

Reuse and sharing of e-Learning materials inside the EU

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SUMMARY

The paper deals with the principles of the methodology concerning the reuse and sharing of the existing learning materials among the universities. The paper demonstrates the theoretical issues through the eduGI (Reuse and Sharing of e-Learning Courses in GI Science) project and gives an example for an e-Learning material under the topic of the “Data acquisition and integration” course developed by the University of West Hungary, at the Faculty of Geoinformatics. The paper explains the idea how to (re)use existing resources by the exchange of e-Learning courses via Internet and it lists the benefits of such kind of action.

1. Introduction

There are many efforts world wide in the creation of e-Learning modules and learning environments (Farell 2001). Although e-Learning increases the efficiency of education, the investment of resources is not very effective, many developments are running in parallel. If we focus on the re-use of existing resources and the more effective use for future developments, e.g., updating teaching materials, we can utilize the *virtual mobility* with better efficiency. By the practice the adaptation of the existing learning materials usually means the adaptation to English language or using concepts and digital teaching materials of existing regular courses.

2. Methodological issues

2.1 Course development

2.1.1 Importance of the syllabus

The syllabus as a document with an outline and summary of topics to be covered in a course is a key factor for the success of any e-Learning course (Markus 2004). Within eduGI please refer to the following example:

http://edugi.uni-muenster.de/eduGI/downloads/08/teaching_materials_UWH_data_acquisition_and_integration.zip).

In the syllabus the following topics should be described:

- Contacts

Giving the full name, photo, e-mail and other data of contact persons. Here the teacher, tutor and administrator positions should be distinguished.

- Goals

This section introduces the aims, learning outcomes, skills, competences, the main topics, methods and principles of the course delivery.

- Contents

Here the course content is described using the structure of “parts – modules – units” hierarchy and the explanation about the characteristics of the material is introduced here as well. It is useful if we try to group the modules into “Parts” by the logic of whether they targeting theoretical, practical or analytical skills. Here is as an example of the above mentioned course:

As it is seen from the list, that the modules are divided into smaller parts called learning units. By this approach we give for the students a clear overview about the content and they can plan their activities in smaller portions, which is very useful if we consider that a typical e-Learning student has shorter time at once for a short period only and hence he/she prefers to acquire the learning material in small portions.

- Methods

Here we should list the key issues necessary for the successful completion of the course. Typically here is mentioned the methods of communication and exam, the expected workload, etc.

- Participants

In this section the primary target group as potential students together with the pre-requirements should be described exactly.

- Organization

This part mainly is about the time schedule, indicating the duration, the date of the synchronous sessions, the date of the final exam. Also here is mentioned the planned number of participants.

- Successful participation

In this section the clear regulations for the successful completion of the course are given. Even the list of tasks together with the deadlines can be listed here.

- Course preparation

Here are listed all the steps which are necessary to start the course. Typically it means that we should organize a test of synchronous session and provide (upload) the learning material to the e-Learning platform, or as an option we can provide some off-line materials (books).

- Literature

This section contains the list of the required and recommended literature and other useful optional learning materials.

2.1.2 Course content

If we want to re-use and share the teaching material in an e-Learning environment we have to put some efforts on the conversion and update based on our existing material. Here we can meet the following tasks:

- Adaptation to other language (e.g. Hungarian-English).
- Conversion of plain texts into ppt or other multimedia presentations.
- Development of demo software for carrying out the practical tasks through Internet (for example a program for coordinate translation between different systems).
- For self assessment we need to work out tasks, assignments. When we think out the assignments we need to consider the amount of time planned for the given module, otherwise the students will not be able to complete each task.
- We need to plan the synchronous sessions and for this we have to prepare special interactive aids (e.g. video, interactive software usage tutorial, etc.)

3. Organizational issues

3.1 E-Learning platform

3.1.1 Available tools

An appropriate e-Learning platform for the given e-Learning course should be chosen carefully. Mainly there are two options. A platform can be developed using the available open source tools (e.g. MOODLE) or a license (e.g. Blackboard) should be purchased. Each choice has its own advantages and disadvantages. If a “in-house” way is chosen, there would be necessary to employ not only web masters but also programmers, or at least professionals who can utilize all the aspects of an open source environment, which is typically based on Linux logic. But on the other hand the system can be accommodated for the user’s needs deeply (Markus 2001), (Katz 2002).

If the off-the-shelf version is chosen the operating institution needs only administrators who can operate the system and in this case only the built-in functions can be utilized.

On the other hand I need to add that these systems are well tested and the built-in functions are assuring a stable operation.

Usually an e-Learning platform should offer at least the following tools (see also Figure 1.):

- Communication with the students (e-mail, voice-mail, announcements)
- Discussion board
- Tools for synchronous sessions
- At the course delivery: handling of different file formats like html, ppt, pdf, doc, mp3, etc.
- The assessment facilities like test manager, upload of tasks.
- Course calendar
- Gradebook, course statistics

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Content Areas		User Management	
Syllabus	Assignments	List / Modify Users	Remove Users from Course
Course Documents	External Links	Batch Create Users	Manage Groups
Course Tools		Assessment	
Announcements	Glossary Manager	Test Manager	Gradebook
Course Calendar	Messages	Survey Manager	Gradebook Views
Staff Information	Content Collection	Pool Manager	Performance Dashboard
Tasks	Course Portfolios	Course Statistics	
Send Email	Check Collection Links	Help	
Discussion Board	Copy Files to Collection	Support	Contact System Administrator
Collaboration	Voice Announcements	Manual	Quick Tutorials
Digital Dropbox	MyDropBox Suite (Safe Assignments)		

Figure 1: Control panel of the Blackboard e-Learning platform

3.1.2 Synchronous sessions

The synchronous sessions are the central part of each e-Learning course. At these sessions the students have possibility to ask directly the tutor and it is a good possibility for the tutor to survey the common problems and the opinion of students as well. Here the tutor can explain some parts of the course which are too complicated to describe in off-line manner.

As it was experienced this method of teaching needs a lot of time from the tutor to be prepared for it. Not only because of the students can ask any aspect from the material, but also because of it needs a good practice from the tutor not to lose the main stream in the material, since the students usually ask about those issues which are not discussed in detail in the teaching material. Especially we should avoid those students who want to test the knowledge of the tutor, since it's boring for other on-line session participants who usually want to concentrate instead on the assignment issues.

3.1.3 Final exam

The final exam of an e-Learning course is a sensitive part, since usually the students should be virtually collected in the same time. But in general there are mainly two options for the organization of the final exam. The exam can be organized in the frame of a synchronous session, which is very useful since the tutor can ask to form small groups during the exam asking them to solve more complex tasks. Also the tutor can help the students if they don't understand the task or they stuck somewhere in the practical task. The only negative aspect of this type of exam is that some students - who miss this synchronous session - are not able to pass the exam at all. In this case the tutor should consider the possibility to give a chance to take the exam off-line with the help of the local partner tutors of the student's institution.

The other effective method for the final exam is a test session which is open for a limited time (usually 24 hours). In this case each student can find a time window to complete the test. For those who has no time at all in the announced time-frame, the tutor can allow and assign for each student an individual date for the exam.

4. Experiences

In the eduGI project (EU eLearning Programme ref. EAC/23/05 DE 011.) eight European GI institutes use existing courses and adapt them to the requirements of the e-Learning course exchange. Each partner contributes one course, to be taught on a non-profit exchange basis with the partners. An e-Learning platform of ISEGI-UNL, Portugal is used. This platform has been successfully providing an e-Learning MSc Program in Geographic Information for more than three years. During a previous work in the ALFA project eduGI.LA (www.eduGI.net/eduGI.LA/) a prototype was developed for the e-Learning course exchange and evidenced feasibility. The organizational framework for execution and recognition of students' achievements was prepared by the cooperation of the eduGI.net consortium (www.eduGI.net).

5. Conclusions

The development and exchange of the following eight e-Learning courses is foreseen: Project management, GI standards, Advanced Geospatial data mining, Data acquisition and integration, Visualization, Geographic data bases (advanced), Virtual excursions in Earth Sciences, Data quality.

The vision is to exploit the organizational framework and the created e-Learning courses by the establishment of a common, virtual GI Master Program in Geoinformatics. The concept of sharing and reuse of resources by best-practice examples is being disseminated to non-GI communities.

Additional expected benefits:

- The quality of the existing teaching material will be improved further.
- There will be possibility for access to international know-how and new topics, that is normally not available for students by own resources.
- The virtual mobility of teachers and students can be improved.
- It contributes to the implementation of the Bologna process by international cooperation of European institutes, based on the existing networks.

The results of the eduGI project can be utilized in Working Groups of the curriculum development and e-Learning work plan at FIG Commission 2.

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BIOGRAPHICAL NOTES

Dr. Tamas Jancso gained his MSc degree in 1990 at the University of Geodesy and Cartography in Moscow at the Faculty of Aerial Surveying (with honored diploma). Working now as an associate professor and vice-dean at the Faculty of Geoinformatics of the University of West-Hungary at the Department of Photogrammetry and Remote Sensing. Thirteen years of experience in teaching of photogrammetry and photo-interpretation. Staff member in the formation of open and distance learning facilities at the faculty, co-author of two distance learning modules. He has experiences in using digital photogrammetric workstations. In 2006 he gained the Ph.D. degree in the topic of “Photogrammetric application of nonlinear models in geo-environmental sciences”.

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