VIRTUAL TRAINING CENTRE FOR SHOE DESIGN: A SAMPLE VIRTUAL TRAINING ENVIRONMENT

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Abstract

It is a fact that virtual training has become a key issue in training. There are numerous virtual learning and training environments and, in parallel with this, there are various approaches and tools for creating a virtual learning environment. When we mention "virtual training", in fact, our stress is on two things: computer technology and education. Computer technology is made up of many sub-categories while education is made up of many sub-categories derived from educational models. The use of computer technology enables us to make up learning tools, online learning facilities, cooperative learning aids, web-based learning, etc.

The aim of this paper is to present a virtual training centre for shoe design. Virtual Training Centre for Shoe Design is a Development of Innovation project, which will be set up on the internet to supply training for shoe design. A virtual space, a shoe design training portal on the Internet which will allow the constant sharing of e-learning based shoe design training material so as to foster the further development of e-learning based shoe design educational contents will be created. The equipment, methods, curriculum and techniques currently used in shoe design training by partners will be observed, collected and evaluated. The selected materials will be used to create a new and efficient curriculum. This curriculum will be the core of target virtual training activity. Finally, there will be an interactive training environment available for all interested.

Keywords

Virtual training, innovation, shoe design,

1. INTRODUCTION

It is an accepted fact that the changing needs in training, in terms of both quantity and quality, calls for promoting competitiveness and employment on the European footwear industry [1]. In order to foster use of information and communications technologies in footwear industry, the Lifelong Learning Programme can be regarded as an opportunity to overcome the challenges in this field by focusing on the development of innovation and good practice [2]. One of the major problems of the shoe industry at the moment is that the overall level of skills and qualifications needs to be raised and, therefore, it is also necessary for training modules to respond to the continuous evolution in the workplace so as to confront the problem of unemployment and increased competition. Although the industry is asking for shoe designers as professionals, the lack of training in this area, on various levels, has been detected in some countries. A research by Mihai A. and Şahin M. (2007) displays that, for example, according to the Romanian Occupational Standard, the "shoe designing" as a job or its equivalent doesn't exist as an occupation for vocational education and training (VET). The curriculum for "Pattern Making with Leather Products" for secondary level VET dates from 1998. The university level course "Footwear Design and Technology" in Romania is too general and does not offer all required competences essential for a shoe designer in line with the expectations in EU [3].

The main and comprehensive source that displays the situation of the European footwear sector is the document titled "Commission Staff Working Document: on the promotion of competitiveness and employment on the European footwear industry" [1]. In this document, it is strongly emphasised that

the objective for the next ten years is for "Europe to become the most competitive and dynamic knowledge-based economy in the world". To achieve this the Commission has drawn up an action plan known as eEurope, aimed at speeding Europe's transition to the information society and ensuring that all Europeans possess the skills required for using the new information technologies. Another report, titled "Economic and competitiveness analysis of the footwear sector in the EU 25", sets up that "training of human resources is also a way of investing in the sector by helping workers to adapt to technological changes and to better face crisis situations" [4]. As stated by Brugia M. (2005), "SMEs in Europe account for 99% of all businesses, and they provide employment for 74 million people. Decisive factors of influence are: lack of a training culture within SMEs; lack of appropriate training materials" [5]. It can be inferred from this fact that almost every country in EU has its own training materials, in some cases insufficient, and methods for shoe design training. This brings about problems regarding the unification of workforce.

According to the report of Hanzl D. and Colab (2001), Romania had in 1999 about 66 000 employees in footwear industry, who produced 0,250 billion of EUR [6]. The more recently estimation of Eurostat [4] noticed for Romania footwear industry the following data: number of enterprises-1400, turnover-0.6 billion of EUR, value added at factor cost-0.2 billion of EUR, personnel cost – 0.2 billion of EUR, number of personnel employed – 109 100. It seams to be a high employment adds to, and in the same time, a substantial reserve within possibility for future employment cut due with the increase the productivity. Under such perspective, it is absolutely necessary for the actual and future employees to take often up to date training courses in order to be competitive and well fitted to the higher demands of the Romanian labour market in footwear sector.

According to the data by TASEV [7], a foundation for research and development of shoe making sector based in Istanbul, Turkey, the estimated number of the graduates from the high schools and apprentice centres is about 1000 so far. The number of the students attending Skill Acquisition Centres, High Schools and apprentice centres is about 720 now. The minimum expenditure for shoe design training in 2006 is about 1.800.000 USD. The number of the firms in this sector is about 30.000 and the number of the employees is 300.000. The rate of shoe export in Turkey in 1980s was not more than 2-3 million USD. In 1990s, the rate was about 30 million USD. The main boost was in 1990-2000, when it was over 217 million USD. Present capacity is about 500 million pairs. A capacity of about 200-300 million pairs is in use and the rest is not used. This unused capacity must be activated. Here training is a very important problem. There are hardly enough qualified staff who knows a foreign language. There are attempts to set up a training organisation at university level. The first Shoe Design department was opened at Technical Science College of Selcuk University in 2006 and now there are 30 students.

2. VOCATIONAL EDUCATION AND TRAINING (VET) AND ICT USE

The European Centre for the Development of Vocational Training (Cedefop) is the European Union's reference centre for vocational education and training. This centre provides information on and analyses of vocational education and training systems, policies, research and practice. According to Seyfried E. (2007), in the past two decades and in most Member States there has been a growing awareness of the importance of quality in vocational education and training [8]. Obviously, the changing demands of the knowledge-based society and the overall trend to increase the efficiency and effectiveness of VET systems constitute major driving forces behind these developments. Undeniably, through its funds and programmes, such as Leonardo da Vinci, the European Commission has contributed to improving education and VET systems by raising the level of the services they offer. For a qualitative approach to VET, the technical working group on quality in VET (TWG) was called to respond to during its mandate (2003 and 2004) in accordance with the priorities of the Council Resolution of 19 December 2002 and the Copenhagen declaration on "enhanced cooperation in vocational education and training" [9, 10]. Finally, a further focus of the work consisted of translating the three European policy priorities- promoting employability of the workforce, access to training with particular emphasis on the most vulnerable groups, and the better matching of training demand and supply- into concrete and measurable objectives [11,12].

One of the objectives of the innovative VET systems is regarded as transparency and distribution of information. This function concerns the potential and actual use of information. There may be different systems and structures of information distribution among the various actors, and in the public. And

there are preconditions for creating transparency in the VET system. To improve quality there must be systems for distributing information and certain mechanisms to ensure the circulated information can be used by the various actors in the policy process. The more widespread the distribution, the better the potential use of the data will be – and as a reversal effect, better quality data can be expected, as the actors are able to check the information against their experience and will provide feedback to the systems for gathering data.

One of the concrete future strategic objectives in the EU, according to Council of the European Union (2001), is improving the quality and effectiveness of education and training systems in the EU. This includes improving education and training for teachers and trainers, developing skills for the knowledge society, ensuring access to ICT for everyone, increasing recruitment to scientific and technical studies, and making the best use of resources. The second strategic objective is facilitating the access of all to education and training systems. This objective includes open learning environment, making learning more attractive, and supporting active citizenship, equal opportunities and social cohesion [13].

3. IMPORTANCE OF VIRTUAL TRAINING IN VET

During the 60's and 70's, teaching and learning tools were nothing but a piece of chalk and a blackboard eraser, teachers and students who met each other face to face inside the classroom during class. In the 80's, videotape programs were used as teaching aids. In the 90's, one-way teaching by computer arrived. And finally today's advanced computer and information network technology has revolutionized our teaching and learning methods. In accord with the development, learning environment has also changed. Students can listen to their teacher or trainers in distant classrooms through PC's and get a simultaneous view of their teachers and texts as well. They can ask questions and record the "class" for repeated viewing. Training organizations can conduct professional training directly via the computer network. These learning environments are not so different from a teacher-guided class with discussions and tests as well [11, 12]. In the report "Studies in the Context of the E-learning Initiative: Virtual Models of European Universities", a key concern was how virtual mobility is being supported in European universities through ICT integration and e-learning [14]. The study found that the majority of universities face major challenges in promoting ICT integration. ICT strategy is very important and those universities that have an ICT strategy are significantly ahead in integration of ICT in administration and organisation and networking. Integration of ICT and e-learning is politically important in the EU in terms of internationalisation and globalisation of education, student demand and interest in increasing the quality of education through ICT. At the national level, integration of ICT should become a key priority with national and regional institutions making a commitment to ITC and the development of networks. There must be increased national flexibility with a commitment to support common standards of quality and assessment and to develop national and international metadata standards.

4- THE AIM OF THE PAPER

This article aims to promote a Lifelong Learning project (Title: Virtual Training Centre for Shoe Design, Acronym: VTC-Shoe, Project no: 134124-LLP-1-2007-1-RO-LEONARDO-LMP). This project will address the strategic objectives mentioned above: The first one is improving the quality and effectiveness of education and training systems in the EU by developing skills for the knowledge society, ensuring access to ICT for everyone, increasing recruitment to scientific and technical studies, and making the best use of resources. The second one is facilitating the access of all to education and training systems by providing open learning environment, making learning more attractive, and supporting active citizenship, equal opportunities and social cohesion.

5. FEATURES OF VIRTUAL TRAINING CENTRE (VTC) FOR SHOE DESIGN

5.1. The Objectives

The main objective of the project is to contribute to the development of quality lifelong learning and to promote high performance, innovation and a European dimension in system and practice in the field.

VTC-Shoe project intends to improve vocational and educational training curricula on shoe design in Romania, Turkey and Greece by focusing on the development of innovation and good practice. The results of partners common developments will be transpose into a virtual centre, making it available on European level. By accessing the new created shoe design training course, trainers and teachers, shoe designers, adult learners, as well as trainees and apprentice will be keeping up to date with skills and knowledge necessary for high performance and innovation, both in training and shoe design. Based on availability into virtual common space of the innovative e-learning materials and training methodologies training materials, the project will make its contribution to development of single European information space [15].

The second objective is to help promote creativity, competitiveness, employability and the growth of an entrepreneurial spirit. In a world increasingly based on knowledge and information, education and training are put at the core of the European footwear industry agenda [1]. The footwear companies need to make learning a lifelong endeavour deal with their employees of all ages continuously developing their skills. By creating a new e-learning content and functional web service the Virtual Training Centre for Shoe Design will help both workers and footwear companies transforming the way they learn, interact and work in order to meet the footwear sector needs for competitiveness, employability and the growth of an entrepreneurial spirit.

The third objective is to support the development of innovative ICT-based content, services, pedagogies and practice for lifelong learning. ICT-related skills in the shoe design are also vital for the competitiveness of the footwear sector from and for increased job opportunities and employment. The concrete aim of the project is to develop a modern virtual training centre in shoe design for: 1) training the trainers, trainees at the college and technicians and apprentices for shoe design; 2) preparing shoe design technicians as intermediates having common measurable qualities the industry is seeking. VTC-Shoe project will create a common ICT-based content and will help for upgrading competences and skills of teaching staff and exchange experiences over the virtual training centre.

As for the operational and specific objectives, the project aims to support improvements in quality and innovation in vocational education and training system, institution and practices. This can be achieved through improving the qualifications and competences of the trainees in this field and it is directly related to the well-designed and programmed curriculum to be carried out on shoe design. In addition, considering that education is a dynamic process, it will be possible through this project, through its dynamic and continuous characteristics, to improve the quality of vocational and technical education, and accession to vocational training will be carried out.

5.2. Innovative e-learning content

Through the educational programme and new teaching methods to be developed by implementing shoe design training content into a virtually designed and served training centre which is accessible over internet, e-learning will be realised as an innovation in this field. The project will promote and reinforce the contribution of vocational training to the process of innovation through the virtual training centre to be formed in this field and its application will set up a new and good example for virtual learning in national vocational training systems. Appropriate training/learning materials, including for less qualified workers to improve skills, will be create and new e-learning tools for training and quality management in VET will be developed.

5.3. The partners

The partnership consists from three universities having necessary skills, knowledge, expertise and experience in relation to their role in the project: "Gh. Asachi" Technical University of Iasi, Romania, Technical Science College of Selcuk University, Konya/Turkey and CAD LABORATORY of the Technical University of Crete/Greece.

5.4. Project Outcomes

The project outcomes will be: 1) a new and common curriculum in shoe design training in partner countries; 2) a new training method which is virtually served on the web; 3) interactive simulation software; 4) a user manual for both trainers and trainees will be produced. The interactive simulation

software, manuals and the virtual training centre will be available for test in the second half of the second year.

The final results of the project will be used at the first stage at the shoe design training centres of the partners. The simulations, practical exercises making it possible to apply what is learnt, and the final product will be tested in short training courses. The feedbacks of the implementation at these centres will be recorded and the training participants will evaluate the curriculum; this will be undoubtedly one of the strengths and recommendations on both form and content, which will be incorporated into the final version. Evaluation will cover content (topics, language used, modules), methods (progress, different levels of difficulty, and range of resources, situations and practical cases) and technology (ease of installation, interactive nature and use without a tutor). Testing of the resource in self-instruction, workplace and training centre situations will be important.

5.5. Methodological Approaches

In order to strengthen and ensure that the project results will be used as regards the target groups, target sectors and potential users, the WP2 (Developing Database for Team Members of Target Sectors and Groups) will play an important role. This interactive software for shoe design training based on new common curriculum will be served on web. The log files will enable us to trace which of the expected users are logging on to the site. The obtained results will be classified and compared to the expected usage levels and the users will be encouraged and promoted to take part in dissemination.

The strategy of methodology and decision on the content development phases will be determined basing on the common curriculum obtained in WP3. Thus, the stages to form the content of VTC (Virtual Training Centre) need to: 1) consider the identified and approved training needs /new qualification needs addressed by the common curriculum designed in WP3; 2) consider the possible future developments. The content will be based on the operability and comparability of the training program. Satisfaction of the target groups will be of another concern. The responsible partners for this work package will concentrate on the common curriculum produced in WP3. As well as that, the results drawn up from the conference at the end of WP3 will be also a great asset for the content development stage. As well as those, the partners will provide appropriate pedagogical experts from their organisations to conduct and conclude the pedagogical approaches to the content.

This VTC-Shoe is a kind of library that contains a collection of training material presented in many formats; documents, demonstrations, recorded lectures, and hands-on labs. The VTC contents can be searched, reviewed all content of each type, or filtered the content by a topic of interest. When one finds something that interests him or her, he/she will click the link to access the content. The VTC-Shoe to be set up should contain six stages under the following headings:

- The **Introduction** providing the setting.
- The **Task** telling the learner what to do.
- The **Process** suggests to the learner how to complete the task.
- The **Resources** are a set of website links or other resources like the common curriculum (on or offline) that the learner will use to find the appropriate information.
- The **Evaluation** informs the learner as to judge the success. This could also include soft outcomes.
- The **Conclusion** rounding up the activity.

5.6. Innovation in the project

Virtual Training Centre for Shoe Design will be set up on the internet to supply training for shoe design. A virtual space, a shoe design training portal on the Internet which will allow the constant sharing of e-learning based shoe design training material so as to foster the further development of e-learning based shoe design educational contents will be created. The equipment, methods, curriculum and techniques currently used in shoe design training by partners will be observed, collected and evaluated. The selected materials will be used to create a new and efficient curriculum. This curriculum will be the core of target virtual training activity. Therefore, four main aspects will be solved:

1. Virtual training will be an innovative approach in shoe design training, as the Virtual Training Centre will include interactive training software based on the new and common curriculum. In this way more trainees will benefit from the same and reliable source of training.

2. The Simulation program served on Virtual Training Centre will be expected to solve lack of unification of the shoe design tools necessary for training purpose for numerous trainees.
3. The common curriculum will enable the partner countries to cooperate in shoe design training. Thus the authorities will be able to obtain mutually a means to measure the level of outcomes in shoe design training in partner countries.
4. Creating an interactive teaching program served on Internet will help even while at work and disseminating information regarding the latest technology and innovations through observation and implementation will be beneficial to the shoe manufacturers.

The general features of the anticipated web platform will be: easily comprehensible, web modularity (a modular structure that will be accessed by different user groups (a modular structure that is provided by object oriented programming techniques), separation of supplying and operating logics (the system will conduct operational functions and the design of user interface separately from the operation logics). By means of this understanding, a secure structure will be obtained basing on the web manager and user modules.

Web Manager will be in an Internet application structure that will provide the administration of the web site and provide the web broadcasting of content formers over web browsers.

- Technical Features: MySQl will be used as database. For the confirmation of the registered users, a special index keeping the information of the users will be used.
- Development of application process: Algorithmic infrastructure, software development, hosting procedures, creation of the web platform and necessary development procedures will be done. Development of the security module, make use of the different databases and testing the system at different stages.
- Basis of the program: This application will be developed enabling the distance web site managing. Thus, the construction and update of partner sub-web sites both in English and in native languages will be possible by using the English based management modules. The partners will transfer the information for their sub-web site (under the original web site) to the web server over this application.

5.7. European added value

The rapidly changing technologies, as well as the innovative e-learning teaching methods require for adapted modules for lifelong training that keeps continuously up to date with the relevant developments of the European footwear industry. The Virtual Training Centre for Shoe Design will be an interactive platform, a meeting point for policy-makers, social-partners, practitioners, researchers and all those with an interest in shoe design field of vocational education and training. Experts in the field will be able to share and exchange knowledge and experience with associates within and outside the European Union.

The project's scientific and pedagogic objectives are in tune with the main priority in LIFELONG LEARNING PROGRAMME [16]. Through the various research and development projects partners have developed training materials for shoe design. These materials have to be compared between involved partners in order to get common curricula to be share with future users at a European level. The innovative e-content, which will be developed within the VTC-Shoe project, can easily be translated to various languages.

In terms of strategic impact and contribution to growth, the VTC-Shoe project is expected to have a very powerful impact in the European footwear industry. Closely to the other projects funded by European Community, it will improve competitiveness helping footwear companies to have skilled and competent shoe designers. Thus, VTC-Shoe added value for the Community lies in the provision of a training tool that has the dynamics not only to provide valuable training and skills to the targeted beneficiaries but also to empower the processes of the EU footwear industry and thus, increase productivity and competitiveness. This, in its turn, is expected help the industry grow and, thus, increase the demand for more skilled employees.

This virtual training centre to be formed in this field and its application will set the first and good example for virtual learning in national vocational training systems. It will help improve and upgrade competences and skills of staff and exchange experiences over the virtual training centre. It will increase the work opportunity by helping young generation to use Information Technologies.

As this project contributes to e-learning by providing new training tools, it will create new job opportunities for the individuals in partner countries and thus this will contribute to employment exchange in EU. These activities are inline with European strategies for vocational training. As emphasised at LEARNTEC 2005 (Karlsruher Messe- und Kongress-GmbH, November 2004), "E-Learning has become indispensable for corporate training, but the fascination of SMEs for web-based learning is still quite limited. Further education and training figures rarely on the priority list, and in most of the cases, a training department does not even exist." This project is also expected to help the participants to acquire required qualities, to be proud of this, and in this way, to be an active citizen of EU.

The internet based platform within the VTC-Shoe project offers to trainers/teachers the possibility for continuing development of their skills and competences. The innovative solutions for training in shoe design as well as the innovative pedagogical methodologies will keep them up to date with the new technologies in order to have a longer active professional life. Within the shoe industry, the majority of workers are women and account for about 40% to 50% of all employees [17]. VTC-Shoe project will open new training opportunities for women. However, the e-learning shoe design course developed within the Virtual Training Centre is an equal opportunities course, combating all forms of discrimination based on sex and will be open to both man and women.

One of the major problems of the footwear industry at the moment is that the overall level of skills and qualifications needs to be raised and, therefore, it is also necessary for training modules to respond to the continuous evolution in the workplace so as to confront the problem of unemployment and increased competition. VTC-Shoe project proposal comes up to the changing needs in training, in terms of both quantity and quality, designed for promoting employment on the footwear industry. Training materials offered by the VTC-Shoe internet platform will help both unemployed people to find a job in footwear companies, and worker to up to date their skill for getting a better position. The Virtual Training Centre (VTC) will be set up on the internet for Shoe Design training. This will allow the constant sharing of e-learning based Shoe Design teaching material will be created so as to foster the further development of e-learning based Shoe Design educational contents.

The free toolkit, available on this site, will provide the trainers and trainees with the facility to design the product in mind. Access to create, update or modify the VTC-Shoe will be available throughout the project and after it. The interactive teaching program served on internet will help even while at work and disseminating information regarding the latest technology and innovations through observation and implementation will be beneficial to the manufacturers. This interactive software for Shoe Design training based on new common curriculum will be served on web. The log files will enable us to trace which of the expected users are logging on to the site.

6. CONCLUSION

This virtual learning environment for Shoe Design as an e-learning environment is important in the EU in terms of internationalisation and globalisation of education, student demand and interest in increasing the quality of education through ICT. At the national level, integration of ICT should become a key priority with national and regional institutions making a commitment to ITC and the development of networks. There must be increased national flexibility with a commitment to support common standards of quality and assessment and to develop national and international metadata standards. This centre addresses the priorities expressed here. Furthermore, this virtual training centre addresses the strategic objectives mentioned above: improving the quality and effectiveness of education and training systems in the EU by developing skills for the knowledge society, ensuring access to ICT for everyone, increasing recruitment to scientific and technical studies, and making the best use of resources. Facilitating the access of all to education and training systems by providing open learning environment, making learning more attractive, and supporting active citizenship, equal opportunities and social cohesion is the other strategic objective that can be achieved through this virtual training centre.

On a short term, the partners country will have trainers from colleges, vocational schools being up to date with the a new common curricula and having necessary skill for teaching on-line; trainees with more extensive knowledge in shoe design, more skilled design technicians, designers, who are

actually responsible for designing shoes and apprentices [prepared for a new job. who are newly recruited for shoe design.

The Virtual Training Centre for Shoe Design is necessary for universities, footwear companies, colleges and training institutions all over Europe and elsewhere, because they are integrating in an organised and illustrative way all the steps required to acquire quickly, easily and in a technologically advanced manner the skills necessary for shoe design, and pattern construction and which will be more clearly and in a more effective educational approach than in an ordinary classroom. Through the network of collaborations of the partnership, the outputs of the training tools will be assimilated in the training systems of a wider spectrum of training organisations.

The project will be considered successful if it will manage to stimulate interest and immediate results in the participating universities and vocational centres, by demonstrating to them the usefulness of the proposed technologies and by encouraging them in participating in new teaching and research activities. Also, another very important indicator is the number of companies that will be interested in participating in the testing and evaluation stage of the project. Each project partner understands the dissemination and valorisation not merely as a duty but also as a possible resource for further activities. Thus, a special emphasis will be given for perfect valorisation activities in order to assist the utilisation of the project outcomes in the follow-up phase. Valorisation will be considered as an integral part of the whole project as a continuous activity. It will start within the partners and extended to national and European level.

In the long term, trainers will broaden their training ability by means of communication over virtual training centre; trainees and apprentices will have better employment opportunities in their countries and especially in other partnering countries; technicians will be a subject to lifelong learning and e-learning as a member of modern society; shoe designers will be more creative by contributing their creative feedbacks.

As target sectors, educational institutions will need to modify their existing training methods and techniques in the light of the new curriculum, and distance learning approach will provide them with a better, cost-effective training, which would have been impossible without high cost, numerous staff and workshops. Shoe manufacturers will be able to customise their training content according to their own training requirements, which may differ from one manufacturer to another.

As potential users, the training organisations, the SMEs, the universities, colleges, vocational schools, training centres will be able to increase easily the number of trainees and in this way they will contribute to the employment.
The results of the project can be transferred to similar fields such as furniture, textile, air conditioning etc. The experiences and knowledge gained during the process of this project can be used in developing and improving other training programmes in particular in the area of new information technology applications in related sectors.

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