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EHEA-wide course data base – a proposal

Introduction: During its mandate as Chair of the Bologna Process, Hungary assumed the priority to initiate the development of a EHEA wide database of study programmes which would include detailed description of all courses and asked the support of the BFUG members to initiate such a project. The Hungarian representative put forward a proposal at the Gödöllő BFUG meeting, 17-18 March 2011. This paper builds on the initial proposal and adds valuable elements suggested at the Gödöllő BFUG and the Yerevan BFUG Board meetings.

The motivation

The results displayed by widely used search engines (e.g. Google) do not include most of the study programmes that may be of interest for students who plan to study abroad, as they are typically available on HEIs' websites, many of them not allowing crawling robots to collect data.

- For prospective students, a search engine specialized on study programmes would substantially increase the number and the spread of mobility options across countries. It would save considerable time from reading sometimes repetitive or irrelevant information displayed by regular search engines when looking up for a suitable course.
- For HEIs, being included in the database would help them break the "Google monopoly", making them equally accessible and not dependent on the algorithms that the search engines use to order the display of search results. Those algorithms take into account issues such as number of visitors per page and in most cases are not relevant for someone looking for a place to study. Further more, the HEIs could use the data base as a tool for informing prospective students concerning the recognition of the credits gained abroad in case of a mismatch of content with that of the home institution course (e. g. if the two courses are part of different programmes).
- For national HE systems, the database would offer the opportunity to be equally visible as other HE systems, sheltered from biases due to language, size of population, Internet coverage etc.

Contribution to the implementation of the Mobility strategy 2020 for EHEA

The EHEA mobility strategy contains references to exploring the idea to "encourage the BFUG to investigate the possibility of developing an EHEA-wide internet-based application system"¹. It also calls for national "strategies for information and promotion"² and

¹ BFUG_PL_AM_26_5a, "Mobility for Better Learning – Mobility strategy 2020 for the European Higher Education Area", par. II.8.

² Idem, par. II.1.

assumes to explore the idea to “propose that each member state should set up a national website providing information about the study programmes of its higher education institutions”³.

The database would represent a tool for information and promotion of study programmes, affordable for all EHEA countries. While national governments will be striving for “better balanced mobility in the EHEA”⁴, the proposed database would balance the visibility, hence the promotion opportunities, for all EHEA countries. Furthermore, the database would be an interface, enhancing the information capacities of the transparency tools mentioned in the strategy: qualifications framework EHEA, ECTS, diploma supplement and quality assurance⁵.

The initiators will carry further consultations with the Mobility Working Group in order to identify which are the core information items needed in order to increase the contribution of the EHEA wide study programmes database to the EHEA Mobility strategy 2020.

Operational aspects

- A Web-based program would allow students and other visitors query/search the full data base both at a programme level and a course level. The system would rely on users’ web browsing skills. No specific skills required.
- A central query program (harvester) would collect relevant information from all participating universities from time to time, and automatically update a searchable data base. More technical details are provided in Annex 1.
- To ensure the consistency of the data base, HEI’s would receive a small utility which can be driven by their computer-based educational administrative systems and can provide information in the specific format required by the data base any time they receive a request. The system would rely on the data bases HEIs currently administrate for the purpose of information management and provision.
- The information for the data base would be generally the one published on HEI’s websites or on promotion materials. HEIs may want to publish that information in other languages, in case they would like to attract international students. The data base generally builds on existing information, offering the possibility of multilingualism.
- HEIs’ participation in the database would be voluntary; snowball effect is expected.
- The EHEA wide database would not constitute any impingement to the existing national tools or practices for student enrollment. It would be an additional tool, specially designed for EHEA wide mobility, but which can also be used by students looking for enrollment in their country of origin.

³ Idem, par. II.8.

⁴ Idem, par. II.3.

⁵ Idem, par. II.6.

Provided information

The items listed below are to be considered as an initial draft proposal of the standard information to be provided through the database. A final version would be obtained during the pilot.

- institution and its abbreviation
- educational unit: faculty, institute or department
- course name
- course identification code
- level and specialty (bachelor, master, doctoral; major, minor, etc.)
- course home page
- credits (local and/or ECTS)
- semester according to suggested sample curriculum
- contents (minimum 200 words)
- source of course material, textbook(s) in English
- requirements to have a final grade
- standard workload and distribution among activities such as classroom lessons, homework, preparation for test, etc.
- course status (compulsory, elective, etc.)
- responsible educator
- prerequisites
- courses held before (date, educator, home page)
- date of next course and its educator(s)
- is it recommended for Erasmus (mobile) students?
- Comments

Each course should have a link to the home page of the institution, and to the description of the education system in the country. The text can be in national language, any other languages of EHEA countries, and English. Generally, the language for international promotion of study programmes is English, so it appears straight forward to use it as the basic language of the data base. However, if HEIs target international students speaking a language different to English, the data base design allows them to do so. Limitations may occur due to financial implications, but they will probably not be substantial.

Additional possibility: shared tuition materials

We also suggest considering an additional platform for tuition materials (lecture notes, textbooks, classroom presentations, videos, etc.) freely available for students and teaching staff. Such a platform would enhance comparability of the courses and promote cooperation in development of tuition materials EHEA wide. For this purpose, a widely used open source free system (e.g. Moodle) could be adopted.

The language of the database

The simplest design would be with English as the basic language, but multilingual support is also possible. A multilingual approach may imply additionally that:

- contributing universities provide data in other languages;
- the central program is prepared for multilingual use;
- additionally, there can be a possibility to use automatic translating programs, although quality of the translated text can be sometimes poor;

Issues of property rights

All relevant data to be included are public – they are typically available unconditionally on the educational websites of HEIs. Institutions can themselves determine what they provide; however, there would not be any request of data from them that are considered private or of restricted access only.

Existing databases

Currently, the authors of the paper are aware of the existence of two other databases: Qrossroads⁶ and Ploteus⁷.

However, Qrossroads only provides the name and the level of the programme along with the institution name and the language of education, no other details. (Not even a list of courses included in the curriculum.) PLOTEUS enables to search for individual courses (within the “Learning opportunities” option), but there are almost no courses included in the database. The objective of the proposal is to build on existing experiences and capacities, so, once the BFUG agrees on the basic principles of the EHEA-wide data base outlined in this document, further exploratory discussions will be held with the relevant actors.

The fifth part of the Transparency Tools questionnaire is devoted to the identification and description of national databases that contain information broke down at the level of HEIs, or even lower. It would offer a perspective on the data that is already available / collected at national level.

Further steps

- Currently the Hungarian representatives are discussing with the European University Association (EUA) and European Association of Institutions in Higher Education (EURASHE), in order to secure their support for this project;
- Analyzing the responses to the Transparency Tools questionnaire, the part devoted to databases and grounding the proposal on the availability of data in national data bases;

⁶ <http://www.qrossroads.eu>

⁷ <http://ec.europa.eu/ploteus/>

- Exploring bilaterally possible links with other similar initiatives, specially the ones financed by the European Commission;
- Consultations with the Mobility Working Group in order to identify how to increase the contribution of the EHEA-wide study programmes database to the EHEA Mobility strategy 2020;
- Once support from the BFUG and the HEIs representatives is secured, an application for a pilot phase will be drafted. A limited, yet representative, number of HEIs would be included in the pilot phase, based on invitation and voluntary consent.

The BFUG is asked to take note of the developments on the EHEA-wide database and to advise the proponent country on any of the matters outlined in this document with a view to a possible endorsement of the proposal in one of the BFUG meetings taking place before the 2012 Bucharest Ministerial Conference.

Annex 1: Technical details

To our knowledge, no database exists that would contain individual course description from different institutions within the EHEA.

Conditions

- Practically every Higher Education Institution has an informatized educational administration system, containing all relevant information on the courses it offers, usually in the language(s) of the country, but very often also in English.
- In a truly distributed system, it is hopeless to implement an efficient search engine (see *e.g.* the solution of Google; it uses crawlers to collect data, and then it allows users to search in its own database created from the harvested data).

Technical solution

To create a standardized, transparent database we suggest the adoption and modification of a system worked out in the EU for the harvesting, handling and search of publication metadata.

Example: DRIVER

(see http://www.driver-support.eu/documents/DRIVER_Guidelines_v2_Final_2008-11-13.pdf)

Repositories implement a Dublin Core based data service (OAI-PMH). A central harvester builds up and periodically updates a database which offers a service for clients.

The abstract from the description of DRIVER:

“DRIVER, the ‘Digital Repository Infrastructure Vision for European Research’ project is conducted by an EC funded consortium that is building an organisational and technological framework for a pan-European data-layer, enabling the advanced use of content-resources in research and higher education. DRIVER develops a service-infrastructure and a data-infrastructure. Both are designed to orchestrate existing resources and services of the repository landscape.”

To construct the course database, a standardized XML format could be developed (similarly to Dublin Core), and participating institutions would offer a web service which could be used to extract the courses offered, along with their data and a short description. A central harvester could collect the data and upload them into a central database. Students and professors can search this database starting from a dedicated webpage. (This webpage could be hosted, *e.g.*, at PLOTEUS - Portal on Learning Opportunities throughout the European Space - maintained by the European Commission.)

Technical details of actual realisation

1) Steps to implement

- an XML format would be defined with the necessary fields of the universities/courses, and a scheme would be constructed which makes consistency of XML files rather simple to assure;
- HEIs would receive a small utility which can be driven by their computer-based educational administrative systems and can provide such XML files of their courses any time they receive a request;
- a central query program (harvester) would query all such XML files from all participating universities from time to time, and automatically update a searchable database;

- A Web-based program would allow students and other visitors query/search the full database.
- 2) *Effort needed of the institutions to participate*
- HEIs need to install an interface between their computer-based educational administrative system and the XML generator – provided by the database team;
 - the interface returns the generated XML files through the Internet in a predefined way to the central server, with minimal human interaction;
 - HEIs need to register to the harvester only once;
 - the rest of the work – providing the data regularly – is automatic.
- 3) *Effort needed to keep the system running*
- regular harvesting keeps the searchable database up-to-date (institutions maintain their data in their educational system anyhow);
 - the harvester and the query system need some regular maintenance, with little effort and cost.
- 4) *The size of the central database required*
- The database is not large in size, compared to knowledge databases of today. All relevant data could be collected to and kept on a single server, which can be even one reliable server PC.
- 5) *Why not connect the user directly to the institutions' home pages?*
- Such a possibility would be included, even the XML's would contain URL's of each institution. But search in the central database comes first, more detailed information (with connection to local pages) next. It enhances greatly the searching capabilities of the database.
- 6) *Implementation and financing issues*
- The planned system can be implemented with moderate knowledge of XML, web servers, query programs, and server maintenance.