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# Implementation of e-Portfolio for Sports Physiotherapy Experts

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**Key words:** *e-learning, e-portfolio, LMS*

## **Abstract:**

*In this paper it is reported an experience about the design and implementation of e-portfolio functionality into an existing LMS, in the framework of the SPA Project, sponsored by the IFSP (International Federation of Sports Physiotherapy).*

## **1 Introduction**

SPA is the acronym for “Sports Physiotherapy for All” and it is a Leonardo Project ended in 2006. The SPA project activity is devoted to:

1. Set core competencies through benchmarking and core standards of proficiency, against which each national member organisation can measure its provision.
2. Develop an audit toolkit to evaluate the adoption of the standards at European level.
3. Develop procedures for accreditation of education (both formal and non formal learning) and professional qualifications for the Sports Physiotherapy profession.
4. Develop a user friendly web site, which will be an Internet Gateway, an educational portal and a platform for communication and exchange of information.

According to the guidelines of the project, the SPA e-portfolio functionality is tailored to the needs of the participants (Sport Physiotherapists) who want to be audit by an audit committee of the IFSP. Within the SPA Project a specific Learning Management System has been developed and the portfolio has been made part of the SPA Educational Portal. A set of basic information on the users of the Educational Portal are already stored in a suited “user profile” area. Such information is collected at the time of the registration and corresponds to the personal details such as name, address, date of birth, city, country, picture, telephone number, e-mail address, contacts (ICQ, IRC, messenger, skype), related web sites (personal site, personal blog). Within the Educational Portal framework different roles with different capabilities, privileges, and access level are possible for the users that is being just a visitor, a student, a teacher, a member of the committee who will judge whether the portfolio will suffice or not. For the members of the committee as well, personal information is stored so that social activity, communication, and data circulation is made easy in through the SAP Educational Portal.

The aim of the SPA e-portfolio is to collect information about the specific competencies in Sports Physiotherapy and to compile a list of the participants who may want to know how to master their competencies. This will be referred to the behaviours. Information about the behaviours shows a list of the behaviours and to which competencies these behaviours belong. The behaviours are built on standards and if possible, participants/committee/people will be

referred to these standards. Information about the standards shows a list of the standards and to which behaviours and competencies these standards belong.

From a technical point of view, functionality of the portfolio allows users uploading supporting evidence and reflection documents, selecting and add/update/delete the properties (competencies, behaviours and standards) of the document, browsing documents in different views (name, date, competency, behaviour, and standard), navigating through competences or behaviours or standards. The e-portfolio supports multimedia documents so that the participants will be able to upload any kind of documents with which they can prove they master the relevant competencies, behaviours or standards. These documents can vary substantially. The following documents can be expected in a digital portfolio:

- video of a specific sports physiotherapeutic treatment,
- personal reflection,
- feedback from sports physiotherapy colleagues,
- patient feedback,
- case report,
- development of a guideline for treatment,
- article for a scientific or professional journal,
- plan for supervision,
- quality case plan,
- action plan to encourage interdisciplinary working.

Next to these documents the following documents will be in the digital portfolio:

- the competencies,
- the behaviours,
- the standards,
- the audit toolkit.

## **2 The SPA Educational Portal**

In the Spa Project the education of physiotherapists is a crucial moment in order to achieve the goal of a standardised set of rules to validate the individual knowledge, skills, and competencies in the specific field.

A virtual environment where to learn, to practice, to share knowledge, and to discuss with other physiotherapists engaged in the common path to the certification, may efficiently support a process characterised by the following moments:

- acquiring knowledge/skills/competencies;
- practicing by means of exercise, the discussion with other, self evaluation tests;
- build a portfolio of the individual best practice;
- test and validate the individual level of preparation.

In the virtual environment it is possible to activate not only a process strictly finalised to the achievement of the certification. The nature of the virtual environment makes it possible to build an international community among European physiotherapists, where participants, sharing experiences and knowledge, may assure a constant level of updated knowledge in the field, and start the process of continuous learning in the perspective of life long learning. European physiotherapists supported by a virtual environment may build a community of practice.

A community of practice may be defined as “a group that learn”. Usually we refer to such a type of community as communities of practice, groups of people who share similar goals and interests and that in pursuit of these goals and interests, they:

- employ common practices,
- work with the same tools,
- use a common language.

Through such common activity, participants to a community of practice develop and come to hold similar beliefs and value systems. In the perspective of building a common and standardised set of rules to identify a European physiotherapist, it is full of meaning the existence of a place (even virtual) where European physiotherapists can meet and where they can build together knowledge.

The SPA Educational Portal (<http://portal.sportsphysiotherapyforall.org>) is based on the Open Source e-learning platform EifFE-L (available at <http://sourceforge.net/projects/eiffe-l>) and is designed to fully support this scenario. Figure 1 shows the home page of the SPA Educational Portal.

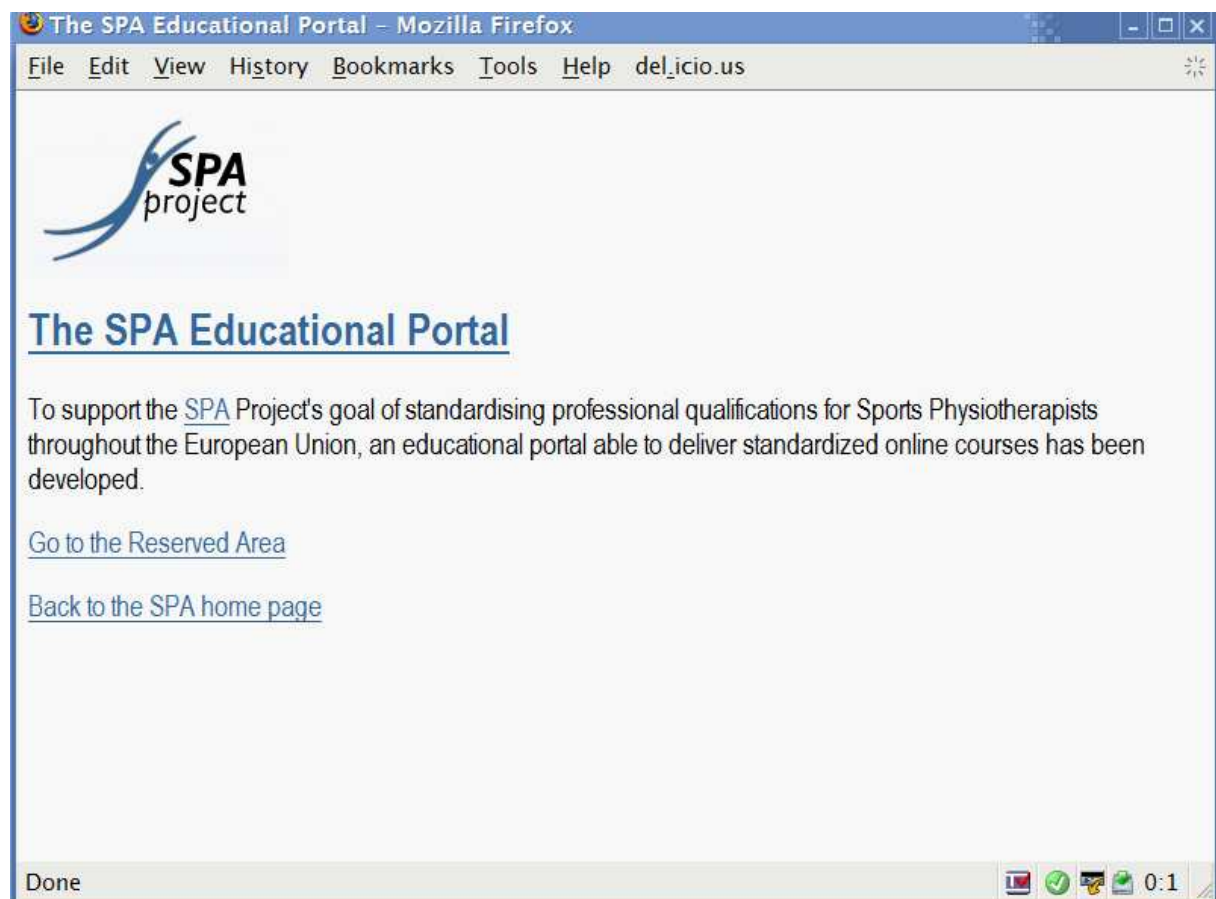


Figure 1: The SPA Educational Portal

### 3 Acquiring Knowledge/Skills and Competencies in SP

With the specific functions of the SPA Educational Portal, it is possible to design and deploy courses in order to teach and learn in sports physiotherapy field.

The process is characterised by the following components:

- design of the course:
  - design of learning materials;
  - design of didactic strategy;
- training of facilitators:
  - management of the virtual classroom;
  - assessment of participants;
- development of learning materials;
- deployment of the course;
- evaluation of the course.

Digital learning materials have to be designed taking into account the distance that will separate the teacher and the students: they have to be auto-coherent and produced in a format that is usable from the students. The didactic strategy has also to be designed according to the goal of the course, the span time of the course, the technological competencies of the students, and other factors. The added value of distance learning is in the availability of the teacher on-line and in the possibility to perform some collaborative work among students. In pursuit of this the facilitators that will manage the class activity, have to be trained. Digital learning materials have to be developed. The international standards in e-learning recommend developing Learning Objects which have the characteristic to be highly usable and durable over time.

The SPA Educational Portal supports a variety of didactic strategies. It is possible to design a “simply” behaviourist didactic strategy where students are provided with learning materials and at the end of the course they are requested to fill in a test; it is possible to design a more cognitivistic didactic strategy with the request for the students to perform individual exercises in order to develop competencies; it is possible, following a constructivistic approach, to design a didactic strategy that see in the interaction the principal moment of learning.

### **3.1 Behaviouristic approach**

Behaviourists are particularly interested in measurable changes in behaviour. Behaviourism is an approach which sees in learning the result of operant conditioning. Operant conditioning is a process that refers to the way in which behaviour ‘operates on the environment’. Briefly, behaviours may result either in reinforcement, which increases the likelihood of that behaviour occurring again; or punishment, which decreases the likelihood of the same behaviour recurring in the future [1].

For example, teachers can improve student behaviour by systematically rewarding students who follow classroom rules with praise, stars, or tokens exchangeable for sundry items.

In e-learning a didactic strategy inspired to behaviourism, is suitable when:

- there is a limited life span for the course;
- the goal is the acquisition of knowledge;
- participants have a limited knowledge on the arguments of the course;
- participants have poor competencies in ICT.

### **3.2 Cognitivistic approach**

The cognitive perspective is more widely held than the behavioural perspective perhaps because it flexibly admits causally related mental constructs such as traits, beliefs, memories, motivations and emotions. Cognitive theories posit memory structures that are thought to determine how information is perceived, processed, stored, retrieved and forgotten.

The aim of training, in a cognitivist perspective, is to facilitate the exploration of disciplinary issues by the students. Teachers have to guide students through concepts with the aim of increasing their competencies in learning and transform/interpret what they learn [2].

The didactic strategy based on a cognitivist approach is based on the process of learning. Such a type of strategy is suitable when:

- the aim is to develop individual skills;
- there is lack of resources to manage working groups;
- there is a limited life span for the course;
- participants are in a limited number;
- there is lack of interest and motivation from participants working in team;
- participants have a limited knowledge on the arguments of the course.

### **3.3 Constructivist approach**

Constructivism views learning as a process in which the learner actively constructs or builds new ideas or concepts based upon current and past knowledge. In other words, "*learning involves constructing one's own knowledge from one's own experiences*" [3].

Students are not blind boxes that have to be filled, but agents that research actively and proactively knowledge that can explain what they experiment in daily (professional) life.

In literature we have two stands for constructivism: the personal constructivism of Piaget [4] and the social constructivism of Vygotskij [5].

Piaget claims that knowledge can't be merely transfer from teacher to student, but every person constructs his own world in an original way. Vygotskij put the focus on the interaction among language, social context and the subject that learns. In this perspective the student learns by means of the discussion and dialog in which individuals may negotiate conceptual changes [6].

The didactic strategy based on the constructivist approach puts emphasis on a project oriented model of learning. Such a kind of strategy result appropriate when:

- the life span of the course allow time to the development of collaborative dynamics among participants;
- there is a adequate availability of resource to manage the virtual class-room;
- there is availability of ICT tools;
- participants have adequate ICT knowledge and skills.

### **3.4 Implementation in the SPA Educational Portal**

The SPA Educational Portal may support all the three approaches to training. It will be the specific course and context that will suggest the more appropriate didactic strategy.

The functions that the portal supports are (see Figure 2):

- course programme,
- private messages,
- traditional learning materials,
- tests,
- exercises,
- course programme,
- forum,

- chat,
- groups,
- messages,
- learning objects,
- tests,
- exercises.

Figure 2: Page of a course in the SPA Educational Portal

## 4 How to build the personal e-portfolio

The SPA Educational Portal allows the user to manage a personal portfolio. The portfolio can be accessed through the personal profile of a user then it is possible to add documents in any format to the Portfolio by uploading documents to the user's personal repository. After the publishing of a document, it is available to everybody or to a selection of users (e.g., teachers or students), as shown in Figure 3.

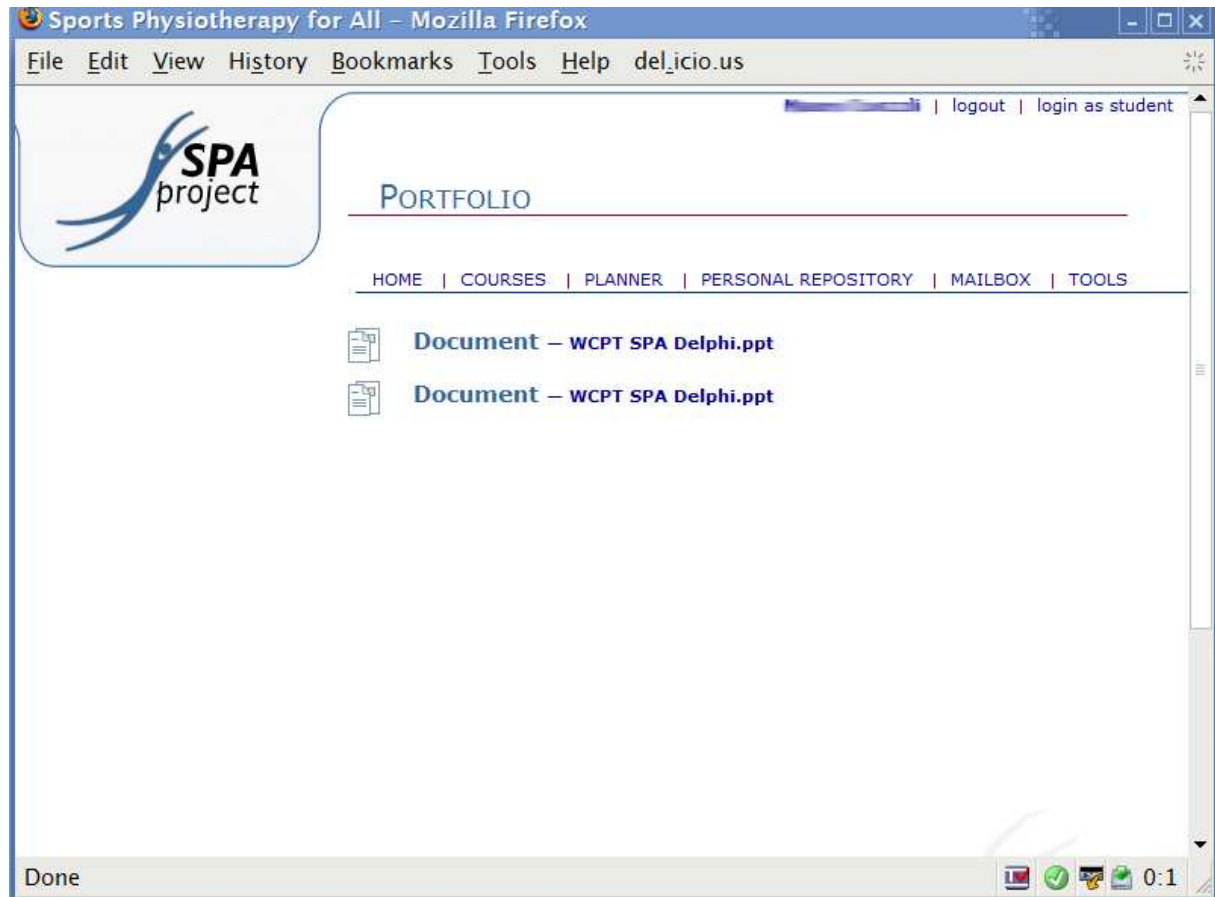


Figure 3: Personal portfolio in the SPA Educational Portal

#### 4.1 Validate and certificate the competencies

The Audit Toolkit is the instrument to validate the knowledge/skills/competencies of European physiotherapists. In order to support what participants will declared in the audit, participants are requested to build a personal portfolio. Within the Spa project the audit toolkit and the procedure that bring to the development of the individual portfolio will be validate.

In this perspective, inside the SPA Educational Portal, participants may follow the following procedure:

- the audit is uploaded as “test” on the Resources > Teaching materials area of the portal (see Figure 2);
- participants fill in the test;
- participants upload “files” on the portfolio for each checked item following the procedure described in previous section;
- participants discuss in the forum strengths and weakness of the audit toolkit through the forum created on Activities > Forum area of the portal (see next section);
- participants discuss in the Forum issues related to realise electronic documents that certificate their abilities for the e-portfolio.

#### 4.2 Start the community

Starting to share in the forum issues, problems, ideas on the audit toolkit filling in or on the issues related to the development of digital documents to insert them in the Portfolio, participants in the Spa Project may start the community of practice, by means of the activation of a discussion board. This can be done through the Function: Activities > Forum available on the left menu of the portal (see Figure 2).



They will put in evidence the strengths and weakness of an international community with languages, cultural, timeliness potential problems, but also characterised by the value of being a large and intercultural group of people that may put in evidence and solve together specific or general issues in the field.

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