners. LATINA stands for Learning and Teaching in a Digital World.

These are some of reflection that the laboratory put into consideration.

'As soon as we represent knowledge in some medium, such as a book or a chart, that process and reshape it the way it is learned. One challenge for research, therefore, is to decide how to represent the content and process of learning in a digital medium'

' What if course portals, typically little more than gateways to course activities and materials, became instead course catalysts: open, dynamic representations of "engagement streams" that demonstrate and encourage deep learning?'

LATINA is a case of Education 2.0 with Norway as a context. LATINA, which stands for "Learning and Teaching in a Digital World", is both a concept and a training course. As a concept, it represents a learning environment that combines intensive pedagogical work in small groups with full and constant use of web-based tools and media. The LATINA course was developed by a small group of e-learning enthusiasts at Oslo University College and first given as a three week summer course in 2008. Both course and concept have strong library components. The three persons in the development team have a background in librarianship as well as in teaching and adult education. The course facilities are located within the OUC Learning Center, which unites the library and the audio-visual support section of the College. LATINA is a learning environment using the web - rather than paper - as an educational platform. LATINA is an attempt to understand the rules for success on that new platform. On the web, but LATINA is not about tools, but about learning and teaching. It focus on the pedagogical texts, events and presentations participants can *produce* with the tools. (Høivik, 2009)

> Tord Høivik Associate and Assistant Professor of the LATINA lab explains, '*We have deliberately chosen tools that are available - free of charge - to everybody on the web. Since the tools will be new to most participants, we must provide some instruction in their use. But that is normal in all subjects. Carpentry is not about drills and handsaws, but the tools must be mastered. The goal of cookery classes is savory meals, not the techniques of cooking. But students must still learn to create an omelet without cremating the eggs*'

LATINA is an international course and draws participants from different countries, cultures and professional backgrounds. This means that the class is much more heterogeneous - in terms of age, language and computer skills - than is usually the case in regular programs of

study. Also the participants are students, teachers and librarians that want to develop their educational skills on the World Wide Web. The course is aimed equally at those who teach and at those who learn. In digital environments, in fact, the line between the two is often blurred. The knowledge economy challenges the autonomy of the academic sector by linking knowledge to production. Education 2.0 undermines the status of the teacher by removing the distinction between teacher and learner (Høivik,2009,p8)
During the Latina course a set of learning events are given, such us, Grammar of Schooling, Living and Learning, Blogs for teaching, Learner Expectations, Moore's Law, E-portfolio, Web 2.0, Project Management, Mash ups, Seven principles of practice for teaching, E-learning, Workflow design, Interpretive Environments, as many others. All of them framed on this general topics; The construction and use of individual and collective learning spaces, Blended learning, Evidence-based Education, Retrieval and reuse as knowledge construction, Museums, libraries, and archives as learning institutions; The role of the Web in the global knowledge society.[20]
All of them complement teaching and learning and therefore the ePortfolio process. However they are not going to be explained further in this report. EPortfolios for teaching and learning is going to be a major concern. Also, the digital tool is one of the topics addressed in the Latina Lab, and particularly for its characteristics it is going to be introduced and used during the whole summer course 2009.

Actually, the participants are able at the end of the course to give a learning event using in a proper way the web based tools and new media. It was stated in one of the participant's blog[21] at the end of the spring course.

> *'I've seen that working completely on the web is possible, and is a reality. I also learnt to create digital content which it means addressing to a virtual wide audience. So the real task was thinking about what I would say and how. If you want to get understood you have to be understandable. It engaged me in a process of sharing knowledge very interesting. I learnt to teach in the LATINA environment and learnt doing. Learning by teaching. Creating a learning resource implies using all possible formats to make it good. Images, the size of the text and things like these are important to take into account for the legibility and good understanding. It also implies having teaching techniques to make it more efficient, which I did not have but now I feel I know more. I worked in two ways: writing the resource and presenting it, and it allowed me to learn to pass on information through the web and orally'.*

Hence, it is possible to use pedagogic innovation in eLearning using the web based tools. The Course support its work on pedagogic strategies such us

- Learning by teaching
- Producing and consuming knowledge
- Sharing and authoring the products
- Reflecting upon them
- Receiving constructive feedback.

All of them using resources enhanced by the Information and Communication Technologies and Web based tools.

[20] http://summer.latina.pedit.hio.no/?page_id=557
[21] http://tanama.wordpress.com/latina-course-report/

These were the observation made by the author, who was also a LATINA participant. In which she also gave a learning event regarding the use of ePortfolios for teaching and learning[22].
Therefore, due to the relevance of the ePortfolio to the LATINA course, as a process of learning and as a showcase. The ePortfolio concept regarding eLearning strategies is of value in this study and its close relation with these three eLearning Principles which were presented previously in chapter two in the order given by the reference.

4)'eLearning advances primarily through the successful implementation of pedagogical innovation'
5) 'eLearning can be used in two major ways, the presentation of education and the facilitation of education process'
6)'eLearning are best made to operate within carefully selected and optimally integrated course design model'.

So the author, in order to be consistent with these principles, has decided to organize a set of directions to use for an ePortfolio initiative during the Latina course. This is explained afterwards in this section. However, as a start point is important to know the ePortfolio concept conceived by the Laboratory.

17 5.2 LATINA Lab conception of ePortfolio

The Latina Lab defines the ePortfolio as a collection of electronic artifacts that are used to show-case and document qualifications and experience from work, formal study and leisurely activities. Also the purpose of the ePortfolio can have a summative, formative and prescriptive purpose.
This means that the e-Portfolio systems may summarize all or the important part of work and progress for a given period of study while they are replacing the traditional exams.
Although, ePortfolio is one topic of several other that the Latina course teaches. The ePortfolio is intended to be used to provide the means to students keep the work produced during the time of the course, also with the intention for continuous personal development plan.
These digital collections are also of formative value – as resources to ponder and reflect upon by the student. It is used to store and display shareable objects for discussion and analysis with teachers or fellow students. The e-portfolio system may also be used prescriptively as a means to plan and pursue work (LatinaLab, 2009).

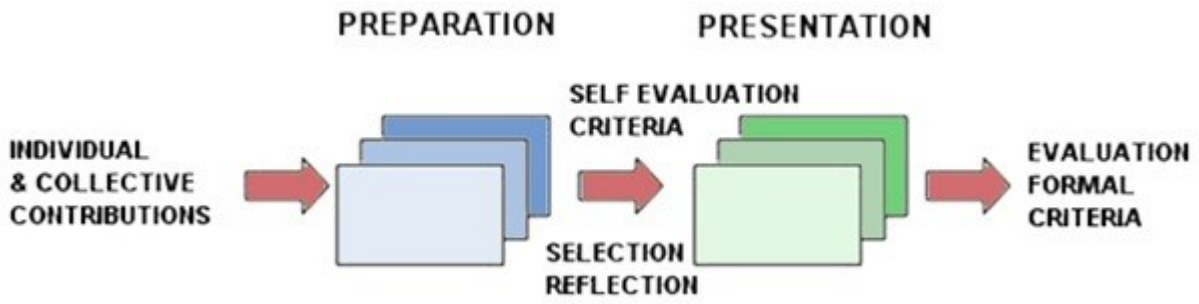

Figure 22 ePortfolio for the eLearning Latina Lab 2009

[22] ePortfolio Learning Event. http://ximenaslearning.wordpress.com/e-portfolio-project/

Curriculum Vitae (CV) within the ePortfolio

E-portfolio is generally useful for pragmatic reasons. Which in some cases it is impractical or impossible to document certain processes without resources to digital modes like video/sound, three-dimensional renditions and animations. Digital work like computer programmes or other artifacts that resides in binary format only are also a case in point.
In the ePortfolio it is allowed to stream activities in a chronological form. So the past – present and future is explicit. The CV within the ePortoflio is interpreted in a sense that the activities included follows a chronological order and the priority of these activities are chosen departing from questions, such us Do an activity (evidence) is relevant to show in the ePortfolio? Do an activity belong to an 'event string' or and a large whole? Is it possible to identify progression, enhancement or improvement? Digital folders with their flexibility and malleability give ample support or scaffolds when working with such questions. Elements may easily be added, edited, deleted and moved around. (Latina Lab, 2009)

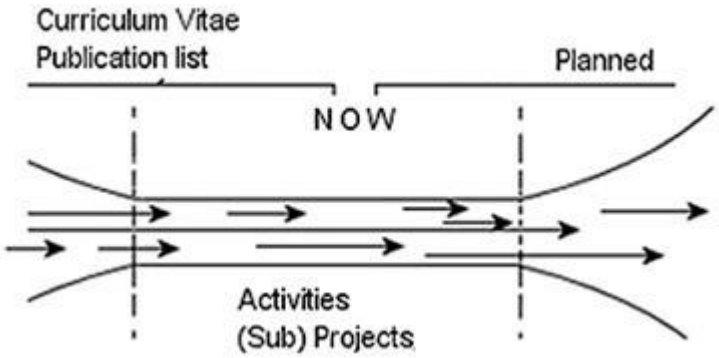

Figure 23 Movement of activities in an ePortfolio (LatinaLab, 2009)

This movement of activities can be easily adapted by the individual, thanks to the facilities that the ePortfolio System provides.

The Reflection in the ePortfolio

To reflect upon practices for an e-portfolio is to show insight. The reflectioner alternates between observing and describing the particular and the universal aspects of a phenomenon.

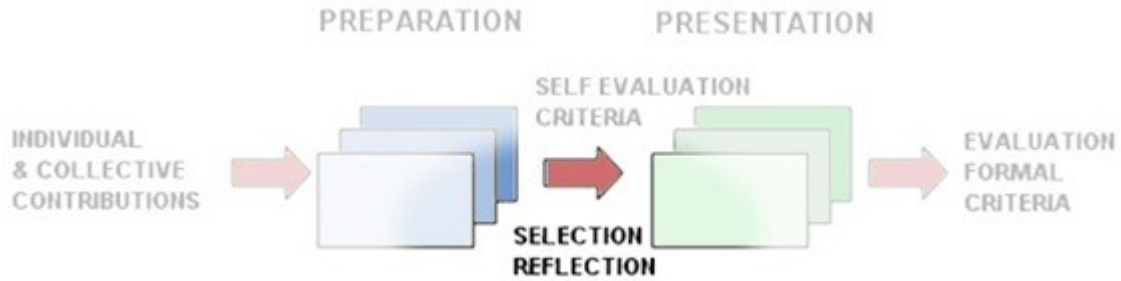

Figure 24 The Selection and Reflection in the ePortfolio (LatinaLab, 2009)

The reflection in a fundamental element in this process, it is used continuously during the LATINA course; this offers the opportunity to construct meaning and knowledge. In this sense "the portfolio can be a Laboratory where students construct meaning from their accumulated experience" as it is stated by (Paulson & Paulson, 1991, p5), I would like to add,

'the portfolio can be a Laboratory where students construct meaning from their accumulated experience, through the experience and projecting those experiences'. Also, pointing out the importance of telling a story.
This is emphasized throughout the course with the activities and learning events with storytelling. So the metaphor of 'portfolio as story' emphasizes the richness of this tool to support reflection as an essential component of learning. John Dewey has stated 'We do not learn from experience, we learn from reflecting on experience'. Also the Learning cycle developed by David Kolb, based Dewey, Piaget, and Lewin is based on the belief that deep learning (learning for real comprehension) comes from a sequence of experience, reflection, abstraction, and active testing.

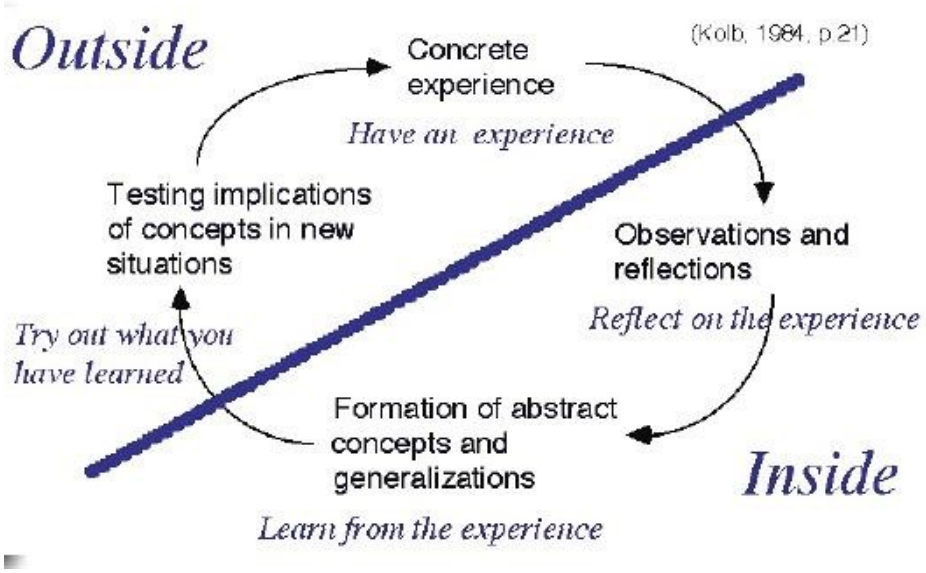

Figure 25 Reflective Cycle by (Kolb 1984, p21)

The Latina course has included the ePortfolio topic as part of the course. It is important that the theory can be related with the practice. Also as it is stated by (Høivik, 2009, p9) '*We require participants to take an active part in production, presentation and feedback from Day One*'. The author considered that ePortfolio concept can reach the demands of the course, where the production, presentation and feedback can serve as input for the participant's ePortfolio. To reach this aim is important that a clear concept could be introduced. This oincdirections to maintain the portfolio through the course and for the participant's future personal development.

5.2.1 Directions to build an ePortfolio course during the LATINA course

This attempt of an ePortfolio module is based on the Portfolio MOSEP[23] tutorials which are offered by the European Project to develop a set of measures for the use of e-portfolios in different contexts. This project provides teachers and trainers with teaching and learning resources that can be used to support trainees who are focusing on any aspect of the e-portfolio process. This set of tutorials was chosen due to the close relation with the learning and development processes and not on specific tools.

> *The Mosep Tutorials are freely available to anyone who wants to use them. They have been designed to be either used as they are, or adapted and customised to meet*

[23] http://www.mosep.org/

individual training needs. They are stored in a Wiki that allows teachers or trainers to select the individual activities or activities that they need, and to assemble them into the sequence that meets their specific training need. Being stored in a Wiki, they are able to customise and then make available to their trainees (Mosep Project, 2006).

Taking into consideration that the LATINA course is not only focusing in ePortfolios, these directions are followed in order to introduce the concept of ePortfolio. The initial activities that participants can follow in order to initiate an ePortfolio through the course. This aspect is also considered in the MOSEP tutorials. '*The trainer has to be very patient and positive, developing an ePortfolio is not an easy process that can be achieved in few weeks*'

ELearning event: discovering the e-portfolio

These set of directions are based on the MOSEP modules tutorial.
The Latina course is given during three weeks with activities for every day. These guidelines are introduced to be framed within the schedule of the course. Also every week is planned according to cases and concepts for every day given through temporary learning environments. The activities are going to be suggested during the three weeks.
This event is suggested to be presented during the three weeks of the LATINA course.

5.2.2 First week

Introduction. The trainer shows learners the value of the ePortfolio and reflects in this aspect

Activity

These benefits can be introduced as:

- Support for independent learning, which is crucial for the development of academic research skills. It puts the student in the centre of the learning process and equips him/her with a powerful tool for personal development, enhancing critical thinking, writing and communication skills.
- Facilitation of the presentation of achievements for various audiences, such as examinations boards, tutors, peers or potential employers, in attractive and portable way.
- Presentation of various on-line activities and enhancement of their educational and professional value with different media and formats
- Support for personal knowledge management and personal development planning as a unique opportunity for reflecting over one's learning and, at the same time, encouragement of progress by demonstrating achievements

During the first week three sessions are suggested and are explained, following.

Session 1. *Purposes of creating e-portfolio is intended to provoke reflection on the process and four stages of ePortfolio development: W(ork), R(eflection), C(onnection), P(resentation). Learners are encouraged to write a blog entry which defines the particular purposes of ePortoflio creation.*

Activities

1. This activity proposes to participants to write a blog entry defining the purposes of the ePortfolio creation, this activity can be taking into practice after the blog creation activities followed as part of the course.
2. As part of this activity the trainer explains the ePortfolio process, propose the activity and follow up the participant involvement.

Session 2 *Technical requirements and opportunities focuses on the learners' skills to develop and maintain ePortfolio. It explores different formats of the artifacts and requirements for efficient web publishing.*

As part of the course every day different topics are explained and the students elaborate artifacts (products as evidences), such us movies, reflections, oral and written productions, voice recording which are published in the web.

Activities

1. The activity to support this session start building a page inside the student's blog related with the ePortfolio, this page can contain the purposes of the ePortfolio.
2. Encourage participants to build a personal presentation. They could choose a digital tool of preference to make a self-introduction. Throughout the course the participants will learn on how to use different digital tools. Then, Participants at the end of the course can include it in the ePortfolio.

Session 3 Structure of an ePortfolio Once the learning goals and ePortfolio objectives have been defined and learners are familiar with possibilities offered by the tools it is time to work out the structure of ePortfolio. Trainers are also encouraged to evaluate the structures and define the evaluation criteria for particular ePortfolio purposes.

This session is designed for participants to get an overview about e-portfolio software opportunities and start thinking about planning and implementing ePortfolio as a personal development plan. The learning outcome is that the learner shows in the ePortfolio personal site the structure defined by them. It is important that the structure can contain the personal project they are working on during the course.

Activities

1. Planning the e-portfolio structure (what should my e-portfolio contain in order to achieve the desired goals?). At this stage the participants can take into account the possibly necessary compromise between the ideal structure of e-portfolio and what tools and skills they have;
2. In terms of tools exploitation participants will be able to: Explore examples of ePortfolio tools. There is a wide range of tools which can be used for creating one's ePortfolio. It is possible to see different examples of personal ePortfolio e.g the ones created by Helen Barrett (1 [http://electronicportfolios.com/myportfolio/index.html]) who created her ePortfolio with a variety of software, from spreadsheets to commercial system. Take a look at dedicated ePortfolio systems in Elgg (2 [http://www.elgg.org/]) and Mahara (3 [http://www.mahara.org/]

5.2.3 Second Week

Reflection of the learning process and starting given imputs to the ePortfolio
During the second week two sessions are suggested and are explained, following.

Session 1.*Understanding reflection and its role in the ePortfolio development process*

Activities

1. Reflection activities can involve reading, writing, storytelling.

   The tutor should acquaint the participants in the course with the existing reflection tools. Also the participants will learn the best practices and will receive recommendations for the usage of different tools. In their presentation the tutor can use the following plan::

   Introduction: presentation of different reflection tools

   a. written learning journals
   b. unstructured documents
   c. notes and mind maps
   d. blogs
   e. sharing thoughts on a forum
   f. ePortfolio systems
   g. recording on audio
2. Best practices
3. Recommendations for usage of different tools

Session 2. Using the Reflection for planning the ePortfolio

Activities.

1. The trainer gives students the following assignments to reflect upon personal development: Explore New Interests, What are your Ambitions?, Setting Short-Term Goals, Where Will You Be? Journey To Achieving Goals

5.2.4 Third Week.

During this week two sessions can be developed in order to build an ePortfolio template, making inputs with the evidences created during the course and presenting them to the audience student and trainers.

Session 1. Developing a personal e-portfolio template

Activitiy

1. The participant can try to design the template of their own e-portfolio. They can use the template they feel confident using. Make use of: possible applications of e-portfolio, existing e-portfolio templates; examples of e-portfolios;

Session 2. Presenting the ePortfolio to the audience

Activities

1 During this activity the participant will be able to make a presentation of their ePortfolios. The skills gained during the course regarding how to give presentations are used in this phase, also the feedback given by the Professor regarding techniques for successful presentation. These techniques are part of the course on a learning event regarding successful presentation skills.

2 Feedback. The trainer will give suggestion for improvement and successful implementation points. Also participants will be encouraged to give feedback and express their own opinions regarding the presentation. The participant can write a comment in the course blog about his/her perceptions with the presentation and the feedback received.

18 5.3 Reflections about the internship at Oslo University College

During the internship at LATINA, I observed several interesting aspects related to the implementation of e-portfolio. Most of them match the aspects referred to in the literature about the use of e-portfolio as an effective pedagogical approach. The students worked independently as well as in teams. They were very motivated and this was, perhaps, related to the fact that each student was in charge of a specific project to be developed during the course in which he/she applied the skills gained in the laboratory activities. The students were very eager to carry out their tasks and seemed to be very engaged in all the activities. They mentioned that they were proud of their improvements along the time they spent in the laboratory. All their work was kept in a blog, which they maintained and updated every day/session. This seemed to be a successful implementation of a student centered learning approach, which has been for some time the educational philosophy in Norway. The success of implementation of e-portfolio as a student centered learning approach seems quite evident at LATINA lab. However, I wish to raise questions here. Can this success be attributed to the e-portfolio as a learning tool, or is it a consequence of an already existing learning context that is student centered? Many questions can be raised regarding the effectiveness of e-portfolios as a learning tool. One cannot deny its importance as a personal development tool that can be maintained and updated. Another important aspect is the collection and selection of activities that can be shared, reflected upon and developed throughout the learning sessions. The possibility to create knowledge that can be published is a motivating factor that was referred by the students.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

Advances in technology and an easier access to web connections facilitate the application of technology to learning purposes today. The widespread use of ICT in education has created many new opportunities for introducing innovations in teaching and learning forms. Thus, the application of new technologies in an academic context might create an environment that fosters learning in higher education. Among different e-learning approaches, the e-portfolio stands out as one that can innovate teaching and learning through its application to new pedagogical approaches that utilise electronic devices. The e-portfolio provides the integration of a wide variety of new ICT means which expand the possibilities for increased participation, interaction, collaboration, and stimulates reflections.

With these ideas in mind, the author started this study with the overall purpose of investigating the implementation of e-portfolios during the process of learning in two higher education institutions. The following research question has guided this study:
How can teachers and students make use of e-portfolios in the process of teaching and learning?

To answer this question, the author conducted a wide literature survey and spent some time in the e-learning environments of two institutions, one located in Spain, Tarragona (University of Rovira I Virgili) and the other placed in Oslo, Norway (Oslo University College). The exposure to two educational contexts situated in different countries made the author aware of the different forms of application of e-learning in the academic environment. In each university, the organisation and applications of e-learning to education were aimed at meeting the needs of the context. Apart from the main purpose of the two learning centres, which was the promotion of teaching and learning through the use of ICT tools, their specific objectives were quite different.

During the practicum at Oslo University College, the author observed that the lecturers at the LATINA lab used e-learning environments and e-portfolios in their teaching practices. LATINA is a learning environment that uses the web - rather than paper - as an educational platform. However, LATINA is not about tools, but about learning and teaching. It focuses on the pedagogical texts, events and presentations that participants can *produce* with the tools (Høivik, 2009). Being an international educational programme, it draws participants from different countries, cultures and professional backgrounds and it is aimed equally at those who teach and at those who learn. During the programme, a set of learning events are given. All of them complement teaching and learning and therefore the ePortfolio process. The learning environment is highly interactive and very motivating for the students. It puts the student in the centre of the learning process and equips him/her with a powerful tool for personal development, enhancing critical thinking, writing and communication skills.

During the practicum at Rovira I Virgili University, the author collected and analyzed a series of documents about the utilisation of an institutional ePortfolio tool aimed at teachers and students of the university. It is important to mention that the author's skills acquired in previous involvement with eLearning technologies, provided the basis for the analyses and reflections about e-Portfolios as a tool for supporting the pedagogic models at Rovira i Virgili University. These analyses keep a focus not only on the application of technological tools for educative purposes at URV, but also on how the processes are adapted to the new European Higher Education Area (EHEA) and the Bologna Process initiatives.

The ePortfolio adaptation to the URV is intended to be aligned with the mentioned Institutional Strategic Plan of Teaching and the Mentoring Action Plan (PAT). The overall objective of the URV in terms of teaching is to encourage a process of education in which the students' needs are met through a dynamic process of learning. This means that students move from being passive recipients of content and knowledge to be actors who have roles and functions (SRE, 2003). To define the learning processes of students the teaching model takes into account:

- The knowledge of the student.
- The formative experiences that have had to reach the university.
- The need for learning activities that enable them to establish relationships between what they know and what they are learning and will learn.
- Learning is a highly social activity that becomes more significant when is made in a cooperative way.

A comparison of the implementation of e-portfolio at OUC and URV shows that they have similar objectives, such as putting the student in the centre of learning. The main difference is that at URV the initiative for e-portfolio implementation is linked to the management of the university and it is intended to be integrated to the university educational policies, while at OUC it is limited to the activities of a learning laboratory. In spite of these differences, it is observed that the e-portfolio implementation is in agreement with the aims of the European Higher Education Area.

However, it is seen through this study that further analyses have to be done regarding the implementation of e-portfolios at individual and at institutional levels. The study of ePortfolio is still in its beginning (Ravet, 2009). This is why it is necessary to have a wider vision and not conceptualise the tool as a Curriculum Vitae or a social space. The electronic portfolio is a wider concept which includes the CV and the social space as complement. The concept is changing and the last studies are showing that it is evolving to a portfolio management system integrated (ePMS) with a personal organizer (ePO). Those are new terms that probably are going to be object of study by the research groups and consortiums of ePortfolio.

If properly implemented and used well, ePortfolio can be a powerful tool for capturing student learning. It allows mentors, lecturers or trainers to keep the trace of the students learning. This can happen through the process of constructing an electronic portfolio. Students learn to apply reflective thinking to their experiences. Thus sharing knowledge and generating meaning. Students recognize the next steps to take on their learning journey.

Institutions need to be aware of the impact that electronic portfolio development can have. Electronic portfolios need to be integrated with the new forms of pedagogy oriented towards student centred environments. Institutions also need to recognise that the process of implementing an electronic portfolio system is a long-term one, and it may take several years before the full benefits will be seen.

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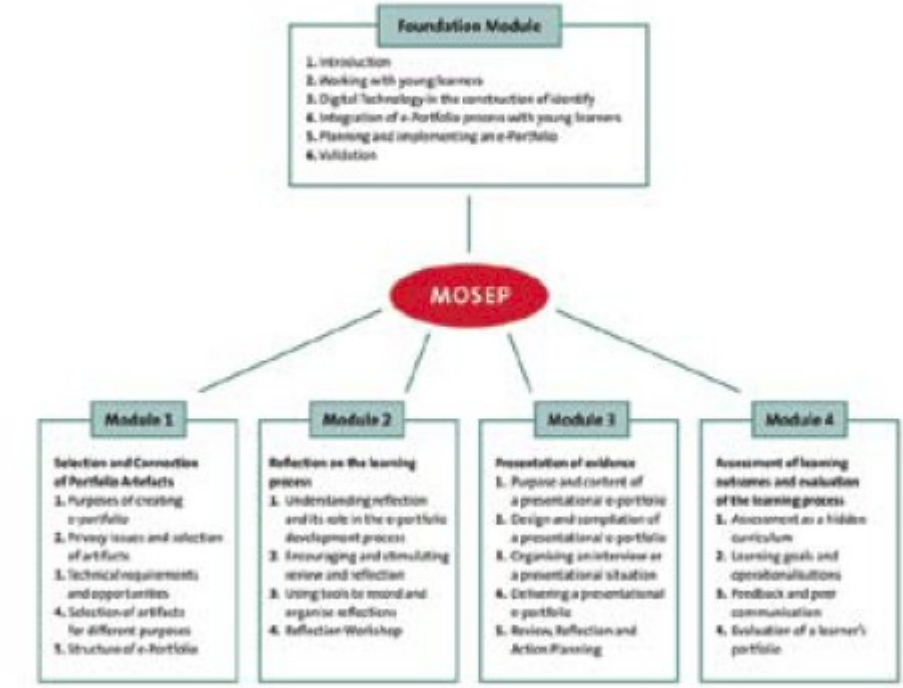
Appendix 1. Evolution of the agreements of the European Convergence

E.H.E.A	Date	Evolution of the agreements
Sorbona Declaration	1998	Concept of European Area Student mobility Professional integration of titles Internal and external clarity of the system and titles
Bolonia Declaration	1999	Diploma supplement-European Diploma Supplement System based on two cycles (professional qualifications, Masters and PhD) Establishment of a system of credits; Mobility of students and teachers Promotion of European co-operation in quality assurance; Promotion of the European dimension in higher education. Lifelong learning
Praga Document	2001	Bologna Declaration Education and training should be a process of lifelong Quality of teaching and research Cooperation on transnational education
Salamanca Conference	2001	Quality
Berlin Document	2003	Quality assessment Use of the credit system Development of joint degrees Obstacles to mobility
Bergen Conference	2005	To promote the recognition of qualifications Encouraging mobility Strengthen the enforcement of quality standards To promote the linkage of higher education research and innovation Integration of the PhD in the Bologna Process

Appendix 2. Structure of ePortfolio MOSEP Tutorial on ePortfolio

MOSEP COURSE MODULE BY MODULE OVERVIEW FOR TRAINERS

The MOSEP Tutorials provide teachers and trainers with teaching and learning resources that can be used to support trainees who are focussing on any aspect of the e-portfolio process. The Tutorials consist of a Foundation Module and four other Modules, each of which cover one aspect of the e-portfolio process. The Modules are sub-divided into a number of Sessions. Each of the Sessions include a sequence of Activities that, in addition to providing suggested 'things to do' for both the Trainer and the Trainee, also provides link to materials, such as on-line articles and audio-visual content. The Tutorials are stored in a wiki which means that they are in the public domain, available to anyone, and the content can be edited by anyone who creates an account. The activities and modules can be freely adapted and assembled into new sequences to meet training needs. The content is therefore dynamic and relies on the community for contributions and moderation once the MOSEP project finishes. The Tutorials reflect the MOSEP philosophy which recognises the e-portfolio process as an important learning process that promotes planning and reflection. While the e-portfolio as a product is very valuable and can support the learner, it is the e-portfolio process that has the potential to engage the learner and support learning.



Foundation Module

This section is intended to introduce ePortfolio as a pedagogical concept and gives an overview of the most important elements of the portfolio process. It is the recommend starting point for trainees as it introduces activities that are further explored in other modules. It sets the framwork of learning goals and personal development planning; it provides the foundation for reflection and considers and signposts Open Source tools.

Session 1 Introduction focuses on ePortfolio purposes in the young learners perspective.
There are various definitions describing ePortfolio. Each of these stress different aspects – technical, pedagogical or contextual. Revising them enables to grasp the complexity of ePortfolio as a process which can be applied for various purposes: accountability, learning or marketing.

Session 2 Working with young learners explores methods that can be used to motivate young learners, especially these with difficulties. It helps to develop approaches to encourage young people to use modern media in their learning for their personal development.

Session 3 Digital Technology in the construction of identity focuses on the contribution of digital technology to the construction of learner's identity. Privacy and security isses are discussed and the awareness about the online presence of adolescents.

Session 4 Tools and implementation explores the different software possibilities and is furthermore extended by interactive tutorials on Mahara ePortfolio system

Session 5 Validation is intended to support personal development planning with the view to ePortfolio development

Module 1: Selection and connection of artifacts

It is not possible to start creating ePortfolio which truly supports lifelong learning and development without clear definition of personal learning goals and objectives. These decisions influence further action. This practical module explores the issues of ePortfolio structure and content, taking into account, the different purposes that learners can use their ePortfolio for. It focuses on the artifacts and the dynamic process of their clasification according to the particular need of the ePortfolio owner. After the completion of the module the learner should have started to compile their own ePortfolio with clearly defined goals and structure.

Session 1 Purposes of creating e-portfolio is intended to provoke reflection on the process and fours stages of ePortfolio development: W(ork), R(eflection), C(onnection), P(resentation). Learners are encouraged to write a blog entry which defines the particular purposes of ePortoflio creation.

Session 2 Privacy issues and selection of artifacts goes back to the security and on-line presence of adolescent learners. It is a complex matter which combines the aspects of ePortfolio ownership with the access rights and personal data security. Learners verify their ePortfolio software with regard to the privacy protection and access control.

Session 3 Technical requirements and opportunities focuses on the learners' skills to develop and maintain ePortfolio. It explores different formats of the artifacts and requirenments for efficient web publishing. As the ePortfolio tools tend to be too confined for active contemporary earners it also deals with the social software solutions and external services which can enhance ePortfolio features.

Session 4 Structure of an ePortfolio Once the learning goals and ePortfolio objectives have been defined and learners are familiar with possibilites offered by the tools it is time to work out the structure of ePortfolio. Trainers are also encouraged to evaluate the structures and define the evaluation criteria for particular ePortfolio purposes.

Session 5 Selection of artifacts for different purposes explores further the evidence for ePortfolio according to the specific and different ePortfolio objectives, audience intended and technical skills of the learner.

Module 2: Reflection of the learning process

Reflection is a crucial part of the ePortfolio process this section is dedicated to support both trainers and learners to develop strategies for reflection on their own learning process. Reflection encourages learners to learn from their experiences and as such, it is a very important part of an ePortfolio. This module encourages an understanding of methods and formats of reflection with regard to adolescent learners' learning environment. The module is practical and requires learners to interact with the tutor and peers.

Session 1 fouses on reflection on attainment, attitudes and it links together components of learning and progress into a coherent framework which enable the learner to reflect on the standards, goals, outcomes and artifacts.

Session 2 and 3 explores different levels of reflection process: self-reflection, reflection on action and reflection in action. Trainers will be able to provide strategies for effective reflection for their learners and give support in recording and structuring. A set of reflective tools is considered as well as software solutions which facilitate this important process.

Session 4 deals with the influence of the learning environment on the learner's ability to reflect in a self-confident way.

Module 3: Presentational Portfolio

Audience is an important component of the e-portfolio process. The opportunity to review personal development, skills competency and achievements in a presentational situation is very important for adolescent learners who need to cope with job interviews, examination boards or peer reviews. This module is based on the outcomes of Module 1 and Module 2 and focuses on the issues that the learner needs to consider when they design a presentational e-portfolio for a particular purpose. The sessions focus on the selection and presentation of appropriate artefacts that will in turn provide the audience with evidence of the learner's development or competency. The sessions follow a refinement process: from design through performance or delivery to reflection on performance and future planning.

Session 1: Purpose and content of a presentational e-portfolio is dedicated to raise the awareness of the importance of presentation in the e-portfolio cycle as well as in the development process itself. Trainers are encouraged to refer to real-life situations so that they can prepare their trainees to support learners who will be compiling an e-portfolio in preparation for a real interview situation or review meeting.

Session 2: Compiling a presentational e-portfolio is an extension of Module 1 as it focuses on selection of evidence and designing an e-portfolio for a particular audience. It is very practical, including a study of current best practice and opportunities to discuss real situations.

Session 3: Organising an interview or presentational situation
Facing the interview is usually a very stressful situation for the learner. This session focuses on developing effective strategies to plan and rehearse an interview situation in order that the learner is prepared for, and derives maximum benefit from the situation.

Session 4: Delivering a presentational e-portfolio requires the trainer to organise the session in a way which reflects the atmosphere and setting of the real presentation situation (such as a job interview). The benefits of recording the learner's performance in the presentational situation is discussed as is the need to plan, organise and prepare both the learner and the technical aspects of the recording. The importance of integrating review and reflection on performance is highlighted.

Session 5: Review, Reflection and Action Planning is a crucial stage where a learner reflects on their performance and considers the appropriateness of the structures and evidence that they selected. This session examines strategies that can be used to promote self-reflection and analysis of the evidence selected.

Module 4: Assessment of Learning outcomes and evaluation of the learning process

There are two aspects of assessment with regard to e-portfolios. The first one concerns the assessment of the e-portfolio itself as a collection of artefacts. The second one focuses on the assessment of the learning process and is more difficult for the teacher or tutor. It is important that the learner is clear about the assessment criteria that are to be used before they compile their e-portfolio. Module 4 aims to explore these assessment issues.

Session 1 concentrates on Purposes and effects of assessment and introduces the concept of assessment as a hidden curriculum. It is crucial for the trainer to understand the internal e-portfolio procedures in an institution, if they are to be able to assess learning within an e-portfolio. This session focuses on the different forms of assessment both for learning and of learning.

Session 2: Learning goals and operationalisations
This session focuses on learning goals and assessment criteria. It deals with the assessment of the learning process within an e-portfolio and the assessment of an e-portfolio itself. The role of the teacher in supporting and facilitating assessment is also considered.

Session 3: Feedback and peer-communication explores how, by providing the trainer with the skill-set to give constructive feedback, it is possible to support learning and motivate the learner.
Session 4: Assessment of a learner's portfolio helps to develop a formal system to grade the development of the learners' learning. As a part of this, it contains a guide of how to create a systematic overview of the assessment criteria.

Project Consortium:

Salzburg Research – Austria
Pädagogische Hochschule für Niederösterreich - Austria
Pädagogische Hochschule Salzburg - Austria
Student Computer Art Society – Bulgaria
Landesakademie für Fortbildung – Germany
European Institute for E-Leanring – France
Kaunas University of Technology – Lithuania
University of Science and Technology – Poland
Pontydysgu-The Brige to Learning – United Kingdom
Wolsingham School & Community College – United Kingdom

Appendix 3. Applications that support ePortfolio implementations

Portafolio	**URL/archivo**	**Centro**	**Carrera Estudio**	**Disciplinar Multidisciplinar**	**Tipo**	**Particularidades De Uso**	**Cronología de entregas**
Solución Competencias 2007	Bologna.pdf	University of Augsbrug Alemania	Todas	Multidisciplinar		1. Trabajo 2. Reflexión 3. Evaluación	
Scioware - Concord Licencia comercial	http://www.eife-l.org/publications/eportfoliosolutions/scioware		Todas	Multidisciplinar	Columna	1. Administración de portafolio 2. Manejador de competencias y habilidades 3. Manejador de curriculum personal 4. Seguimiento del progreso del estudiante por curso, semestre y otros 5. Manejo de acreditación 6. Repositorio digital	Por semestre o curso
PebblePad Pebble Learning Ltd e-Innovation Centre Licencia Comercial	http://www.pebblepad.co.uk enquiries@pebblelearning.co.uk	University of Wolverhampton UK	Todas	Multidisciplinar	Cake	1. Centrado en el estudiante 2. Basado en evidencias 3. Accesibilidad a través de permisos 4. Soporte con dispositivos móviles 5. Creación de websites 6. Crear-Editar-Revisar → Habilidades, Logros, Planes, experiencias, reuniones, pensamientos, weblog, webfolios (blogs) 7. Compartir, Publicar, Imprimir, enlazar → Imágenes, archivos, películas, sonidos, comentarios	

						sobre el texto.	
Foliotek Licencia Libre	http://www.eife-l.org/publications/eportfoliosolutions/foliotek	Universidad de Missouri Columbia	Todas	Multidisciplinar	Archivo Carrito	1. Aprovechamiento de existentes herramientas como office 2. Interfase intuitiva 3. Organización de archivos 4. Herramienta de colaboración para el manejo de la retroalimentación 5. Anuncios de eventos 6. Los graduados pueden continuar usando el portafolio para su desarrollo personal 7. Facilidades para comunidades de aprendizaje	No especifica, configurable
Exabis e-Portafolio Block Licencia Libre	http://docs.moodle.org/en/Exabis_e-portfolio_block	Ministerio de Educación de Austria				1. Integración con Moodle 2. Menejo de archivos 3. Reflexión 4. Uso cruzado en los cursos 5. Importación desde moodle 6. Información personal C.V 7. Publicación de links 8. Opciones de Acceso 9. Propiedades de exportación que permitan usar los datos en otras plataformas elearning 10. Importación de asignaturas del Moodle	No especifica, configurable
P-NELOPE Licencia Libre	http://p-nelope.sourceforge.net/	Universidad Poitiers Francia	Todas		Archivo Columna	1. Mediación entre experiencia y objetivos de cada curso de formación. 2. Publicación de folios 3. Certificación de habilidades dentro	No especifica, configurable

						de un marco de competencias.	
SCAM Licencia Libre	http://project.iml.umu.se/projects/scam-portfolio	Institutos en Suecia Docentes de las ciencias en Suecia Catalogo de curso Umeå University	Todas			1. Manejo de carpetas y archivos 2. Soporte a modelos de datos 3. Web Semántica 4. RSS 5. Podcasting	No especifica, configurable
ePet Licencia Libre	http://www.eportfolios.ac.uk/demo http://www.eportfolios.ac.uk/FDTL4?pid=54	Facultad de Learning Technologies for Medicine Sciences School of Medical Sciences Education Development The MEDICAL SCHOOL Newcastle University Newcastle NE2 4AB, UK	Todas	Disciplinar	Cake Columna	1. Archivo de reuniones con tutor. 2. Crear planes de acción vinculados a una "bandeja de entrada", que avisa al alumno de las acciones pendientes o atrasados. 3. Planificar y supervisar los resultados del aprendizaje destinados, indicando la forma en que estos se medirán. 4. Registro de curso y de importantes eventos extracurriculares en un diario de aprendizaje. 5. CV que puede ser editado posteriormente para su presentación. 6. Enlace cruzado con otras herramientas además de reflexión narrativa 7. Compartir datos de CV con otros 8. Creación de mapa de habilidades y grabación de evidencias en cada una de ellas	No especifica, configurable

						9. Configurar las herramientas anteriores y rellenar cursos y módulos	
Taskstream Comercial	http://www.taskstream.com					LAT e-portafolios permite a profesores y estudiantes una amplia oportunidad para compartir conocimientos y mejorar el aprendizaje en el tiempo. El e-portafolio archivados mostrar las colecciones de los trabajos (en distintos formatos) que demostrar el aprendizaje y el logro profesional.	

Experiencias y resultados de uso de ePortafolio en universidades

Categorización ofrecida por Helen Barret (2008) de los programas de computación existentes, algunos que apoyan la elaboración de ePortafolios y otros que son en sí son ePortafolios ya sean propios de una Institución, con propósito comercial, o de acceso libre como lo es la herramienta Moodle como sistema de manejo del aprendizaje

En este cuadro se puede apreciar la categorización ofrecida siguiendo el orden en cuanto al nivel de interacción que posibilita la herramienta, característica muy importante en la web 2.0, y el nivel personal de expresión y creatividad que da al creador de un portafolio, el fortalecimiento de esta característica se considera un elemento clave al momento de tomar una decisión sobre que herramienta tecnológica o programa utilizar.

Categorias de herramientas de ePortafolios

Institucional & Individual			**Institucional**		
Herramientas de Autoria	**Servicios Web Estaticos**	**Servicios Web Interactivos**	**Software/requiere almacenamiento en servidor**	**Servicios hospedados**	**Sistemas de Evaluación Servicios Hospedados**
Mozilla Composer	GeoCities	WordPress (blog)	Userland's Manila	Digication	TaskStream
Apple's iWeb, Dreamweaver, FrontPage, nVu, or any web authoring tool	eFolio Minnesota	WikiSpaces	Blackboard	Think.com (K12 school accounts only)	College LiveText
		PB Wiki	(old: Content System and new: Vista/CE)		
Microsoft Office & Open Office: Word, Powerpoint & Lecshare Pro	Tripod			nuVentive's iWebfolio	Chalk & Wire
		GoogleDocs - Document and Presentation	**Open Source tools:**		
Adobe Acrobat	Digication		Elgg, Mahara, OSPI, ePEARL	PebblePad (U.K.)	FolioTek
		Google Sites	Embedded in Moodle: Moofolio, MyStuff (U.K.)		
MovieMaker2, PhotoStory3, iMovie, or any video editing tool	KEEP Toolkit			Pupil Pages (K12)	nuVentive's TracDat
		ZOHO Writer	Open Source Content Management Systems: Plone, Drupal		
	GooglePages			Epsilen	Richer Picture
		EduSpaces (Elgg)	Microsoft SharePoint		
				My eCoach	

				GoogleApps for Education	
Estas son herramientas que son usadas para portafolios offline, pueden requerir de un servidor Web publico, Los portafolios creados con estas herramientas pueden ser publicadas en CD-R o DVD-R. No existe interactividad	Estos son servicios estáticos que una persona o institución puede crear y publicar como presentación de portafolio. Muy poca interacción	Estas son Web dinámicas que una persona o institución puede crear y publicar como presentación de Eportafolio y permite interactividad *(Web 2.0)	Estos son sistemas que una institución debería instalar en su propio servicio de hospedaje para portafolios. Existe interactividad * pero no existe un sistema de administración	Estos son sistemas que una institución adopta (no requiere de hospedaje) los portafolios de hospedaje. Usualmente permiten interactividad pero no gestión de datos** o reportes	Estos son sistemas que una institución debería adoptar (no requiere de servidor) pero permite el hospedaje en servidor, facilita la interactividad* e incluye gestión de datos ** y sistema de reportes y evaluación
*Interactividad - permite un dialogo y retroalimentación en el portafolio, puede ser a través de opiniones o edición colaborativa **Nivel de Interacción: Bajo <----------> Alto**			** Gestión de datos para la evaluación permite recolectar y evaluar datos acerca de los portafolios y producir reportes agregando datos cuantitativos		
Nivel personal de expresión y creatividad para el creador de su propio protafolio **Alto <----------->Bajo**					

Helen C. Barrett, Ph.D - Actualizado Septiembre 30, 2008