

Launching an International Web-Based Learning and Co-operation Project: YoungNet as a Case Study

Katrine Arbøl

Department of Teacher Education, University of Helsinki

Lea Houtsonen

National Board of Education

Hakaniemenkatu 2

FIN-00530 Helsinki

lea.houtsonen@oph.fi

Ilta-Kanerva Kankaanrinta

Helsinki Second Teacher Training School,

Department of Teacher Education,

University of Helsinki

Antti Rehunen

Department of Geography, University of Helsinki

Our study focuses on the planning and launching phase of an international Web-based learning and co-operation project. The opportunities and challenges related to this phase are studied using the European YoungNet project as a case study. YoungNet is a two-year project funded by the European Union. The aim of YoungNet is to build a Web-based learning community that enables young people to communicate and cooperate

across national borders. The project started in 2001 and the Web-based multi-user environment was in use in about 50 schools in four countries of Finland, the United Kingdom, Switzerland and Germany in the year 2002. The content of YoungNet is mostly related to geographical and environmental education.

The theoretical framework of the study is based on the research on construction of collaborative, Web-based learning environments. The research data consists of materials produced in the project during the planning phase. The opportunities and challenges were categorised as technical, pedagogical and organisational, information-processing and cultural. The main discussion points are related to fine-tuning between technology and content development, ensuring effective communication and information processing, and creating commitment to co-operation. As opportunities it was noticed that the content and the created learning environment were satisfactory for the teachers. They appreciated its exiting and edutaining features and regarded it as an efficient communication platform for international co-operation. The teachers saw challenges in the balancing between technologies and pedagogies, and in commitment to the project.

Key words: Geographical education, environmental education, YoungNet, Web-based learning environment, international project.

1 Introduction

Web-based learning environments have been developing rapidly during the last years of the past millennium. The focus has shifted from technical mastery and information acquisition to information distribution and collaborative construction of knowledge. Despite the rapid development of technologies, a considerable amount of time is required for planning of content and implementation of these Web-based environments. In an international Web-based learning and co-operation project, co-ordination and contacts between the schools give rise to many important questions.

The purpose of this article is to analyse the opportunities and challenges presented during the launching and planning phase of the YoungNet project. YoungNet is a two-year project funded by the European Union. The aim of YoungNet is to build a virtual learning community that

enables young people to communicate and co-operate across national borders (YoungNet eLearning System 2002). The content of YoungNet is mostly related to geographical and environmental education. Through its fascinating features the project aims at overcoming the boundary between learning and leisure. YoungNet is benefitting from both pedagogical and technical partnerships. The universities of Helsinki, London and Stuttgart and the publishing company Klett in Germany are working together on the pedagogical side, and the multimedia companies Hyperwave in Austria and Mindlab in Germany are the technical partners. The project started in April 2001 and the Web-based multi-user environment was in use in about 50 schools in four countries of Finland, the United Kingdom, Switzerland and Germany beginning from autumn 2002.

2 Construction of Web-based learning environments

2.1 Web-based learning environments and co-operation

Web-based learning environments have been discussed in many articles since the mid 1990s. Usually such environments are described as electronic habitats where many users, such as students and teachers, meet on-line. A Web-based learning environment can provide users with a variety of activities. Trentin (1999) classifies these activities on three levels. The basic level is to offer access to information, such as electronic books, articles, pictures or maps. The second level offers opportunities for sharing information, which means creating virtual environments where the users can meet. The third and the highest level is virtual co-operation: really doing something together. This often involves the construction of new knowledge. Active learning and construction of knowledge on one hand, and co-operation and teamwork on the other hand together make for an effective learning process (Björck 1999).

2.2 Opportunities and challenges

Integrated and distributed learning environments have many applications. Kankaanrinta & Masalin (2001) have collected these in the literature from the point of view of geography and environmental education. The environments offer technical tools for administration and communication as well as intellectual tools for information processing. These tools include synchronous chat or asynchronous on-line discussions, as well as the use of Web cameras and headphones. Potential on-line activities are numerous and they can include brainstorming, mind mapping, SWOT analyses, group investigations and electronic posters. Houtsonen & Åhlberg (2001) have pointed out that a Web-based learning environment can create a collaborative memory and support the creation, seeking, sharing, presentation and communication of knowledge.

Meisalo, Sutinen & Tarhio (2000) have emphasised that a stimulating environment with a wide range of learning opportunities should consist of several elements: data network services, general-purpose tools, cognitive tools (e.g. conceptual maps), teaching programmes, CD-ROMs and other digital teaching material, simulations, games and virtual reality.

Even though technologies offer powerful tools for co-operation, their implementation must overcome many difficulties. The multidimensional features of planning and evaluating network-based education have been thoroughly discussed by Tella & Mononen-Aaltonen (2000), among others. Solem (2001) has given a list of problems based on his experiences with university students. He mentions the difficulty of bringing students together over an extended time period, differences in curricular organisation and scheduling, uneven rewards from administration, and the lack of culturally sensitive and equitable Web sites, for example those available in more than one language. Solem also sees the need to prepare students for international co-operation as a challenge. His participants were from different continents and countries with various economic resources, which created barriers to effective international co-operation.

2.3 Edutainment

One concept often related to the activities in Web-based learning environments is edutainment, which combines the two concepts of

education and entertainment. Edutainment is based on the idea of bringing a new dimension and source of motivation to education through entertaining features, such as playing. Edutainment has the potential to be a powerful tool in learning because it can include all the characteristics of effective learning listed by de Corte (1995): it may be constructivist, cumulative, intentional, contextual and social. In Web-based learning programmes, the quality of motivation is supported by problem solving, searching for information, voluntary participation and enjoyment induced by playing (Atkins 1993). Edutaining games create intrinsic motivation when they offer intentional activities in uncertain situations where the player is able to control the uncertainty (Sinnemäki 1998).

3 Conducting the study

In our analysis of the opportunities and challenges related to the launching and planning phase of the YoungNet project, we used research data consisting of materials produced in the project during this period of time. The general progress of YoungNet was studied on the basis of official project reports and other documents such as quarterly management reports, consortium meeting minutes, the project's work description and its user requirement report.

Data on the participating schools and teachers were collected in the form of user requirement questionnaires, focus-group discussions in the national teacher meeting in Helsinki and the teachers' open feedback to a YoungNet type of information system. Most research material was qualitative, and it was analysed by the means of content analysis. The user requirement questionnaire also provided some quantitative data.

The research data were classified according to the approach developed by Kankaanrinta (2001) in her study of the relationship of primary school student teachers to the Internet. Kankaanrinta categorised the opportunities and challenges as technical, pedagogical and organisational, information-processing and cultural. In our study these were slightly altered. Here, the *technical* dimension refers to the technical development of the YoungNet system and interface as well as the technical level of the schools. *Pedagogical* aspects include user requirements, content development and the relation of YoungNet to school curricula.

Information-processing aspects relate to information processing tools and the ways of using them, and finally, the *cultural* dimension comprises communication, project organisation, co-operation practises and the learning of a new working culture.

4 Results

4.1 Technical development in YoungNet

The YoungNet project aims at building a community platform that uses leading edge information and communication technologies (ICT). The novel technical features of the YoungNet platform (Hyperwave eLearning Suite *s.a.*) include shared folders with published and unpublished documents, a shared whiteboard, a virtual 3D home, and games. The technical development was demanding and time-consuming. It also required a careful analysis of the possibilities of different technologies and of the hardware and software available in schools. The beginning of the planned school use period was delayed to August 2002, mainly because of the time-consuming technical construction of the desired learning environment with its graphical user interface and all its functions.

Technologies have also partly defined the limits of content development. Many ideas presented by the pedagogical partners and teachers were found to be technically too difficult to implement. In the beginning of the project technologies were dominant elements, and even in the European Union project review the technical aspects were considered as the driving force. It was stated that the pedagogical goals of YoungNet should be more explicit and that they should determine the choice of technologies.

In the Finnish YoungNet schools the technical level varied from school to school. In some schools there were computers for every student while in other schools there was only one computer for the whole class. Free time in ICT classrooms was often restricted. Unavailability of some key programmes turned out to be a problem as well, but it was remedied as the technical situation at the schools improved. An obvious need for testing was noticed when applying the latest technologies: problems may occur e.g. in connection speed, firewalls and in the

functioning of audiochat, among other things.

4.2 Pedagogical aspects

The initial idea of YoungNet was to concentrate on cultural and international education, language training and the use of ICT. Geographical and environmental education were emphasised by the pedagogical partners, and eventually the main topics of the two school use periods were defined as “Locality” and “Our countries”, according to the wishes of the teachers. The YoungNet games were designed to support these topics. It was decided to publish all the contents of YoungNet in English, German and Finnish.

Approximately 20 teachers in the Finnish YoungNet schools were asked to state their personal hopes for the project content. The teachers’ and pupils’ current use of ICT at school and during their free time varies both in amount and in type. However, all the teachers saw the potential in Web-based learning. Teachers’ expressed hopes for the YoungNet were classified in three main groups: inspiration and excitement, good pedagogy and new skills, and foreign contacts and meetings, meaning the partner schools.

Teachers of many school subjects were involved in YoungNet. The teachers’ preferred topic areas were summarised in four themes as follows: local area studies, homeland presentations, participation in environmental planning, and current issues.

The most outstanding hope the teachers expressed was to establish contacts with foreign teachers and pupils. Their main concerns were related to the future of the project. Commerciality in the project’s future development, continuation of the YoungNet environment and copyright issues were mentioned most often. Edutainment awakened interest but the teachers gave the highest priority to meaningful learning.

4.3 Information-processing methods

The YoungNet environment aims at offering different ways to process information. A common communication platform was made available already at the beginning of the project. Different versions of project documents could be stored on it and the material could be worked on

collaboratively. This turned out to be a very efficient method when compared to circulating large document files in e-mail.

In the YoungNet system, various methods for sharing information and for working collaboratively will also be incorporated. A whiteboard will facilitate shared writing, drawing and mindmapping. Pupils will also be offered their own virtual 3D home containing a virtual representation of themselves (avatar), moveable objects and different ways of communication. The system aims at personification, meaning the adaptation of the environment for individual wishes and requirements. Partner schools have an important role in co-operation and they are given a new type of opportunity to exchange and compare information on each other's local environment, ask questions about it and thus to try to construct new knowledge.

Furthermore, in YoungNet edutaining games are also a forum for information processing. Games were defined as higher level cognitive games that foster problem solving, creativity and –particularly – group work.

4.4 Co-operation and communication culture

In the YoungNet project, several ways of communication were introduced to facilitate international co-operation. A communication platform appeared to be the most important of these, and it proved to be particularly valuable in project planning among project partners. In addition, all partners met in regular project meetings, which played a crucial role in co-operation and co-ordination of general project progress and school involvement.

YoungNet was introduced to the project schools and teachers during a national teacher meeting, and through visits to schools and e-mail information. In the beginning of the project, the teachers had to fill in an extensive questionnaire. However many teachers delayed in returning the questionnaire, mainly because it was felt to be too long and difficult. YoungNet has offered teachers their own platform, Teacher's World, but little use has been made of it so far.

The delay of the beginning of the school use disturbed the teachers' planning. However, partner schools in Finland and abroad were provided in order to keep the schools active. In an international project like YoungNet, the school holiday periods also were of a great significance.

Launching an international Web-based learning and co-operation project...

There is only a few weeks' time when none of the schools in the four countries is on a holiday. Time difference and other reasons also make it a challenge to find common lesson times in different project schools.

5 Discussion and conclusions

The purpose of the study was to analyse opportunities and challenges related to the planning phase of an international Web-based learning and co-operation project like YoungNet. The results of our research can be summarised according to the categories technical (T), pedagogical (P), information-processing (I) and cultural (C) as follows:

OPPORTUNITIES

- exciting and edutaining technical features T
- system personification I
- efficient communication platform I
- learning about environments P
- international co-operation C

CHALLENGES

- balance of technologies and pedagogies T, P
- co-ordinating project scheduling C
- guiding the use of technologies and user interface T
- commitment to the project C

YoungNet responds to many pedagogical demands and user requirements. The chosen content was relevant for the teachers, particularly as regards geography and environmental education. The project aims to foster true construction of knowledge and multi-level communication, and in this way it also reaches the highest category in Trentin's (1999) classification of Web-based learning.

As regards the development of the technical opportunities, the planned learning environment incorporates many of the opportunities offered by the integrated and distributed learning environments listed by Kankaanrinta & Masalin (2001). Planning the YoungNet project required constant fine-tuning between content and technologies. At the time scale, technological development seemed to be a dominant feature from the perspective of the school use period.

YoungNet was able to respond effectively to many of the organisational and cultural challenges listed by Solem (2001). Continuation was guaranteed by the participation of a commercial publisher. Curricular organisation and scheduling were considered both internationally and nationally, and cultural sensitivity was taken into account. The involvement of teachers turned out to be a central issue in this kind of project. It was found out that teachers' commitment can be increased by continuous activities, information and preparation work as well as by active involvement in the content planning.

YoungNet appears to be developing successfully as an international Web-based learning project with many opportunities for future use. It introduces an innovation for efficient education and learning in geography and environmental education and also provides a good environment for preparing students for international co-operation. Some challenges remain and they have to be addressed and overcome in future applications of the YoungNet learning environment.

References

- Atkins, M.J. 1993. Theories of learning and multimedia applications: an overview. *Research Papers in Education* 8 (2), 251–271.
- Björck, U. 1999. Theoretical foundations of Computer Supported Sustainable Learning Processes (CSSLP). In U. Nuldén & C. Hardless (eds.) *CSCL, A Nordic Perspective. Papers From the Nordic Workshop on Computer Supported Collaborative Learning. 22–25 April, 1999, Göteborg*,

- Sweden, 11–17. [<http://ara.informatik.gu.se/Nulden/PDF/CSCLWS.pdf>] (20.2.2002)
- De Corte, E. 1995. Fostering cognitive growth: a perspective from research on mathematics learning and instruction. *Educational Psychologist* 30 (1), 37–46. Hyperwave eLearning Suite *s.a.* München: HyperWave. [<http://www.hyperwave.de>] (16.03.2002).
- Houtsonen, L. & Åhlberg, M. 2001. Collaborative learning for teachers in the ENSI environmental education project: case study climate change – use of Knowledge Forum group work software to amplify the inherent risks. In L. Houtsonen & M. Tammilehto (eds.) *Innovative Practices in Geographical Education*. Proceedings of Helsinki Symposium. International Geographical Union, Commission on Geographical Education. August 6–10. 2001, 140–144.
- Kankaanrinta, I.-K. 2001. Facing the vast information network: Finnish primary school student teachers reflect on their relationship with the Internet. In C. Montgomerie & J. Viteli (eds.) *Proceedings of ED-MEDIA 2001. World Conference on Educational Multimedia, Hypermedia & Telecommunications*. University of Tampere, Finland, June 25–30, 2001. CD-ROM, 877–878.
- Kankaanrinta, I.-K. & Masalin T. 2001. Groupware – a dynamic Internet tool for geography and environmental education. In L. Houtsonen & M. Tammilehto (eds.) *Innovative Practices in Geographical Education*. Proceedings of Helsinki Symposium. International Geographical Union, Commission on Geographical Education. August 6–10. 2001, 115–120.
- Meisalo, V., Sutinen, E. & Tarhio, J. 2000. *Modernit oppimisympäristöt: tietotekniikan käyttö opetuksen ja oppimisen tukena.* (Modern learning environments: using information technologies in teaching and learning; in Finnish.) Helsinki: Tietosanoma.
- Sinnemäki, J. 1998. Computer games and intrinsic motivation: eight games for automatizing the multiplication tables. Abstract in English. University of

- Helsinki. Department of Teacher Education. Research Reports 186.
- Solem, M. N. 2001. Barriers and pathways to international collaborative learning on the Internet. In L. Houtsonen & M. Tammilehto (eds.) *Innovative Practices in Geographical Education. Proceedings of Helsinki Symposium*. International Geographical Union, Commission on Geographical Education. August 6–10. 2001, 121–124.
- Tella, S. & Mononen-Aaltonen, M. 2000. Towards network-based education: a multidimensional model for principles of planning and evaluation. In S. Tella (ed.) *Media, mediation, time and communication: emphases in network-based media education*. Media Education Centre. Department of Teacher Education. University of Helsinki. Media Education Publications 9, 1–58. [http://www.edu.helsinki.fi/media/mep9/tellamma_mep9.pdf] (16.3.2002).
- Trentin, G. 1999. What does "Using the Internet for education" mean? *Educational Technology / July–August 39 (4)*, 15–23.
- YoungNet eLearning System 2002. Graz: Hyperwave, Stuttgart: University of Stuttgart IAT and Fraunhofer IAO. [<http://www.youngnet.at>] (16.03.2002).