IDEA GROUP PUBLISHING
701 E. Chocolate Avenue, Suite 200, Hershey PA 17033-1240, USA
Tel: 717/533-8845; Fax 717/533-8661; URL-http://www.idea-group.com
ITB12867

This paper appears in the book, *Emerging Trends and Challenges in Information Technology Management, Volume 1 and Volume 2* edited by Mehdi Khosrow-Pour © 2006, Idea Group Inc.

The Open Sources Education: A Real Time Education

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ABSTRACT

The Open Sources Education (OSE) is both an idea and a platform which entirely originates from Poland and is an unique method of succoring the didactic process by a network of academic Virtual Education Centers (VEC) using the Internet. The OSE is an initiative which has arisen while applying the e-learning techniques on daytime, evening and extramural studies of the Management and Marketing course at Faculty of Production Engineering, Warsaw University of Technology. The OSE, with the aid of Internet, can support the didactic process: the traditional course mode classes and the real time led teamwork classes. The article presents: the Open Sources Education idea, institutions, universities and platforms involved in e-learning, eStudent platform, VEC network, VEC development perspectives, VEC users' instructions and some license restrictions.

INTRODUCTION

The persistent teaching and the distance teaching have become stigmata of modern societies' education. The e-learning, that is teaching with the use of computer medium, is a challenge for the higher education and the world economy, which business necessities are: the working profile change and the workers' training.[1] It can be realized in various ways: from presenting the course materials on optic discs, through advanced training courses in computer workrooms and under professional supervision, to student's remote work via Internet.

How can the Internet be used more effectively in the field of academic education? While, on the one hand, we can imagine a number of e-learning's limitations, on the other, we know that currently there is no better medium to be used for distance teaching.[2] Let us try to look at the new approach and the possibilities that are offered by the simple idea of The Open Sources Education realized in the academic environment.[3]

The Open Sources Education is intended to be the solution for the complexness and poor availability of educational platforms and high costs of traditional didactic classes organization. What is more, according to the experts, preparing a multimedia version of 1 hour of traditional course requires from 30 up to 100 hours of work. However, the OSE's main matters of concern are students and lecturers' efficiency and dynamics, and not the issues of the informational interface's ergonomics.

THE IDEA OF THE OPEN SOURCES EDUCATION

OSE is a new concept of breaching the barriers between lecturers and students. Therefore, it aims not at replacing the didactic cadre with sophisticated internet technologies, but, on the contrary, at strengthening lecturer's position by providing him with simple and intuitive tool for communication with the student.

The Open Sources Education (OSE) is both an idea and a platform which entirely originates from Poland and is a unique method of succoring the didactic process by a network of academic Virtual Education Centers (VEC) using the Internet. The OSE is an initiative which has arisen while applying the e-learning techniques on the daytime, evening and extramural studies of the Management and Marketing course at the Faculty of Production Engineering, Warsaw University of Technology. OSE system enables succoring the didactic process to all groups of users - the students, the lecturers and the administrators - in simple and friendly way, without any restrictions connected with the subjects, specifications and content. OSE platform creates IT technical environment called eStudent, compiled by PMP IT Consulting Co., available on the web site: www.eStudent.edu.pl

The mission of the Open Sources Education is to create the international education platform using new IT technologies which enables:

- developing the traditional form of education and trainings by unlimited access to education content for everyone who wants to self-educate or complete the knowledge,
- equalization of the educational chances for people from different environments and regions including disabled people through the easy communication with the high schools and universities' scientific personnel,
- unlimited access to the technical knowledge and to the regional and companies' occupational improvement systems.

Development of the Open Sources Education (OSE) - follows on non profit conditions, because of its social, culture and civilization range. OSE system and its eStudent platform are available for free mainly for those who proclaim their education services also for free.

About 1/3 costs of designing of the OSE system is covered by the didactic activity with the commerce characteristic (paid studies and courses) and by international private and state universities programs, and by the training services and also by postgraduate studies conducted for big companies and finance institutions, which are using in their educational process the eStudent platform. The other costs on development and exploitation of the eStudent platform are received from sponsoring organizations - the list of them you can find below[4,5,6] - and from the work of enthusiasts of Open Sources Education idea: the students, doctor's studies students and universities employees.

UNIVERSITIES, INSTITUTIONS AND PLATFORMS SUPPORTING THE E-LEARNING

Nowadays, the e-learning and real time led studies issues are important matters of concern for: universities, international organizations and producers of technological platforms. To illustrate this tendency, chosen examples, Polish mostly, are presented below.

Universities:

- **AGH University of Science and Technology - Distance Education Study Centre (DESC).** E-address: www.oen.agh.edu.pl
- **National Technological University – NTU Network** – a virtual university awarding master's degrees in key management, technical, and engineering disciplines. The NTU arose in 1984 as a network of 7 universities supported by: IBM, Motorola and Hewlett-Packard. At present, it is a consortium of 52 American universities. E-address: www.ntu.edu/index.asp
- **NETTUNO – Network Del L'Universita Ovunque** - a consortium of 32 universities, RAI and TELECOM Italia, created in

1990 for distance education at academic level. The universities, which form the consortium, create inner centers that test, consult, lead diplomas and produce didactic materials for the use of the educational portal. E-address: www.nettuno.stm.it

- **Warsaw University of Technology – Distance Education Centre.** Since academic year 2001/2002 it coordinates the recruitment and the realization of the Extramural Distance Engineering Studies. There are faculties of: Electronics, Electronics and the Information Technology and Mechatronics, and specialties in: Industrial Informatics, Computer Enginery, Multimedia Techniques and Mechatronics. E-address: www.okno.pw.edu.pl
- **Warsaw University of Technology – Institute of Production Systems Organization – The Open Sources Education – eStudent Platform.** Since October 2003 the network of Virtual Education Centers was built. At present it consists of 12 establishment groups from public and private, technical and economic universities. E-addresses: www.estudent.edu.pl, iosp@wip.pw.edu.pl
- **Warsaw School of Economics – www.e-sgh.pl platform.** Mailto: bos@sgh.waw.pl.
- **Warsaw University – Open Multimedia Education Centre.** E-address: www.come.uw.edu.pl

Institutions:

- **AACE – Association for the Advancement of Computing in Education** is an international organization, premises in Norfolk, USA, which was established in 1981. AACE distributes information about the possible IT uses in the educational process. E-address: www.aace.org
- **EADL – European Association for Distance Learning.** Offering more then 4000 different courses, it associates: EU countries, Iceland, Russia, Switzerland and Turkey. E-address: www.eadl.org
- **EDEN – The European Distance Education Network.** It is a non-governmental association of European universities, corporations and individuals that operate in the field of distance education. E-address: www.eden.bme.hu
- **Virtual Polytechnic.** Established in 2003, VP is an organization that associates 7 Polish Universities of Technology: AGH University of Science and Technology and polytechnics from: Bialystok, Gdansk, Cracow, Poznan, Wroclaw and Warsaw. The Virtual Polytechnic aims at equalizing the traditionally passed subjects with the ones passed via Internet.[7]

Platforms:

- **WTB platform of Digital Spirit co.** The platform contains 2 programs: WBTExpress 3.0 and WBTServer 3.1. E-address: www.digital-spirit.pl
- **ReadyGo! platform of Mindworx co.** is a specialist application meant to prepare trainings for e-learning systems. E-address: www.readygo.com
- **Lotus Learning Space platform.** It is a scalable software and hardware unit securing backup for complex training projects. Learning Space Core and Learning Space Collaboration modules operate both asynchronous and group teaching mode. E-address: www.pugh.co.uk/products/lotus
- **eStudent platform.** This platform arose as a result of PMP IT Consulting Co. and Institute's of Production Systems Organization collaboration. It enables: defining the lecture's structure and content (texts, formulae etc.), inserting graphics (schedules, maps, schemes, plans) or video animations, inserting audio commentaries (lecturer's remarks concerning the teaching material), defining questions and answers for tests and examinations, browsing the students' activity reports. E-address: www.estudent.edu.pl

eSTUDENT PLATFORM - VIRTUAL EDUCATION CENTRES NETWORK

The Open Sources Education platform is formed by an IT environment named eStudent, developed by the PMP IT Consulting Co., available at the page: www.estudent.edu.pl The eStudent internet platform enables opening and maintaining a Virtual Education Centre (VEC) at any academic organization. VEC can be established within two licenses:

- **public license** - for universities and high schools units, and for the charitable organizations conducting the honorary educational activity,
- **commerce license** - for high schools and universities units conducting paid educational activity and for the trainings destination in the big and medium companies and also in the financial institutions.

The Virtual Education Centers network (VEC network) is formed by each and every VEC registered on the eStudent platform, within public or commercial license, by didactic workgroups members or administrative units which represent them (Fig. 1).

A single VEC structure consists of:

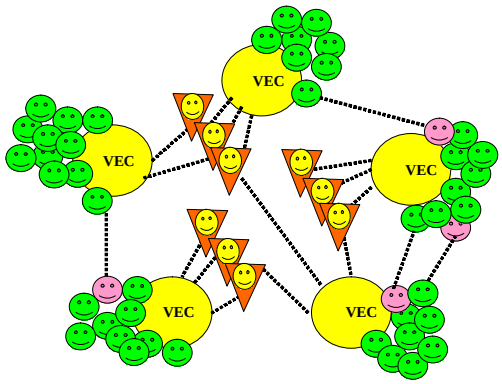
- VEC coordinator (one or more persons, depending on the needs),
- VEC lecturers (approximately from 10 to 75),
- VEC students (no limits),
- Subjects (1-5 subject units for single lecturer),
- Technological sources of the eStudent platform, available for educational purposes and for VEC structure remote managing.

One can candidate for the position of VEC lecturer by filling a registration form in agreement with the coordinator of the proper VEC. Furthermore, the registration process is realized automatically. Applying for the position of VEC coordinator looks analogically. Below is the list of exemplary existing VEC, which are well developed or being extended.

Current VEC list:

- Center for Industrial Ergonomics - University of Louiseville, USA,
- Faculty of Economics and Management - R. Lazarski Higher School of Commerce and Law
- Faculty of Electronics - Koszalin University of Technology,
- Institute of Manufacturing Technology - Warsaw University of Technology,
- Institute of Production Engineering - Opole University of Technology, Institute of Production Systems Organization - Warsaw University of Technology,
- IT Division - Radom University of Technology,
- Logistic of Marketing Division - Faculty of Management and Production Engineering - Opole University of Technology.

Figure 1. The idea of Virtual Education Center network – students and lecturers



DEVELOPMENT OF THE ESTUDENT PLATFORM FUNCTIONAL ABILITIES

What determines the efficiency of the eStudent platform, is its tight relation with the academic environment, in which it has arisen and developed being observed and constantly upgraded. Development of the eStudent platform functional abilities follows 5 perspectives:

- **organizational perspective** (division of competences in the Open Sources Education system),
- **operational perspective** (operating the eStudent platform's informational interface – Fig. 2, Fig. 3),
- **editorial perspective** (content processing and input managing),
- **didactic perspective** (subject, lecture, test, exam, knowledge base and paraphernalia base structure),
- **communicational perspective** (individual and team work, student ⇔ lecturer ⇔ coordinator ⇔ administrator communication).

Organizational perspective:

- in the system there are students, lecturers, coordinators and administrators,
- student executes lecturer's tasks within the subjects he has enrolled on,
- coordinator has an electronic register of students, lecturers and subjects,
- coordinator registers: students into student groups, lecturers into particular subject lecturers workgroups, student groups of particular subject and lecturer,
- there is an electronic index of each student, where subjects, lecturers and received marks are stored,
- there is an electronic datasheet with each student group's marks from given subjects and where final marks are stored,
- an electronic register of student groups' activity is maintained, where current marks and worktime are stored.

Operational perspective:

- studies and didactic materials are prepared in three languages: Polish, English and German,
- lecturer specifies options of subject available for students,
- administrator specifies options for coordinator and lecturers,
- informational interface contains only options which are vital for particular tasks and moments,
- lecturer has the possibility to build his subject in stages: from presenting its whole content, through dividing it into lectures and topics, inputting tests, literature, knowledge and paraphernalia bases (there are no restrictions for procedural methodology),
- lecturer can switch from subjects he leads to students groups as well as take on the student's role,
- coordinator can become any lecturer,
- administrator can take on each and every role.

Editorial perspective:

- texts can be easily processed even on advanced level,
- mathematic formulae and symbols can be inserted,
- html and xml commands can be operated,
- movies, animations and voice recordings can be used.

Didactic perspective:

- subject consists of lectures,
- lecture consists of topics,
- topic includes texts, formulae, illustrations, literature links,
- each topic includes a thematic test, which verifies gained knowledge,
- an exam containing questions drawn from thematic tests is attached to each subject,
- particular lectures have literature of the subject attached to them,
- connected to the subject is a base of knowledge (keywords index), containing related concepts, illustrations and literature links,
- there are several types of tests and methods of combining them,
- there is a paraphernalia base (base of elementary bits of knowledge), based on which, lecturer constructs his topics, lectures, tests and base of knowledge.

Communicational perspective:

- lecturer's message board (for his students),
- administrator's message board (for lecturers),
- message boards for students, who attend particular subjects,
- chatroom: lecturer and his students,
- chatroom: lecturers and coordinators with administrator,
- chatroom: lecturers with coordinator
- videoconference: lecturer and his students,
- videoconference: lecturers and coordinator.

eSTUDENT PLATFORM'S WORKING REGULATIONS

eStudent platform's working regulations are contained in public and commercial license projects. The public and the commercial license specify the rules of safe work of the eStudent platform's users. Also, the public license's description does not differ much from the commercial

Figure 2. The main page of eStudent platform

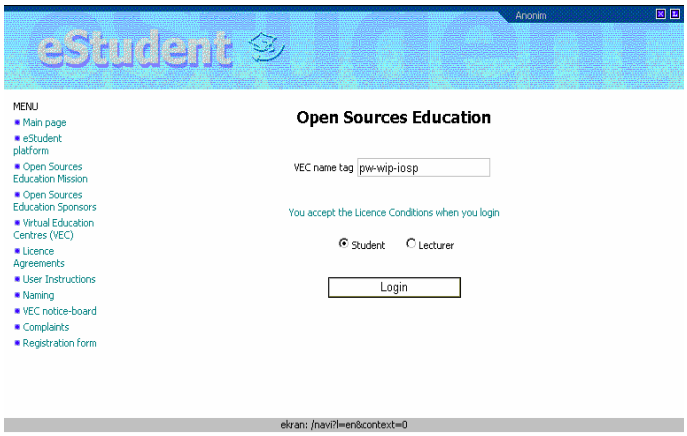
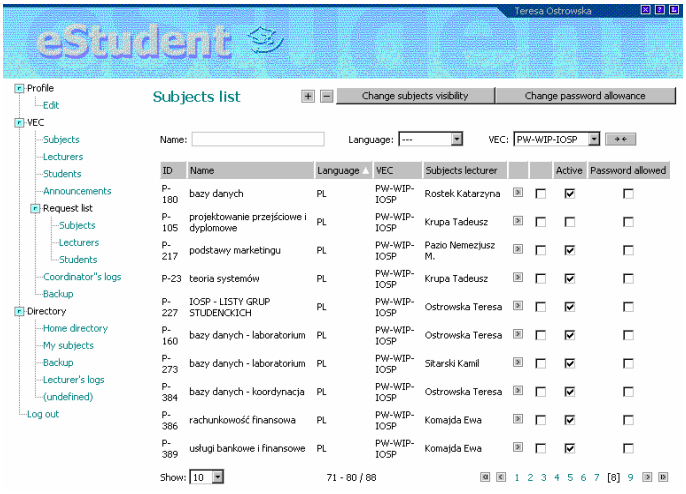


Figure 3. The coordinator page of eStudent platform



license (it does not contain the financial part). Therefore, as it is more universal, the commercial license is presented.

Commerce License

The student's rights under commerce license:

1. The remote access to the didactic materials published in VEC appropriate to each student.
2. The remote registration to the subjects' groups reported by new lecturers in VEC appropriate to each student.
3. The possibility of participating in all of the e-learning forms conducted by VEC lecturers appropriate to each student.

The student's restrictions under the commerce license:

1. Coping of the didactic materials published under each VEC subject, only under permission of the lecturer who conduct the subject and only for the private education without the permission to copy or disseminate it in any form.

The lecturer's rights under the commerce license:

1. All students' rights of each VEC.
2. Publishing of the didactic materials for one or more your own subjects.
3. The remote access to the didactic materials of every subject conducted in each VEC appropriate to each lecturer.
4. Defining the time and the form of the access to the didactic materials of your own subjects.
5. Off-line or on-line (e-board, e-mail, chat) communication with the VEC students in the range of conducted subjects.
6. The remote designing of the subject's structure and contents (subject's unit, tests, requisites, passwords' index, FAQ).
7. The remote access to the VEC coordinator and to the technical reports of the educational platform.

The lecturer's restrictions under the commerce license:

1. Putting the materials from the foreign sources only if you get the permission of the owner, with the obligation to quote the source's name and the owner's name, and the feature of the document which confirm the permission for quotation.
2. Coping of the didactic materials of other lecturers who belong to the appropriate VEC, only for your own necessities without the permission to copy or dessiminate it in any form.

The coordinator's rights under the commerce license:

1. All lecturers' rights of each VEC.
2. Registration of the VEC lecturers and subjects including finance conditions of commerce license.
3. The remote management of all VEC supplies without the lecturers' home folders.
4. Off-line and on-line (e-board, e-mail, chat) communication with the VEC lecturers and students.
5. The remote access to the VEC network administrator and to the technical reports of the educational platform.
6. The supervision on obeying the conditions of the commerce license by the VEC students and lecturers.

The coordinator's restrictions under the commerce license:

1. Conducting the trainings by new VEC lecturers.
2. Informing all VEC users about rules of working and studying in VEC and also about any changes in eStudent platform operation.
3. Informing the VEC network administrator about any problems in functioning of VEC.

EXAMPLES OF INSTRUCTIONS FOR VEC USERS

VEC student instruction:

- go on to the address: www.eStudent.edu.pl,
- write in the VEC name tag, for example: trainings,
- accept the license conditions (once),
- choose the student option,
- choose the login option,
- choose the subject, that you are interested in, for example: VEC trainings.

VEC lecturer instruction:

- go on to the address 1: www.eStudent.edu.pl or on to the address 2: www.eStudent.edu.pl/admin,
- (address 1.) write in your VEC name tag, for example: trainings,
- (address 1.) accept the license conditions /once/,
- (address 1.) choose the lecturer option,
- (address 1./2.) write in your name tag as a user, for example: aabacki,
- write in your password: ########,
- choose the login option,
- choose one of the possible options: edit | subjects | home folder | my subjects,
- (under the edit option) change your personal data,
- (under the subject option) publish the files for subscribed subjects using the home folder resources or workstation resources; you can listed new subjects by VEC coordinator; who has the access to all VEC subjects,
- (under the home folder option) you can collect all necessary resources to conduct your subjects,
- (under my subjects option) you get a fast access to all your subjects.

VEC coordinator instruction:

- go on to the address 1.: www.eStudent.edu.pl or on to the address 2.: www.eStudent.edu.pl/admin,
- (address 1.) write in your VEC name tag, for example: trainings,
- (address 1.) accept the license conditions (once),
- (address 1.) choose the lecturer option,
- (address 1.) choose the login option,
- (address 1./2.) write in your name tag as a user, for example: aabacki,
- write in your password: ########,
- choose the login option,
- choose one of the possible option: edit | application list | subjects | lecturers | home folder | my subjects,
- (under the edit option) change your personal data,
- (under the application list option) accept the candidacies of new VEC lecturers,
- (under the subjects option register) new lecturers' subjects or publish files for your subjects using the home folder resources or workstation resources; who has the access to all VEC subjects,
- (under the lecturers option) operate personal data of all VEC lecturers,
- (under the home folder option) you can collect all necessary resources to conduct your subjects,
- (under my subjects option) you get a fast access to all your subjects.

NOMENCLATURE AND SAFETY

Safety subject backups. It is advisory that the lecturer, who runs a subject on the eStudent platform, should always keep backup copies of files connected with his subject which are on the platform. Furthermore, the files ought to be stored in special folders, named the same as the subject, on his personal computer or one of network drives. Identical recommendation concerns files stored in the home catalogue.

Names of subjects. Names of subjects (didactic units) contain small letters only, words are separated by single spaces and no abbreviations are used (e.g. production management information systems). When subject is divided between lectures and practical classes lead by different persons, the subject's name should be extended, by adding words like: lecture, practical class, conversations, laboratory, workshop (e.g. mathematics – practical class). In case if the subjects' names repeat themselves, what should differentiate them is the teachers surname.

Names of files. Names of files which belong to different didactic units are created using small letters, no Polish diacritic marks or abbreviations, and linked by underscore, for instance: examples_of_management_systems.

If not generated automatically, file should be given proper extension which indicates which application should open it, e.g.: testing_tasks.pdf.

SUMMARY

Development of the Open Sources Education can only be pursued at non profit conditions, as it has an unique cultural, civilization and social role. Therefore, the OSE and its eStudent platform are, in the first place, accessible for those who provide their educational services free of charge. Approximately 1/3 of costs of projecting the OSE system are covered by commercial didactic activity income (paid studies and courses), universities' research programs, training services and postgraduate studies run for large enterprises and financial institutions. Rest of expenses on eStudent platform development and exploitation come from sponsors – whose list was presented – and OSE enthusiasts' (students, candidates for doctor's degree academic workers) own work.

The authors believe that the role of sources and information technologies management on global scale is the development of education, which brakes through political, economic, cultural and religious barriers. Surely, the Open Sources Education conception aids this idea and, as practice shows, gains the acclaim of numerous academic environments.

ENDNOTES

1 Learning for the 21st Century. Report and Mile Guide for 21st Century Skills www.21stcenturyskills.org

2 Piech K. - The idea of life-time-learning in relation to e-learning system. "e-Mentor", WSE Publishing, Warsaw, nr 1, X 2003.

3 Krupa T. - eStudent education platform as an e-learning tool for practical use. "Innovations", Nr 22, 2004.

4 Warsaw University of Technology - the Institute of Production Systems Organization - is the author of Open Sources Education idea, the designer of eStudent IT educational platform, the administrator of the network of Virtual IT Studies Centres.

5 PMP IT Consulting Co. - is the executor of the eStudent educational platform and eLearning, the supplier of IT services on eStudent platform, the IT sponsor of Opera Narodowa i Filharmonia Narodowa in Warsaw, the owner of Polish portal eBilet.pl

6 Polish Society of Production Management - the main organizer of the trainings in eStudent educational platform, the promoter of the idea of management education in technical nad economic universities, the publisher of the "Enterprise Management" magazine about application of the business IT technology.

7 ChybiDska E. - 7 e-academies. „Warsaw University of Technology Magazine", Nr 4 (63) 2003, p. 2-3.