

Knowledge Base for Open Source based Training Materials and Support

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Abstract

The European funded project TRAIN-OS (Knowledge Base for Open Source based Training Materials and Support) is developing a repository of Open Source Training Material to be offered to anyone wanting to have a look at the content of the learning material, to use it for learning, or to use it to create their own learning material. Research has shown, that OSS learning material is widely spread in the Internet thus making it very difficult to have access to it. The objective of TRAIN-OS is to offer a knowledge base of OSS learning material in a centralised way.

Introduction

In computing, free and open source software is software which is liberally licensed to grant users the right to study, change, and improve its design through the availability of its source code. This approach has gained both momentum and acceptance as the potential benefits have been increasingly recognised by both individuals and educational players.

However, despite the clear benefits which Open Source Software (OSS) can produce, the majority of the educational institutions are still not considering the implementation of OSS applications or solutions. One of the main reasons is the lack of knowledge about OSS. SME senior managers or managing directors usually have worked their way up in the business, but are no specialists in ICT, and rely for their decisions on the vendors of solutions. The market at the moment is dominated by proprietary software vendors, thus reducing the access to OSS by SMEs. Another reason is the fact that the lack of knowledge of OSS (at higher management levels) as such reduces its influences at the decision-making stage, ruling it out in many cases and not considering it as one of the alternative solutions. Both users and non-users point out that the primary challenge facing the market is in the perceived availability of support and lack of business information on which to base decisions.

More and more the responsible people of educational and training systems in the European Union are defending the uptake of Open Source Software and the need to train potential users in this, as every time more the integration of Open Source Software applications and solutions into existing systems and structures is a fact. Not training the current and future workforce in the use of these types of applications causes a risk of exclusion from the labour market.

Many trainers and teachers, and specially those in the area of formal and non-formal vocational training, are not prepared for a generalised implementation of Open Source Software, let alone have the knowledge and skills to train their students and learners in a correct way.

At the same time they might find that a small group of their learners and students are much more advanced in the use of Open Source Software applications and solutions, as is in general training related to ICT. This is another reason for which trainers and teachers need

to have access to proper training materials to be used in their classes, and at the same time have a support system that helps them to choose the right materials and activities for their learners and students.

The research project TRAIN-OS, funded by the European Union (11/2007-10/2009), attempts to resolve this by providing easily accessible training material on various OSS topics via an online repository.

Project Overview and Objectives

The main objective of the project TRAIN-OS ("Knowledge Base for Open Source based Training Materials and Support") is to provide both trainers and teachers with the skills, competencies and knowledge needed in order to offer formal and non-formal training within the Open Source Software field and related issues, to those participants in the learning process.

The project intends to create a knowledge basis that will offer trainers and teachers, not only training and learning materials in the Open Source Software field, but also will put at their disposal specific knowledge regarding training experiences and learning with the aforementioned material both from the trainers' that is teachers' points of views and the training and learning participants' themselves.

TRAIN-OS will answer concerning one of the most significant barriers in the OSS field, lack of training, availability and solutions accessibility in this field, specially the fact that:

1. There is no homogeneous and standardised way to describe the contents and "use environment" of such materials.
2. The materials are scattered as there is not just one place to access the main part of the available materials.
3. There is no solution to guide them through the big amount of available materials, providing knowledge and support to choose the most suitable materials for every learning situation.

The project takes as the starting point the experiences gained in several projects where Open Source Software was used and the results can be transferred, adapted and integrated in the TRAIN-OS activities.

The result of the project - the knowledge base - will help improve the level of quality and innovation regarding the vocational training linked somehow to Open Source Software. It will provide trainers and teachers, as well as the institutions and organisations involved in vocational training, with a powerful tool that allows them to access available training material related to OSS and choose material that is best relevant to the environment and learning situation. This should improve the training quality that is being currently given in this field. The knowledge base will provide an innovative offer of OSS training materials, and in the ICT domain where there is a growing demand for training materials adapted towards every learning situation. TRAIN-OS will respond to these needs by providing trainers and teachers with a powerful tool to facilitate the access and use of Open Source Software training material and other related issues. It will also offer relevant support services to improve the quality of training they are giving and ameliorate their own skills and qualifications.

This research is partly done by requesting the inputs of different target groups identified via a questionnaire and interview. The goal of such an approach is not only to map the existing educational material in this area but also to identify those materials that can be integrated in

the TRAIN-OS platform. Therefore, an evaluation of the quality of these materials will also be performed when possible. Furthermore, an overview of all organisations, communities and platforms that are related with the production of these materials will be prepared. A follow-up interview will permit the identification of which parties can be interested in the TRAIN-OS materials as well as in participating in the uptake of collated materials.

The knowledge base will be an ICT tool accessible online that will offer a platform for content and training services in Open Source Software. The tool will allow an easy, quick and friendly access to training materials, incorporating a self-diagnosis which will lead to trainer/teacher to the appropriate materials for the situation and specific learning environment.

Target Groups

The main target groups in the project are trainers and personnel related with vocational training, both formal as well as non-formal, vocational training organisations and institutions, trainer and teacher support centres offering training and support services, as well as trainees who would contribute to a wide distribution of the knowledge base and its broader adaptation.

Other corollary target groups could include potential users who are not specifically active in the formal educational domain like Human Resources departments or areas that design and/or implement training courses or courses for the staff of the organisation, educational or public authorities, and organisations that promote the adoption of OSS in all fields of society (such as business, public administration and civil society).

Furthermore it could also benefit business partnerships which offer OSS courses. Such partnerships can take advantage of the training materials and the support system to design such courses. Unions could take advantage of such teaching material in their own courses and pathways, as well as contribute towards OSS interventions in educational and training policies. Companies in the field of OSS, (including developers communities) could access information about the sector needs.

Learning Experiences

Through questionnaire surveys and interviews, which were conducted by the project partners in their countries and regions in order to identify the trainers/teachers requirements regarding the access and use of OSS in the field of vocational training, quantitative and qualitative data with personal experiences of trainers and trainees participating in trainings on Free/Open Source Software were collected.

The objective of the interview was to collect strategic information from key persons active in OSS in order to complete the data obtained from the questionnaire and to design a platform for educational institutions.

Using the basic endpoint of detecting training needs in educational organisation or SMEs in the territory, the following objectives were sought in the questionnaire:

- To identify know-how, competencies and personal skills of organisations with regards to OSS training
- To assess educational attitudes towards training related to OSS
- To analyse the available educational materials on Free Software and Open Standards

- To analyse the organisations, communities and platforms that are directly or indirectly related with the production of such materials
- To assess the availability of training offers and material available for inclusion in the TRAIN-OS knowledge platform.

The following paragraphs give a summary of the learning experience results collected in the interviews with trainers of Open Source Software and trainees learning to work with OSS:

Despite the obvious variety in backgrounds and professions, the opinions regarding the training process on OSS appeared to be comparable and the issues needing to be solved are common, no matter of the country of origin or occupation of the trainee.

In countries where the demand for OSS is low, the variety of courses is offered is respectively low. This also determines a lower interest and attendance in the courses.

Regarding the numbers of courses organised and the attendance reported, it could be concluded that the trainings offered in general are not a lot. Courses are usually organised on demand and just a few are regular. This could potentially be positive for the project, because it would mean that the people who want to deal with free software would usually learn alone. All of the trainees replied that there are enough materials in the internet to self-educate themselves, but all of them face big difficulties in filtering the material and deciding what is good and what is not. In this sense, the TRAIN-OS knowledge base will be of great use to fill in exactly this gap in needs.

A big emphasis was given on the request for practical training and practical exercises. Most of both trainers and trainees stated that this is a key issue in the educational process and is sometimes lacking the courses offered.

For a successful course on Open Source Software it is obviously important the experience and preparedness of the trainer. Although personal experience in the matter was regarded as quite important, it was mentioned also as a weak point that the lack of standardisation and profile for the teachers lead to the problem that every trainer teaches something different, even if the course is on the same subject.

An important point which was mentioned by several of the interviewees was that passing a course on free/open source software was regarded as time saver. The courses were seen mainly as a possibility to quickly learn more, in a synthesised and filtered manner. This could be also related to the problem that the trainees find it very difficult to navigate and filter the content offered in the internet.

Another important point is that a good and clear structure and well defined target of the course is necessary. It seems that quite often there come people with different background and level of experience than the ones needed for the course, which causes trouble to the whole course.

Research on the Status of OSS Training in Baden-Württemberg

As a complementary analysis activity we have conducted a research on the status of OSS training in Germany particularly with regard to Baden-Württemberg.

Typical training institutions which offer OSS courses in Germany are Adult Education Centers, Universities, Authorised Training Centers and Freelancers. We have checked out

which and how many OSS courses take place at these training institutions in 15 Baden-Württemberg's largest cities.

OSS courses offered by Adult Education Centers (looking at the 15 largest cities in Baden-Württemberg) are directed to all computer users which have basic knowledge in dealing with the PC and the operating system Microsoft Windows and would like to learn more about Open Source software and their application fields. Training Centers offer OSS courses also for standard users but mainly for Business people. Target audience of OSS courses offered at Universities are students, guest students and employees. Freelancers are the most difficult group to be discussed because they offer trainings directly to a customer and also sell their services to various employers. These employers can be not only training centers but also universities or/and adult education centers. In this way Freelancers offer OSS courses to all target groups named above.

There are four large groups of typical OSS courses offered by these institutions that we could identify:

1. Operating systems
2. Database systems
3. Office products
4. Internet applications & web applications

We could not identify major problems specific to Baden-Württemberg. Our Internet research showed that such problems as shortage of skilled trainers or very few training organisations are not present at training institutions available in Baden-Württemberg.

The two large problems are lack of good manuals and difficulty to keep the learning material up-to-date. It is difficult for trainer to find a reference book that would be well-arranged and written in a clearly understandable form.

Knowledge Base Overview

From the conducted interviews and research within the field of OSS training material the requirements for the TRAIN-OS knowledge base was collected. Learning material was classified and appropriate attributes to describe learning material in a good way were created.

The user of the knowledge base can create a new learning material entry by describing that is filling in the attributes, or search for learning material by filling in the desired attributes.

The tool is divided into the following sections:

- information about the taxonomy items (which determine the material and also allow to view the documents of the same type)
- basic information (title, keywords, brief description, author information)
- maintainers information is optional
- training information (like resource location, category, language, type, format ...)
- section about additional information and section about targeted public

The taxonomy is defined for every field for which one wishes to navigate the content using the taxonomy items. For example, these are:

- keywords
- authors

- maintainers
- categories
- languages
- formats
- types
- languages

The other functionality:

- rating of content
- rating of comments (which also affects the rate of the content)
- blogs and forums (again, allowed rating)
- showing recent activities (recent content, posts, comments, blogs added, etc.)
- search over the field content (descriptions, taxonomy items, blogs, etc.)
- locations - of either content, meant as a location of a training if it is classroom based, for example, or of the author.



Presentation

The presentation at the FrOSon will have the following content:

- Overview of the project
- Conducted research to gather information about training material and trainers
- Conducted interviews to collect information on learning experience
- The development of the knowledge base - requirements, attributes, classification
- Demonstration of the tool
- Outlook

Outlook

According to the information gathered through interviews and the there stated reluctance of trainers willing to add the training material itself to a knowledge base, the project members are at the point of deciding to add some attributes to the tool and thus to widen the scope of the target group: the planned target group originally consisted of trainers creating and using OSS training material. The planned content of the tool was to contain information about learning material. Now we are looking into the possibility to offer the tool also to people using the learning material to learn OSS (trainees) who use the tool to find appropriate training facilities offering OSS courses. This helps the trainers (training facilities) to offer their services.