INLAND WATERWAYS TRANSPORT E – LEARNING DEVELOPMENT IN THE REPUBLIC OF CROATIA

Natalija Jolić  
Zvonko Kavran  
Katarina Mostarac  
University of Zagreb  
Faculty of Transport and Traffic Sciences  
Vukelićeva 4, HR - 10000 Zagreb, Croatia  
natalija@fpz.hr, zvonko.kavran@fpz.hr, katarina.mostarac@fpz.hr

ABSTRACT

E – Learning at the University of Zagreb is noted as very important part of education process (E – learning Strategy 2007 – 2010). Faculty of Transport and Traffic Sciences has developed its own e-learning system several years ago. This provided Faculty of Transport and Traffic Sciences with significant experience on e-learning implementation in classrooms, as well as the ability to detect possible problems, advantages and benefits. In this paper the preview of INeS (Inland Navigation eLearning System) e-learning platform for the Danube region is analyzed. INeS is an existing platform which will, within the NELI project (funded by the European Union), be implemented and operational in the Republic of Croatia. This will allow all the interested stakeholders in the inland waterway transport sector (e.g. students, pupils, manufacturing industry or shipping companies) easier access to information, better learning process and knowledge upgrading, and will provide the basis for the life – long learning.

1  INTRODUCTION

Highly qualified human resources are inevitable demand in economic and trade growth in the SEE and Danube regions. The demand for qualified personnel is especially evident by the transport sector stakeholders – transport companies, network operators, manufacturing companies and corporations, ports and terminals, regulatory bodies, government and local administrations for traffic, inspection services, police, military force, and other activities. The traffic increase and structural transformation of Croatian transport operators (stabilisation of management structure and privatization and liberalization activities) generated a need for qualified human resources and has stipulated requirements for highly qualified employers [2]. Information and communication technologies (ICT) are part, not only of every modern industry, including transport industry, but the modern education as well. It is of great importance to stay up-to-date to modern trends in education processes, to educate future transport specialists in adequately modern concept, and to attract people to transport sector, especially to the field of water transportation.

2  PRESENT STATE AND INITIATIVES IN THE REPUBLIC OF CROATIA

E-learning strategy 2007 – 2010 is the document of the University of Zagreb describing the mission, objectives and planned operations of e-learning implementation at faculties of the University of Zagreb. It states the e-learning as the desirable, modern and advisable way of education. Following definition of e-learning was adopted by the Strategy:

E-learning is a process of education (learning and teaching process) conducted using the information and communication technology which improves the quality of the process itself and the quality of the learning results [6].

Classification of learning forms according to the usage of the information and communication tools (ICT) are defined as:
1. Classical teaching – conducted in classrooms  
2. Teaching endorsed by ICT  
3. Classical teaching methods combined with ICT – hybrid teaching  
4. Online teaching – fully supported by ICT.

When observing presence of e-learning at the University of Zagreb at this point, it can be noted that hybrid form is generally present. This implicates combination of classical classroom teaching methods supported by modern ICT, where students part of their study obligations perform over computers. There are faculties that have developed entire curriculum for certain courses online, using Learning Management Systems (LMS). This specially refers to faculties of technical orientation which vocational orientation is closely related to modern technologies, while artistic field is the least represented.

University of Zagreb supports the enforcement of e-learning, considering the preconditions to be made in order to achieve sustainable environment for the successful application of e-learning. This refers to the strategic objectives that need to be accomplished, like the quality of education, competitiveness of the University etc.

According to the Resolution on forms of education at University applying e-learning technologies, University of Zagreb recognized three different stages of e-learning implementation, as shown in table 1.

<table>
<thead>
<tr>
<th>Description of the stage</th>
<th>Method and purpose of technology usage</th>
<th>Technologies used</th>
</tr>
</thead>
</table>
| Make course information available, enable usage of curriculum, ease the communication to students | Available course materials  
News forum, curriculum forum, student discussions  
Course calendar available  
Course information available  
Knowledge testing  
Homework uploading and grade evaluation  
Lectures over internet in real time etc. | web page of the course  
e – mail  
e – learning system  
forum |
| Combine e –learning with classical teaching methods | Complete teaching material available in e – learning form  
Allow individualization of learning process  
Create environment where students take main roll in achieving education results  
Develop creativity  
Give credits to all relevant student online activities etc. | e –learning system  
video conferences  
webinars  
e – portfolio system |
| To create a shift in the education process towards a model focused on development and acquisition of student competencies | |

Each faculty of the University of Zagreb is adjusting the form of e-learning best fitted for its area of education, certain study and course. This also relates to time period of implementation, where the capabilities of the institution, competence of teaching staff and readiness of students need to be considered.

3 INeS E – LEARNING PLATFORM

Faculty of Transport and Traffic Sciences (FPZ), University of Zagreb is a high level education institution that provides higher education in the field of traffic technology and
transport. FPZ is oriented to modern technologies, as it is trying to implement them to everyday use. Transport branch in global is influenced by communication technology solutions, information flow and all other new technologies that make transport systems flexible, efficient and up-to-date. For years, FPZ is developing online communication to students, which resulted in developing faculty’s own e-learning system named e-Student [1]. This system consists of several modules: CMS (Content Management System), DMS (Document Management System). Implementation of the system at the Faculty resulted in large interest of the students, as well as the working staff, where great level of interaction has been achieved.

After students log in, they can get all kind of up-to-date information on class schedule, changes in consultation periods or time – table for exams, mid – exams etc. Students can also download lecture materials studied in classrooms. Some courses also require online submission of time – limited tests. Development of e-Student is fully adjusted to the demands of FPZ, requirements of the teaching, working and other specific processes that need to be conducted.

Regarding inland waterway transport Faculty of Transport and Traffic Sciences, Water transport Department is currently participating in NELI project (Cooperation – Network for logistics and nautical education focusing on Inland Waterway Transport in the Danube corridor supported by innovative solutions). NELI project is co-funded by the European Union in the frame of the South East Europe Transnational Cooperation Programme (SEE) and is being implemented in 8 countries (Romania, Austria, Hungary, Bulgaria, Slovakia, Croatia, Serbia, and Ukraine – as shown in Figure 1). The goal of NELI is to gather and connect the relevant institutions of the education and training sector in the Danube region. This will result in better interconnection and networking of relevant stakeholders in the area of inland navigation. Project also aims to develop and expand existing ICT tools for the sector of inland navigation for Danube countries where it is still missing (Croatia, Serbia, Hungary and Slovakia). This refers to an Inland Navigation eLearning Systems (INeS), which will be adopted and translated to the languages of the above mentioned countries. There are two existing modules of the INeS platform: INeS RMS and INeS Danube. The latter one will be also, within the NELI project, implemented in the Republic of Croatia. This will allow all the stakeholders in the inland waterway transport sector (e.g. students, pupils, manufacturing industry or shipping companies) easier access to information, efficient learning process and knowledge upgrading, and will provide the platform for the life – long learning. NELI aims to set up a transnational cooperation network by implementing innovative training and education solutions and creating an adequate framework for ITC conception and innovation transfer leading to the convergence of target transnational water transport logistics and nautical policies. Project also aims to provide basis for long – term cooperation between the countries in the Danube region by drawing up national and transnational action plans for education issues in the field of water transport, along with the long – term network strategies that will guarantee the sustainability of the actions and activities after the project ends.
Inland Navigation eLearning System (INeS) is an e-learning platform developed under the European Commission project EWITA (European Web Platforms and Training Concepts for Intermodal Inland Waterway Transport). EWITA project was funded by the Marco Polo II programme. The duration of the project was 26 months (1st June 2008 – 31st July 2010). EWITA project was the sequent of the eWIT (Web-based Intermodal Inland Waterway Transport Training for Europe) project funded from Marco Polo I programme which gave concept to the development of INeS e-learning platform.

Within eWITA, INeS platform was upgraded, extended, updated and renamed to INeS Danube (available in English, German and Romanian). One other module was developed – INeS RMS (platform that focuses on the Rhine – Maas – Schelde area, available in English, German and Dutch). The both platforms were launched in June 2010. INeS platform is a good example of bringing inland navigation closer to students. This is a great opportunity to make existing courses more interesting and modern, and to attract significant number of student to a career in inland navigation sector. INeS platform, once implemented in Croatian language will be a great basic material for education, not only in the field of inland navigation, but in water transport field in general. The implementation of this activity is expected in the next few months.

INeS is an open source platform which provides online education on inland waterways to all interested stakeholders. Depending on the area of interest, user can choose the area of the education, whether it is Danube region (INeS Danube) or the Rhine – Maas – Shelde (INeS RMS) region.

INeS Danube e-learning platform is currently available in 3 languages (English, German and Romanian), and in 2011 is expected to be implemented in Croatian, Serbian, Slovakian and Hungarian. INeS offers a step-by-step tutorial for better understanding and browsing the page, which eases the better understanding of the online conducted class. It is consisted of three level study approach:

- Basics
- Usergroups
- Topics

Depending on the point of interest of the person interested in learning over INeS, different study approach can be chosen. Basics offer a short introduction movie on the Danube River, countries that are located along the river, geographical and economical characteristics of the mentioned region. So called ‘tailor – made courses’ for different kind of professions are offered within the usergroups menu: manufacturing industry, ports, shipping companies, educational institutions. Learning materials of each usergroup are adapted to the specific area of interest. Topics menu offers preview of all topics available on the INeS web
Examples of INeS Danube lessons on intermodal transport and RIS communication are shown in Figure 2 and Figure 3.

**Figure 2: Lesson on intermodal transport by road, rail and inland waterways on INeS**

**Figure 3: Lesson on River Information Services on INeS**
User log in gives users the possibilities for additional features. Especially interesting is the “Personal desktop” feature which gives the option for monitoring study process, editing personal data, adding contacts, workgroup studying. Also the customization of user interface, bookmarking or e-mail managing is possible, along with other interesting options.

As it has been mentioned, INeS will be adapted and translated to Croatian language, as well as to the other languages of the Danube region countries where still missing. This activity is expected to be completed in June 2011. Benefits of INeS operational in Croatian language are numerous: easier access to the inland navigation courses, platform will be available to all interested stakeholders, it will help the better promotion of the inland navigation, course materials learnt in all Danube countries will be integrated and updated, learning process adjusted to students, it will provide common information and communication technologies, standards and services [4].

Integrated and harmonized curricula will also help the process of mobility between related institutions, not only of students, but also teaching and training staff institutions. Future development and sustainability is guaranteed by development of transnational concept, within NELI project, on the future implementation strategies of e-learning services for the sector of inland waterway transport in the Danube region. Basic fundamentals towards a utilization of ICT in education aspect of inland waterways have been set up. Major difficulties will be funding issues, competence and willingness of the political and educational institutions for this kind of education to be implemented and used in everyday education.

4 CONCLUSION

Education system and process certainly have great benefits from e-learning. This refers not only to the time and space of teaching flexibility, but also to access to updated national and international teaching materials, digital libraries, archives etc. Students are allowed to develop their own personal learning style, organize group works. It is essential to emphasize the advantage of developed e-learning courses for the students with disabilities, students on remote locations or foreign students. On the other hand, every incorrect use of technology can result in unwanted consequences and unnecessary spending of resources. Therefore, it is crucial to harmonize objective requirements for e-learning implementation with goals that have been defined and set up to achieve. Life – long learning is encouraged by the NAIADES initiative – a multi-annual European Action Programme for Inland Waterway Transport, especially because of the shortage of staff number in the inland navigation sector. Usage of new technologies in the education process can be used to attract people to the sector, those who are just at the beginning of the career or those who wish to change careers. Since inland navigation is submissive to crew mobility, distance and online learning can be a great tool for adequate training of the staff. Many indicators confirm that in countries with developed lifelong learning, training and education possibilities, one can expect to find a job much easier, which is important because of the current high number of unemployed, not only in Croatia, but broader.

Development and strengthening of e-learning at the Faculty of Transport and Traffic Sciences follows implementation actions and strategies of the University of Zagreb. Sustainable learning education environment in the field of water transport in Croatia becomes more and more recognizable. Therefore, including teaching staff to the process of online teaching implementation, activating students awareness of the possibilities of online class are the prerequisites that are planned to be fulfilled for the successful e-learning implementation and usage. INeS is a great tool that could easily be integrated and used in education and training purposes in Republic of Croatia, especially because it will be available in Croatian language. Future development of the e-learning in water transport education in Croatia should be encouraged, not only in the sector of inland waterways, but also in maritime transport.
REFERENCES


4. NELI Project Team, Project Application, 2009/2010


7. www.edinna.eu (28.03.2011)

8. www.ines.info (20.03.2011)

9. www.neliproject.eu (27.03.2011)