Information Society Studies in Practice – a Networked Learning Case Study: Experiences of Teachers in NETIS project

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Abstract

The course prepared by the NETIS consortium within the frame of a European Leonardo da Vinci project aims to provide an introduction to information society studies mainly for undergraduate students. This paper summarises some experiences with the eLearning courses.

Traditional centralised knowledge sharing in an eLearning environment with intensive communication and feedback tools lead to "traffic collapse". The solution can be a horizontal, networked communication between students, between specialists and students, and between institutions.

Participants in networked learning needs information about the knowledge structure of each other. The problems are: In which way can we document and share the knowledge in the learning network? What kind of knowledge do we have? In which way can we register and document the prior learning experiment, the tacit knowledge? A possible solution can be the using of knowledge maps and e-portfolios as tools for knowledge sharing. The learning goals in form of sophisticated competence portfolios are helpful tools to manage the self organised learning process. The participants can check the competences on their own and steer the learning due to this self evaluation. To reach the given learning goals the course provided creative tasks and projects.

The most difficult part of the project was to organise effective knowledge sharing between students and to involve other tutors and other student groups in a common learning organisation.

Keywords

Network for Teaching Information Society (NETIS), information society studies, networked learning, e-learning 2.0, e-portfolio, knowledge management, teachers, case study

Introduction

The eLearning 2.0 uses the interactive possibilities of web 2.0. 'The expression web 2.0 is the collective name for those second generation internet services, which depend primarily on the community, in other words, the users, to create the content together, or to share each other's information'(Wikipedia).

The partners in the NETIS project have developed an introductory course for information society studies mainly for undergraduate students.

In the autumn semester of the academic year 2007/2008 three student groups in Hungary and one group in Greece have taken the course. The course organisation was carried out in blended learning form at the University of West Hungary (Sopron) and the department of Informatics at the Technological Educational Institution of Thessaloniki, Greece, where the students were able to choose the level of blending. At the

Technical University and at the Loránd-Eötvös-University in Budapest the course organisation was more traditional, the eLearning version served as an electronically attainable addition.

About the NETIS eLearning solution

To facilitate effective network learning the open source learning management system "Moodle" (http://netis.nyme.hu) was installed within the frame of the NETIS project. This tool makes the organisation of quite different processes possible, such as:

- the concept, theory and history of the information society,
- to keep a record of the learners and their results;
- to provide a record of applications of courses and exams;
- to give access to the various materials and elements of the courses;
- to keep a record of the activities of the users: teachers and students;
- to ensure a primary communication interface;
- to increase student activity with automatic functions;
- to support the teacher's evaluation/assessment (both formative and summative);
- to provide elements of self-evaluation and accountability;
- to inform users of the latest news concerning education;
- to support the realisation/arrangement of web-lectures and web-seminars,
- to support the work of virtual groups, ensuring collaborative surface.

This paper summarizes the experiences with the eLearning courses.

The key problem: output steering or input steering?

A traditional course is a sequence of topics covered in a series of lectures, held in classrooms at weekly intervals, with homework practice in between. This is a linear model of learning. Everyone proceeds at the same pace regardless of their interests, prior experience, talents, or other demands on their time. At the end, grades indicate the level of achievement a student was able to make in the fixed time period allocated for the course. Imagine a new model. Instead of a classroom, see in your mind a large "learning room" with an entrance, an exit, and a number of learning stations (booths). You meet the teacher on entry. The exit is guarded by a certifier, whose job is to assess your competence against well-defined standards. You visit the stations to learn particular topics or practices. Colored lines on the floor suggest paths among the stations. You can visit as many stations as you need, and in any order consistent with your current knowledge, to prepare yourself for final certification. You can take trial certifications and then backtrack to the stations needed. You can take self-assessment tests at any time you like. You call on the teacher for help at any moment you are stuck. In contrast to the linear model, everyone who exits gets the same "grade" (a certificate of competence); the variables are the length of time and the path followed (Denning et. al, 1996).

While in the linear process of education the input and the time use is uniform, the output – due to the different levels of preliminary knowledge of the students – is always very different. . In the linear model, any deviation from the expected output is "punished", in the form of bad marks and deprivation of subvention. The Internet-supported network learning is organized according, but to a very different principle. Due to the fact that - in case of each student - the levels of preliminary (tacit) knowledge and the particular needs of activity can prove to be very different, it is not recommended to prescribe obligatory itineraries for the different participants of the process. For this reason the variables mean the different ways of learning, based on the different branches of project-like, collective knowledge-production.

According to this method, the output is uniform, because every single student is allowed to choose the branch required by his/her level of knowledge and can spend for learning the real time necessitated by his/her own style and personal pace of studying. Owing to this method the output results are always

homogeneous and, consequently, the punishment-like controls and the traditional, rigid examination procedure become meaningless. In such a system of paradigms, there are new forms and tools of information flow and management and new methods of knowledge production and distribution.

Perelman, who produced a radical criticism of the school system in the early 1990's, created the concept of hyper learning (HL) to denote this type of network learning:

> HL is not a single device or process, but a universe of new technologies that both possesses and enhances intelligence. The "hyper" in hyper learning refers not merely to the extraordinary speed and scope of new information technology, but to an unprecedented degree of connectedness of knowledge, experience, media, and brains - both human and non-human. The "learning" in HL refers most literally to the transformation of knowledge and behaviour through experience (Perelman 1993).

The emphasis on learning today seems to require grades indicating the level of achievement, despite new flexible practices, such as hyperlearning. The introduction of new practices in a traditional learning environment may meet resistance from students, educators and institutions in the form of rules and regulations that have to be followed. In order to overcome such difficulties the NETIS project use the blended learning approach and allows for differences according to the needs of every course.

The necessity of networking

In practice it turned out to be impossible to accommodate complementary the following ideas: on one hand the communication with no space and time limits, organised within a network and, on the other, the linear educational model. In fact, if the only source of knowledge, professional skill and consultancy is the teacher him/herself and, consequently, the students turn to him/her with all their problems and questions, this will lead to a mass of information impossible to process.

In the field of eLearning 2.0, knowledge chosen, organised, distributed and controlled by the authorities has been replaced by personal information management based on immediate needs. Consequently, the importance of official intermediaries and institutions is decreasing. Within networks of contemporaries, cooperation, learner-centeredness and the ideal of self-organised learning become a real possibility. The boundary between learning and teaching becomes less distinct. For the "download generation", the Internet is not a medium for learning; it is the platform and the centre of personal study.

> The third phase – a utopian one, if you like - is that of an *organic learning environment*. It refers to a virtual and physical environment in which educational materials are sufficiently abundant, and sufficiently well-organized, to allow for spontaneous learning. In such an environment the need for examinations and certificates would become the exception; on-job confirmation of new skills acquired, the rule (Nyíri, 1997).

Siemens makes it clear that in networks, contextualising information and determining validity may both become collective processes (a list of popular topics, useful syllabuses, important links, articles and blogs, compiled in a cooperative manner may serve this purpose [1]). So-called feed-aggregators help the collecting and feeding back of information into one's own knowledge network [2]. Instead of consuming information that has been embedded in connections by institutions, learning may become an active creation of knowledge.[3]

The above contradiction can be resolved only by involving into the communication also the preliminary knowledge and the daily experience of the students. The knowledge sharing can be utilised furthermore if

[1] See, for example, the webpage urlguru.hu.

[2] For example *Google reader*, *xFruits* or *blastfeed*.

[3] For the debate about connectivism, see Verhagen's critique and Siemen's reply (Verhagen, 2006; Siemens, 2006).

also outside experts are connected into the network and the knowledge sharing are held in co-operation with other universities.

Siemens (2005) defined eight attributes or principles of network learning, namely:
- Principle 1: Learning and knowledge rests in diversity of opinions;
- Principle 2: Learning is a process of connecting specialized nodes or information sources;
- Principle 3: Learning may reside in non-human appliances;
- Principle 4: Capacity to know more is more critical than what is currently known;
- Principle 5: Nurturing and maintaining connections is needed to facilitate continual learning;
- Principle 6: Ability to see connections between fields, ideas, and concepts is a core skill;
- Principle 7: Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities;
- Principle 8: Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

It is strictly connected to the logistics of non-hierarchical communication that we should create the accessible and documented representation of both the teachers' and the students' knowledge.

This project raised numerous questions:
- What is knowledge?
- What do we mean by knowledge management?
- How to prepare the personal map of knowledge?
- How to prepare an e-portfolio?
- How can daily experience – which up to now never has been shaped in concrete notions – be involved in the education?
- How can narrative knowledge management (e.g. success stories as source of knowledge) be involved in the learning process?

Below our solutions and reflections on the above issues are described.

Organisation of the Content Based Material

The aims of the NETIS eLearning environment are to provide context, support and motivation for both instructors and students to integrate theory and practice. This is promoted by the combination of individual and remote interactive activities. The activities are structured in order to focus student attention on learning issues, such as content-related, problem-solving, reflective and interpersonal skills.

The content based learning material consists of 13 chapters, as illustrated in figure 1.

Every downloadable chapter is enriched with a separate set of on-line supports, such as table of contents, competences to be achieved (learning goals and self-controlling questionnaire (to control the achievement of purposes)), quizzes, review questions, creative tasks and chapter's recommended reading.
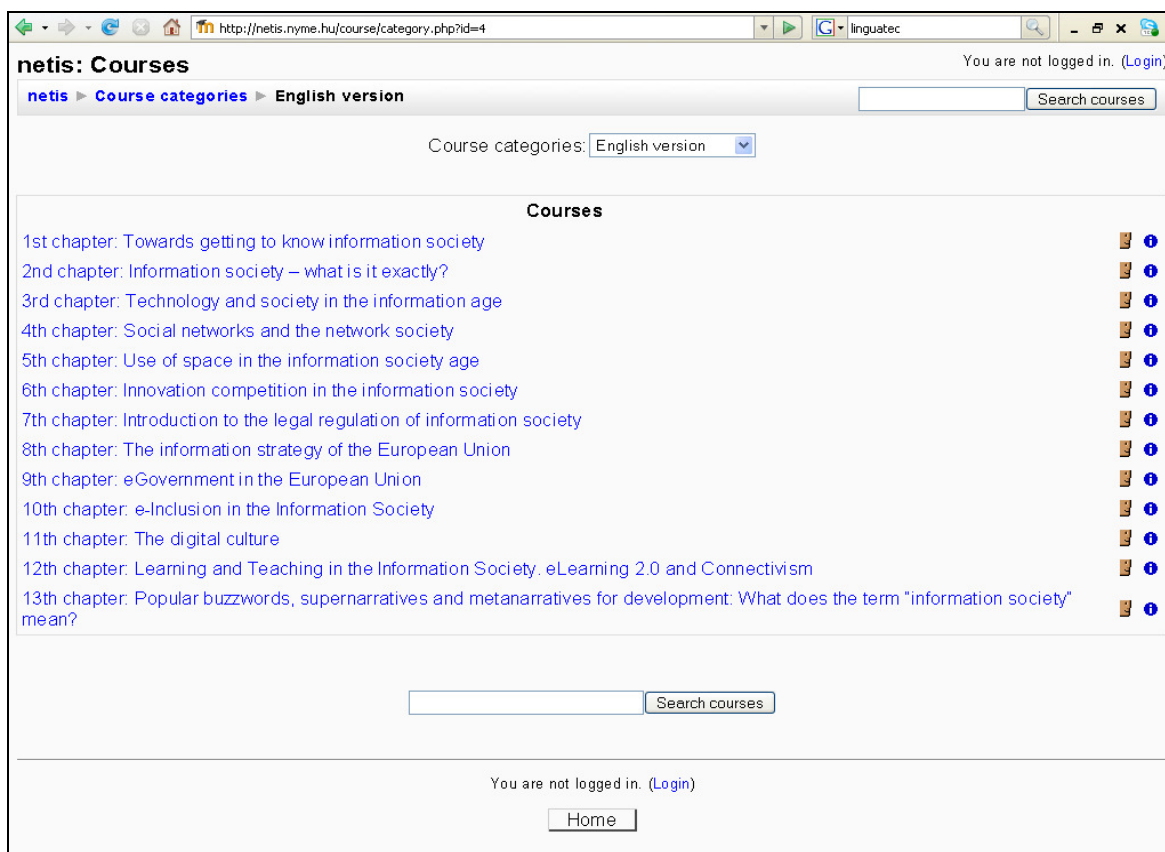
Figure 1: Course book chapters in the NETIS Moodle eLearning platform

Knowledge management, competence portfolio, creative tasks

An important point of the experiment were the reflection of the moral of the renewed circumstances, and secondly, by generalizing our daily experiences, to lay down a map of the potential opportunities and contradictions of the information society. We try to organise a reflection of the everyday experiences of the students, regarding the given topics, e. g. the use of information technology, networking, e-government, eLearning etc. Consequently we prepared our own map of knowledge, in form of a sophisticated catalogue of competence. We created an e-portfolio in WIKI of Moodle and incorporated the knowledge map of the students in it. An example of the requirements of the e-portfolio is described in the following paragraph regarding innovative solutions of the course.

The function of the electronic portfolio is to compile in one place all the documents related to the studies of a student. The knowledge maps, learning diaries, solutions to problems/tasks, tutor- or self-evaluations, various links stored in a WIKI or assembled with the help of other knowledge management tools all promote the pooling/exchange of knowledge among people. Those participating in network learning can form an opinion concerning the previous knowledge of their partners, their sphere of interest and their style of learning on the basis of the e-portfolio, and this can help cooperative learning.

Logically followed from the above, we determined to use another catalogue of competence, as directrix of the self-organized learning. This served as learning goals to be reached. To each competence we co-ordinated project-like tasks supported by Internet. The tasks aim to be solved in a cooperative way. These kinds of assignments helped a lot in reaching the given competence. This way every student was able to compare his/her own catalogue of competence with the learning objectives and subsequently solve the assignments according to his/her needs.

Some examples of innovative solutions of the course

Below some examples of innovative solution of the course are described, such as internet based creative projects a self-controlling questionnaire.

Internet based creative projects

Glossary

A glossary to be developed. On this platform the students are asked to create a common additional glossary. If the student is not familiar with an expression or any idea in the chapter text, he/she can search for this in the main project glossary. If the glossary does not provide an adequate answer, the student should search on the web and put the findings in a common additional glossary.

Forum analysis

Students are asked to find Internet forums related to the problems of each chapter. They are expected to analyse them in the viewpoint regarding what kind of information-exchange goes on!

Comment on media presentations

Students are asked to seek after compositions from mass media (pictures, films, novels etc.), that illustrate the processes and problems in the information society and to comment on the "message" that is presented.

Creation of own profile

Students are asked to create their own profile (People, Profile) and to form a knowledge map aiming to facilitate knowledge exchange regarding experiences. This helps tutors and the other participants to get a picture about competences of students/peers.

Creation of an own ePortfolio with the WIKI database function of Moodle

Below the possible topics are listed:
* Collect and reflect on your work!
* Share your educational and work experience!
* Create dynamic resumes a 'rolling" CV within documents your knowledge as you learn it!
* Create a plan of study and work online with your tutor!

Exchange of experiences

In this forum students are asked to exchange experiences by looking at the personnel profile of the participants and examinating details on the specific experiences and knowledge of the participants of the course.

Learning blogs

The students have the possibility of commenting on their learning process in the blog menu. They can enclose remarks on the didactic experiences, on difficulties or on successes.

Bibliography database

Daily new, relevant materials turn up for our topics on the Internet. Students are asked to contribute by updating the list of the literature. They are asked to look on the Internet for books, materials, for articles which are personally important to them and to archive the links in the forum.

Self-controlling questionnaire

Figure 2 shows an example of a self controlling questionnaire to identify the students' own competencies.

The student completes the questionnaire in the beginning and the end of the semester thus enabling identification of how much the student has learnt.

Figure 2: Self controlling questionnaires to identify the own competencies

Observations of student activities

The students have used the interactive tools intensively. It has brought them obvious joy that they can take part even in the knowledge creation. They have been enthusiastic when the entries have increased in the dictionary. A positive echo also has reaped that they could look and learn from the solutions of other persons and groups. With joy they have created the ePortfolio of their own. Some interesting success stories arose for discovering the hidden knowledge.

Some typical difficulties

The most difficult task in the project was to organise effective knowledge sharing between students and to involve other tutors and other student groups of other institutions in a common learning organisation.

It was more difficult than expected to identify the knowledge of the students and to create a good ePortfolio in the WIKI database of the course. The knowledge exchange often confined to technical solutions, namely, how to organise the dictionary or the database.

The students and the university staff are socialised for the traditional centralised, linear learning teaching. To become familiar with the new technology and the new didactic paradigm requires, in the initial phase, approximately triple effort of work. However, this effort is not usually recognised in the University time scheduling. Neither are the traditional regulations of the studies compatible with the networked learning.

A question that occurs is regarding the accreditation when several institutions teach together, in a cooperative network.

> The spread of new forms of learning also implies various potential conflicts. There are numerous signs that the new forms of informal network learning can only be fitted into the narrow, bureaucratically controlled framework of traditional institutions that are limited in time and resources, with great difficulty. The pedagogical debate concerning this issue often goes in the wrong direction, because the discussion is between two incompatible conceptual worlds. The linear model and the eLearning 2.0 are two different worlds with different logic and different ideas. An important educational-sociological, network-research and pedagogical question of the coming period will be how the institutions of the official school system will accept this phenomenon, to what extent they will integrate or reject it, and what types of conflicts, compromises and solutions this process will develop (Bessenyei, 2007).

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