Enhancing the E-learning in Vocational Education and Training with »VET Community Portal«

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Abstract: - The paper describes an approach to the development of Vocational Educational and Training (VET) Community Portal used within the Leonardo da Vinci – Transfer of Innovation – Lifelong Learning Programme aimed at supporting improvements in quality and innovation in Vocational education and training systems, institutions and practices. The paper begins with the description of the identified problems of Slovenian Vocational Educational and Training, continues with the description of VET Community Portals and all its parts. The paper goes into details of content creator (authoring tool) and description of e-learning model and e-learning environment structure used. Special attention is given to the added value of VET Community Portal and general impact on end users and target groups.

Key-Words: - e-learning, e-learning environment, Vocational Education and Training (VET), Community Portal, e-course, Content Creator

1 Introduction

The project titled »*e⁴VET Community Portal – Enhancing, Empowering and Emphasizing E-learning in Vocational Education and Training*« or in short »e⁴ VET« (www.e4vet.eu) was launched after the call for proposals of the Leonardo da Vinci – Transfer of Innovation – Lifelong Learning Programme in the spring of 2008.

The findings of several previous projects and national research studies [1] have shown that in spite of substantial investment in computers and connectivity of Vocational Education and Training (VET), the skills and motivation of teachers in VET to apply information and communication technologies (ICT) in their daily teaching activities are still inadequate and under expectations. Besides the inadequate competences of teachers and the lack of e-learning materials, there additionally exist technological barriers such as high costs of infrastructure, which both influence the provision and quality of e-learning materials.

It is widely recognised that Free and Open Source Software (FOSS) can efficiently address many of these issues, and provide higher quality, reduced costs and increased availability of different platforms and other educational applications available. At present the e-learning materials are largely produced in-house, or are purchased from commercial providers. Both options mentioned are expensive, and dramatically reduce the benefits gained from the use of FOSS educational software. In VET, there is a particularly urgent need for progress in this direction. E-learning has the potential to change VET radically, to open new ways of teaching and to increase the ability of teachers to acquire new ICT skills (as one of the 8 key competences). Web 2.0

technologies emerging trends and technologies transforming the whole field of e-learning into one known as »e-learning 2.0«. In this new generation of e-learning, the learning process has become a social and collaborative activity.

Therefore, e-learning was assigned a key role in the pursuit of the EU's policy objective, announced at the Lisbon Summit in March 2000, of making the EU »the most competitive and dynamic knowledge-driven economy in the world« [2]. The e-learning initiative was launched by the European Commission two months later in order to encourage its spread and ensuring that "all education and training institutions have access to the Internet and multimedia resources by the end of 2001 and that all the teachers and trainers concerned are skilled adequately in the use of these technologies in order to provide all pupils with a broad digital literacy" [3].

The call of Leonardo da Vinci – Transfer of Innovation – Lifelong Learning Programme was addressing and tacking all these issues and was especially encouraging projects which will establish portals, tools and creates e-learning material for the improvement of training quality and methodologies in VET. In this context the »e⁴ VET« project falls within Priority 6 of the Leonardo programme: developing the learning environment and Objective 2, to support improvements in quality and innovation in Vocational education and training systems, institutions and practices.

As the concrete response to the deficiencies identified above, the general aim of the »e⁴ VET« project is to improve the ability of VET institutions to use ICT and strengthen the ICT competence of the following target groups: teachers of general and vocational subjects, mentors of practical training in schools and enterprises and teachers specializing in adult education and training.

The »e⁴VET« project consortium presents a balanced mixture of long-term EU members and New Member States. The composition of the consortium is in line with the project's aim to strengthen the integration of ICT research effort in the area of VET. Most of the institutions working under this initiative have already worked under successful joint initiatives and have established relations of collaboration, respect and openness. The project topic is very close to their present fields of interest – all partners are experienced or with e-learning, developing training e-courses, developing e-learning materials, evaluating the project results and have the necessary potential and resources for elaborating high quality tools and systems and the possibility and will to implement them in practice.

The »e⁴ VET« partnership structure comprises: **high technology e-learning infrastructure** (Jožef

Stefan Institute, Slovenia, WiedzaNet, Poland, Nevron, Slovenia and University of Maribor, Slovenia), **didactics and evaluation in e-learning** (University of Leeds, England), the **network of recipients of innovations** (National Institute for Vocational Education and Training, Slovenia), and **pilot implementation and valorisation** of project outcomes (Secondary School of Trade and Commerce and Technical School Centre Nova Gorica, both Slovenia).

Fig. 1: The »e⁴ VET« partnership structure

In the next chapter the approaches used are described in more details. The e-learning environment development and content creator (authoring tool) are presented as well as the current experiences.

2   General approach and methodology

In accordance with the situation set out under the previous point, the »e⁴ VET« project is primarily aiming at the promotion of the attractiveness of VET schools by establishing an open **VET Community Portal** by connecting different open source systems and tools and provides interoperability amongst them. The project offers teachers of general and vocational subjects in VET, mentors of practical training in schools and enterprises, and teachers specializing in adult education and training both innovative and easy-to-use tools for developing e-learning materials, collaboration and interaction as well as access to a broad variety of e-learning materials. VET Community Portal will be localize in all partners languages: Slovene, Polish and English.

»e⁴VET« project will improve the ability of teachers in VET to make pedagogical use of ICT, through the establishment of a VET Community Portal providing authoring tool, learning management system, collaboration tools and guidelines for teachers. Improved teachers' training is crucial factor in achieving the expected impact on the quality and efficiency of VET.

2.1 Target Groups

As the VET schools work in close cooperation with enterprises the curriculum design has already undergone

the process of decentralization, open curriculum design and quick adaptation to the needs of economy is necessary which all result in the demand of non standard and untraditional preparation of contents. With this in view, the basic target group of the project on the narrower scale are:

- **Teachers of general and vocational subject in VET schools**, career counsellors, tutors and also managers of schools, where appropriate. Due to the different methods of teaching of vocational subjects in VET schools (stronger applicative value to the branch of studies teacher needs flexible tools to produce specific materials adopted to special needs of pupils);

- Following the decentralisation of curriculum design and modularisation of the curricula, the e-learning materials are often produced and developed together with the enterprises, so on the larger scale the target group are **mentors of practical training in schools and enterprises who design the e-learning materials together**. Practical education and training is one of the most important parts of VET; the methods of open curricula design demand common work of school mentors with expert teams from enterprises; as the curricula changes regarding to the modernisation of technology the free and open system are most convenient for this work.

- The third target group are **teachers specialized in adult education and training**, because VET schools often train adults which demand different, adopted methods of work. Adult learning demand special methods of curricula design and special methods of work and the adoption of the curricula, which could be mostly rationally done by e-tools.

2.2 Collaborative VET Community Portal

This paper introduces the VET Community Portal framework, which is built on already existing innovative systems and some new tools and integrates four main parts:

- **E-learning Solutions,**
- **E-learning Environment,**
- **Communication,**
- **Content Repository.**

From the point of view of the concrete implementation it means that already developed e-learning tools and free and open source systems (Learning Management Systems, Learning Content Management Systems, an e-learning brokerage system for exchanging e-learning materials, authoring tool for production of e-learning materials, communication tools, etc.) will provide the

VET Community Portal used by VET schools and teachers. The Simple Query Interface (SQI) developed in the ELENA project (www.elena-project.org) will be extended for the purpose of connecting different systems and tools into VET Community Portal.
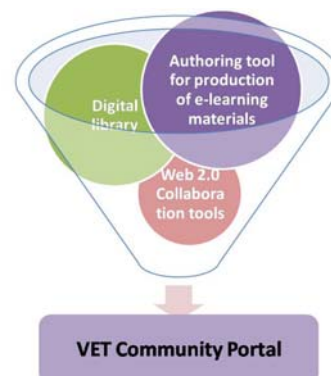

Fig. 2: The VET Community Portal main parts

2.2.1 E-learning Solutions

E-learning solutions means to transform ideas and information into innovation, action, and education success through engaging content, flexible delivery, and rapid deployment. »e^4 VET« e-learning solutions include different open source authoring tools (content creators). The e-learning authoring environments assist teachers in the design, development and publishing of web-based learning and teaching materials without the need to become proficient in HTML or complicated web-publishing applications. Content Creator (Fig. 3) integrated in VET Community Portal is a simple innovative tool for multimedia content development, which enables teachers to use the developed content in their face-to-face lessons or as reusable learning objects (RLOs) in e-learning. Easy to use tool enables teachers to insert text, picture, video material and PowerPoint presentations, and also allowing the integration of pictures and videos from online libraries Flickr and YouTube. Content creator offers multimedia support through the use of templates and timetable.
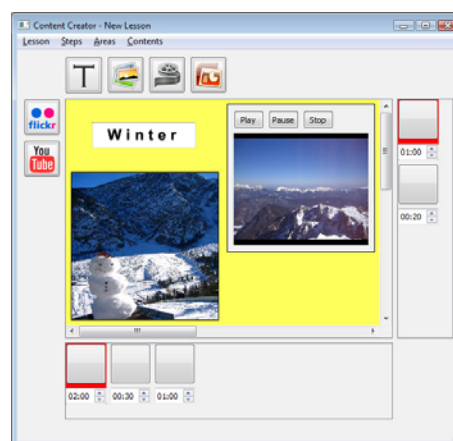

Fig. 3: The »e^{4}VET« Content Creator

2.2.2 E-learning Environment

E-learning environment provides the system which enable social learning experience. For the learning environment an open source Learning Management Systems, such as Dokeos (www.dokeos.com), Moodle (www.moodle.org) or others will be used and connected with other parts of the VET Community Portal.

One of the main project objectives is to develop two e-courses: (1) *How to develop e-learning content with content creator*, (2) *How to become a successful e-tutor* and to train at least 60 teachers of general and vocational subjects in VET, mentors of practical training in schools and enterprises for the use of VET Community Portal in all the 3 partner countries.

E-learning courses used in »e[4]VET« project combine the most effective traditional teaching methods with new information technologies. E-learning model is based on blended learning methodology, which allows the building of the efficient combinations of traditional and new methods of learning and training. The major principles of e-learning model used in »e[4] VET« project are [4,5]:

- combination of face-to-face learning and e-learning (6 face-to-face sessions in a course);
- combination self-learning and interactive learning (active role of students);
- course (90-hours) is built by module system and uniform structural model;
- full learning and instructional support.

To organize the learning process, the e-learning environment has been developed. The model of e-learning environment is presented on Fig. 4. For the high effectiveness of educational process the e-learning environment is taking into account both pedagogical principles and ICT possibilities.
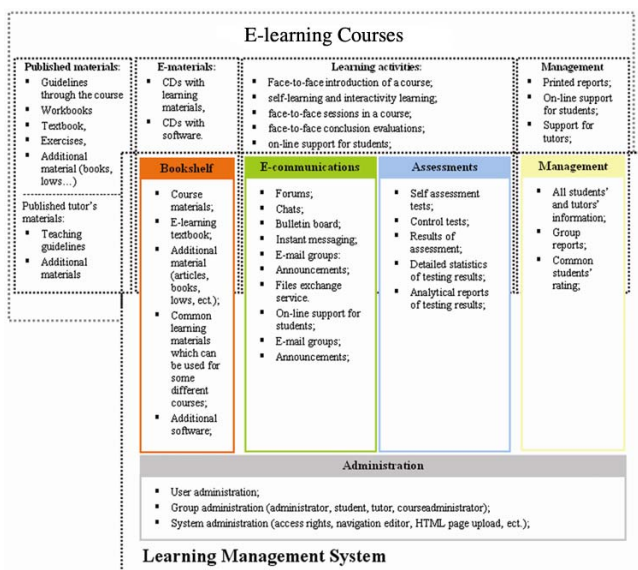

Fig. 4: The »e[4]VET« e-learning environment

E-learning environment could change the process of learning *from a passive to an active* one, encouraging regular communication between learners and with tutors. It takes the synchronous and asynchronous collaboration capabilities of the Internet and integrates them within tools that mirror the instructional process.

2.2.3 Communication

When we are talking about e-learning we cannot overlook the impact that Web 2.0 technologies brings to the process of e-learning [7]. Web 2.0 technologies are changing the way messages have been spread across the web. A number of online tools and platforms are now defining how people share their perspectives, opinions, thoughts and experiences [8]. Web 2.0 tools such as instant messaging systems, blogs, forums, RSS, video casting, social bookmarking, social networking, podcasts and picture sharing sites are becoming more and more popular. Therefore we include some of them (instant messaging systems, blogs, video-wiki, forum, RSS) in our VET Community portal.

2.2.4 Content Repository

The core of the online learning is the content itself. As the web is a multimedia format, and people learn in various ways, there is a strong consensus that formal learning content should be presented in media-rich, high-quality learningware. To facilitate the broader flexibility of online curricula, most experts advocate breaking content into smaller chunks, so that they can be combined in unique ways for each learner. One popular strategy right now is to use "reusable learning objects" (RLOs), a concept borrowed from computer programming, in which objects are used and reused with appropriate adaptations for their context [9]. E-learning content repositories such as the Universal Brokerage Platform (UBP) that form the basis of EducaNext (www.educanext.org), an academic exchange portal for learning resources sharing was used. The objective of the project is to produce at least 120 reusable learning objects of e-learning materials under Creative Commons License (http://creativecommons.org) for identified VET sectors, including the interactive »e-modules« (following the decentralisation of schools and modularisation and open curricula methods).

2.3 The added value of VET Community Portal

The added value of VET Community Portal is: (1) the **cost effectiveness** in transferring the above portal to the network of VET schools, offering a thesaurus of e-learning materials that will be free of charge exchanged produced in various European countries. Having got many e-materials under the CC license, gathered in the online community portal, ready to be used by other community members offers a great possibility of

spreading knowledge and experience around Europe; (2) **greater motivation, awareness and ICT competences** of teachers, easy access to e-learning materials and their optimum adoption to individual pupils needs, lesser psychological burden of pupils and quick responsiveness of curricula to the demands of enterprises and labour market.

3 General impact on end users and target groups

In the short term, the project results will contribute in establishing advanced VET practices focused on advanced e-learning and improved EU competence resources in regions throughout Europe. An innovative VET Community Portal will enable trainees to go through on-line courses regardless of their location and occupation. The multilingual nature of the system will welcome a great number of potential users and the partners will make all necessary efforts to increase its usefulness.

The long term impact is focussed on modernising and upgrading of the existing VET provision in e-learning and adequate VET teacher training with the possibility of further dissemination to grammar schools and upper grades of primary schools in Slovenia and abroad. New partners will be invited to join the VET Community Portal during and after the end of its implementation. The sustainability will be insured by systematic implementation into national system and upgraded by means of EU Social Fund.

The whole philosophy behind the project design and implementation presupposed is the creation of a self sustainable and expanding VET Community Portal, fostering VET institutions and teachers for significant impact on the quality and efficiency of VET.

4 Conclusion

The project offers concrete answers to some main priorities related to the role of education and training in EU level. Through the structure of partnership the project supports the overall strategic EU triangle education, research and innovation. By aims and objectives and concrete outcomes it is in line with the recommendation on key competences of teachers (ICT as one of the 8 competences), Green paper on innovation, European Framework of qualifications, Modernization of Schools and hereby strengthening the role of ICT in promoting the lifelong learning in Lisbon strategy.

The »e[4] VET« project is expected to strengthen the VET infrastructure in Slovenia and abroad and ensure a sustainable solution on the transnational level. Since the Community Portal is not creating an additional Learning Management System, but facilitates interoperability, a main advantage is that VET institutions and teachers can continue to use and further develop their systems, while at the same time connect to other systems and offer a wide collaboration space for their users. The up-take will thus be much easier. The fact of VET institutions and teachers from several countries connected in one place – VET Community Portal – offers a great variety of different e-learning materials which can be used all around Europe if translated in local languages and adopted to national curricula. Adopting and not always creating e-learning materials from scratch can save a lot of time and enables sharing experience and knowledge among teachers and schools.

It is our firm belief that the »e[4] VET« project could have a large influence on the activities of continuous education within the VET programmes in Slovenia and Europe so that lifelong learning becomes a well-known and widely used paradigm in the continuous training systems.

There are two areas which Europe recognized as important weapons to cope with globalization challenges: the empowerment of institutions, including education institutions, and developing effective innovation strategy and creativity. Both areas could only be efficiently tackled by the best use of ICT technology and development of e-learning. With this in view, the project focuses on creating an innovation and ICT - friendly environment for VET institutions to follow these two European priorities. With its transnational partnership the project promotes the EU recommendation of *"Creating the innovative Europe"* and is closely linked with the intention of the European Commission to recognize the year 2009 as the year of innovation and creativity. VET sector is, namely, the most sensitive to the changes in labour market and economy, and as such most appropriate to implement the above EU priorities.

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