

INFORMATION AND STUDENT EXCHANGE IN THE EU. THE EXPERIENCE OF THE 'COMBEE' GROUP OF EUROPEAN UNIVERSITIES

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1. Introduction

This paper will:

- introduce the COMBEE group. describing its membership, objectives and historical background.
- describe the information and student exchange achieved to date.
- outline the development proposals. using computer conferencing and Internet facilities.

2. The COMBEE group

CONSTRUCTION MANAGEMENT & BUILDING ECONOMICS IN EUROPE

bringing a pan-European perspective to Construction studies

COMBEE is a group of European universities sharing a common interest in the study and development of Construction Management and Building Economics in Europe.

2.1 The collaborating universities

The group comprises:

RTC Limerick, Ireland

University of the West of England, Bristol, UK

Universidade do Porto, Portugal

Horsens Polytechnic, Denmark

Chalmers University of Technology, Göteborg, Sweden

Technical University of Trondheim, Norway

Université de Nantes, France

Technische Universität München, Germany

Fachhochschule Potsdam, Germany

Rheinische-Westfälische Technische Hochschule Aachen, Germany

Aristotle University of Thessaloniki, Greece

Hogeschool 's-Hertogenbosch, Netherlands

Universitat de Girona, Spain

Universidad de Oviedo, Spain

Seinäjoki Institute of Technology

Technical University of Budapest

Technical University of Istanbul

2.2 Objectives

The key objective of the COMBEE group is to:

- promote and develop a strong European dimension to the study and research of the subjects of Construction Management and Building Economics in the universities of Europe

Derived from this key objective, the COMBEE group aims to:

- facilitate university degree students to experience, and prepare dissertations, theses and project reports on, European construction issues;
- raise the awareness of and access to pan-European construction information and research for lecturers;
- develop a Masters level programme with course content specifically focused on European construction management & economics.

2.3 *Historical development*

Early 1989 saw another recession looming in the UK construction industry and uncertain opportunities with the impending Single European Market to be implemented in 1992. Good reliable information was in short supply.

Three quantity surveying lecturers at the then Bristol Polytechnic successfully applied for Study Visit Grants from the Erasmus Bureau of the European Commission (EC) and began a two-year programme of visits to European universities to find out how their professional equivalents, construction economists, were being educated, being trained and were practising in Europe.

The Royal Institution of Chartered Surveyors and the European Committee of Construction Economists (Comité Européen des Economistes de la Construction - CEEC) helped with contacts and the London-based quantity surveying practice of Gardiner & Theobald provided further sponsorship to extend the number of countries visited.

For the purposes of the study, the term *construction economist* was taken to mean a person whose primary role or interest is in the management of costs and maximisation of value for money of building and engineering construction projects derived from a definition by Michael Hartmann, Vice President of CEEC at the time. It was used in its widest sense to include the study of economic, legal and managerial issues in the product and process of construction projects from conception to completion, together with an appreciation of the effect of those issues on a project's life cycle through to obsolescence.

One interesting observation was that construction economists were rarely associated with faculties of Architecture and were most frequently associated with faculties of Civil Engineering.

Funding from the Erasmus Bureau encouraged the formation of a group of universities collaborating in an Inter-university Cooperation Programme (ICP) to facilitate the exchange of students and teaching staff, to promote joint curriculum development and intensive study programmes.

UWE called a conference with Scandinavian universities in September 1993 and met with other universities in the European Construction Economists Consortium, coordinated by the University of Reading.

Discussions between potential partners took place at conferences at the University of Reading, UWE and CIB W55 in Lisbon during 1993, resulting in two ICP applications going forward to the Erasmus Bureau in November 1993: one in the subject area of Construction Economics and another taking the broader church of Construction Management and Building Economics.

Both applications were successful, but only the latter group has continued beyond the first year and has established itself under the title of the COMBEE group. The group continues to grow and has this year welcomed the Technical Universities of Budapest and Istanbul as associate members, in anticipation of their respective countries future incorporation into the European Union.

Conferences of the group have met in Bristol (June 1994), Porto (May 1995), Limerick (April 1996) and 's-Hertogenbosch (May 1997). The next meeting of the group is in Munich in March 1998.

The group is managed by an executive group from UWE Bristol, Limerick, Porto and 's-Hertogenbosch.

This section has given an overview of the historical development of the COMBEE group. The paper will now look at the COMBEE group's focus on student and staff exchange under the EC's Erasmus programme (now organised under the Socrates Office). It will describe the information support used to facilitate and support this, and identify some of the issues and proposals for future collaboration.

3. Information and student exchange to date

The development of a joint masters level programme in the subject area of European Construction Management and Economics has been identified as a group aim, but realistically it remains something to be worked towards in the longer term. Experience has shown that other courses, for example in Town Planning, Real Estate, and Project Management, have been easier to set on a European basis, probably because they are more easily identifiable as specialisms that offer less challenge and/or more marketable added value to existing professional roles and their associated academic courses.

The focus of the COMBEE group has therefore been to establish student and staff exchange as a learning vehicle upon which to build further collaboration. Student exchanges within the COMBEE are typically for a minimum 3 months period. A brief profile of student exchanges to date can be classified as follows:

1. Dissertation exchange. Usually the dissertation is the final semester study of a five year engineering course and for example, a student from Munich is currently at UWE completing a comparative study on early stage cost estimating techniques between UK and Germany, whilst two students from Chalmers are comparing the problems faced by subcontractors in Sweden, UK and Italy. The 4 year sandwich BSc students at UWE are able to combine 3 months of dissertation study with 9 months of work experience in Europe during their third year out, and so a UWE student is undertaking a comparative study of UK and French estimating methods. The host university provides supervision and pastoral support, whilst the home university will normally retain responsibility for the final assessment.
2. Special projects exchange. In some universities the final semester study is more like a practice project. So BSc students from Horsens have been to UWE to undertake design and compile a priced tender for a civil engineering project in UK. An MSc student from Oviedo is completing

the design for a factory in Bristol under Eurocodes. Here the assessment has been agreed by a joint panel drawn from home and host universities or delegated to the host university.

3. Taught modules exchange. These are potentially the most difficult to arrange and require a good deal of mutual trust and confidence from all parties concerned. Final semester studies may have a large element of optional modules and those will provide some flexibility in following a course of studies at another university. Thus, for example, a fourth student from Porto is about to follow a course of studies at UWE which will give exemption from her fifth year final semester studies at Porto for her MSc in Civil Engineering. UWE's change to a modular programme in 1993 with modules completed within one semester has greatly facilitated this. Students are able in one semester to follow a mix of post-graduate and final stage undergraduate modules to the equivalent of a PG certificate. As the host university retains full authority for assessment and awarding credits, it is important in this case for the partner universities to agree to adopt the European Credit Transfer System (ECTS).
4. Student Study Visits. For example, all final year Construction Management and Quantity Surveying students at UWE undertake a European Study visit linked to an integrating project module. For the last three years UWE has linked with Potsdam to organise joint lectures and local project material.
5. Collaboration on Course Development and Delivery. Developing from the above have come collaborations on:
 - Students conferencing by e mail to access information e.g. UWE students on the module European Property and Development and Construction accessing local information from students in Horsens and s'Hertogenbosch on their respective construction markets.
 - Joint teaching on courses, e.g. UWE tutors teaching on the postgraduate Project Management course at s'Hertogenbosch and providing tutorial support by e mail; one week of a five week course for the Swedish Telia group on International Project Management delivered at Bristol, managed by Chalmers.
 - Collaboration on development of teaching material, e.g. comparison of UK and German practice in cost management for delivery in a course on quantity surveying in Hungary

The use of e mail, both between staff and students has facilitated initial communication, organisation, exchange of teaching material, tutoring and feedback. Prior to e-mail, it would be fair to say the practical communication problems were frustrating at best and truly daunting at worst.

Implementing ECTS provides a good example of the additional facility provided by the Internet.

The three key demands of ECTS are:

1. the information package

2. ECTS credits

3. the learning agreement

The information package is required to be updated annually and provided in the home language and a second Community language. It should give full general information about the institution as well as course specific information, including details of content, teaching, & learning methods and modes of assessment.

Providing this for a handful of students exchanging each year was a truly daunting prospect and certainly not environmentally friendly to trees.

COMBEE has set up its own WWW home page with links to each of its member universities. Many of them now provide access to this information via the Internet. Perhaps one of the best examples is that provided by Trondheim who have detailed general and course specific information in Norwegian and English. Chalmers have more course specific detail on their home pages and now use the Internet for communicating with their International Project Management students.

Agreeing learning credits and the particular learning agreement is then easily concluded using e-mail, with the facility to bring the student into the discussions between tutors and provide continuing pastoral support.

Looking back over just three years it seems difficult to believe that originally all communication between the COMBEE members was by snail-mail and fax, but during the last year all members have come on to e-mail and this is transforming the ease of communication. It is opening up exciting possibilities in terms of future collaboration, which will be described in section 3 of this paper.

4. Development proposals

Finally, the paper presents proposals for developing and extending collaboration between European universities in the subject area of Construction Management & Building Economics, particularly by extending existing Intranet development work to the Internet and using computer conferencing to develop a network of information and teaching support.

In May of this year, four members of the group were awarded a Socrates advanced-level curriculum development grant to jointly develop modules to contribute to a potentially pan-European masters programme, using open and distance learning tools covering topics in the management of the construction process, risk, cost, and information.

A further bid to use telematics in support of open and distance learning on masters level courses has been submitted and this project tries to address several needs:

- creation of an European dimension in the COMBEE subject area

- exchange of national practices
- overcoming the costs of physical mobility
- appropriate to the busy schedules of adult students
- the internationalization within the EU of construction activities

The project aims to:

- facilitate cooperation between the participating institutions in the COMBEE area and increase the number of teachers and students involved in the European COMBEE courses
- encourage the use of ODL courses and encourage the recognition of qualifications obtained with ODL materials
- improve the quality education in the COMBEE area, whilst using the best teaching materials from the ODL package

The project aims to overcome the difficulties created by physical mobility. The *virtual* mobility pretends to overcome the high cost of travelling to another country and to eliminate the barrier of time constraint to fit the schedules of potential users. The schedule constraint is valid for adult students that want to improve their skills and for full-time students that otherwise will have difficulty in attending just a few courses in a foreign institution. Since the course are available on a wider scale it will also increase the choice and consequently the education provided.

The outcomes of the project are courses in ODL form that can be used totally or partially by any of the partners in their own teaching. These are instruction materials to be used in the WWW, in video cassettes, electronic mailing and in videoconferences. All will be accompanied by manuals enabling its use in any other institution.

The courses will be produced in three different forms according to the local possibilities. The first will be the use of videoconferencing enabling the dissemination of some sessions in a interactive way with other participants. The second will be videorecording of classes that can be used at any time and any place by other institutions. The third one is the production of teaching materials for the WWW in a written and structured form. All these types of courses will need local monitoring and learning evaluation. All communications between partners, teachers, monitors and students will be done using electronic mail.

The members have agreed to collaborate on updating for publication a study of the education, training and practice of construction economists in Europe using First Class Client conferencing to facilitate the collation and final editing of material. As well as a hard copy edition, it is proposed that individual members will take responsibility for keeping copy of their own section current on their Internet sites.

Electronic library facilities are developing in several member universities and this will provide exciting opportunities to access and exchange teaching material; for example, the second stage Inter-professional Development project at UWE is based on the Bristol 2000 Harbourside scheme and the 300+ students who take this module access the module guide and supporting background information, including cuttings from the local press and CIS information from an Intranet web site.

Software such as Acrobat is providing practical possibilities to easily make other information, such as the Potsdam redevelopment proposals, available on the Internet for easy access to home students, and for exchange and collaboration on projects between widely spread universities.

It is also proposed to apply for a LEONARDO pilot project to facilitate work placements in construction management and building economics in Europe; a benefit of a large group being the degree of flexibility that can be offered.

Currently there is no Socrates thematic network in the area of Construction Management or Building Economics. To be a credible network, it would need a group of 50 - 60 universities to participate. Computer conferencing offers the possibility to assemble and manage such a group within the funds that might be available to support it and it is proposed that an appropriate theme for such a network would be to establish an information network based on the ECTS requirements, to support student and staff mobility with a pool of teaching material and conferencing facilities accessible through the Internet using a common agreed set of protocols.

This paper invites interested parties to contact the authors.

The COMBEE is keen to expand its membership particularly amongst universities in Belgium, France and Italy and welcomes enquiries from interested parties.