

E-portfolios in lifelong learning

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E-portfolios in lifelong learning

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ABSTRACT

The current knowledge society requires its citizens to continuously maintain and update existing knowledge and competences and thus engage in lifelong learning. Acquiring key competences, such as digital, intercultural and communicative competences is crucial to keep up with the fast changing ways of society. As people need to combine their competence development with work and family life, they need flexibility in content and logistics. Consequently, informal learning and social learning in networks play an important role in this. However, it might be difficult to get their informally acquired competences recognized. In this paper we describe how an e-portfolio could assist learners in gathering, maintaining and organizing their informal learning and competences in order to show and share this with others and present how this is implemented in the TRAILER e-portfolio.

Categories and Subject Descriptors

K.3.1 [Computers in Education]: Computer Uses in Education – *distant learning*.

General Terms

Management, Performance, Human Factors

Keywords

Lifelong learning, informal learning, social learning, key competences, e-portfolio, knowledge management

1. INTRODUCTION

Informal learning is very important in the current knowledge society. Moreover, it is the main way in which professionals learn on the job. Actually, informal learning can be seen as an integral aspect of everyone's daily life. One cannot help but learn, although many people fail to recognize that they do. In the current knowledge society however, it becomes imperative to continuously update once knowledge, skills and competences and even develop new knowledge and competences, because of the rapid changes in society.

This is reflected in the need to acquire key competences [1] to adapt to a rapidly changing and highly interconnected world, where business processes tend to become more collaborative and distributed. This global trend is also repeated in the Horizon 2011 report [2]. The Expert group on New Skills for New Jobs recommends actions in education and training to develop the right mix of skills in enabling key competences, such as learning to learn, digital competence, cultural awareness, and communication in own and foreign language.

It demands that individuals become responsible for their own competence development that no longer is limited to one's 'school' phase, but continues throughout life in various situational settings. Instead of being educated, people need to take control and become self-directed lifelong learners.

This requires a different approach, moving from traditional classroom-based educational settings towards forms of lifelong learning in which learners take control and become self-directed learners, organizing their own competence development. As this often takes the form of informal learning, a drawback can be that the learner is not aware of the learning that occurs or fails to make the newly developed competences known to others. In this paper we present an e-portfolio as part of the TRAILER toolset to assist learners and managers to recognize and acknowledge informal learning.

In the following sections we first describe the function of social learning in lifelong learning and then describe the role an e-portfolio can play in this. Next we explain how this is implemented into the TRAILER e-portfolio and present some preliminary findings of the TRAILER toolset, describe what improvements have been made to incorporate the e-portfolio into our personal learning and working environment and conclude with some recommendations for future work.

2. SOCIAL LEARNING

The knowledge society demands of people that they become responsible for their own competence development. This no longer takes place in a restricted period but continues throughout life in various situational settings. Moreover, it has to be combined with family and work. This entails that the individual decides what knowledge or competence needs to be developed, when, at what pace and time. Traditional forms of teaching cannot provide this required flexibility in content and logistics. Thus, the learner needs to take on an active role by setting up his competence development plan and actively looking for relevant resources, finding experts, asking input, questions and feedback from experts and peers, and providing answers, resources and advice when needed. Due to the fast changing nature of the current knowledge society, the required knowledge has to be gained quickly, but also will have not yet been laid down in formal courses and curricula. Therefore individuals often have to

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rely on people in their personal learning network to locate the required knowledge [3].

This process can be facilitated by the abundance of Web 2.0 technologies such as social media. Web 2.0 media allow people to become active contributors instead of consumers of web content and the frequent use of social network sites, blogs, wikis, etc. shows that this is quite popular. It has become much easier for everyone to make their own contributions available and to share these with others. These contributions are potentially a rich source of information for informal learning. Social media also makes it much easier for people to communicate with others, through social network sites, chats, etc. Online communities have arisen around many different topics. Within these communities people interact and connect with each other around a particular topic [4]. Although many of those communities are for leisure, there are also many communities of practice and learning networks that operate in similar fashion as social network sites.

Learning networks are particularly suitable to support informal learning. Learning networks - like online communities - consist of people and resources. In learning networks, people learn mostly with and from other people [5]. That can be through direct contact with other people, but also through content that people make available. Effective learning communities stimulate and promote interactions between its participants by the opportunities social learning technologies offer in finding the proper content and the right people [6-11]. Not only does this support traditional forms of learning but it also allows new social learning activities to occur [12-15].

Learning with and through others happens in online communities and networks that are of heterogeneous composition. Not only do the participants differ in background, e.g. education, profession, age, chances are that the communities are international. These characteristics of informal online learning in communities require key competences as formulated by the European Commission [1]. Foremost, self-directed learners of course need to learn to learn: organise their own learning. Online communities consisting of online media, require that people have at least some digital competences. As they mostly communicate in written form, they need to be able to express their wishes and needs carefully, both in their own language and in foreign languages in case of international networks. Due to the heterogeneous and international competence of most online communities, participants need to account for cultural differences in voicing their needs.

Thus, people increasingly engage in informal learning activities. However, as it is becoming such a common daily activity people might not be aware that these informal social activities construe important learning activities. Therefore it is important to assist learners, not only in finding relevant resources, peers and experts, but also to make them more aware of the informal learning that is happening throughout their life.

The TRAILER project has developed a set of tools to raise awareness of informal learning and assist learners in recognizing their informal learning activities. Central to the toolset is an online portfolio or e-portfolio.

3. PERSONAL PROFILES AND E-PORTFOLIOS

A common definition of a portfolio is a collection of learning evidences, a kind of bin to store your documents and products. Its

main function is about documenting one's competences, interests, ambitions, etc. through a set of products. Sometimes a portfolio is equated to a resume. In certain domains, such as arts, photography, a portfolio however is a collection of products to be shown to a future employer that clearly indicate and reflect skills and competences and thus is being used to present and demonstrate one's skills and abilities.

In educational settings the use of a portfolio is often embedded into the curriculum and used in relation to the learning process and assessment. A common use is the showcase portfolio as a presentation of evidence for acquired competences. Still, these kinds of portfolios are outcome or product type of portfolio and while being used most often [16] are not very suitable to make learners aware of their learning process. For those situation a reflection portfolio is more suitable [17]. A reflection portfolio is set up to allow learners to reflect on their learning process in various ways such as actively collecting and attributing learning activities and evidence to competences and writing reflections on past activities and attained competences.

In social learning settings, people learn by interacting with others. For these social interactions to occur people need to be able to recognize each other, need to know the past behaviour of other participants and it must be likely that they meet again. While that may be hard in a face-to-face setting, it becomes even more important in an online setting. Therefore it is important that the online environment provide people with the opportunities and tools to create and maintain a personal profile and e-portfolio [18, 19]. In addition to common personal information like name, gender, work and education type of text, this profile should contain a record of someone's activities. This is particularly important in informal learning situations as the e-portfolio has to guide the learner and enhance awareness. An e-portfolio obviously will have similar functions like conventional - hard-copy - portfolios, but has to go beyond that. Not only should an e-portfolio be a collection of learning activities and evidences, but provide an overview of past activities and competences attained. The e-portfolio should support reflection by allowing learners to collect learning activities and products and attribute those to competences. Reflection is being stimulated when learners are able to create showcases of selections of learning activities and competences to which they can add additional context specific information. These showcases can be targeted to specific situations or address specific audiences. To foster social interactions, the e-portfolio should allow the creation of a personal profile page, giving learners the choice of what to include. Moreover, they should be able to find suitable peers to ask for support and need to be able to create and maintain contacts. As learners will be using many different systems, the e-portfolio should support exchangeability. Finally, privacy should be guaranteed and learners should be able to determine whether information is public or private.

3.1 Related initiatives

Considering the exchangeability of e-portfolios several initiatives are worthwhile to mention. The IMS ePortfolio specification¹ was developed to enhance interoperability of e-portfolios across institutions and systems. The Dutch NEN organization has created an approved standard NTA 2035² that provides an application

¹ <http://www.imsglobal.org/ep/>

² <http://www.nen.nl/NEN-Shop/Norm/NTA-20352011-nl.htm>

profile of the IMS ePortfolio and other specifications. These specifications are large and complex and describe e-portfolios in a very formal way. JISC developed the more lightweight LEAP2A³ specification to enable portability of e-portfolio data. A very recent development is the Tin Can API⁴, developed by the American ADL⁵. The Tin Can API comes close to the TRAILER ideas of the need concerning the collection of informal learning activities into a central store, but lacks the concept of competences. The Mozilla Open Badges initiative⁶ allows learners to collect badges issued by institutions in recognition of their learning activities and achievements. The Open Badges initiative is aimed more at non-formal learning [20] of accredited learning activities, while TRAILER aims at enhancing the recognition of informal learning that can be acknowledged and at a later stage. To facilitate export of data, e.g. for acknowledgment, TRAILER provides an export option to LEAP2A.

4. TRAILER E-PORTFOLIO

The TRAILER project developed a tool-set comprising several tools. For learners the e-portfolio is the central tool. Associated tools are the Informal Learning Collector (ILC) and the competence catalogue.

The TRAILER e-portfolio evolves about learning activities, be it formal or informal, and evidence in support of competences acquired, by allowing learners to collect learning activities or evidence, organize competences, associate activities and/or evidences with competences and combine those with profile data to create showcases that can be shared with others. Learning activities and their associated competences are imported into the e-portfolio through external tools, such as the (ILC) [21], after which the learner can edit the learning activities in the e-portfolio. The learner can associate one or more learning activities with competences as evidence for the attainment of the competence. The learner can also decide to enter competences directly into the e-portfolio and associate those with learning activities at a later stage. Both in the ILC and e-portfolio, learners can select pre-defined competences from an institutional competence catalogue. If the institutional competence catalogue does not contain the desired competences, learners can add user-defined competences.

The TRAILER e-portfolio is implemented in the Liferay Portal content management system⁷, because that already possesses many social media type applications. Users can maintain a user profile, can create content easily, such as web content, wikis and blogs, can communicate via forums and chat, and can record and show social activities through their user profile, via activity streams and lists of contacts and friends.

The main principle is that the e-portfolio is owned by the learner and that the learner thus is in control and decides what learning activities, competences and showcases are made public. To facilitate this process several components have been custom build for the Liferay Portal environment. These components can be flexibly combined with the existing social media applications already present. Consequently, the TRAILER e-portfolio

comprises a set of tools and editors that are required to maintain each of the features of an e-portfolio.

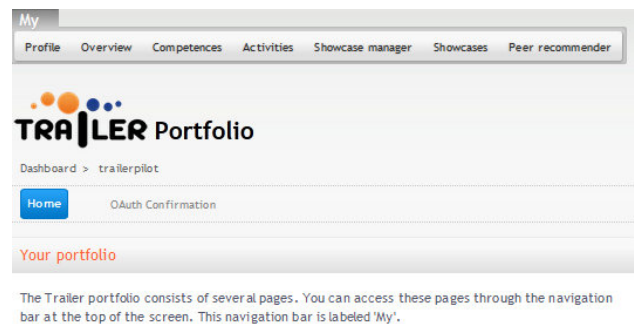


Figure 1. The TRAILER portfolio consists of a set of tools that are accessed through the navigation bar labeled ‘My’.

A learning activity component allows learners to edit and update learning activities that have been imported into the TRAILER e-portfolio. Learners can further describe what the activity entailed, provide comments, associate it to competences and indicate at what level the competence has been attained. The learning activities can consist of a process, i.e. reading, viewing something, conducting a project, etc., or describe the product that has been the outcome of the learning activity. The learning activity is accompanied by an URL pointing to an online activity or resource.

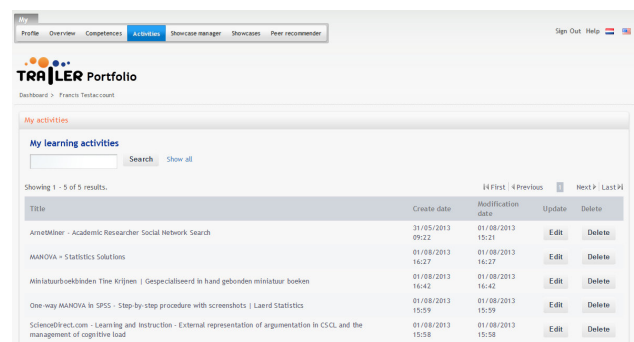


Figure 2. The learning activity component provides an overview of learning activities and allows updating of the learning activity.

A competence component provides learners with an overview of their competences, while also allowing them to add competences to the e-portfolio that have not (yet) been associated with learning activities, e.g. competences attained in the past. The learner either selects these competences from the existing competence catalogue or adds new competences to the e-portfolio and the competence catalogue when desired competences are not listed. This component also provides an overview of the learning activities that have been associated with each of the learner's competences, and allows the learner to update the competence levels.

³ <http://www.leapspecs.org/2A/>

⁴ <http://tincanapi.com/overview/>

⁵ <http://www.adlnet.gov>

⁶ <http://openbadges.org/>

⁷ <http://liferay.com>

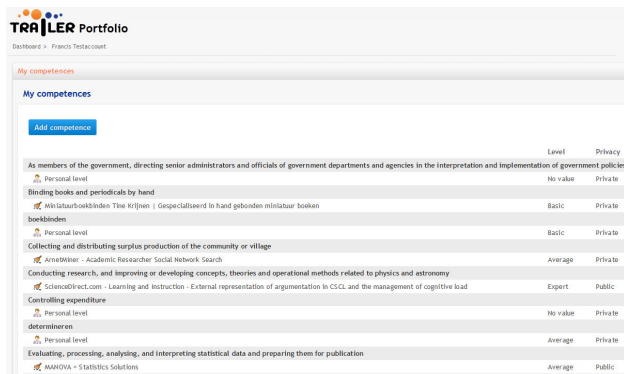


Figure 3. The competence component provides an overview of existing competences including the option to add competences.

A showcase component allows learners to create various views on their learning activities and competences. A showcase is created for a specific purpose or particular audience and consists of a selection of learning activities that are annotated. The learner can invite others to view this showcase by sending them a secret URL. The invited persons can comment on individual activities as well as on the entire showcase. The learner can also export the showcase in PDF form to be sent to others, or for archive purposes, or export the showcase in Leap2A [22] format for import in other compatible e-portfolio systems.

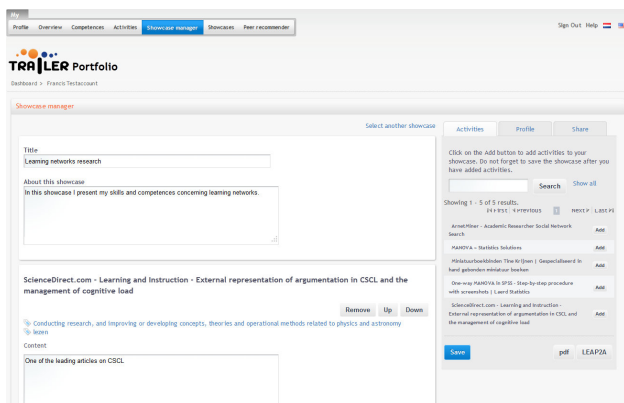


Figure 4. The TRAILER showcase component to create a showcase.

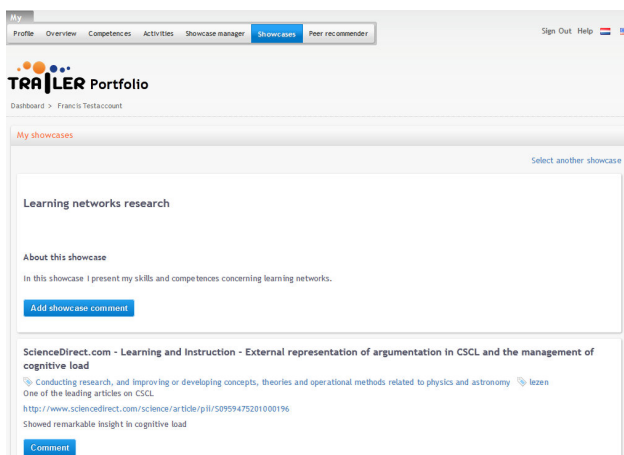


Figure 5. The TRAILER showcase as others can view it.

A peer recommender lists peer learners with similar competences, indicating the level of similarity in terms of competences in common. Learners can filter on specific competences. The overview provides a link to the profile data of the peer to allow the learner to contact the peer.

4.1 Preliminary findings

The TRAILER toolset has been tested in five pilots in the project partners' countries in higher education institutes as companies involving both the learner/employee and teacher/employer perspectives. Detailed findings are reported in separate articles [23, 24]. Overall, findings indicate that participants recognized that the toolset made them more aware of their informal learning, has potential value for their learning process and allows them to reflect on their competences. There is a difference in perception between freshmen and PhD students. Although PhD student acknowledge the potential value of informal learning, they were less inclined to use, because they already established other means to discuss their progress. Learners tended to keep learning activities private and have used the tool more as a means to archive and history function. Teachers and managers seemed to be more enthusiastic than learners about the benefits. However, both learners and managers indicated that the toolset is not mature enough. In particular, learners did not see the need for a separate ILC and advised to integrate the ILC and e-portfolio. Learners also commented that the user-interface was not very user-friendly and should be made more intuitive. Moreover, learners voiced concern about the privacy of their data and the potential use and interpretation of the data by the managers.

5. IMPLEMENTING E-PORTFOLIO IN A PERSONAL LEARNING ENVIRONMENT

The TRAILER e-portfolio formed the basis for a showcase tool for the personal learning environment that the Open Universiteit in the Netherlands offers to its learners. The showcase tool is required because learners are allowed to bring in a set of learning activities, formal and informal as part of their curriculum when they can present sufficient evidence for having achieved those learning activities. The new version addresses several usability aspects of the TRAILER e-portfolio, on the one hand by removing most of the unnecessary complexity, on the other hand by making major changes to the user-interface and user-friendliness and implementing requested features, such as being able to add different types of activities and uploading of files. A major usability aspect was the lack of integration of the ILC and the e-portfolio. Therefore the new tool is tightly integrated into the personal learning environment obviating the need for a separate ILC. Instead the tool now presents the learner with a more varied scale of activities to choose from, ranging from formal courses, social activities, and informal activities learners partake in in the personal learning environment. In addition, learners can upload files or search for activities and resources outside of the personal learning environment. Moreover, learners can create and maintain the showcase from a single page, while the TRAILER e-portfolio consists of a combination of separate editors, each requiring a separate page. Ease of use and usability are improved throughout the e-portfolio by major improvements of the user interface: functions are integrated better, page layout is improved, and drag and drop allows users to easily add and move objects around. Moreover, the functionalities were expanded to cover nearly all features required of an e-portfolio for lifelong learning. The personal learning environment already provides a tight integration

with the learning process and progress, amongst others to be able to use learning analytics to improve the learning process for the learner. Due to the tight integration, all learning related activities can be made available to the learner as source to select from.

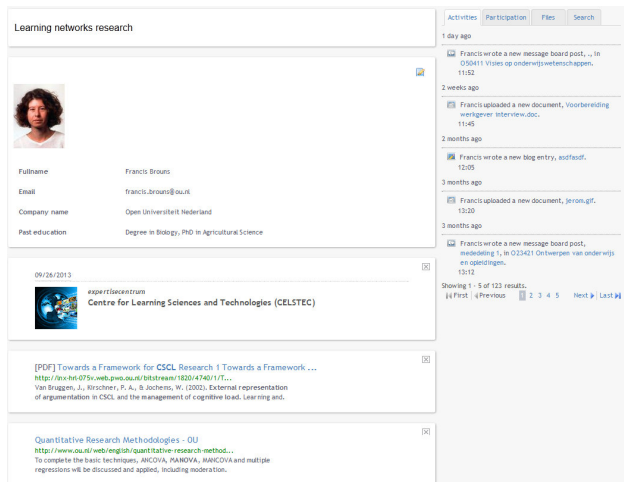


Figure 6. The improved showcase integrates all required functions.

As before, the showcase contains a section with personal information from the profile created in the personal learning environment and learners can annotate activities and resources made available in the showcase. Of course, learners can easily share the showcase with others. Export of the showcase to PDF files is improved greatly to create more visually attractive PDFs.

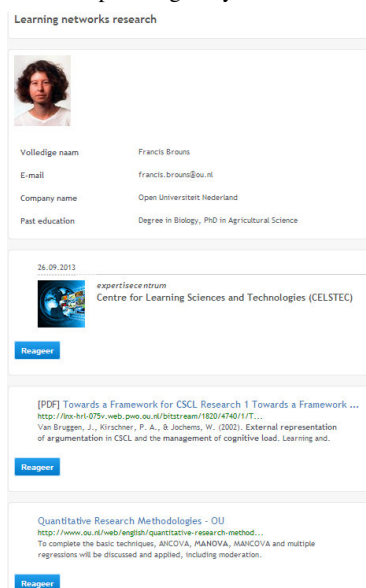


Figure 7. The showcase as others can view it.

6. CONCLUSIONS

This study explored the use of e-portfolios in lifelong learning. It stressed the importance of integrating ease of use as one aspect of usability [25]. The e-portfolio has to become part of the learning process and not be a separate activity [26]. Therefore the e-portfolio has to be integrated with the learning process and embedded into the process. Wherever and whenever possible the e-portfolio should record as much as possible for the learner. That

requires interoperability with other social media, and online communities. The user interface should be intuitive, easy to use and flexible to prompt the learner and assist in their learning process and reflection.

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