NETWORKED E-LEARNING: OPPORTUNITIES, OBSTACLES AND SOLUTION SCENARIOS FOR OBSTACLES

NETCAMPUS: IMPROVING ODL IN A NETWORK
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Introduction

E-learning in an international network of universities can offer significant added value to the student’s learning experience. Although many experiments and individual initiatives take place, a full-stretched development of networked e-learning is far from current practice.

The objectives of the NetCampus-project are both to promote a better understanding and to clearly demonstrate the potential of ODL developed in an international network of universities (“networked learning”), and to remove the barriers that obstruct a successful large-scale implementation of this kind of learning in mainstream education.

The project aims at identifying a comprehensive list of all critical factors - benefits as well as threats - of networked e-learning. Starting with a review study of existing expertise and experience on providing ODL in a networked environment, it is the objective to gather in an efficient and effective way the state-of-the-art knowledge on models for networking, barriers and obstacles to a successful implementation, potential benefits and added value. Next, solution models and scenarios to overcome obstructions and obstacles identified as being obstructions for networking are developed and tested through pilot activities. Finally, a variety of dissemination activities are set up in order to improve ODL in a network of universities. This paper describes the current state-of-the-art in the project.

Opportunities and obstacles of networked e-learning

The implementation of ODL in a networked environment offers a great potential, like flexibility, joint course development, or cost sharing. But, in spite of the various efforts that have been invested in the different e-learning networks, there is still a great reluctance to embark on large-scale activities that are self-sustainable and permanently embedded in mainstream education. When trying to introduce ODL successfully within a single institute, one is often confronted with a number of problems that need to be solved. Doing the same in a networked environment opens great opportunities, but introduces at the same time new obstacles that are specific to the network context. A review study allowed us to make an inventory of opportunities and obstacles of networked e-learning. We first take a look at the benefits, added value and opportunities; afterwards we elaborate on the pending problems, obstacles and hindrances perceived by individual universities to engage in networking through ICT.

Benefits

The potential and advantages of e-learning in a network of universities seem quite obvious:

- An on-line setting provides a level of flexibility and convenience not provided by traditional classroom courses. Learning opportunities are provided in a more flexible and customer-aware manner.
- Networking allows taking the learning from many institutions to many sites. Learning is no longer location dependent and learners are able to take courses independently of their physical location, be it their homes, their places of employment, or elsewhere.
• ODL increases a broader participation in learning: not only is it possible to ‘accommodate’ more students and to expand the student population, there is also more flexibility towards the traditional audience and new target groups: people of all ages, remote audiences, lifelong learners, international students, disadvantaged regions and individuals,…

• International networking allows students to come in contact and to work collaboratively with students from other countries and cultures (“virtual Erasmus”). The intercultural experience gives educators, trainers and learners with different worldviews the opportunity to exchange ideas and information, and learn from each other.

• Institutions enter an international and competitive marketplace. They perceive that ICT will enable them to increase their market share and to extend their influence in an academic area. The university can decide to capitalise on the institution’s existing “brand” name, in a quest for increasing profit.

• Transnational co-operation between universities is needed to disseminate scientific knowledge in targeted education and training settings. Not only collaboration between universities but also collaboration between universities and businesses can be beneficial.

• Working together can generate economies of scale. On a practical level, functions such as the development and distribution of learning materials, tuition, assessment, online registration, marketing and sales, learner support, and general administration can now be shared. Sharing of resources also results in economies of scale, e.g. exchange or sharing of learning material and courses, seminars, access to the equipment, laboratories of other institutions, the maintenance and creation of databases for reusable learning and teaching materials,…

• Joint development of courses provides an international dimension and richness that supports the globalisation of education and life. New degrees of collaborative work between geographically disparate teams are possible. Networking gives the opportunity to universities to collaborate not only on the design and development of courses but also on the delivery of courses, and on Internet or web based education materials and curricula.

• Networked learning provides learners with access to the course instructors, textbook authors and experts from other institutions that have rare expertise or recent knowledge. Expertise not available in a given university can be addressed and easily transported through the network by all actors involved in education: students, teachers, researchers and university decision makers.

• For the universities the opportunity is offered to improve and widen their learning offer, to diversify programs and to bring in the best courses, the best teachers, the top researchers (in the country, in Europe, in the world). A student enrolled at one of the partner universities thereby receives access not only to courses, learning materials, infrastructure, resources (libraries, laboratories…), but also to teachers, tutors, researchers and peer students of all the other universities in the network.

• A firm partnership can act as a more effective pressure group to realise interoperability of equipment and platforms and the creation of standards. Consortia should be able to negotiate more powerfully than individual universities.

• Funding can be attracted more easily where several universities come together and resources are pooled for maximum impact.

• The development of virtual delivery models will most likely result in a higher degree of cost-effectiveness and cost reduction. Costs can be reduced through standardisation, resource sharing, increased productivity, by purchasing hard- and software jointly, lowering of travel costs. There is a potential to share costs (for the development of the virtual campus platform, delivery systems, development of joint courses, teacher training,…) and to distribute risk.

• Through networking the institutions might enhance the quality of their programs. It helps teachers to reconsider their routine practice and to add innovative elements and an international dimension in their courses to match the requests of trans-national collaboration.
Networking can also contribute to the quality of education by organised introduction and operation of quality assurance systems.

- There is a belief that networked e-learning can improve efficiency and/or effectiveness of learning, e.g. more access to information and learning resources; a learner centred model of education where students take the responsibility for learning; improvement of the learning process through interactive learning; integration of students in a collaborative learning environment, while keeping the benefits of a structured presence in a university campus,…

Obstacles

Networked e-learning has of course also drawbacks. Obstacles to be met when setting up joint networked activities can be divided into two categories according to their nature: the attitudinal and practical problems. Examples of the latter kind of problems include copyright issues or language problems. These practical obstacles seem to be often used as an excuse by individuals (professors, researchers, management staff) to hide another kind of obstacles in achieving networking for ODL. Some examples of those attitudinal problems are the prejudices against ODL as an alternative for face-to-face education or resistance to the changing role of teachers. All obstacles were at the same time classified in terms of their characteristics: this means whether it is either a pedagogical, technological, and/or organisational problem. In this section each issue is described and it is indicated on which level a certain issue most likely will pose a problem: it can cause difficulties on the practical level as well as on the attitudinal level and/or on the pedagogical, technological and organisational level.

Some of the issues mentioned in the previous section will come back here. A benefit can in fact become an obstacle when looked at from a different angle. Cultural differences in the audience, for example, might cause difficulties when giving or developing a course. On the other hand, intercultural experience can be seen as a real personal enrichment for the people involved in the course.

- **Cultural issues** (*pedagogical/organisational – attitudinal/practical*): Different learning styles of students, different teaching styles of instructors, different administrative procedures, and ways of working among participating organisations all can cause frustration. When making a distance-learning course for an international audience, one should always be aware of cultural, social, and/or political differences among a group of learners, educators and trainers. The types of distance learning available, the technologies required, and the way course content is structured and presented need to be planned with a multicultural, multinational audience in mind.

- **Language** (*pedagogical – attitudinal/practical*): Instructors are not always willing to teach in a different language, students not always willing to attend courses given in a different language. It has to be discussed in which language the teaching will be done, the courses will be offered. Because of different languages communication problems can easily occur between instructors and learners.

- **Pedagogical models** (*pedagogical – attitudinal/practical*): Instructors have negative perceptions of technology-supported learning and ODL. They prefer a face-to-face learning environment and can’t see the educational benefits or are ignorant on the potential of new ICT-based methods. The web and the Internet are indeed technologies that require new pedagogical models or the optimisation of existing ones.

- **Pedagogical/teaching skills** (*pedagogical – attitudinal/practical*): Teachers and faculty often are reticent to embrace the use of ICT caused by a lack of teaching skills. The institution should provide teachers and staff with an adequate training in the running of distance courses, the use of learning technologies, organisation of ODL learning and production of learning materials.

- **Support – reward** (*pedagogical/technological/organisational – attitudinal/practical*): Support for the teachers, technical staff and the students is a very important issue to be taken care of. Faculty will need additional time to learn how to use these new technologies and
students also have to learn to study effectively online. Not only pedagogical support is necessary, faculty who do to effort to engage in technology-based education should also get a fair rewarding for it (monetary support, professional prestige, …).

- **Copyright – intellectual property (organisational – attitudinal/practical):** When courses are developed jointly in a network of universities and materials are made available electronically or on-line, copyrights and intellectual property rights become a very important issue. One of the main questions that rises here concerns the ownership of a course that is developed by multi-institutional teams. Therefore, there should be a clear policy on copyrights, intellectual properties, the ownership of the material, … Last but not least there should be a revenue policy in place to define who can sell the developed courses and how the revenues will be shared.

- **Quality (pedagogical – attitudinal/practical):** There is often concern over a loss of quality and level and effectiveness of education that is delivered through the use of virtual models in comparison with the traditional face-to-face environment. Quality assurance systems should be put in place to ensure the quality of the curriculum, teaching and learning, assessment, student support and to be sure that a course meets the standards and criteria of quality defined at the institution and is worthy of credit.

- **Accreditation/credit transfer (organisational - attitudinal/practical):** A first aspect of the accreditation and credit transfer problem is that courses attended at another university or offered by a consortium on line may not be accredited in the student's home university. How to define the amount and type of credit of a course can be the next question to be solved. And when a course is accredited the problem of the transfer of course credits among institutions turns up.

- **Individualisation/tutoring (pedagogical – attitudinal/practical):** Teaching and learning in a network of universities means that people, located at different places access the network from behind their computer screen. It is often feared that interpersonal contact is lacking. Different locations constrain community building, individualisation is lost, instructors have to grade students they don’t personally know. Especially tuition and mentoring of students by the instructors can pose a problem.

- **Changing roles (pedagogical/organisational - attitudinal/practical):** Teachers need to adapt their perception of what it means to be a teacher. There is a fundamental shift from a teacher-centred environment in the traditional classroom to a more learner-centred environment online. The role of teachers changes from transmitting knowledge to mediating learning, from the role of instructor to one as mentor and guide. The students become constructors of knowledge, self-directed and independent learners; in fact they become more a ‘teacher’ themselves.

- **Loss of control/autonomy (pedagogical/organisational - attitudinal/practical):** While it can be agreed that each member in a partnership remains independent, it is unavoidable that decision mechanisms that support the joint activity also affect the extent of control of the activities of each separate partner. More and more courses will be developed jointly and academic staff will increasingly have to work with and have to take into consideration instructional designers and technical staff, not only from their own institution but also from the partners in the network.

- **Competition (organisational - attitudinal/practical):** Traditional universities face a significant and growing competition from other and new types of e-learning providers, all offering the same type of courses. To stand stronger in this competitive environment, universities can team up with other universities. However, the visibility of each partner becomes different in a distributed environment, preventing some universities, wanting a maximum visibility (e.g. for reasons of funding) to enter a partnership. It might also dilute the value of the institution’s “brand” name.

- **Practical organisation (organisational – practical):** Institutions offering programmes across countries should also take care of some more organisational and practical problems, for
example timing (co-ordination and planning problems may emerge because of working in different time zones), access to local facilities (how to make available to distance learners textbooks, non-electronic learning materials, and in particular library resources), enrolment (how to support registrations via telephone, fax, the Internet), and the practicalities of receiving payment in an acceptable form.

- **Financial aspects** (*organisational - attitudinal/practical*): Networked e-learning causes a cost increase for the organisation: costs to develop and deliver online courses, the cost for the infrastructure (e.g. connectivity, network access)…. Especially the front-end costs associated with the development of the infrastructure and ICT-based instructional materials are difficult for organisations to finance. On the income side distant and online courses must be priced at a sensible level: neither course fees nor the cost for accessing the network etc. should be a limiting factor for interested students.

- **Motivation** (*pedagogical/technological/organisational – attitudinal*): Introduction of ICT in education requires that students as well as instructors are interested and motivated to learn how to work with computers, to learn how technology can be used efficiently in education. The institution itself should also be motivated: often a clear vision that guides these kinds of activities is lacking and is not seen as important.

- **Workload** (*pedagogical/technological/organisational – attitudinal/practical*): Concern about an increasing workload can indeed be a considerable obstacle. A significant time investment for planning lectures, for preparing supplementary materials, instructional delivery is needed, courses itself take a longer time span because of new forms of activities, e.g. the mentoring/interactive aspects. Increasing access and therefore a larger number of students also places greater demands on the time of the tutor or instructor, etc.

- **Common platforms/standards** (*technological – attitudinal/practical*): Instructors and students do not like to learn how to use a new electronic learning environment that they have not yet used before. On the other hand it would be inappropriate that every university develops its own platforms. Technical standards need to be adopted to optimise interoperability with other institutions in areas such as the creation of learning objects and information databases, libraries, administrative systems,…

- **Security** (*technological – attitudinal/practical*): When all contact and communication between universities, teachers, and students is happening through the web, security becomes an important aspect. There have to be rules governing access to information that is available through the web. Universities should know who is participating to the course (online authentication) and should thereby protect themselves against people who are not registered or do not have the necessary authorisation.

- **Infrastructure/access** (*technological – attitudinal/practical*): Students and teachers can be frustrated by the computer and network facilities available to them or by features in the electronic tools they are being asked to use. On a more practical level, virtual education is often limited by the lack of appropriate technical infrastructure or the uneven quality of infrastructure between different partners, e.g. between the countries in Europe. While also the disparity of access to the infrastructure is great, it must also be ensured that students and teachers have the best possible access to it.

- **Technical skills** (*technological – practical*): Lack of technical background, lack of basic computer literacy of the students as well as of the instructors and at the support side, are an obvious obstacle in introducing ICT in education.

**Scenarios to overcome obstacles in networked e-learning**

Dealing with practical obstacles within a single institute has already been the subject of different projects, but the second kind of obstacles and their potential solutions are less studied. The NetCampus project wants to offer some solutions to these network-specific obstacles. Typically, practical obstacles can be overcome through the introduction of common standards, (bilateral)
agreements, schemes, models, etc. The search for solutions for this type of obstacles is ongoing and by now, partial answered, tentative models and standards are being developed or have been advanced in projects and literature. The attitudinal obstacles are less tangible and hence, not so easily pinpointed and described. They are, however, very serious obstructions for the further successful implementation of ICT-based university networks and of ICT in education in general.

When universities work together in a collaborative network, we can identify at least three general patterns that may occur as they pilot different sorts of strategies for working together on instructional delivery and networked e-learning. In the NetCampus project we elaborate on the following scenarios:

**Scenario 1: Within an existing course, on-line interaction with learners or resources in a partner institution**

In this scenario, there are two possibilities: (a) Instructors of existing local courses at different network universities arrange that their own students as part of their own course collaborate in some form with learners at other places. Students stay at their own universities during the course and collaborate and communicate with teacher and other students via electronic media. Or (b) A course in one institution makes use of laboratory, library resources or other learning material from a network-partner institution, using technology for remote access.

**Scenario 2: Offering a course via technology, distance participation**

Students at different locations participate at a distance in a network course, delivered via technology, e.g. the Web. The course may have been developed by network-partners or it may have already been developed by one of the partners and subsequently made available to students of the other network partners. It is necessary for the online students to be able to attend the course via an Internet connection either from their university or from their homes. There is an essential need for electronic communication

**Scenario 3: Supporting physical mobility**

In the third scenario, instructors and students from one university travel physically or virtually to another university in order to participate in a course or courses there. Face-to-face meetings as well as the use of ICT communication channels are assumed to be part of the learning activities in such programmes. The most familiar option is that of the Erasmus and Socrates programmes, where students physically attend a course offered by another university, as on-campus students at that university. Another option is the exchange seminar, where it may be the instructors who are physically mobile.

These three scenarios are in practice not mutually exclusive, when applied to solve the problems listed above. The aim of the NetCampus project is to refine these scenarios and to identify in which way they address the problems and find solutions for networked e-learning. The scenarios are tested through pilot activities with the purpose of validating or falsifying them. The selected pilot courses are implemented, run and evaluated in the network of the participating partners of the project, eventually extended to partners of the project participants. This method of working will allow us to generate validated implementation scenarios for ODL in networking, specified in terms of operational models for a variety of problems.

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1. For all project information: http://www.europace.be/NetCampus


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