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Training University Personnel for the Information Society – the Finnish TieVie Project

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Table of contents

Introduction

The TieVie project is a support service project for the Finnish Virtual University (FVU)[1] which offered training in the educational use of information and communication technologies (ICT) to the staff of Finnish universities in 2001–2006. It was financed by the Ministry of Education as part of Virtual University project funding. The TieVie project was launched based on the need to strengthen the e-learning skills and expertise among Finnish university staff. This need was pointed out in the national strategy for education, training and research in the information society outlined by the Ministry of Education[2].

The TieVie project organised two national training programmes: *the TieVie training programme* (5 ECTS credits) providing basic skills in the use of ICT in teaching for university teachers, and *the TieVie expert training programme* (15 ECTS credits) aimed at the teaching, support and development staff at the universities to improve their expertise in the use of ICT in teaching and learning. Throughout the years, about 1 150 persons took part in the TieVie programmes[3], and there were participants from all the 21 universities in Finland. In the last three years of operation there were also some participants from the polytechnics. The TieVie network could be considered challenging due to the number of actor groups involved and the wide spectrum of the field of operations.

This collection of articles was published in the spring of 2007 as a more extensive publication in Finnish[4]. The Finnish edition arose from the desire of the participants to document and describe the TieVie project, and to analyse the project from different viewpoints. During its operation, the TieVie project also attracted international interest, and that is why the decision was made also to publish a version in English, albeit a more concise one.

In many projects only the results often remain as a reminder of their existence, while descriptions of the different phases of the project, reasons for the choices made, problems encountered and the solutions found are left undocumented. We wish to share the experiences we had when participating in the TieVie project, and spread the knowledge we gained for the benefit of actors in different networks, educational developers and instructors in their activities. Through the descriptions given in the articles, some of them detailed, we wish to give the reader a chance to evaluate the choices made in the TieVie project and the training programmes, and to compare TieVie with other training programmes, educational projects and networks.

In keeping with the spirit of TieVie, all the articles are collaborative productions by more than one author. The authors took part in the TieVie project as co-ordinators, trainers, online tutors and mentors. In the first part, the members of the TieVie planning team and those who followed the action on a close range describe the TieVie project and training programmes, viewpoints related to networking, and the position of the TieVie project in a wider social context. The second

1 Finnish Virtual University portal http://www.virtuaaliyliopisto.fi/vy_front_page_eng.asp.
2 Education, Training and Research in the Information Society: A National Strategy for 2000–2004.
3 TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).
4 Tuhat ja yksi tarinaa: TieVie-verkoston seitsemän vuotta. 2007. Merja Peurasaari (ed.). Suomen virtuaaliyliopiston julkaisuja 1. Espoo: Suomen virtuaaliyliopiston palveluyksikkö. http://www.virtuaaliyliopisto.fi/data/files/svy-julkaisut/svy_julkaisu1.pdf.

part provides insights into the pedagogical principles of TieVie training, operating models, and implementations from the viewpoints of the various stakeholders. The third and final part is about the development projects implemented by the participants in the TieVie programmes.

This book would not have come about without the participants' active desire, typical of the TieVie project throughout its existence, to share their experiences. Quite a few individuals have contributed to this compilation of articles. We wish to express our greatest gratitude to all the authors and others who contributed to the publication process. An important part in the publication process has been co-operation with the Finnish Virtual University Service Unit, for which we also wish to express our greatest gratitude here.

We hope this compilation gives the reader inspiration, ideas and new perspectives to develop the use of ICT in teaching and learning and encourages networking on both national and international forums!

Oulu, December 2007

Merja Peurasaari
Project Manager of the TieVie project 2003–2006

Part 1
National TieVie project and networking as a part of progress towards information society

TieVie – towards the Finnish information society

Anna-Kaarina Kairamo and *Matti Sinko*

Summary

The authors have a long experience in developing the use of ICT in learning both in Finland and internationally. While Kairamo has participated in the TieVie project since the beginning, Sinko participated in managing the project during its early years, as an integral part of the Finnish Virtual University. In this article they discuss and evaluate the TieVie project in a larger historical context of strategic developments in the use of ICT in learning. ICT is gradually being incorporated into studies and teaching in Finnish institutions of higher education (HE), and the use of ICT in teaching has become a part of the general development of higher education pedagogy. However, it could be asked whether the use of ICT in learning has reached a level where further ICT development and training of academic staff could be left without specific attention in the national HE policy to be fulfilled by the training market supply alone.

1 Introduction

As a product and activity characteristic of its times, the TieVie project offers interesting viewpoints. It reflects the European and Finnish information society discussion, and it also epitomises many issues typical of the national HE policy of recent years in a microcosm. TieVie avails interesting possibilities to scrutinise the integration of ICT into HE pedagogy, from the viewpoints of different traditions of education and teaching and development trends in the use of ICT in teaching.

2 TieVie and the guidelines for the information society

2.1 The roots of TieVie

The 1980's and 90's saw a breakthrough in the use of information technology on a broad scale, and during that period the critical amount of users was created in HE, first in communities of researchers and then, as a natural continuum, also in researcher education. The birth of the CSC[1] and Funet[2] helped Finnish HE to achieve an internationally high level in exploiting information technologies. The rapid expansion of the networks of HE institutions (HEIs) allowed the massive access of students into lateral communication in the community of university students. This, however, had little or no impact on teaching in the institutions, except in some fields of natural sciences, medicine and technical sciences, while in the national strategic guidelines for primary and secondary education, including vocational education, the use of ICT in teaching and systematic improvement of the ICT skills of teachers already became a stated goal in the 90's. In the case

[1] The Finnish IT centre for Science CSC is a company owned by the Ministry of Education, the predecessor of which was created in the 1970's to govern the use of the first supercomputer acquired for university use in Finland. (see: www.csc.fi).

[2] Funet is an abbreviation for the Finnish University Network, a non-profit organisation created in the mid-80's to govern the network connecting the institutes of higher education, nowadays in practice a subsidiary of CSC. (see: www.csc.fi).

of the HEIs, one had wait until general discussion on pedagogy reached the point where it started to evolve a systematic form. The autonomy and decision making of HEIs has not been instrumental in Finland, either, to implement the national strategy for the use of ICT in learning[3].

In the HEIs in Finland, the introduction of ICT in teaching stemmed largely from a different tradition than in schools and vocational education institutions, where there was a huge hype in the first wave of interest towards the possibilities of IT in teaching and the later hyper- and multimedia. These waves matched well with the emerging conceptions about learning, and the subsequent modern methods which emphasised the student's independent work together with an exploratory and collaborative learning and process orientation. Two mainstreams emerged in HEIs: on the one hand, the culture of high-powered computation done in centralised supercomputer environments coupled with computer science, information technology and electronic data processing of the administration, and on the other hand, the reflection of the development of different forms of distant teaching on the world of higher education. In this second mainstream, the universities' continuing education centres and open universities have played an important role.

The discussion and implementation of the use of ICT in teaching appeared in the curriculum of Finnish teacher education as late as the beginning of the 90's, but it was possible long after, and perhaps still is, to follow through teacher education without having to familiarise oneself with the use of ICT in teaching. Institutes of teacher education have not been the most proactive proponents of pedagogical ICT related innovations across HEIs. Perhaps other institutions and fields have been freer and quicker to adopt ICT tools.

Development of the information society and the strategic importance of teacher education did not become an issue in Finland before the implementation of the first information society strategy in 1995–1999[4]. Overall, the discussion on the improvement of teaching skills and pedagogical competence of teachers in HE only started to spread in the 90's. Therefore, higher education pedagogy, still in its infancy, immediately had to tackle with the implementation of ICT with all the related controversies. In this first national strategy, challenges for the education of teaching staff were posed on teacher education, but when the success of the strategy was assessed[5], it was not expressed how the objectives had been met. In the HE sector the focus was on improving the computer facilities, networks, library applications and applications serving the information and communication needs of researchers. The Internet, online communications and learning platforms, online courses, digital materials and learning object repositories had their breakthrough in the period of the first information society strategy actually without significant direction from the strategy. The development in the field was so fast that strategy work was falling behind, which was quite natural particularly at that time. Strategy work served decision-making and the mainstream of education, not the forerunners.

[3] The system for the spreading of ICT in teaching differed greatly between primary and secondary education. In primary education no national norms or funding were issued. In secondary education pedagogical development and implementa tion of innovations on a national level has a long tradition. In secondary education normative direction quickly established IT teaching and basic equipment. However the recession in the 90's, the end of general normative direction of public administration, and the end of earmarked state subsidies all delayed their widespread adaptation. They also slowed down the programmes for improving the teachers' competencies and renovation of curricula in a direction where the possibilities of IT are taken into account.

[4] The information strategy for education and research 1995–1999. 1995.

[5] Koulutuksen ja tutkimuksen tietostrategian 1995–99 vaikuttavuuden arviointi. 2000.

At the same time, an interesting convergence of several separate small traditions into a wide and diverse mainstream was taking place due to the fact that use of ICT in teaching was becoming more widespread. On the one hand, the experts of ICT in classroom teaching (computer-aided learning) noticed how the Internet was starting to make classrooms virtual. On the other hand, the education technologists of distant teaching and learning began to notice that online pedagogy offers possibilities beyond electronic distribution of teaching materials, returning assignments through the net or using video conferencing and telephone in communication[6]. Many who had been awakened by the Internet found the research and development done by the forerunners. The virtual, often informal networks of experts and learning started to evolve into genuine fora of lifelong learning, the most famous of course being the worldwide network of Linux[7] user groups. From this mainstream confluence also rose the TieVie project.

2.2 The period of the second information strategy

The information strategy for education and research 2000–2004[8] grasped four important challenges for developing the information society: 1) ensuring necessary skills for the information society, 2) developing online learning environments, 3) securing the structures of the information society, and 4) developing digital learning resources. The ICT education for teachers, belonging to the second group of challenges, got the pivotal position it deserved in the strategy as well as in the respective implementation programme[9] and project plans[10] based on it. For tackling the challenges belonging to the third group at the university level, the Finnish Virtual University (FVU) was developed as a unifying concept. The framework for teacher education was formed by the three-level OPE.FI project[11]. Its implementation for higher education was the TieVie project as one of the FVU's development projects. Especially the OPE.FI education on levels II and III was thought to be too challenging to be implemented independently by each HEI, and was therefore implemented nationally. So the systematic and wide-ranging development of the skills of university personnel in the use of ICT in teaching was initiated. Therefore TieVie was a rapid answer to the social need present in implementing the HE policy.

2.3 The period of the Information Society Programme for Education, Training and Research 2004–2006

Until the end of 2006 the guiding document for the FVU activities and related projects and networks was the Information Society Programme for Education, Training and Research 2004–2006[12]. The development of skills needed in the information society and the strengthening of the HEIs' ability to use ICT in their activities remained the goals of the programme. The foci were set on establishing productive and economically viable practices and on encouraging exploitation of

[6] Compare for example the articles of Collan and Sinko in Sinko and Lehtinen. 1999.
[7] The Linux operating system for PC computers was initiated when Linus Torvalds developed the Linux kernel and publicly released it for commenting and further development in an Internet news group in 1992 which grew then into a like-minded developers' community.
[8] Education, Training and Research in the Information Society: A National strategy for 2000–2004. 1999.
[9] Information Strategy for Education and Research 2000–2004. Implementation Plan. 2000.
[10] Koulutuksen ja tutkimuksen tietostrategian 2000–2004 hankesuunnitelmat. 1999.
[11] OPE.FI I Information and communication technology basic skills; OPE.FI II The skills for the use of ICT in teaching; OPE.FI III, Special information technology skills. For a more detailed description of the OPE.FI project and its levels, see Koulutuksen ja tutkimuksen tietostrategian 2000–2004 hankesuunnitelmat. 1999.
[12] Information Society Programme for Education, Training and Research 2004–2006. 2004.

ICT in social innovations. The purpose for consolidating the virtual university is that projects and services initially operating on national funding will eventually be transferred to the respective universities. This principle was already put into practice in the initial stages of the programme in 2005, when responsibility for the OPE.FI level II education was transferred to the respective universities. In 2004 it was still deemed too early for many universities to organise the education without external financial support. Materials prepared during the national OPE.FI level II training programme can be reused by the universities providing education on demand locally, which is nicely in line with the idea of the information society programme to produce learning materials for common use. However, statistics of the usage of the materials exploited have not been gathered.

In 2007, the TieVie expert training programme (15 ECTS credits) became a fee-based service supported by the FVU Service Unit. The greatest benefit gained from the TieVie programmes[13] as seen by participants has always been networking. The TieVie programmes have won the admiration of European colleagues for two reasons. The number of university personnel educated within the TieVie framework has been exceptionally high. It has also been noted how wide the network has become and how the participants come from nearly all fields of higher education. The training has continued under the new modalities but it is too early to estimate whether TieVie will continue adding enough value and whether universities are willing to pay for it or allocate their resources elsewhere.

3. Emphasis on the information society as a content for TieVie

The themes and requirements of the information society programme have been reflected in the contents, themes and implementations of the TieVie programmes.

The OPE II level programme (TieVie training, 5 ECTS credits) was aimed at supporting the implementation of courses and separate services using ICT. The contents were heavily production process oriented. This was a way to support the development of virtual teaching, with the emphasis being on online learning and teaching. The aim was to develop courses that benefit from ICT. The OPE.FI level III expert programme (TieVie expert training, 15 ECTS credits) was aimed at empowering teaching, support and development personnel in universities and national virtual university projects by giving them competencies required in making changes within universities by exploiting the themes of pedagogical, technological and organisational change. The instrument of organisational change remains a strategic one, with the stated goal of creating or updating the strategy of the use of ICT in teaching in HEIs. Links with local activities were supported through development projects of the participants and local mentoring. This provided a way to strengthen the third goal of the information society programme, i.e. the information society structures in universities, by developing human support networks to complement the earlier emphasis on strengthening the technical infrastructure.

Development of digital materials proved to be a strong focus in the TieVie training. What makes the production of teaching materials at the university level so interesting is that materials for intermediate and lower level education are provided by strong institutions, such as YLE (the Finnish

[13] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).

Broadcasting Company) and the major publishing houses, while the responsibility for the domestic production of materials for higher education rests mainly with the universities themselves.

Technological advancement has reflected itself strongly on the TieVie project. During the initial phases materials were produced mainly for open availability on the network, and the tools for interaction were those designed for mass education. Many platforms and tools were still in their infancy in terms of usability. It soon became necessary to move the education to standardised interoperable platforms to cope with the demands of usability and pedagogical principles. However, since a decision about a common learning and content management system was not made in Finland, the aim of TieVie has been to give the participants experience on many environments and tools, and to develop the participants' ability to work in any environment after the training. The year 2006 could be considered to mean the advent of social networking programs and the so-deemed Web 2.0[14] concept, which in TieVie can be seen in, for example, the implementation of blogging tools in the seminars. It is interesting to follow which forms and roles the social networking programs, partly formed by an ideology contrary to the institutionalisation of learning and centralised systems, and the methods of social networking closely associated with them will take in formal learning.

When the preparations for the Information Society Programme for Education, Training and Research 2004–2006 were in progress, some changes were also made to TieVie. The contents of the TieVie expert training programme were developed to better suit the educational needs, the nature of the education and participant profiles. The participants, in general, belonged to the personnel of universities and other HEIs who were interested in the broad possibilities of using ICT, and who were more inclined towards acting as experts rather than educators in their own institutions. The use of ICT in teaching has already become commonplace in HEIs, and therefore it is not necessary to put emphasis on its benefits in TieVie. Moreover, TieVie no longer organises local workshops to develop ICT skills, as they are now plentiful in all the universities which was not the case when the TieVie project was initiated.

Since 2005 the information society programme's goal of integrating ICT as part of everyday activity has been reflected in the TieVie expert programme, for example in the way that the theme of technological change has been integrated into the contents of the programme, and is no longer presented as a theme of its own. The shift in thinking can also be seen in that the use of ICT as a separate concept has largely been replaced by the concept of ICT supported university. ICT is and should be integrated into all activities. The Bologna process has helped to raise the quality of HE into the focus of Finnish and European discussion on university pedagogy. TieVie has tried to meet this challenge by renewing its contents and by directing the participants towards systematic development of the activities, quality awareness and the development of high-quality expertise in the use of ICT in teaching. The awareness of the importance of the participants' own expertise areas has also increased. The way in which these different viewpoints are united in TieVie is described in Figure 1.

[14] Web 2.0 is generally defined as a concept of action where the community-like participation of users, networking, and sharing of experiences are essential. Users become producers of content. Social networking programs, blogs, wikis, RSS-feeds etc. are often associated with the concept. According to the nature of the phenomenon blogs and wikipedia often serve as information sources.

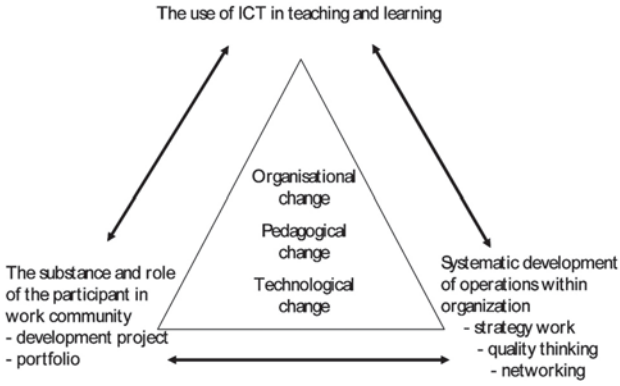

Figure 1. Different aspects of the TieVie expert training programme.

This could also be seen as a model of responding to the challenge posed by the latest information society programme in striking the balance between technological, cultural and social development.

4 What next?

The financial responsibility for the activities of the FVU has been delegated gradually to the universities. The TieVie case is an interesting experiment on how a government-funded staff development programme could be transformed into a fee-based service between universities. TieVie is again on the crest of the wave of current trends. It has become evident, also within the Ministry of Education, that activities such as TieVie and the Virtual University of Finland have reached a point where their activities should be financially independent. If there is a genuine demand, HEIs will assign funds for these activities. It can already be seen, however, that the readiness for such "market orientation" is not yet significant in the HEIs, due to several reasons.[15]

No slowing down is to be expected in the development of university pedagogy and the use of ICT in teaching. It remains to be seen whether the use of ICT has already become embedded as an integral part in the regular development of teaching or if the universities see added value enough in ICT education. Is the development of ICT in teaching already so strong and networked that a national framework such as TieVie is not needed any longer? Or is the operational logic of universities such in nature that it tends to slow down networking in teaching if it is not supported or directed from outside? However, many of the challenges and possibilities that await in the horizon of the development of teaching might be too big for a single university or a coalition of few universities to tackle. In responding to these challenges, there still seems to remain a need for a national ICT oriented network and training programme. There has been significant building of trust and practising of common network-based activity in the past. Could programmes on the European level supersede joint national activity as a new goal to preserve the momentum developed by TieVie?

[15] See also the article by Auer & Närhi in this publication.

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The TieVie project and the snowball effect – from a local idea to a national training programme

Merja Peurasaari, Tytti Tenhula and Matti Lappalainen

Summary

This article describes the story of an idea that started as a joint effort between two faculties of the same university but rapidly evolved into a national training project involving a network of five universities, which by then had the personnel of all the Finnish universities as the target group. This project was the TieVie personnel training for the use of ICT in teaching and learning. The article offers a glance at the starting points of the TieVie project and the structures of the TieVie training programmes. In addition, the pedagogical and functional principles that have provided the framework and were integrated seamlessly into the practical operations are described. The article also provides insights into ways of measuring the impacts of the programmes, for example from the viewpoint of development projects realised by participants and networked action models.

1 The first steps of the TieVie project

The first steps of TieVie were taken in October 1999, when two personnel trainers from two units of the University of Oulu decided that there was a need for training in the educational use of ICT for the teachers within their own university. Since the use of ICT in teaching and learning offers possibilities for networking, it was soon thought that it would be a good idea to organise the training together with another university. That also provided a natural context for the use of different e-learning tools in the training, due to the physical distances between the participants.

Thanks to a long national cooperation in education and research, it was easy to find partners and within two weeks five Finnish universities[1] had expressed their interest in creating a united personnel training programme for the use of ICT in teaching. It seemed that the universities had an exceptional need for this type of cooperation, which would help to supplement, deepen and diversify their own personnel training.

In the autumn of 1999, the Ministry of Education announced the availability of the first virtual university project allocations, and a decision was made to apply for funds to launch a personnel training programme for the use of ICT in teaching between five universities. The goal was to implement a long-term, practically oriented training programme in the e-learning for university teachers in accordance with the objectives set in the National Strategy for Education, Training and

[1] These universities were the University of Oulu, University of Helsinki, University of Jyväskylä, University of Turku and Helsinki University of Technology.

Research 2000–2004 published by the Ministry of Education. The initiative came from the Ministry of Education to offer the training to the teachers of all 21 universities in Finland, instead of the five universities initially participating. The universities are described in Figure 1.[2]

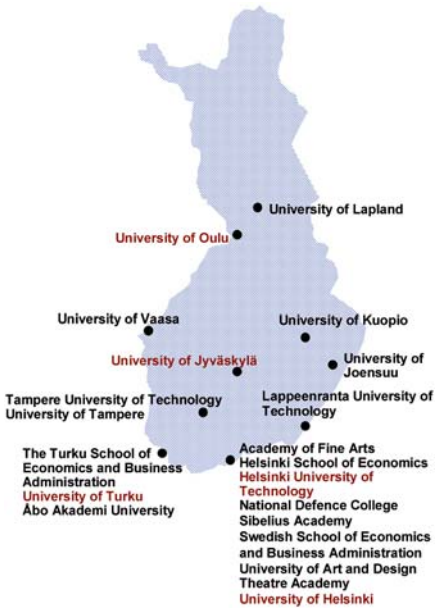

Figure 1. The universities participating in the implementation of TieVie (in red) and other Finnish universities.

The funding of the TieVie project for the years 2001–2003 was secured at the beginning of 2000. The first national level programme, the TieVie expert training programme (15 ETCS credits) was launched on April 17, 2001 and the TieVie training programme (8 ECTS credits) was initiated in the autumn of the same year, on September 17, 2001.

2 Goals of the TieVie project and the starting points of the training programmes

The goals of the TieVie project were determined on the basis of several sources. The most important documents for the formulation of the goals were the information strategies for education and research, especially the information strategy for the years 2000–2004[3] and its implementation plan[4]. Some of the goals arose from the needs in the universities and from the experiences and views of the participants. The guidelines and directions of development of the project were also annually assessed together with the Ministry of Education. These negotiations helped to

[2] For a more detailed description of challenges related to the activities of the training network, see Tenhula et al. 2008 in this publication.
[3] Education, Training and Research in the Information Society: A National strategy for 2000–2004. 1999.
[4] Information Strategy for Education and Research, 2000–2004 Implementation Plan. 2000.

ensure the acceptance and consideration of the viewpoint of the provider of the funds with the goals and implementations of the project. The goals of the TieVie project and training programmes[5] were shaped through the combined effect of the four factors described in Figure 2[6].

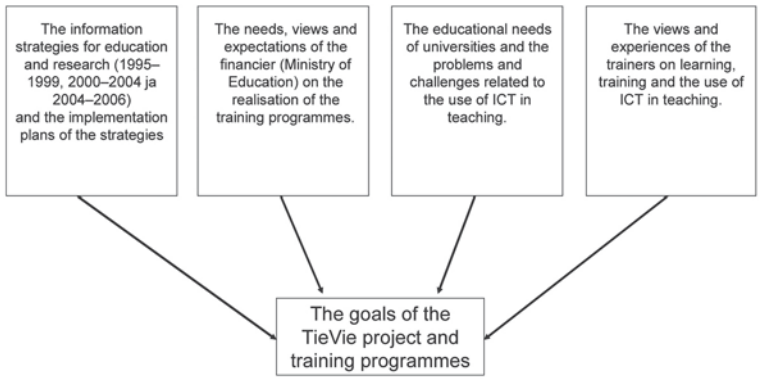

Figure 2. Factors affecting the determination of the goals of the TieVie project and training programmes.

3 Description of the TieVie project and training programmes

The TieVie project has organised two national training programmes: the *TieVie training programme* (8 ECTS credits), aimed at supporting the competence of university teachers in the use of ICT in teaching and learning, and the *TieVie expert training programme* (15 ECTS credits) aimed at developing expertise and special skills in the use of ICT in teaching, for personnel in teaching, support and development roles in the universities. In addition, the network organised local workshops to develop ICT skills and supported the development of the universities' local personnel training in the e-learning. The following provides a detailed description of these four essential forms of operation.

3.1 TieVie training programme

The TieVie training programme was started in 2001 and it was organised for four consecutive years. The aim of the programme was to help university teachers to apply ICT in their teaching in a pedagogically sensible way. The TieVie training offered a first-hand experience in studying in an online environment. It also offered pedagogical and technical support and gave the participants tools and materials to use in recognising problems in their own teaching and in planning their online teaching. In the programme, the possibilities to implement ICT in teaching were examined from different viewpoints, including planning, learning materials, tutoring and evaluation of online teaching.

[5] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).
[6] Tenhula 2007.

Different forms of face to face teaching and distance learning were used in the TieVie training. This encouraged networking and promoted the sharing of expertise among the educators and participants. The training consisted of two national contact seminars, one megaconference[7] implemented as a videoconference and a total of five online modules. To weld the different parts of the training together, each participant planned and implemented a development project[8] . The projects were closely related to the participants' own teaching and its improvement by using e-learning tools. The project was then further developed within each online module throughout the whole programme. The development and realisation of the projects was supported by both online groups organised by fields of science and mentor groups[9] organised within the universities. In the local mentoring groups, the participants could receive personal support in technical and pedagogical issues within their own university. In addition to the main modules and the development project, there were short optional courses and workshops that offered training in a variety of ICT skills[10] .

The training was designed to maintain a continuing learning process with the help of course letters sent by the coordinator and educators to the participants via mailing list. Course letters sent regularly during the training programme informed the participants on the progress of the training and other relevant matters.

Structural changes to TieVie training included, for example, the addition of the Orientation online module into the framework in 2002, and the introduction of the megaconference the following year. In the light of the experiences received during the first implementation of the training, it was necessary to include an introductory part to the training. The Orientation online module aimed to familiarise the participants with the training, encourage networking and clarify the educational method used in the training. The megaconference was added to the studies to provide the participants with a personal experience of MCU[11] videoconferencing and information on using videoconferencing in education. Figure 3 describes the structure of the TieVie training programme in 2004–2005.

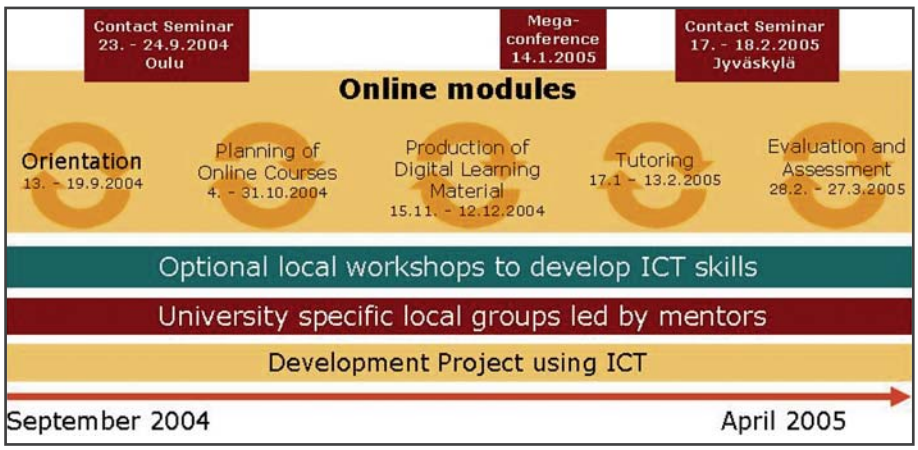

Figure 3. The operation model of the TieVie training programme (8 ECTS credits) in the academic year 2004–2005.

[7] See Närhi et al. 2008 in this publication.
[8] See Airaksinen & Frilander 2008 in this publication.
[9] See Forslund & Hietalahti 2008 in this publication.
[10] See chapter 3.3 in this article.
[11] Multipoint Control Unit.

The number of participants in the TieVie training programme ranged from 120 to 200. The last TieVie training programme was implemented in the academic year 2004–2005, after which the project's resources were allocated to the TieVie expert training programme.

3.2 TieVie expert training for the development of expertise and special skills in the use of ICT in teaching

The TieVie expert training programme (15 ECTS credits) was aimed at providing expertise and special skills for the use of ICT in teaching, and was first implemented in 2001. The goal was to educate trainers, support personnel and other experts in the e-learning for different development projects of institutes, faculties and universities and for inter-university network projects. The training deepened the participants' expertise on different fields of the use of ICT in teaching and learning and established a readiness for developing teaching, their own work and the working community. The training has provided a concrete opportunity for cooperation and networking between different universities and fields of science.

The training focused on the pedagogical, technological and organizational change in the university. Starting from 2005, also on the quality of teaching which, besides having a dedicated online module, has also been included as a viewpoint permeating all parts of the training. The theme of quality has become a hot topic, due for example to the effects of the Bologna process[12] and the general quality work initiated in the institutions of higher education. The development of the quality of the e-learning has been examined as a part of overall quality of teaching and the strategies and development projects of the universities.

The TieVie expert training consisted of contact seminars, online modules, thematic and peer group working, an optional local workshop to develop ICT skills, familiarisation with associated literature, personal portfolios, and most importantly the planning and completion of the participant's own development project. Attendance varied from the initial 60 participants to a hundred or so participants in the final years.

The structure of the training remained essentially the same during the six years of operation. After the first year of operation, the structure of the programme was reinforced by arranging the participants into so-called thematic groups, where the participants could choose the thematic context that best fitted their own development project. The themes were related to the pedagogical, organisational and technological development of the e-learning and to the networked operations model. Other reforms implemented in the early stages included the support for the participant's continuing learning process and reflective thought, which was promoted through reflection paper assignments and portfolio work.

In 2005, mentoring organised locally and two megaconferences implemented as videoconferences were integrated into the TieVie expert training. The goal of mentoring was to support the development projects realised by the participants and their local effectiveness, and to take into account

[12] The document entitled the Bologna declaration was signed by the ministers of education of 29 European countries in 1999. The fundamental goal of the Bologna declaration is to create a common European area of higher education by the year 2010. See The Bologna process. Ministry of Education. http://www.minedu.fi/OPM/Koulutus/artikkelit/bologna/index.html?lang=en.

the special characteristics of each university. In the megaconference the additional aim was to showcase new methods of working and the possibilities of using video technology in teaching. Figure 4 describes the structure of the TieVie expert training in the academic year 2006–2007.

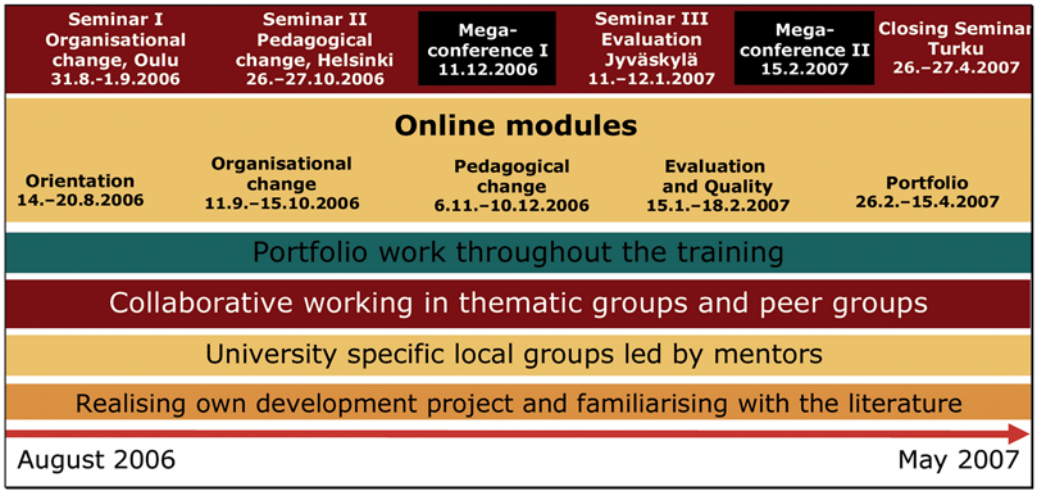

Figure 4. The operational structure of the TieVie expert training programme (15 ECTS credits) in the academic year 2006–2007.

3.3 Local workshops to develop ICT skills

Some of the resources of the TieVie project in the years 2001–2004 were allocated to organising workshops to develop ICT skills locally. The workshops were short independent courses realised mainly as face-to-face training and aimed at developing technical competence. The topics included production of learning materials for the web, video processing and the technical and pedagogical use of different learning platforms. The workshops were optional, and the participants were able to choose courses according to their own needs and interest areas. During four years, a total of 323 workshops were organised.

3.4 Support of the local use of ICT in teaching in universities

One of the goals of the TieVie project has been to support and develop the universities' local personnel training in the e-learning, as the intention has been that the responsibility for implementing the training should eventually move from the national network to the participating universities. The TieVie expert training has trained people who have the skills and expertise required to organise personnel training locally. The main support forms were the national seminars for actors responsible for the personnel training and support in the use of ICT in teaching in universities, the development of training materials and training modules, and the broadcasting of expert lectures on the web.

In 2004–2005, the TieVie project organised three national seminars, in which a total of 85 personnel training professionals from different Finnish universities participated. In the seminars, important questions related to the organisation of local training were examined, good experiences, practices and ideas were shared and cooperation between different actors was established. According to the feedback, the seminars served as an important venue to share information and experiences between the participants.

When the TieVie project was launched at the beginning of the millennium, good quality Finnish language training materials on the use of ICT in teaching and learning were difficult to find. Therefore most of the materials used in the training programmes were produced by the TieVie project. After the national TieVie training (8 ECTS credits) ended, the materials have been updated, complemented and revised to function as independent wholes. Completely new materials have also been produced. The materials are aimed primarily for use by universities in personnel training, but other institutions are also free to use them for their own benefit. The materials can be found on both the TieVie portal[13] and the Finnish Virtual University portal[14].

TieVie has supported the universities also by broadcasting the expert lectures held in the national contact seminars of TieVie expert training live on the Internet, and by recording them to be stored for viewing online later. This has served both the organisers of local training programmes and participants from earlier years who have been able to keep their know-how up to date in this way.

The TieVie project has also cooperated actively with other networks of the Finnish virtual university and other networks organising personnel training, such as the Peda-forum[15] network, in organising seminars and other events related to teaching in institutions of higher education.

4 Pedagogical and functional principles of the TieVie training programmes

The TieVie training programmes were designed as a coherent, long-term process supporting the participants' development projects and their implementation. The guideline in planning was to implement training focused on the development of teaching methods and improvement of the quality of teaching. There was a conscious desire to keep ICT in the role of an instrument. It was emphasised that instead of the tools becoming an end in itself, they should facilitate teaching, improve its quality or bring some other added value to teaching.

In the planning and implementation of the training programmes, the most important pedagogical and operational principles were considered to be authenticity, collaboration, sharing of expertise, networked cooperation and student and learning centred approaches[16]. When planning the training programmes, it was considered important that the principles agreed on together should be reflected in all operations and permeate all the sectors of the training. The pedagogical and functional principles that influenced the planning of the training, described in Figure 4, were presented to the participants in all the training programmes starting from the first one in 2001.

[13] TieVie portal. www.tievie.fi.
[14] Finnish Virtual University portal. http://www.virtuaaliyliopisto.fi/vy_front_page_eng.asp.
[15] See the Peda-forum website. http://www.peda-forum.fi/.
[16] For example Saarenkunnas et al. 2001, Tenhula et al. 2003, Ruotsalainen et al. 2005.

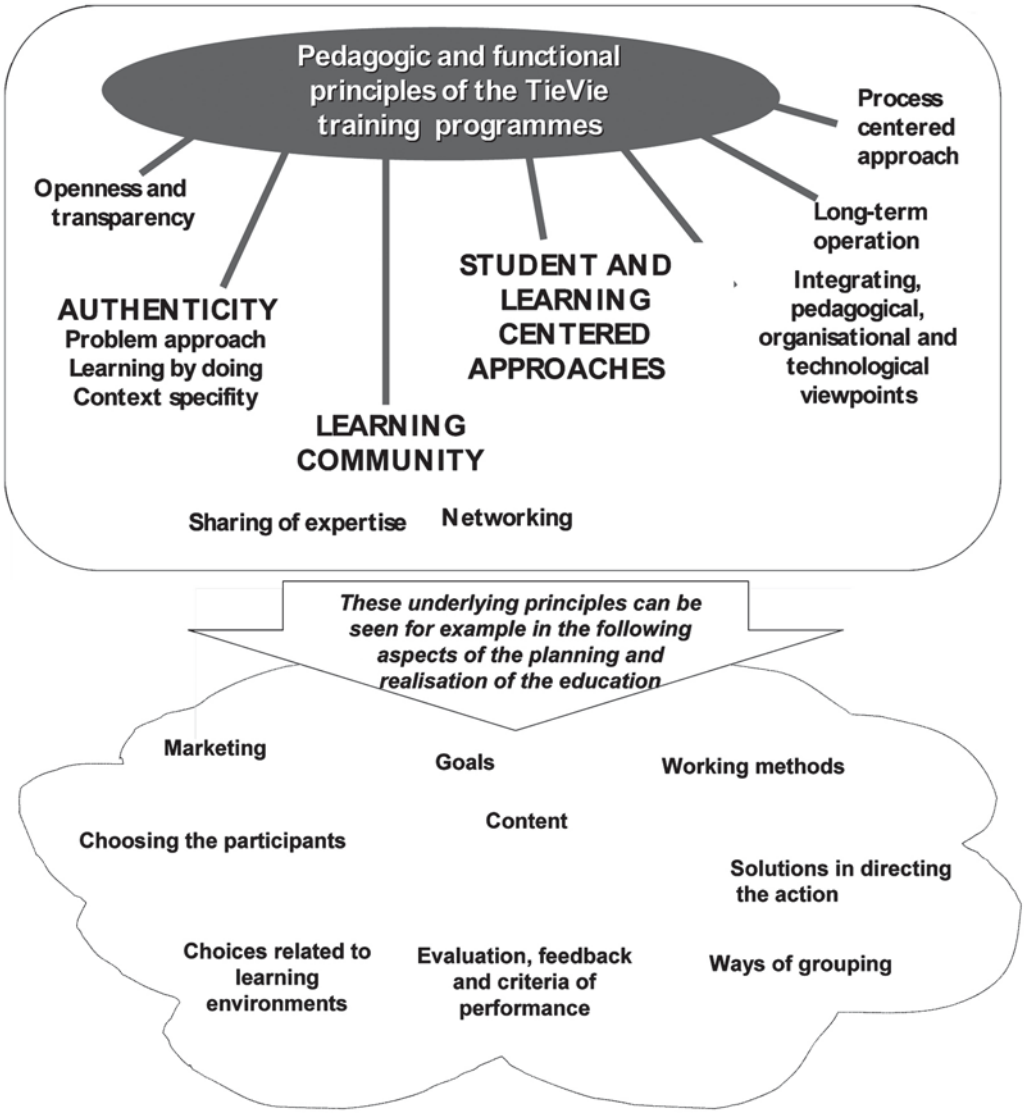

Figure 5. Pedagogical and functional principles of the TieVie training programmes.

Table 1 helps to illustrate the pedagogical and functional principles of TieVie training and describes how they have manifested themselves in the implementation of the training programmes.

Table 1. Operational aspects of the training programmes, and the practical manifestation of the pedagogical and functional principles in the training.

Operational area of training	Manifestatations of pedagogical and functional principles.
Marketing	The training was open to the staff of all the 21 Finnish universities. The programmes were marketed to the universities through the TieVie contact persons appointed for each university, who targeted the marketing to relevant people in their own universities. Training was advertised as descriptively and realistically as possible, so that the participants could already estimate the work load required by the training, their own resources and ability to commit themselves to a long-term training programme at the application phase.
Selecting the participants	The principle of authenticity is manifested in the development project being the most important criterion in choosing the participants for the training. The selection of the participants was left to the universities. This sharing of responsibility demonstrates the value of TieVie as a collaborative project unifying the Finnish university field.
Aims of the training	Although the training programmes were offered as mass training aimed at a large number of participants, the contents and working methods in the training were quite student-centred and flexible. In all the phases of planning and implementation, the participant's own goals and areas of interest were taken into account. Within the training, a degree of optionality was included to enable the participants to pursue different paths. The developers of the programmes defined the general goals of the training, within which the participants were able to define their own goals for the training for example through their own development projects. In practice, the learning process of every participant was different from the others.
Contents	The contents of the training were built by addressing real problems of the participants so that they received benefits in their own work. Pedagogical, organisational and technological viewpoints were covered in an interconnected way. In the realisation of training programmes, the competence of the participants was put into use. The participants in the training were experts and researchers who helped to produce the contents of the programmes together with the developers of the training.
Working methods	The goals, pedagogical and functional principles and working methods of the training were made as transparent as possible and explained to the participants in all activities. TieVie training programmes emphasised authenticity and used several working methods to support learning. Attempts to solve genuine problems relating to the teaching of the participants were made in the multidisciplinary expert community formed by the educators and participants. The results of learning could be examined in the online learning environments by the educators and participants, and some of them were also published openly on the web. The implementation model of the training forced the participants to work, and the training could not be completed simply by sitting through and listening. The participants had an opportunity to get to know each other, share their thoughts and experiences, compose ideas and network together. The whole training was planned so that the different aspects and goals of the training interconnect to form a process and support the progress of the participant's development project. In designing the training, a long duration was considered important.

Approaches to guidance	Plenty of attention was paid to maintaining and supporting the learning process. Many types of guidance, such as mentoring by educators in theme groups, peer tutoring, mentoring by TieVie alumni, and university-specific local mentoring was used. The persons recruited as mentors had organisational knowledge about university, knowledge on the work context of participants and an understanding on the special characteristics of the use of ICT in teaching and learning. Attention was also paid to familiarising the mentors and providing guidance, and a mentor's handbook was published. In maintaining the learning process, mailing lists and the TieVie portal, where all the information relevant to the completion of the training and progress of the learning process were documented, have proven to be valuable tools.
Grouping	The working during the training was conducted within different groups organised for different purposes. In planning the training it was considered important that the participants had a chance to get to know each other, share experiences and ideas, brainstorm and network. Therefore a lot of effort was put into introducing the participants to each other and forming the groups. The basis for grouping could be, for example, the discipline or the organisation of the participants, however the most important basis was the nature of the development project of the participant and the participant's own interests. Most of the groups were not formed by the educator, but instead the participants themselves chose the group based on the criteria given by the educator, or searched inside the group for people with whom cooperation could be beneficial.
Evaluation, feedback and criteria of completion	Authentic work situations formed the basis for approaches to evaluation. Assignments such as reflection papers written on literature given before the seminar were designed so that participants could connect what they had learnt with the challenges encountered in their own work. In evaluation, collaboration was supported by the possibility to contemplate the learning assignments in different groups to benefit form multiple viewpoints, even if the final versions were to be submitted independently. The results of participants' work were published on the web for examination by the participant's thematic or online group and the educators. The work on the projects unifying the offering of the training (development projects, portfolios or final reports) was mostly supported by the activities of the participant's own group, either local, peer, thematic or online.

5 Project organisation and the infrastructure of the training programmes

In 2001–2006 the coordination of the TieVie project at the University of Oulu was the responsibility of one full-time coordinator and one part-time (3–6 months) training assistant[17]. The training programmes were planned collaboratively in the TieVie planning group, which consisted of 2–3 representatives from each of the five universities that participated in the implementation of the programme. The planning group agreed on the operational structure, goals and contents of the training programmes and on the areas of responsibility, based on which each university implemented independently the parts, for example the online modules, belonging to its sphere of responsibility.[18]

[17] In 2006, when the funding for the project was reduced, also the work load for the coordinator was reduced to eight months.

[18] TieVie project plans and reports 2001–2006.

The participants to the training programmes were chosen by the TieVie contact persons recruited by each Finnish university. The contact persons were also responsible for local marketing of the training. The number of available student places was divided between the universities according to the size of the university. If a university had not used its quota the remainder was given to universities requesting higher attendance. The most important criteria of admission were prior knowledge and a development project fitting into the context of the programme.

The training programmes also involved university specific mentoring activities organised by the universities locally. The mentors were responsible for the direction of local groups and supporting the development projects of the participants. A mentor's guide was also published, where the goals of mentoring and the mentor's tasks were described in detail, and tips for group work were provided.

A large number of people participated in the planning and implementation of the TieVie training programmes nationally[19] . If all the people involved in the project, including participants, coordinators, educators, contact persons, mentors, online tutors, seminar speakers and producers of materials, are counted together, the total number of participants in the project was 400–500 people annually.[20]

The dynamic TieVie internet portal[21] , consisting of web pages and a database, was built to support the TieVie training. In addition to serving the participants, mentors, contact persons and educators in the project, it has also provided information for everyone interested in the use of ICT in teaching. For most of its parts, the portal has been an open network resource for everyone. For example the descriptions of the training programmes and the materials are available there. Some of the functionality of the portal was restricted for use by the TieVie community, such as updating the course attainments of the participants, updating the training calendar, and giving feedback. In addition to the TieVie portal, mailing lists served as an important means of delivering information to the participants, mentors, contact personnel and planners.

6 Financing and lifespan of the project

Preparations for the TieVie project, establishment of the network and preliminary planning of the training model were started in 2000 without any special funding. In the first year of operation (2001), the funding for the project was 319,500 euros. During the six years of operation, the funding has gradually been reduced and was 168,000 euros in 2006. In the first years the funds were allocated entirely into the planning, implementation and development of the training programmes. In the final two years of operation, funds were also allocated to transfer to and establish the operations in the universities of Finland, for example by supporting the arrangements of local personnel training in the use of ICT in teaching[22] . In the last year resources were also allocated to disseminating the results of the project to a wider audience, of which this publication is a part.[23]

[19] A more accurate description of the TieVie network can be found in Tenhula et al. 2008 in this publication.
[20] In the last two years of operation, only the TieVie expert training (15 ECTS credits) was organised, which reduced the number of annual participants to about 300 people.
[21] See the web page of the TieVie virtual university project. http://www.tievie.fi.
[22] See chapter 3.4 in this article.
[23] TieVie project plans and reports 2001–2006

TieVie training is currently well-known among teachers and other personnel in Finnish universities. The training programmes continue to be offered in cooperation with the Service Unit of the Virtual University as a chargeable service as long as there exists a demand for the training and the universities provide funding for the attendance of an adequate number of participants in the programmes.

7 Results and effects of the operation of the TieVie project

During the six years of operation of the TieVie project, a total of 1138 people from universities attended its training programmes, and a total of 9187,5 ECTS credits were awarded. The completion rate in the training programmes was approx. 73 %. Table 2 shows the numbers of participants and completions as well as the credits awarded in 2001–2007.

Table 2. The number of participants and ECTS credits awarded in the TieVie training programmes between 2001 and 2007.

Training	Total number of participants	Participants who completed the programme	Total of ECTScredits awarded	Completion rate
TieVie training programme (8 ECTS credits) 2001–2002	200	132	990	66 %
TieVie training programme (8 ECTS credits) 2002–2003	160	122	915	76 %
TieVietraining programme (8 ECTS credits) 2003–2004	120	85	637,5	71 %
TieVie training programme (8 ECTS credits) 2004–2005	120	80	600	67 %
TieVie expert training programme (15 ECTS credits) 2001–2002	60	49	735	82 %
TieVie expert training programme (15 ECTS credits) 2002–003	85	68	1020	80 %
TieVie expert training programme (15 ECTS credits) 2003–2004	93	66	990	71 %
TieVie expert training programme (15 ECTS credits) 2004–2005	100	76	1140	76 %
TieVie expert training programme (15 ECTS credits) 2005–2006	100	75	1125	75 %
TieVie expert training programme (15 ECTS credits) 2006–2007	100	69	1035	69 %
TOTAL	**1138**	**822**	**9187,5 ECTS credits**	**73,3 %**

The average price per ETCS credit is 126 euros, calculated using the number of participants who started the training and the resources allocated directly to the TieVie training programmes[24]. However, calculating the actual price per ECTS credit is extremely difficult, since the funding allocated to the project by the Ministry of Education was also used, for example, to organise workshops to develop ICT skills which are not included in the ECTS credit totals of the TieVie training programmes, and to produce training materials which all universities have had the opportunity to benefit from. On the other hand, the funds required for mentoring in the training programmes have been taken from the universities' own resources.

Personnel from all 21 universities in Finland and from nearly all the fields of education offered by them have taken part in the TieVie training programmes. The largest groups of participants in 2001–2005 were from the educational sciences (18.8 %), humanities (14.3 %) and technology and sciences (12.4 %). Among the universities, the most participants came from the University of Oulu (14,9 %), University of Jyväskylä (11,9 %) and University of Turku (10,2 %), which had the largest numbers of participants in the TieVie training programmes in relation to the sizes of the respective universities.

8 Conclusions

The TieVie-project is an excellent example of how much the emergence of a project is dependent on people, the ability to grasp situations and even random factors. With TieVie, an idea of cooperation between two units of the same university quickly evolved into a network of several universities, which then further expanded into a project with personnel from all the Finnish universities as the target group. Thanks to appropriate timing, planners committed to their task and adequate resources, the idea conceived by two people became a nationwide project, in which a total of more than 2000 people in different roles have taken part during the years, including the participants, planning team, educators, contact persons, mentors, online tutors, seminar speakers and producers of materials.

Considering the method of implementation, the TieVie training programmes could be considered resource intensive and perhaps even expensive, especially if assessment is based on the workload that was required to design and implement the training. However, many things achieved and learnt during the planning work in the planning team would not have been possible through local, independent solutions inside the universities. Considering the price of 126 euros per ECTS credit, it should be noted that in addition to the training itself, all the materials produced with the resources used are freely available for all universities and individual teachers on the TieVie portal. When the costs are measured against the multiplicative effects and added value received from the online implementation, they can be considered quite acceptable.

The most important factor in the effectiveness of the training programmes has been their integration with the participants' own work and its development. All the participants, numbering a total of 1 138 in 2001–2007, implemented development projects during the training, either individually or in a small group. Such a number of development projects has had an inevitable impact on

[24] The resources used within the TieVie project for local support of using ICT in teaching in universities and the distribution of the results of the project in 2005 and 2006 were not included in the calculation of the price per ECTS credit.

the use of ICT in teaching and learning becoming common in universities and on the overall change in the organizational culture of universities. Majority of the projects implemented during the training have been related to developing and diversifying teaching with the help of ICT[25]. In this way TieVie has also contributed to the learning process of students and given them possibilities to study in a more flexible and diverse manner[26].

The integration of nationwide and university-specific training and development could also be considered a successful approach. The connection between national and local activities was established for example through mentoring, workshops to develop ICT skills, the training concept, and the utilisation of the training materials and development projects implemented by the participants. National organisation of the training made the training possible even if only a few people from an individual university were interested in taking part in the programme.

The TieVie training programmes have served as a model for local personnel training in universities, and have therefore had an influence extending beyond their target group. The implementation of the educational model was assisted, for example, by the transparency of the training process, documentation of the operation and public availability of the training materials. The training programmes have also had a significant effect on the pedagogical and professional development of their developers[27].

Both the feedback from the participants and the efficacy analysis of the TieVie project[28] have indicated that the opportunity for interdisciplinary and inter-university networking has been the greatest benefit gained from the TieVie training programmes. The strengths of an inter-university, national online implementation are connected with, for example, increased cooperation and collaboration between the participants and educators, synergy from combined expertise, increased awareness and widening of perspectives, and the empowering experience of collaboration. The networked implementation model of TieVie has succeeded in creating a unified groundwork for further development of the use of ICT in teaching and learning in Finnish.[29]

[25] See Airaksinen & Frilander 2008 in this publication.
[26] Tenhula 2007.
[27] Tenhula 2007.
[28] Tenhula 2007.
[29] Tenhula 2007; cf. Hakkarainen et al. 2005.

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Prerequisites and challenges of TieVie networking

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Summary

This article describes the operating methods of the TieVie network producing personnel training in the Finnish Virtual University, and highlights the prerequisites and challenges of networked cooperation. The article is based on the questionnaire addressed to the developers and implementers of the TieVie training programmes and on the self-reflection of the writers on the special characteristics and background factors behind the success of TieVie. An exceptional feature of the TieVie network has been its coverage of all the universities of Finland and most of the disciplines represented in our country. The number of people that have participated in the training programmes and the project's different reflections on the field of Finnish universities have been substantial.

1 Organising the operations of the TieVie network

The TieVie project is a support service project for the Finnish Virtual University, focused on organising training in the e-learning for the personnel of Finnish universities. The training programmes were implemented by a network formed by five universities, the universities of Oulu, Jyväskylä, Helsinki and Turku as well as the Helsinki University of Technology. Personnel from all the 21 Finnish universities participated in the training programmes, totalling 1 138 persons between 2001 and 2006.[1]

A substantial number of personnel from Finnish universities took part in the development and implementation of the TieVie project. If all the actors in the TieVie community, i.e. participants in the programmes, planning team, educators, contact persons, mentors, online tutors, seminar speakers and material producers, are counted in, 400 to 500 people participated in the TieVie project annually. Figure 1 represents the different stakeholders in the TieVie network. The responsibilities and duties of each group are described in detail below the figure.

[1] A more detailed description of the training programmes can be found in the article Tenhula et al. 2008 in this publication.

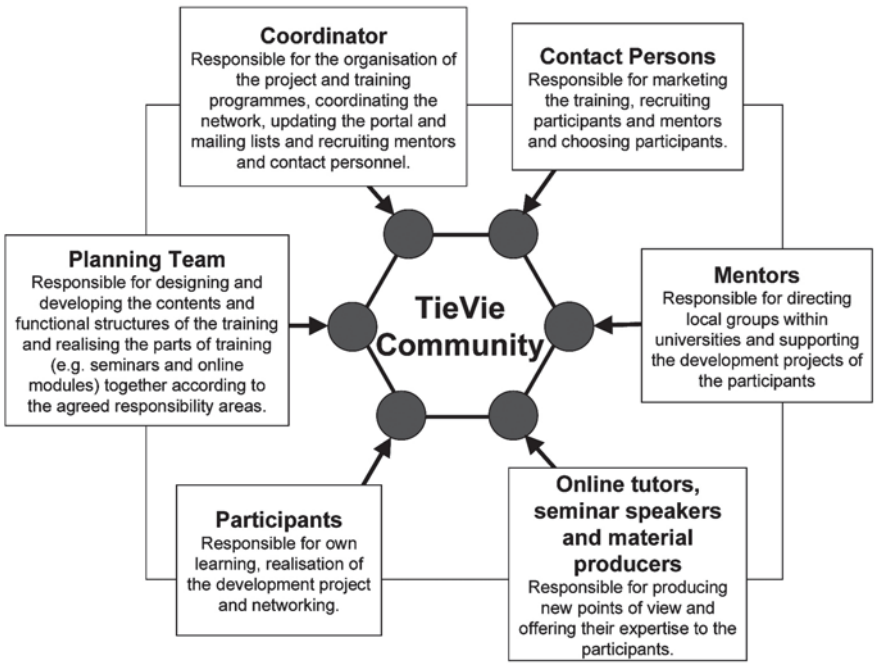

Figure 1. Different actors in the TieVie community, and their responsibility areas in implementing the training programmes.

The core group (planning team) behind the planning, realisation and development of the TieVie training programmes[2] consisted of about 12 persons, between two and three from each of the five developer universities[3] . The group designed together the objectives, contents and functional structures of each training module and agreed on the responsibilities for implementing the various parts of the training programmes. As agreed, each university implemented independently the parts of the programme belonging to its area of responsibility, such as contact seminars or online modules.

The TieVie planning team assembled three to six times per year for meetings lasting one or two working days. In 2000–2006 the planning team held a total of 53 meetings of which 29 were contact meetings and 24 were held via telephone or video conferencing. The team's mailing list, telephone and other methods of communication have also served as important ways of keeping in touch.

The TieVie project had one full-time coordinator working at the University of Oulu. All the other members of the planning team occupied other teaching support and development positions in their universities at the same time. The most essential practical duty of the coordinator was to coordinate the network of educators and participants as well the training programme as a whole.

[2] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).
[3] Between the years 2000 and 2006, a total of 31 people participated in the TieVie planning team.

The coordinator ensured that the training and the operation of the network proceeded as planned and that the issues agreed on in the planning team were also implemented in practice. Other responsibility areas of the coordinator included the marketing of the training programmes, recruitment and initiation of contact persons, design of and updates to the TieVie portal, writing the descriptions of the training programmes and the training cooperation contract, participant guidance, allocation of funding to the partner universities, keeping in touch with and reporting to the Ministry of Education, and cooperation with other partners and interest groups.

A TieVie contact person was appointed to each university, so a total of 21 contact persons were recruited annually. In their own universities, the contact persons were responsible for marketing the training programmes, choosing the participants, local arrangement of the megaconferences and recruiting the mentors for the local groups.

In addition to national level activities, local mentoring was also an essential part of TieVie programmes. A total of about 30 mentors annually directed a group of approximately five participants each. The mentoring groups met about five times during the training. The familiarisation of mentors was carried out both in the TieVie expert training and with the help of a guidebook written specifically for mentors. Contacts between mentors and developers were maintained through the mentors' mailing list. The duties of the mentors included the organisation of local groups, supporting the development projects of the participants, familiarisation with the methods, tools and services used in the training, supporting the formation of learning communities, giving feedback on the participants' final reports and development projects, and reporting their mentoring activities to the coordinator. The aim of mentoring was to support the participants' knowledge of the support services for the use of ICT in teaching in their own universities and to support the integration of the skills learnt into the work of the participants and best practices in their work communities.

In addition to the groups mentioned before, other visiting parties have participated in implementing the TieVie training, such as visiting lecturers at contact seminars, materials producers, online tutors and persons giving technical support.

2 Significance and achievements of the networked operation model in the TieVie project

The development and implementing organisation of the TieVie project, with its tens of members, has been exceptionally large. It was often asked during the project whether it would have been possible for one university to produce a comparable training with an equally high quality, instead of the five universities that participated. It can be said for certain that the decentralisation of the development organisation in different locations in Finland required both time and money. The planning of the training as a network and assembling the parts produced in five different universities into a coherent training were demanding tasks. Did the TieVie project succeed in achieving something more than just wanton communality or did it create something more than any individual development unit could have achieved on its own[4]? In the following we examine factors

[4] Cf. Middleton 1998.

related to networked cooperation that have been essential in the network type implementation of the TieVie training programmes based both on a questionnaire addressed to the TieVie planning team[5] and the views of the authors.

2.1 Commitment and freedom to act as prerequisites for the project

According to the planning team, an important factor in the success of the TieVie project was the operational network of enthusiastic and committed people who shared a common goal, set their aims high and mustered the willpower required to develop the quality of teaching and learning in universities and commit and inspire also others to participate in the network. A pioneering spirit was characteristic of the project, as cooperation in personnel training between universities had not been conducted on such a large scale before neither in Finland nor, to our knowledge, in the world.

The flexibility of planning, decision making and implementation is important when working in a complex environment. According to the survey that was conducted, the commitment of the developers was further enhanced by the strong connection between the development and implementation of the training. As one of the developers put it, *"when you can participate in the development and decision making, you also commit yourself to the work according to the agreements made"*. The working method in the meetings of the planning team was collaborative, democratic and informal. The meetings were successful in maintaining a dialogue of development and improvement, and in building confidential and development-oriented cooperation.

The members of the planning team also felt that they had received enough powers, support and encouragement from their superiors to put the network cooperation into effect. Differences between universities do exist here, and decisions of the TieVie planning team sometimes had to be submitted also to the ruling bodies of the universities, which sometimes delayed the implementation of decisions made together. However, in comparison to other network projects, TieVie succeeded quite well in keeping the decision making and operative processes in the hands of the same individuals. A directing body consisting of outsiders could have given new ideas and variety of viewpoints, but the planning team model of TieVie has significantly increased the rapidity of decision making. Instead, external inspiration was acquired through contacts with other virtual university projects, the network of mentors, the Ministry of Education and the service unit of the Finnish Virtual University. The combination of development and implementation motivated the developers and made them committed to the TieVie project. It has also been said that working methods emphasising responsibility and independence are suitable for an expert organisation[6].

[5] Tenhula (2007) has researched the effectiveness of TieVie project and training, both according to the views of developers and participants. A survey was conducted among both the current and former members of the TieVie planning team pn April 19, 2006 to find out their views about the goals of the training and factors affecting its quality and effectiveness. 17 of the 31 (former) members of the planning team took part in the survey. In this article, factors relating to coordination and the functioning of the network that were considered important by the developers to assure the quality and effectiveness of the training were examined.

[6] See for example Hakkarainen et al. 2004.

2.2 An extensive project requires firm coordination and mutual cooperation

The systematic and strong coordination throughout the TieVie project was also seen as an important factor in the success of the project. Important challenges for the coordinator and planning team included administration of the operations of the complex network organisation and directing them towards the set objectives. Building the project in accordance with the needs of the universities made it necessary to take into account the views of different participating fields of science and partners. Syntheses and compromises on the methods and goals of the project were then made based on these different views.

In the TieVie project it was considered important that all people involved in the realisation of the training should have an adequate understanding of the training as a whole and of their own areas of responsibility within it. The coordinator was responsible for making sure that the project ran as planned and on schedule from the viewpoints of both the participants and the educators, and directed the work of the planning team and other educators with specific guidebooks and numerous emails. All the visiting project staff, such as online tutors and lecturers in contact seminars, were familiarised with the goals and implementation of the training programmes.

It was also important to the planning team that a detailed training cooperation contract was made annually based on the jointly drafted action plan. The duties and responsibility areas of all the parties were clearly defined in the plan. These contracts were seen as a way of anticipating problems to come. A detailed and extensive contract helped to prevent disputes. The contract has also served as a practical guideline for the responsibilities expected from each party.

The planning of the training in a network has been time-consuming, and the planning had to be done well in time, in some cases even one year before the start of the training. Finding a time suitable for everyone for the planning and scheduling of the training programmes to fit the work and holiday schedules of the planning team and participants coming from all over Finland was demanding in many ways. The initiation of new members to the planning team, unavoidable in this kind of a large-scale and long-term project, provided especially the coordinator with a substantial amount of extra work.

2.3 Building joint understanding takes time

It has been understood by the planning team from the very beginning that implementing a network-based training requires a sufficiently unified vision of the goals, pedagogical principles, contents and methods of the training from the developers. The ambitious goal was to organise a training that the participants could see as a coherent whole, although several universities participated in its realisation. In practice, the development of a unified, shared understanding in the TieVie planning team did not happen overnight, and often the educators' different views on teaching and learning were not revealed until their ideas were put into practice. Through intensive development work and practical implementation, the unified vision of the planning team has strengthened over the years.

The construction of a confidential working atmosphere and a unified idea on the main aspects of the training has required plenty of discussion and face-to-face meetings. The development and planning was often done in working sessions lasting two days, so that the members could fully concentrate on planning. The regular two-day planning sessions contributed to the team getting

to know each other, build social contacts and mutual trust[7]. The socio-emotional factors combined with the intellectual challenges helped solidify the team and improve its work. Such intensive planning could not have been equally efficient, perhaps not even possible, if conducted only through virtual conferencing. Features could often be seen in the work of the team that is described by Järvelä[8] as collective flow: everyone is excited, concentrated and deeply committed to the task at hand. Even in academic work, this kind of enthusiasm cannot be taken for granted.

When a training is planned inside a single organisation, the planners often share a wealth of similar experience, so fundamental discussions might not be considered necessary, and therefore the planning could be conducted in a more straightforward manner. Although the TieVie planning team was in many respects rather homogeneous, the planners nevertheless came from different organisations and work cultures. Their different backgrounds could be seen, for example, in the terminology and language used. Educational planning is not a unified professional field where a terminology common to all has been formed. Also, the use of ICT in teaching is quite a new phenomenon with a mixed use of terminology. Different educational fields have created and used terminology fitting their own contexts, so in planning the TieVie training programmes a conscious effort was made to build common terminology and to contemplate on the meanings of different concepts.

During the operation, the understanding and group dynamics between the members strengthened and aspects typical of expert organisations such as collective learning, sharing of expertise, quick reacting and supportiveness could be seen in the work of the group[9]. On the other hand, the number of external factors affecting the project has been so great that new goals for the operations had to be set constantly. New viewpoints rising from the operations have required the revision of existing routines and operation models and changing the working methods and goals of the planning team. This development has manifested itself especially in the shift in the focus of the coordinator's work, which changed during the project from building and administering a network organisation to the planning of new functional solutions and developing and marketing of the national training in the use of ICT in teaching.

2.4 Transparency and documentation of the operations

Transparency and systematic documentation of the planning, implementation, evaluation and development processes have been principles of the TieVie project. For example, information on the goals, contents, methods, materials, dates and evaluation criteria of the training programmes has been published on the web pages of the project[10]. The documents relating to the training were made available to the participants already in the application phase. Besides helping participants to form an idea of the programme, transparency has also helped to establish a common understanding and increased the overall impact of the TieVie training. The functional structure, contents and materials have been used as models when designing the universities' own personnel training programmes in the use of ICT in teaching. Due to the transparency of the development process and the public availability of the materials, benefiting from the products, models and materials

[7] Cf. Hakkarainen et al. 2004.
[8] Järvelä, according to Hakkarainen et al. 2004.
[9] See for example Senge 1993.
[10] See TieVie portal. http://www.tievie.fi.

was made possible to people who were not participants or developers in the training programmes. Practically everyone was free to use the materials produced in the project and published on the web, for example in any training organised in their own university.

Coordinating the work of the planning team with members located in different parts of Finland, and keeping all the members up to date, was a challenge requiring systematic effort. Nothing could be taken care of simply by randomly meeting in the hallway. It has been essential to the success of the cooperation that all the planning documents for the training programmes, such as minutes of meetings, project ideas, action plans, annual reports and training cooperation contracts were assembled in the TieVie portal where all TieVie developers could access them.

The functionality of information systems and channels has been seen as a vital element in training implemented in a network. As many as ten different mailing lists meant for different actor groups were used in the TieVie training programmes. The lists were used for general planning and to transmit information. Administering different types of participant information, such as enrolments, updating participant and completion lists and the training calendar was carried out on the database-driven TieVie portal.

2.5 Evaluation and development of the training programmes

A lot of feedback from all participants was gathered to support the operations of the TieVie project, especially from the participants in the TieVie training. Developing the training programmes was perceived to be an issue involving the whole network, where the expertise and feedback from everyone should be used. The contents of training and its operational structure were developed and updated based on the increased awareness and feedback received.

There was a two-day meeting of the planning team every spring that focused on evaluation and development. The success of the training programmes were evaluated in the seminar, based on the developers' perceptions and the feedback from participants. Development plans were then made to further improve the next years' training programmes. So-called evaluation matrices were used as a development tool (see Table 1). The implementers gathered in them the strengths, weaknesses and issues needing development within their areas of responsibility based on their own experience and participant feedback. The planning team then evaluated the success of each part of the programme and the needs for improvement from the perspective of the project as a whole. Other topical issues in the university field were also taken into account when the training was developed.

Table 1. Evaluation matrix for the TieVie training programmes.

Evaluation matrix for the TieVie training programmes						
	Goals / Functional model	Contents of training	Guidance methods	Working	Evaluation	Technology / Application / Logistics
Strengths / Successes						
Weak points / Failures						
Improvements						

Different tools and methods were used in the meetings of the planning team to visualise the processes related to the training and to facilitate their systematic improvement. For example, the "process sheet" proved to be an invaluable tool in describing the systematic progress of different themes and functions throughout the training.

2.6 The TieVie network as a learning organisation

The fact that the members of the TieVie planning team worked at the same time in different kinds of teaching support positions within their own universities was seen as an important factor in the success of the TieVie project. The people in the planning team had a lot of diverse experience and practical know-how in the development of teaching, network cooperation, training university teachers and the use of ICT in teaching and learning. Many were active at the same time in some other virtual university networks. The planning team was close enough to the participants, and they had a good knowledge of the operation environment of the universities and its problems. They also had a natural direct connection with other development areas in the university field such as quality work and curriculum and degree structure development.

Working in the TieVie planning team was a genuine long-term experience of learning at work, where the members had an opportunity to reflect on and benefit from their own competences. Searching for shared interests and meanings contributed to the professional skills of the developers, helped to clarify their pedagogical thinking and forced them to contemplate on their own approaches further. Intensive cooperation on the practical level and the collaborative operation model made the spreading of up-to-date information and new viewpoints to develop the use of the ICT in teaching possible.

Mutual openness and the courage to question existing methods and their functionality were characteristic of the operation of the TieVie planning team. Its working method could be described in terms of a continuous process of problem solving. Its reflective and proactive working attitudes both required and helped increased ability to tolerate uncertainty[11] . Reflective thinking produced many iteration rounds which may sometimes have seemed unnecessary and delayed planning, but also maintained the experimental and self-correcting nature of the outcome. This kind of reflective and intensive work orientation directed towards accumulating experience[12] may even seem far-fetching to an outsider, but with the experts of Finnish universities as the target group of the training, the emergence of this kind of ethos is foreseeable. Maintaining the same functional structure was never enough, as the solving of a problem always resulted in a new problem to be solved. The work continuously pushed the limits of group members' competences[13] .

Working in a network strengthened the professional skills of the developers and gave them an excellent opportunity to apply the achievements of the national development work also to improve and evaluate operations in their own organisations. The experiences and working methods of others could be benefited from in a developer's own university and vice versa. The members of the planning team had a unique opportunity to participate in many different cultures of expertise and at the same time make them accessible to the participants of the training programme as

[11] See Puutio 2002.
[12] Ericsson and Lehmann according to Lehtinen et al 1999.
[13] Tynjälä 1999, 160–61.

well[14]. The broad network of contacts helped to improve expertise within the planning team, which acquired an excellent knowledge of the use of ICT in teaching in universities and of the related projects, actors and support structures. This enabled the team to offer support and assistance in the various pedagogical, technical and organisational development projects and challenges of the participants.

3 TieVie supporting development within universities

The universities in Finland are facing enormous pressures for change. Currently, themes related to quality assurance and structural development are very much at hand. For example, the problem of quality assurance has been that the system work well on paper, but tend to be seen as unfamiliar, inappropriate or even harmful when applied to practical work and teaching. Often teachers are not even aware that a quality assurance system exists[15]. The quality assurance audits begun in Finnish universities in 2006 have helped to increase awareness of the goals of quality assurance systems within the university community, but the concerns expressed by Karjalainen[16] on the double structure of the evaluation systems have still not been completely cleared. The TieVie project has created new development projects and helped to create a positive atmosphere both for structural development and quality work at the grass roots level. The training has offered a forum for university personnel to develop their common, genuine educational and other projects and receive guidance for them. TieVie has provided a concrete model of network cooperation between universities and given the participants a first-hand experience of it. The examination has been done in connection with a wider perspective of organisational change, although the main focus has been on the use of ICT in teaching.

In the first six years, a total of 1 138 members of university personnel participated in the training. This means that each university has, on the average, a group of several tens of people who have not only received training in the use of ICT in teaching but also familiarised themselves with the questions of inter-university network cooperation, structural development and quality assurance. The extent to which the competence potential created by TieVie has been used in the universities, for example, to develop quality control systems or other current development work is unknown. Instead, a more general challenge in an expert organisation is how to optimally utilize the competence on different levels to the benefit of the whole organisation. This may represent a greater challenge in a university organisation than anywhere else.

When change in a university organisation[17] and the implementation of good practices[18] has been studied, it has been noted that implementing change is exceptionally difficult in universities. That is why authentic learning assignments familiarising the participants with the practices of universities were also included in the training programmes. These serve to integrate the development projects and developers into other development activity and networks in their universities. Although TieVie training has operated on a national level, they have also aimed to develop the

[14] See Hakkarainen et al. 2005.
[15] See for example Karjalainen 2005.
[16] Karjalainen 2005.
[17] E.g. Kezar 2001.
[18] E.g. Drummond ym. 1998.

participants' familiarity with their own universities and provide skills to integrate the benefits gained from the training into the operation and procedures within the participant's own work community[19]. In fulfilling this mission, the wide network of mentors has played an important role, as it has consisted of people who have typically worked in support of the use of ICT in teaching in their respective universities and therefore highly familiar with the local practices.

4 Finally: The power of networks unleashed?

As described above, several different factors contributed to the success of TieVie. It seems that the time was right to start developing and offering the training programmes, and that a response was given to the needs in the field. Network cooperation created true benefits and added value to the operations of the universities. The planning team shared a common goal, its aims were set high and they had the courage to accept the challenge. The developers also had enough competence, knowledge of the university field and the will to develop the activities as understanding increased. Additionally, the professional goals of the participants, the goals of the base organisation and the goals of the network were quite parallel to each other.

An important factor in the success of the project was the long-term funding allocated by the Ministry of Education, which made systematic development of the structures, contents and materials of the training programmes and the testing of different types of implementation possible. All the universities that supported the costs of mentoring and the costs of travelling to the contact seminars for their personnel also contributed to the total resources. When the costs of training are compared for example to the ETCS credits awarded, TieVie could be considered quite an expensive organisational model for training. However, when the cost effectiveness of the programmes is calculated, it is important to make comparisons with the cost of organising a similar training programme within one university, and with the impacts thus gained.

The national network organisation model was seen as a very important factor in the quality and effectiveness of the training programmes. Network cooperation has made it possible to share knowledge and to benefit from the know-how of top experts on a national level. None of the participating universities could have offered training of equal quality alone. The strengths of the network model are related to increased collaboration and cooperation among the participants, bringing expertise together, increased awareness and the widening of perspectives[20]. Only time will tell what kind of impulse TieVie has provided for a change in the operational culture at the universities and what kind of new innovations and operation models are created in the aftermath of TieVie in the years to come.

[19] See Lehtinen & Palonen 1999, 156.
[20] Tenhula 2007.

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Virtual networks as an organisational model for university pperations

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Summary

This article examines the different forms of network activity in the Finnish virtual university project against the background of the new flexible organisational models predicted by organisational research that have become increasingly common recently. This development is seen as a natural answer to the accelerating change in society and the global market context although practical experience seems to indicate that flexible, networked organisations often clash against traditional hierarchical structures. However, the network that produced the TieVie training programmes has been able to create results, partly because the content of the activities of the network is not a target of powerful interests within universities. On the other hand, this operational model does not seem to directly affect the local stabilisation of networks created by the participants or create significant pressure for change within the organisational structures of the institutes of higher education. This article also describes the views that the participants of the TieVie expert training programme (15 ECTS credits) had on the future operation and networking models of the institutes of higher education.

1 New forms of organisation

In organisation research, it has long been predicted that the development is going away from mechanistic organisation structures towards more organic forms[1] . Travica[2] divides the new, non-traditional organisations into *organic, adhocratic, networked* and *virtual* forms. Travica further describes the characteristics of these new organisations with the "four F:s": *flexible, fickle, fluid* and *fit*. An organic organisation form is flexible, which means its ability to adapt itself to individual tasks and problem solving scenarios. Managing is done by suggestion rather than issuing orders. Adhocracy is characterised by an almost complete absence of formal practices, standards and role definitions. This maximises the ability to react to the shifting needs of the environment, but at the same time makes the organisation volatile, unstable and therefore fickle. A networked organisation is characterised by the fluidity of information transfer between different parts of the network both in social and operative processes. On the other hand, a networked organisation tends to be prone to organisational overlap, which in turn can lead to role controversies and conflicts. A virtual organisation is described by Travica especially through the service or product it produces. In a virtual organisation, the boundaries between the customer, producer and employee have

[1] For example Burns & Stalker 1961.
[2] Travica 1999.

become less clear, quite as they have between the organisation units. The aim is to produce a service or product tailored to fit the needs of the customer as well as possible. This, however, requires also the fitting together of the organisations, which according to Travica is another area to which "fit" refers to[3].

The following figure by Barnatt explains the relations between hierarchic, dynamic and virtual forms of organisation.

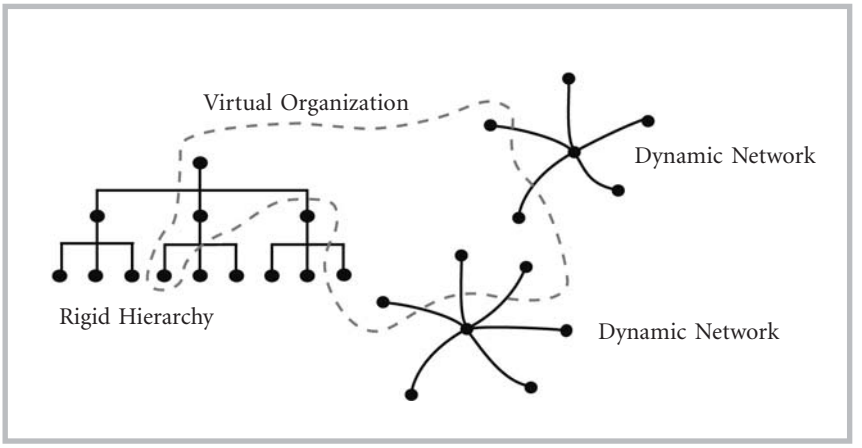

Figure 1. Development of organisation forms[4].

Barnatt sees the virtual organisation as a temporary one, in the sense that is has no stable organisational core or signed agreement. Somewhere between the virtual organisation and hierarchy are the dynamic networks.

Miles et al.[5] discuss the relationship between organisational evolution and the meta-competence connected with it and the different periods of economical development. *The period of standardisation* is associated with the meta-competence of coordination and the functional organisation connected with it. The phase of *customer specific tailoring* is connected to meta-competence of delegation typically with a matrix or network organisation. The period of *continuous innovation* is connected with the meta-competence of cooperation and organisational forms that respond to the demands of cooperation.

Besides the lofty goals described by Miles et al.[6], networking and new organisational forms can have more mundane objectives, such as saving in expenses or specialisation and division of labour within the confines of the network. The operation of the network may be very strictly directed and regulated, as is often the case in large subcontractor networks organised around one main

[3] Travica 1999, 23–27.
[4] Barnatt 1995.
[5] Miles et al. 2000.
[6] Miles et al. 2000.

supplier, which can also be a service organisation. The development of organisation forms as a whole is in many essays seen as a sort of natural evolution defined by the development of the global market context, where flexibility and ability to move rapidly are key factors and the traditional is seen as an obstacle. Information is considered an integral factor of production, both internally and externally. The vertical flow of information in hierarchic organisation structures is considered too rigid and slow to answer to the demands of a rapidly changing operational environment. Therefore the new organisational forms are characterised by horizontal flow of information. However, less attention is paid to power and decision making processes in the new organisational models. This becomes especially significant when, instead of examining structural solutions within one organisation, attention is focused on the cooperation of organisation units operating more or less independently.

Miles et al.[7] see three types of constraints for cooperation: the institutional, philosophical and organisational ones. The practices and regulations directing the practical operations of the organisation are referred to with institutional constraints. A typical example of this is the allocation of funds within Finnish universities to operations that produce short-term results required by the performance management policies. This means that the time spent in developing new innovations relating to cooperation and building the trust associated with the operation of networks is seen as a bad investment, since substantial results often cannot be noticed in a short time.

Also the division of the intellectual capital in the organisation can be viewed as a risk. On the fundamental philosophical problem with cooperation, Miles et al. write: "*The very concept of collaboration is organisationally counterintuitive.*"[8]. The independence of organisations has traditionally been viewed as a virtue, and the result that fits the goals is best created through the independent work of everyone concerned. Organisational problems are connected with the unit structure of the organisation, which guides the everyday operation of the organisation and the measuring of its effectiveness. It is also an issue of the controllability of operations. In this case the normal behavioural model is that competition goes beyond cooperation, unless the benefits of cooperation are evident and risk-free. All these views suit well to describe the behaviour of autonomous university organisations.

Economic constraints could be added as a separate concept into the constraints of cooperation proposed by Miles et al.[9] It might be the case that synergy created by cooperation does not exceed the energy spent on creating the necessary prerequisites for cooperation, although it can sometimes be hard to see whether the bad result was due to lack of meta-competence and inability to remove the aforementioned constraints, or whether there was no synergy to be achieved. Goold and Campbell[10] suggest that a network organisation should have enough, but not too much structure:

- Adequately defined roles, but without too specific instruction
- Adequate dependence and mutual learning, but not too much pressure to conform to common requirements alone.

[7] Miles et al. 2000.
[8] Miles et al. 2000, 316.
[9] Miles et al. 2000.
[10] Goold & Campbell 2003, 437–438.

- Adequate direction for problem solving without disturbing voluntary networking.
- Adequate attention paid to shared duties without blurring responsibility
- Adequate hierarchy to achieve the goals, but without excessive costs and supervision.

It is easy to state these requirements, but harder to implement them in practice. However, the list gives a reasonably good picture of the conflict spaces that network organisations have to deal with.

2 Operation of universities and new organisational forms

Finnish universities are unique organisations in that they are comprised of relatively autonomous units of decision making and decision makers. It has been said that universities are loose coalitions of autonomous actors. They are not tightly integrated organisations but are comprised of relatively independent faculties and departments which have research, teaching and interaction with society differing from each other[11] . This results in universities being difficult to manage and control from the viewpoint of the organisation as a whole. It may sometimes be difficult to recognise where decisions on a specific matter or area are made. On the other hand, the operations are heavily guided by performance management defined by external criteria. Although the organisational structure of the universities is loose, as organisations they cannot be considered non-traditional, organic or virtual; crossing the boundaries between faculties and departments within a university often seems very difficult, and no established mechanisms for cooperation between universities have been created.

The Finnish Virtual University[12] can be viewed as a conscious attempt to create network-like and organic structures within the university establishment already prior to the recent discussion on structural reforms in the universities. Academic discipline and support networks have occupied a central position in the operation of the Finnish virtual university project, and approximately half of the resources of the project have been allocated to their operation. While some of the networks were already operational before the special funding, some were established with the help of the resources from the virtual university project. After the decision to establish the Finnish Virtual University, the operations have been controlled very little. Therefore the networks have been able to set their goals independently and create their own operation models.

The figure by Barnatt presented above also demonstrates the fundamental problem in the operation of university networks: how to combine the vertical and horizontal flows of information, management and decision making. Vertical performance management in universities is done within the hierarchy, but the directing of the network operations should bypass the structures of hierarchical decision making. In the case of universities even a double bypass is necessary since decision making is divided between central university administration and the faculties and departments in partly unpredictable ways. This situation makes the operation of networks susceptible to conflict

[11] Pohjonen & Sariola 2003.
[12] FVU website. http://www.virtuaaliyliopisto.fi/vy_front_page_eng.asp.

with the parent organisations, and decision making and definition of goals tend to be non-specific. Only few academic discipline networks have therefore been able to define lasting goals to permanently establish their network teaching activities. Even in the networks with continuous operation, a long organisational friction has preceded the establishment of continuity. Most likely, all university networks have characteristics Travica describes as typical of new forms of organisation. The novelty of forms of cooperation especially in the field of teaching inevitably leads to certain adhocratic features, such as improvised management procedures, since established procedures have not existed. The risks and cross-organisational pressures associated with the networked organisations of Travica, Goold and Campbell have been identifiable, although not necessarily documented, in network projects as well.

In university networks the goals and the ways to reach them vary significantly. Not all networks have had the goal to establish continuity in their operations, but instead the network has been perceived as a project with temporally limited tasks. The role and goals of the TieVie network as the organiser of the personnel training in the use of ICT in teaching has been such that it would not cause significant conflict issues about its goals within universities. Therefore, decision making on the goals for operations within the TieVie network was not problematic. The decision making and development within the network have required a lot of communication and meetings both face to face and through the communication technologies. It is the price to be paid for cooperation and refinement of network operations. Operational models are not established instantly since they are formed only during the operation. At the same time it has to be ensured that the dynamic nature of the operation is maintained. As Miles et al. state: *"Collaboration, which is so important to the creation and transfer of knowledge and thus to innovation, is fundamentally a voluntary process. It cannot be hierarchically imposed or closely controlled."*[13] However, the continuity of the operation requires establishment of the resources and organisation in some form or other, as voluntary goodwill alone is not enough.

3 TieVie as a network of the participants

The training produced by the TieVie network as a whole has been rather traditional, and does not contain much customer-specific tailoring as described by Travica. The idea of virtualised training is best realised in online modules where the participants create a product collaboratively or in groups. Examples of such product are the scenarios where participants estimate the future of networked activities and ICT in universities. In the scenarios described by participants of the TieVie expert training programme in the Technological Change online modules (2002–2004), there are parts where they vision the organisational models and operational environments of future universities[14] . In these scenarios, the participants were asked to estimate what the university institution will be like in ten years and how the use of technology and networked activities will be implemented in the universities. In the following there are some excerpts from the descriptions of the future university institution.

[13] Miles et al. 2000, 303.
[14] TieVie Technological Change online modules, the materials of the scenario work of the participants and inquiry results.

Description of the hierarchic organisation model:

> *"In the move to the two-step degree system and directly afterwards, the government has critically examined the entire educational system and directed its resources into developing units which are capable of producing the educational services efficiently and economically. Activities not related to the core functions have been outsourced (IT, financial management, real estate functions etc.). University and polytechnic education has been combined in some fields of education, due to the tightened financial criteria imposed on education. Small universities have been combined under entralised administration. Cooperation has been promoted by adding to the funding of units capable of cooperation and reducing the funding of the recalcitrant ones. In contemporary university centres, the functions of universities and poly technics have been joined with the arrival of the Bachelor degree."*

Description of the networked organisation model:

> *"In the year 2013 the universities of Finland have formed extensive cooperation networks. Special courses implemented through subcontracting, and developed and implemented by many large Finnish and international companies, add funding to the universities in the form of course fees. [—] The courses offered must be able to attract both Finnish and international students, which results in competition between different universities and cooperation networks."*

> *"Rapid development of ICT results in roughly 30 percent of the courses offered in universities to become online courses by the year 2013. It is possible to receive teaching at home or any where outside the university with the help of mobile technology [—]. The need for students and teachers to be physically located in the university's premises or even in the same area is reduced, which reduces the need for premises and also brings many other savings."*

Description of the virtual organisation model:

> *"In the year 2014 the first completely virtual university is beginning its operations in Finland. It is based on the current Virtual University which has developed into a separate institution of higher education. The virtual university has rather small physical premises located in an afford able area [—]. The physical premises are work spaces for personnel in administration and coor dination, where all the materials related to administration and teaching are also stored [—]. Therefore the teaching personnel of the virtual university may be physically located anywhere in Finland or around the world. Whether a Finnish virtual university can hire top experts in the field from, for example, the USA into positions in the virtual university will depend on the global development of wages."*

The quotations in these scenarios seem to predict a concrete change to the organisational structures of Finnish universities. Although the descriptions are just quickly created sketches and suggestive in nature, they reflect the possible development trends of organisational change as sensed by university personnel. The scenarios depict both a traditional organisation based on performance management and the operational model of networked education being competed internationally. Instead, the model of an individual, network-oriented and flexible personal learning environment did not seem to gain much attention in these descriptions.

Although the participants' scenarios give attention to the possibilities of creating new kinds of virtual organisations and operational models with the help of technological advancement, there seems to be little faith in the change of operational models and organisation structures on the practical level. The visions of future created by the participants clearly indicate organisational change, but the views on changes in their own job descriptions and in the work of teachers tend to be conservative. Everyday teaching activity is still seen as campus-based, and the studies and degree completion of a student are seen as based in a single university.

In the Technological Change online module, participants were asked for their views on future technological development and the impact of technology on the future activities. The following table (Table 1) presents examples of how the participants consider technological development to affect the operation of Finnish universities over a ten-year period (ca. 2015). About 300 participants took part in the inquiry, although some individual answers are missing.

Table 1. Participants' estimates of technological development in the operations of Finnish institutes of higher education in the course of ten years.

Question/Alternative answers	Under 20 %	20–40 %	Over 40 %
The percentage of studies that can be completed online.	22 % 65/300	41 % 123/300	37 % 112/300
The percentage of studies leading to a degree that the student can complete outside parent university.	54 % 162/300	39 % 117/300	6 % 19/300

Question/Alternative answers	Disagree completely	Disagree to some extent	Agree to some extent	Agree completely
The amount of campus-based teaching has decreased significantly.	7 % 22/300	40 % 120/300	41 % 123/300	11 % 34/300

Question/Alternative answers	Little significance	Some significance	Very significant	Extremely significant
How significant is it for Finnish universities that degrees are completed in international virtual universities?	22 % 66/300	45 % 135/300	27 % 82/300	5 % 16/300
How much influence have technological changes had on learning cultures and/or the quality of teaching?	5 % 15/300	40 % 121/300	43 % 130/300	10 % 31/300

The answers indicate that the amount of studies completed online was seen as increasing significantly in the next ten years. Half of the respondents also believed in a significant increase in the use of digital learning materials. The proportion of degree studies done in other universities will not be significant according to the majority of respondents, and only a few believed that such studies would form a significant part of the student's degree in ten years.

When the future operational models were estimated, the significance of teaching taking place on the campus seems to decrease a little, but a significant part of the participants to the TieVie expert training believed that the so-called traditional method of teaching will remain prevalent also in the future. Roughly a third of the respondents considered studying in international virtual universities to be highly significant in the future.

When estimating the role of individual technologies after ten years, most significant were online learning environments (66 % of respondents), online lectures (42 %) and technologies supporting collaboration (70 %). The significance of videoconferencing (33 %), mobile teaching tools (26 %) and digital television (12%) was considered smaller. The idea of different technologies being increasingly integrated together in the future received wide support (70 %).

4 Conclusions

The TieVie project has been a network of autonomous university actors, which has developed forms of networked activity at the same time. In the examples described above, the participants created future scenarios in a group exceeding traditional organisation boundaries. The results show that most of the participants, who of course are technology-minded and development oriented themselves, anticipate a shift from traditional lecture teaching towards networked teaching supported with ICT. Compared to this result, there was little faith in teaching across campus and organisation boundaries. Therefore it can be said that the change in the operational environment is widely recognised, but the changes in one's own organisation or work are not seen as connected to this development. The pressure for change directed towards the individual is seen in this data mostly in terms of efficiency requirements, developing of competences and tightening of competition. Pressures for organisational change are also present in the scenarios, but do not materialise in the descriptions as development of practices or organisation models such as the ones mentioned above.

TieVie has been a broadly-based long-term cooperation project as a model for cooperation between teachers and as a support process for networking. In few other countries the whole university institution has committed itself to such a common long-term personnel training scheme with such a broadly based group of participants from all the universities. According to the feedback, the TieVie training programmes have also been successful and effective from the viewpoint of the personal learning of the participants. However, the impact of the training programmes on changing the structures of university organisations still remains to be seen. Did the network or new operation model created by an individual teacher or support person during the training have a concrete opportunity to change the operation models and structures in his/her own organisation? The training programmes of the TieVie network and the development projects promoted therein do not seem to create networks or operation models that are solid enough to be directly transferred into the participants' own organisations, at least not from the perspective of changes to the organisation models described in this article. The focus has instead been on creating contacts

between individuals, experimenting with teaching networks and operation models and creating ways of cooperation. It is desirable that these individual experiences of networking will produce a readiness and willingness to develop new operational methods also on the level of educational organisations in the future.

The results reported on the activities of virtual university networks and the observations made on the basis of the products of the participants in the TieVie programmes thus give rise to many open questions about the development of new operation models in the institutions of higher education. The pressure for change in the environment is visible at the individual level, but the practical possibilities to exert an influence on it appear to be small. Are the new operational models of organisations developed through the internal initiative of individual actors or are they created by compelling external pressures? At the moment the debate on the structural changes to the Finnish higher education system seems to focus more on expanding and uniting existing hierarchic organisations than creating new networked or virtual structures. Such development taking place through traditional operational methods may also be needed, but does not the true potential for structural change in the universities lie in discipline-specific networking across organisation boundaries? The national virtual university project has offered an opportunity to practice networked activities – but what have we learnt?

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Part 2
Implementation of the training – pedagogical principles, functional and technical solutions

Working as a tutor in the evaluation online module of TieVie training – dialogue with different types of learners

Mira Huusko and *Soile Jokinen*

Summary

The purpose of this article is to describe our experiences as tutors in the Evaluation online learning module of the TieVie training programme (8 ECTS credits). The article presents the Evaluation module's online implementation that uses a problem based learning (PBL) method. It also focuses on the dialogical and group dynamic aspects of the online module. Working as a tutor provides an opportunity to meet different learners in genuine learning situations. Through these experiences, it is possible to contemplate on the problems encountered during online modules and the best practices for online operations.

1 Starting points for the Evaluation online module and analysing the dialogue

The TieVie training programme (8 ECTS credits) was implemented between 2001 and 2004, and it offered training in the use of ICT in teaching for teachers. The training programme was divided into two contact seminars and four online modules with the themes of planning e-learning, content production, tutoring, and evaluation.

The Evaluation module was the last module in the TieVie training, and the focus in it was on examining the change of culture in evaluation, possibilities to evaluate teaching and alternative exam procedures from the viewpoint of the participants' own work and their development projects. The participants could choose their points of view according to their interests from two main themes related to teaching: evaluation of learning or teaching. Other approaches to evaluation were also discussed.

During the four years of TieVie training we occupied several different roles in the Evaluation online module, for examples as tutors, mentors, producers of content, summarisers, and participants in the module. In this article we discuss the module as seen from the role of a tutor. Acting in different roles, we noticed certain pitfalls and practices enabling success in the planning and implementation of online courses.

The aim of the article is to share experiences on working as a tutor and consider different types of learners encountered during the module. The article also discusses the pressures of different expectations that tutors face in online modules. The participants in online courses apply different styles of learning and they have different needs and motives for attending the course. The article also contemplates on the realisation of dialogic communication in the online modules.

Buber[1] and Bakhtin[2] emphasise the dialogic as a life attitude and a way to fully confront another person rather than as a pedagogical method. Dialogic could be briefly defined as a state where there is genuine understanding between people. There has been experimentation with dialogic on the web[3], but cooperative and collaborative learning has been discussed and experimented with more in the online learning context[4]. According to different experiments, it seems that collaboration in the strict sense often fails to materialise, but the students instead chat together and exchange individual facts on the web[5]. Salminen[6] and others have attempted to model elements of the dialogic in their current and earlier research.

The article starts by describing the problem based learning (PBL) method and its realisation in the Evaluation online module, contemplating the possibility of dialogic in online courses. Problem based learning could be one step towards more dialogic learning. Finally, we describe our experiences and possibilities for continuous learning for a tutor.

2 Face to face meeting as a source of a rewarding problem based learning experience

According to Soini[7], emotional attachment to learning, the possibility to examine matters from different perspectives, cooperation with peers and experts, and dialogue all contribute to a rewarding learning experience. According to Jonassen[8], expedient learning can best be promoted by paying attention to the constructing of information instead of reproducing it, by using genuine learning assignments in teaching and by supporting the collaborative process of constructing information. The operation model of the Evaluation online module was based on these principles. The online module consists of a face to face meeting and work on a collaborative learning platform.

The initiation of the Evaluation module was implemented as a contact seminar lasting two days. The module constituted the last part in the training programme, so the participants were already familiar with each other at this stage. In the contact seminar, presentations were given by experts in different areas of e-learning, and presenters of various e-learning projects. The aim was to provide the participants with an orientation to the beginning online module and the theme of evaluation. The participants watched an excerpt from the educational movie Katharsis[9], which discusses metaphorically the concept of an exam from the student's point of view.

The problem based learning method was used in the Evaluation module. It places emphasis on interaction within the group, collaborative work, learning goals defined by the group itself, and interactive construction of information. Problem based learning proceeds in steps (see Table 1). The Maastricht model of problem based learning was used in the Evaluation online module. The first phase in problem based learning is to clarify the concepts that are unclear in the subject

1 Buber 2004.
2 Bakhtin 1984.
3 E.g. Aarnio 1999.
4 E.g. Arvaja 2005.
5 Arvaja 2005.
6 Salminen 2001.
7 Soini 1999.
8 Jonassen 1995, 60–61; e.g. Enkenberg 2000.
9 Katharsis 2000.

matter. The second phase is to think what phenomenon the subject matter is all about. In the Evaluation module the phenomena have often been connected to the evaluation of students, teaching, learning and feedback. The participants then formulate a working title for the problem at hand.

The third phase in problem based learning is brainstorming. The idea is to record spontaneously matters related to the problem on notes and then to collect the notes on a flap board or a large poster. The issues found out by association are not criticized or commented on at this stage, but

Table 1. The steps, goals, methods and implementation of problem based learning in the Evaluation module.

Stages of problem based learning	Goals of the stages	Realisation in the Evaluation online module	Environment
1. Clarifying concepts	Forming a common language, clarification of unclear concepts (approx. 5 min)	Katharsis movie as inspiration, brief discussion in small group	Contact seminar
2. Defining the problem	Formulating the problem to serve as basis for the brainstorming session, creating a working title for activity (approx. 5 min)	Formulation of some phenomenon in evaluation as a problem	
3. Analysing the problem / brainstorming	Activating prior knowledge on the subject matter, free indiscriminate association (approx. 20 min)	Collecting the ideas on post-it notes which are then collected on a flap board; free discussion on phenomena of evaluation	
4. Problem analysis / systematic classification	Grouping issues as wholes, search for connections and cause-effect relationships (approx. 20 min)	Constructing a mind map with secretary and completing it with missing elements: drawing arrows and connecting lines	
5. Formulating learning objectives	Formulation of common learning goals as a basis for further work.	A learning goal that interests all participants is formulated to aid in independent work and the online part of the module	
6. Self study	Independent familiarisation with literature and other materials	Familiarisation with the online materials on evaluation and producing a one-page summary independently	Online learning environment
7. Reporting	Discussion and the gathering together of thoughts, evaluation of the work and learning done	Commenting on others' summaries, discussion on the learning environment and formulation of a common view; tutor summarizes the discussion	

instead the thoughts and prior knowledge are used to build a mind map. The job of the tutor is to clarify the operational idea and create settings favourable for learning. The liveliness of the discussion in the face to face seminar varied depending on the participants.

Next, after the discussion and exchanging of thoughts in the brainstorming phase, comes the fourth phase in problem based learning. There the secretary chosen from within the group formulates a mind map on the phenomenon under scrutiny together with the other members of the group. The matters that are recorded on the notes are now grouped into larger context groups and connections are formed between the different matters. Better than listing of ideas, establishing connections serves the purpose of outlining large problem areas. At this stage, unclear parts connected to the phenomenon and holes in the explanation model are also identified and contemplated.

In the fifth phase of problem based learning, the group defines common learning goals. The purpose of these in the Evaluation module was to facilitate independent learning and online discussion. The learning goals are based on the weak points that the participants have identified in their knowledge. The learning goals are formulated using clearly defined concepts[10] . The learning goals of the Evaluation online module were different phenomena of evaluating learning and teaching, such as evaluating learning on the web, the use of portfolios in evaluation, evaluation methods supporting deep learning, alternative exam arrangements, self and peer evaluation, student feedback and know-how.

Each tutoring group included many types of participants who were motivated in different ways. When you work as a tutor, you would not want to cause disappointments to the participants, naturally hoping that the participants benefit from the module and understand the relevance of the face to face discussion at the beginning of the module.

3 Exchanging experiences on the web

The online learning platform chosen for the Evaluation online module was Discendum Optima[11] . Before starting the discussion week of the online module, each participant familiarised with the online materials on evaluation prepared for the training, and provided a summary of one page on them. Each participant also read the summaries written by others to get to know their interest areas. One or two weeks were usually spent on independent learning, the sixth phase of problem based learning in the Evaluation module.

After the independent learning phase, the seventh and final phase of problem based learning is the reporting phase, where the groups have a discussion on the basis of the summaries and comments made on them and contemplate on the different aspects of the learning goal that was formulated in the face-to-face meeting, with the tutor guiding the discussion. The participants could also follow the other groups' discussion in Optima, if they had enough time and were

[10] According to Arvaja (2005, 75), constructing information collectively at a high level happens usually in situations were the students have a clear learning assignment or they can set a clear goal for their work, and where the learning assignment is supportive of learning by nature. Meanwhile questions demanding factual information often lead to non-critical sharing of information.

[11] See http://www.discendum.com/english/index.html.

willing to do so. The participants in the discussion groups dealt with different phenomena of evaluation. The participants were often busy with their duties and work, so few were actually following the discussion in other groups. For some it presented a challenge even to follow the discussion in their own group.

Each time the Evaluation online module was implemented, we as tutors thought which would be the appropriate length of time to wait for the summaries to be submitted the participants, and if they should be reminded by email. We noticed every year that each course tended to have a few participants who left their assignments to the last minute, who asked for more time or who simply did not participate in the discussion and only passively sent the minimum of messages required. Each online module also tended to have a few enthusiastic ones who completed the assignments within the time limits given or earlier and who wanted to complete the course within the set framework.

In most online modules, we as tutors were positively surprised by the livelihood of the discussion. Some of the participants are clearly excited about online discussion and ask each other lots of questions. Active conversationalists are often supportive towards others and clearly accustomed to online conversations. They maintain discussion by asking and commenting on the messages they receive. They encourage others to actively participate in the discussion and to become enthusiastic about the subject area.

Among the participants there are also those who only answer if they are being personally asked a question or if something concrete that can be answered factually is asked. The discussion style of the more passive ones is declaratory and they do not contemplate on different aspects of matters online. They write only a minimal number of messages to the discussion areas and do not read the messages written by others. They receive their credits with the least possible effort.

At the end of each Evaluation online module, feedback on the module was collected from the participants. The feedback was often controversial, which reflected the heterogeneity of the participating group. What was considered superfluous by some, was considered to be the best part of the course by others. In the feedback, the participants were asked for example what encouraged them to work and what restricted their work during the online module. The greatest obstacle to work during the module was the hurriedness of the participants and accumulation of work assignments. This is an important observation for the university teachers themselves. Since they have, after the TieVie training programme, personal experience of studying on an online course, it is easier for them to start planning their own online courses, which without personal experience could easily become too laborious for the participants.

4 Observations by the tutor on the success of dialogic on the web

During the Evaluation modules each year, we gave a thought to what makes some groups and participants discuss and some withdraw or not participate at all. Why is the discussion in some groups vivid, while at other times tutoring seems like a heavy burden? The central factor here is most likely the creation of group dynamics and dialogic communication.

We started to contemplate on the factors that affect the creation of group dynamics. The size of the group must be one significant factor. As expressed in several books on group phenomena[12], the size of the group should not exceed ten persons. Especially in online discussion, the ideal size of a group would be between seven and eight, which is also the recommended group size for problem based learning. Also the level of familiarity within the group affects the level of dialogue in the group. Especially in a group which is only together for a short time the significance of the size of the group is emphasised.

Arvaja[13] has pointed out that collaboration is formed more easily between friends. Based on earlier research on situations of interaction[14] it is also known that when participants experience insecurity, they tend to communicate less with each other. When the level of dialogue is low, the style of the messages tends to be more formal and polite than in safe discussion among friends.

The messages and the writing style of the instructor also affect the progress of online discussion. When acting as a tutor, one can unconsciously begin some discussions in a more relaxed and approachable manner than others. However, some groups tend to discuss vividly also without any introductory or other messages from the tutor. Supportive and positive feedback from tutors or peers is an important factor in situations of collaborative learning[15].

Dialogic can be successful on the web, if the participants have also met and discussed face to face, as in the Evaluation online module. Meeting face to face facilitates, although it does not guarantee, the creation of dialogic. Dialogic in the net requires an open and questioning mind on the part of the instructor, so that the instructor is able to ask genuine questions. It also requires withdrawal from the conversation from time to time to allow the participants to become immersed in the discussion. The instructor shall respect the participants' views and attempt not to limit the discussion. The instructor may attempt to guide the discussion back to the subject matter that has been agreed on, if the discussion drifts too far away from the original subject.

5 The tutor learns and develops together with the participants

Meeting different types of learners both in face to face teaching situations and in online courses is challenging for the teachers and tutors. Working as a tutor requires an open attitude towards the participants, whatever the content of the course. Open contemplation together with the participants and mercifulness towards self and others in different situations helps both the tutor and the participants to face new things and unexpected emotions. A tutor might encounter different aspects of group dynamics also when working online. During online modules, expectations towards the tutor may be even greater than in contact meetings, since the feedback received is limited to the text written online, and the participants can therefore not be sure of the presence of the tutor in online discussions. If the tutor's role as a monitor of the discussion in the online module is informed to participants, the participants feel more secure about discussing online with the tutor following and occasionally commenting on the discussion.

[12] E.g. Niemistö 1999.
[13] Arvaja 2005, 76.
[14] E.g. Mäkitalo 2006, 80.
[15] Mäkitalo 2006, 86.

Tutors often prefer active participants to more passive ones. The passive participants are often hard to meet, since they tend to criticize everything or remain completely silent, fulfil the assignments with minimum requirements and they are not interested about the activities of the tutor and other participants. They often miss the traditional ways of learning and evaluation of learning, which makes it hard for a tutor who has assumed new methods of learning to adjust and make compromises. Should the tutor do as the more passive participants wish, if they have any wishes, or stick to the assumed model which he or she believes will aid the participants to receive the best learning results? How much should the tutor contemplate on his/her role of tutor and his/her possibilities to promote learning, if a participant feels that he or she has learnt little or nothing in the course?

Problem based learning has been found to be a way of learning that provides good results. According to Portimojärvi[16], problem based learning implemented online also seems to support the participants' progress towards developing expertise. Dialogic learning and teaching are appropriate, when there is a desire to share different kinds of experiences and opinions. It is also a good way to group students together. On the other hand, the dialogic approach also trains dialogic skills, such as the use of different concepts and tools for thought[17]. Problem based and dialogic learning methods support each other, and there are similarities in their goals although they cannot be combined in every case. It is important however, to keep dialogic teaching in mind in all teaching, although monologue and its restrictive elements sometimes need to be resorted to.

TieVie tutoring has been a rewarding experience which will enrich future training programmes and online courses. As a tutor it would be beneficial to be able to reproduce oneself constantly to develop one's skills of confronting different types of learners in new and different dialogues. The different types of learners have been the enrichment of the training programmes: when you listen to others, you also learn new things about the subject area and about yourself. It is the different kinds of participants that also make the tutors throw themselves into dialogue.

[16] Portimojärvi 2006, 247.
[17] Kuhmonen 1999.

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"It is the atmosphere that matters" – Enhancing local pedagogical change through shared online work

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Summary

In our article, we will describe the development of the online learning module in the "pedagogical change" sub-theme in the TieVie expert training programme in 2001–2005. We will first present the implementation of the module, then move on to examine issues that we have recognised during the process and which we think need further thought. We will also evaluate the success of the implementation of the module, and discuss the pedagogical and functional solutions we have made. We will build our analysis on participant feedback, comments in the discussion forum and our own experiences as instructors. Working through the online module has required new kinds of competences, skills and attitude from the participants. All in all, we have come to understand the cognitive conflicts that have arisen while working on the module, have created a fertile ground for learning new matters.

1 Pedagogical change online module as a part of TieVie expert training programme

In the one-year TieVie expert training programme, the pedagogical, technological and organisational changes in the university were under examination. The programme started with the theme of pedagogical change, which was the subject of the first contact seminar and the subsequent online phase[1]. The module lasted for a month and consisted of three different stages, three of which were realised online. The extent of the online module was 1,5 ECTS credits which equals a workload of 40 hours. The online discussion phase was carried out on the Optima online learning platform[2].

One of the goals for the Pedagogical change module was to build a new type of culture of expertise among the participants. In the online module various issues in the use of ICTs in teaching were solved and discussed in a community of experts consisting of the instructors and participants. When planning the work methods, the expertise, experiences of the participants were integral elements on which to build the online process. The goal was to make it possible for the participants to voice their thoughts and ideas and that way exchange experiences with the other participants. The role of the participant was thus active and central in the overall process. In addition to the participants and instructors, about ten "external" experts (former participants and other experts in the field) took part in the process as mentors.

[1] The University of Oulu was responsible for planning and carrying out the module.
[2] See http://www.discendum.com/english/index.html.

There were between 60 and 100 participants in the module each year. The participants came from all 21 universities in Finland and nearly all disciplines were represented. The discussions during the modules were very lively, and the number of postings was at best close to 1000 during the two weeks of the discussion phase.

> *"I felt that the people who participated had a genuine interest in these matters. I felt that they were competent, open and direct. It was the positive atmosphere that got me involved in the process." (Participant feedback 2002)*

2 The goals and background of the online module

The goal of the Pedagogical change online module was to deepen the participants' understanding of the pedagogical principles and views behind the use of ICT in teaching. One goal was also to guide and support the progress of the participants' development projects[3] and prompt them to examine their projects analytically from the viewpoint of pedagogical change. At the same time, the participants had the opportunity to gain hands-on experience about being a student in an online discussion.

The online discussions were structured along the lines of case-based learning, a method that has been previously used successfully in for instance teacher training[4] . The idea of case-based discussions is based on the socio-cultural view on learning[5] , according to which knowledge and competence are not only individual characteristics, but are also socially constructed. Learning takes place in interaction with other learners when working on authentic problems that have significance for both the individual and the group. According to this view, the individual gradually becomes a member of the community through participating, sharing, negotiating the common rules of the group and through discussing the central content and its meaning. According to Launis and Engeström[6] , expertise is "the ability of networks and organisations to solve new and changing problems together". They signify that the keys for pedagogical change do not lie with the planners of educational processes but instead in "the everyday analysis of experts and various experiments on how to develop ways of working and workflows".

The working methods in the online module emphasised a dynamic approach to knowledge which meant that the participants were engaged in an active search for information, critical evaluation of that information and application of that information into their local contexts. The participants worked on problems that arose from their own work in situations that they had chosen to present to the rest of the group. In addition to the more theoretic information, they benefited from the expertise of the community of participants and instructors when recognising and solving those problems. Discussion was an important tool intended to deepen the participants' understanding and help them to examine their own actions in a critical manner. It was hoped that the examination of problems and practices in everyday teaching would help to pave the way for a long term pedagogical change.

[3] The development projects are described in detail in Airaksinen & Frilander 2008 in this publication.
[4] Kuure et al. 2000; Bonk et al. 1999; Järvelä & Häkkinen 2002.
[5] For example Lave & Wenger 1991.
[6] Launis & Engeström 1999, 64.

3 Description of work in the online module

The online work was carried out in peer and thematic groups. The thematic groups were groups of approximately 20 persons and which the participants formed independently according to the topics of their development projects. Within the thematic groups, the participants were further divided into peer groups of approximately four people each. The same groups were used also during the later online modules in the programme and during contact seminar work. Figure 1 presents the workflow during the online modules.

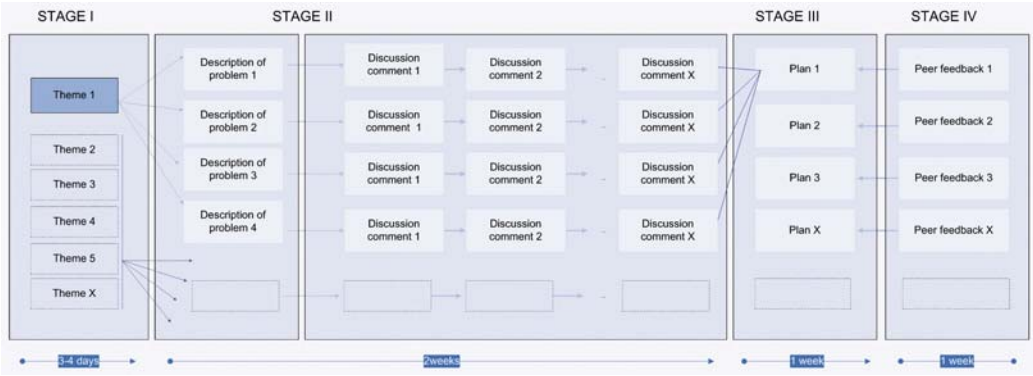

Figure 1. The stages of work during the Pedagogical change online module[7].

In the following, the four stages of the online module in 2003 will be presented in more detail.

Stage 1: Familiarising the participants with the working method and the centra concepts regarding the thematic area, initiating the case work

The work for the online module was set off during the contact seminar, were the participants met face to face. The case-based working method was presented and the thematic areas for the online work were defined. Following that the participants met in their peer groups and discussed concrete pedagogical challenges and problems relating to their development projects. They raised issues in online teaching and learning that concerned them most into the discussion. They also talked about the pedagogical grounds for their development projects and about the similarities of the issues in the projects their peers were planning. Their task before the start of the online phase was to write a short, one-page description of one case or problem relating to their development project.

In the task the participants were asked to describe the problem relating to teaching or learning and describe its context as precisely as possible, so that it would be possible for the other participants to understand the problem and the issues and factors behind it. They had three days to complete this initial task.

[7] Adapting Kuure et al. 2002.

Stage 2: Posting the case descriptions and online discussion

The participants began online work by posting their problem cases online. The discussion arena in the online environment was opened and ready for postings well ahead the deadline. The instructors had created 12 thematic discussion areas from which the participants could choose the theme that best fitted their case, and post their discussion openings under it. The thematic areas were based on the viewpoints which were considered important in the research literature on modern learning theories. The participants could however suggest other thematic topics too. The importance of keeping to schedules and the prerequisites of successful collaborative work were emphasised to the participants, so that the discussion phase could start immediately after the initial postings. It was important to keep the timeframe tight so that the process it could be brought to a finish in the relatively short time span of two weeks.

The thematic areas of the discussion stage were presented during the contact seminar, but a short definition of all concepts was posted in the discussion area just as a reminder. The themes/topics for the discussion were:

- Sharing of expertise, negotiation for meaning
- Authenticity
- Autonomy and self-directedness
- Openness
- Dialogue and reciprocity
- Learning by experimenting
- Supporting critical thinking
- Reflection
- Commitment and motivation
- Problem-based learning
- Ethics of (online) teaching
- Communities of practice and teamwork
- Themes suggested by the participants

After posting the case descriptions the participants continued working online in the thematic groups. The participants familiarised themselves with the case descriptions they found interesting and added comments and questions to them that helped the author gain new understanding of the problem. Participants were encouraged to "spend time with the problem" and help each other in really reaching all the way to the core of the problem and in forming new viewpoints and insights. The participants were reminded that authentic, real-life problems may be more difficult to identify than to solve. They were also encouraged to accept the fact that in some cases the problems do not have just one solution.[8]

During the discussion phase, one expert of each thematic area and one previous year participant took part in the conversation. The expert guests shared their knowledge on the topic and guided the discussion towards matters they considered important, while the past year's participants offered peer support and advice in the more practical aspects in the planning and arranging of the projects.

[8] Cf. Siegel & Kirkley 1997; Aarnio & Enqvist 2002.

Stage 3: Defining the pedagogical principles for the development projects on the basis of the online conversations and placing the projects within a timeframe

At the end of the online discussion stage, the participants made a reflective summary of their case description in which they reflected on the usefulness of the online discussion for developing their case and further defined the pedagogical principles for it. They scheduled their development project so that it would fit in the overall course timeframe. The summaries and project plans were then published in the online environment for feedback.

Stage 4: Giving feedback to the peer and the follow-up discussion

In the last stage of the online module, the participants, either in pairs or in small groups, familiarised themselves with each other's plans and gave feedback on them. The last assignment was to further define one's own project plan according to the received feedback and the follow-up discussion.

Evaluation of the online module and criteria for approved completion of it

The online module was considered completed when the participants had completed the following parts: a) posted a case description in the learning environment and participated in the online discussion b) wrote a plan for the development project, c) documented their thoughts on their learning experiences in the portfolio, d) gave peer feedback to one other participant, and participated in the follow-up discussion. No separate grade was given on this, or any other, online module in the TieVie expert training programme.

4 Excerpts from discussions and some reflections on participant feedback throughout the years

After finishing the Pedagogical change online module, the participants gave each year feedback on the module and on what they have learned during it. Many of the ideas and comments have been used to improve the module and the TieVie expert training programme as a whole.

In the feedback, the pedagogical aspects of the operational environment of the module have received a lot of attention. The participant reactions towards the working method have varied greatly. To some, the experience has been chaotic and incoherent while some others have liked it because it is thought-provoking and they feel they have benefited greatly from the work. Issues that have hindered participation concern matters such as lack of experience of online environments, mixed expectations and feelings of insecurity. We have found that the experience is less chaotic for the participants if they can perceive it more like a brainstorming session where some thoughts can be understood better than others. The feeling of chaos can also be lessened by regular (daily) participation in the online discussions. Reading through tens or hundreds of messages in one sitting will surely produce a feeling of chaos and rush.

"What I liked in the module was that you could work according to your own schedule, and it did not matter if one day was missed in the discussions. On the other hand, the discussion was so lively that after missing a day came the anxiety: when will I catch up with all these messages? How can I make any comments if I don't know what has already been discussed? I will feel like a fool, if I write about subjects that have already been covered." (Participant feedback 2002)

"For personal reasons, I could not participate in the discussion right from the beginning (I could spend only short times at my computer.). When I finally tried to get in, the vast amount of messages shocked me and I could not participate. The deadline and a direct question from my peer group: "Where is your project plan?" finally got me going. And then, it suddenly became fun. The online culture has to be learned like any other. First I thought that all should be read and reacted to, but the reality is that you have to select and prioritise even if you get the nasty feeling that you miss out on something important" (Participant feedback 2002)

Some of the problems that seem to hinder participation can been associated with inexperience or as unfamiliarity with this type of working culture. The expectations placed on online discussions sometimes stem from experiences from face to face discussions. Online discussions are considered to be of less value than face to face discussions, as they lack the non-verbal characteristics of speaking: gestures and expressions. This lack was also pointed out in the participant feedback. Nevertheless, the participants also talked about their understanding of the special qualities of online discussion: the online interaction takes place in written form and with delay, in a large group of people participating in the same conversation[9].

"One drawback was definitely the lack of immediate response, the kind you have when discussing face to face. Also the immense number of postings was a problem for me." (Participant feedback 2001)

The Pedagogical change module was for many participants their first experience on an online course. During the module the participants encountered issues which they had no previous experience or operational culture to lean on. The dynamic concept of knowledge underlying the structure and goals of the working method was one source of conflict. Some participants found it confusing that the online module had no ready-made content to be studied, but that instead they themselves formed a community of experts which then chose interesting themes to cover. Also the different views on what the true meaning of learning and teaching are, caused controversy.

"In the end I don't think these things are anything unknown to man: the operational culture in the network is created by discussing, agreeing, creating rules and practices and meaning makings. The operational cultures in the different universities stay in the background and affect the network through the participants, but the operational culture of the network is a different matter – hopefully more than the sum of its parts." (Discussion comment in the 2003 online module)

"… are the students expecting that progress is made with the teacher in the lead, so that the teacher filters the information and then shares it, or will they also join in the teaching and share information among themselves and actively construct it with the others." (Discussion comment in the 2003 online module)

[9] Herring 2003; Baym 1996.

"The culture of online learning cannot be created overnight, it takes practice and different experiences." (Discussion comment in the 2002 online module)

The ability to tolerate and accept insecurity and being "incomplete" was seen as one of the prerequisites for successful participation in the learner communities. One participant described the current operational culture and the resulting effect of it on shared work in the following way: "*In our culture we have been conditioned into thinking that everything must be ready before it is published. This leads to some of us having difficulties in participating in the joint effort.*[10] " In the discussions it was made clear that even unfinished and tentative thoughts carry meaning and value. and have significant potential. Highly refined and polished comments do not necessarily constitute high quality conversation. New ideas and innovative thoughts are born through messages that leave space for further thought and comments. It was believed that the group's common operational culture was best created through working together.

"In our mental landscape, the saying 'unfinished work should be shown neither to lords nor madmen' is still holds." (Discussion comment in the 2003 online module)

"Cooperation is power, and working together is fun. It is exciting and it is motivating to work in a group, even in a large group like this one. Man indeed is a social animal." (Discussion comment in the 2003 online module)

Most participants had to cross at least a some sort of psychological barrier when they participated in this kind of online discussion which is public and formal at the same time. That barrier definitely does not become any easier to cross in a large group. Taking part in the discussion seems to require a surprising amount of courage from the participants, and a lot of time is spent polishing and phrasing the messages. The participants also expressed some doubts whether they were competent enough to participate in the conversation. In retrospect, however, presenting one's own case description as the catalyst for discussion was seen as a motivating and committing factor.

"When I initiated the discussion myself and described my case, I felt more committed to the discussion." (Participant feedback 2001)

"The discussion in my group became somehow much more intimate, it was like a discussion between friends. The discussion under the commitment and motivation topic remained somewhat vague to me. If I had written a comment there and someone would have replied to it, it would have created a link between me and the group where the reply came from. Writing a message is like committing yourself. In a large group it requires a lot of courage, especially if you feel that you don't have a strong background in the subject." (Participant feedback 2002)

The feedback on the online module clearly demonstrates that when focusing on the problem areas in the participants' own work it is important also to create an atmosphere of confidentiality and trust amongst the participants. The rules for the group work can be discussed and agreed upon together.

[10] Discussion comment in the 2003 Pedagogical change online module.

"In my opinion, working in a learner community like this requires openness and trust. How could openness and trust be then achieved? Well, at least one thing is for sure: as long as the interaction in the group is based on securing "territories" or one's own position, there is no room for genuine sharing or trust." (Discussion comment in the 2002 online module)

"At least during the initial stage of the activities the requirements for becoming a member of the community could be milder. The group will become a community in due course, you cannot push it. In the beginning it is hard enough to even listen to the others (as one is so busy defending one's own territory). Instead, when becoming a better listener we are also able to understand the others' points of view and that way also the openness and trust can be achieved in the group." (Discussion comment in the 2002 online module)

It was interesting to note that the topic "commitment and motivation" attracted most participation in each round of the online module. Other popular topics included "Sharing of expertise, negotiation for meaning". Could the popularity of these thematic areas indicate that the most common problems in university teaching tend to fall into these categories? In our experience most university teachers persistently try to think ways that would help their students to make a commitment to their studies and the shared learning goals. In the TieVie context the teachers have dual roles: while being students in the TieVie expert training programme and they also carry on with their teacher roles and have to arrange and juggle their timetables to accommodate for all the simultaneous commitments and responsibilities. In doing so, they also need to assess their own priorities and level of commitment.

5 What has the online module taught us?

Online discussions have clear benefits when the goal is to examine one's own actions and the challenges linked to these from as many angles as possible. Online discussions function also well as think-tanks but it is not possible to structure it in a speech type of linear structure as they tend to branch out and become hypertextual and interlinked[11] . Due to these characteristics of online discussion, it is often experienced as chaotic by novice participants. Reading from the screen feels awkward and the barrier to participate feels often high. We believe, however, that participation in a think-thank such as the Pedagogical change module is an important experience for university teachers. First of all, it increases their understanding of the problems and emotions that students face when studying online for the first time. Reflecting on their own experiences as a student naturally helps when planning online modules in their own teaching.

Lakkala, Lipponen and Lallimo[12] outline some of the challenges of online teaching and of the changes in the operational culture by using the concept of infrastructure. By infrastructure they refer to such structural solutions that mediate certain types of cognitive operation models and cultural practices. They examine online learning through four *learning infrastructures*: the technical, the social, the cognitive and the epistemological infrastructure.

[11] Cf. Garcia & Jacobs 1999.
[12] Lakkala & Lipponen 2004; Lipponen & Lallimo 2004; Lipponen et al. 2005.

Lakkala, Lipponen and Lallimo[13] use the term *technical infrastructure* to refer to the access, features and utilisation of the chosen technology; the practicality and suitability of the use in respect to the technology; and the available support and guidance for the users. *Social infrastructure* includes the learning objectives, structures for learning that either promote or limit shared work in. *Epistemological infrastructure* is the culture of knowledge represented and supported in the learning culture, and the supported methods and practices of information handling. *Cognitive infrastructure* represents the skills of thought required and supported by the teaching methods and arrangements, for example the type and difficulty level of the tasks given to the students. Also the modelling and instruction of thought and work strategies, support for the development of meta-cognitive skills and the availability of technological thinking tools all fall into the category of cognitive infrastructure.

The Pedagogical change module requires new kinds of skills, stances and competences on all these four levels of infrastructure. If the participant's outlook on learning, knowledge or teaching differs greatly from those of the planners of the module, it is possible that conflicts arise. It may, however, well be that these conflicts may give rise to possibilities for learning new things, if the conflicts are consciously utilised as a sources and material for learning. According to research literature, it is from these cognitive conflicts that new thought and concepts are derived and therefore they form an integral part of the process of learning[14] . Figure 2 lists the central factors of the Pedagogical change module. The views of the participants and planners of the module (and the overall programme) around these factors can often be different and cause collisions that can lead to new ideas.

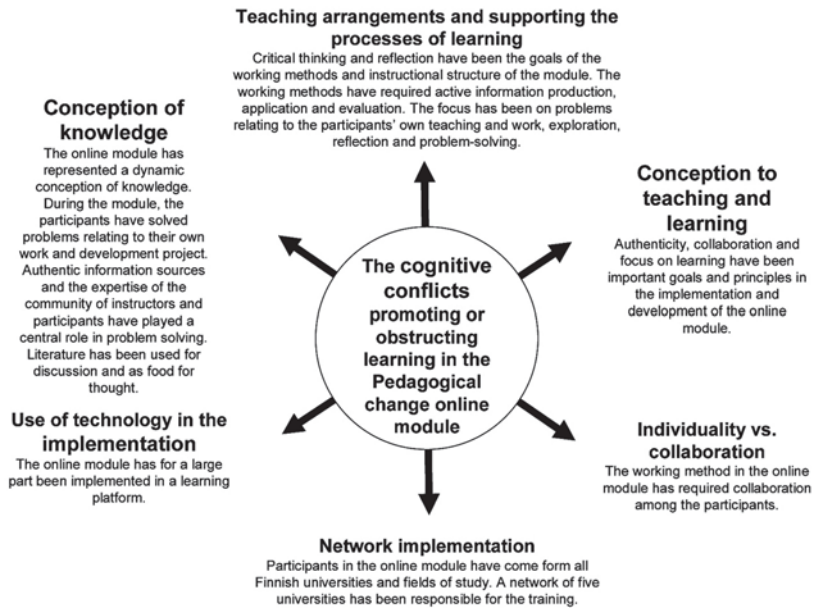

Figure 2. The cognitive conflicts promoting or obstructing learning in the Pedagogical change online module.

[13] Lakkala & Lipponen 2004; Lipponen & Lallimo 2004; Lipponen et al. 2005.
[14] See for example Piaget 1929; Eteläpelto & Tynjälä 1999; Lehtinen 2003.

When designing online teaching, the instructor must constantly balance between many challenging questions and make important decisions that affect the outcome of the online work. One difficult issue requiring attention is the instructions, the work stages and the pedagogical script for the course. A central question is how far ahead should online work be structured and planned. On one hand, online work requires some structuring: clear instructions, schedule and learning goals so that the participants know what is expected of them. On the other hand, it should be noted that giving an excess of unnecessary rules and orders might turn learning from authentic assignments into make believe learning with artificial goals[15]. The power and intrigue of online learning are connected to its freedom and unforeseen results. The teacher and instructor do not know beforehand what will happen and what the students learn. In the Pedagogical change module, we have had to contemplate the convenience of the working method, for example when defining the thematic topic areas. Although the themes have been intended to provide a context for discussion, they may have also limited it.

For any online module to be successful, it is important that the participants are committed to the work and take part actively. According to our experience, the commitment of the participants can be promoted by trying to make the work as meaningful as possible for them and avoid artificial quasi-activity. The learning tasks and work methods must be flexibly integrated into the participants' own work and they need to feel the benefit of it throughout the process. All in all, it is important that the work is meaningful to the participants in a professional sense while also offering them a sense of belonging and succeeding.

> *"Nowadays, at least for me personally, both my own experiences from studying online and from realising that the assignments are meaningful for me affect the level of participation."*
> *(Discussion comment in the 2002 online module)*

The nature of the role and actions of online tutors, teachers or experts often causes conflict. For example, it may be that the online instructor is given detailed instructions to govern and moderate the discussion. This may lead to the instructor (or participants) assuming a more traditional, off-line type of teacher-centred setting where the teacher-student relationship structures the conversation. When acting as an online instructor, we consider it important to carefully consider when and how to intervene in the learning process of the participants, and to be careful not to excessively limit or even prevent the workflow. An ideal online instructor is a sensitive co-learner and listener who carefully observes and assesses the situation to see when his/her intervention is needed to make the work advance smoothly for all participants. When there seems to a problem, or when the progress seems to have stopped, the problem should be verified by the participants, rather than the instructor trying to strongly influence and give direct instructions on how to proceed from his/her own point of view. The participants should also be included in the process of solving the problem. Guiding questions, such as "*It seems to me now that…*", "*Do you agree with me?*" and "*How should we proceed?*" have in our experience proven to be efficient in this kind of situations.

According to our experience, participation in the discussion alone is not a sufficient guarantee that the person has actually learned something. Learning can be supported by interim and final reporting in which the participants highlight issues and viewpoints from the discussion that have been relevant and meaningful for them.

[15] See for example Dillenbourg, 2002.

"Online discussion tended to be slightly fragmented, but producing my own plan and discussing it with the peer group substantially helped me to refine my development project."
(Participant feedback 2002)

Online discussions such as in this case do not necessarily offer ready-made models or solutions for the participants' problems, but they improve and enhance their understanding of the complexity of the university community. The discussions can also function as guides and counsels when the participants are making sense and meaning of their problems. The use of ICT for learning also forces us to think differently and break some of the old educational and pedagogical structures. Changing structures in teaching and assuming the new role as a teacher bring along surprises and problems. Tolerating insecurity and the incompleteness are becoming important characteristics for teachers in the process of pedagogical re-structuring.

"We should honestly tell people that their work is going to be quite muddled for some time, but in the end it is worth it because the desirable things waiting in the horizon can only be accessed after the process of change is finished." (Discussion comment, online module 2003)

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Online tutoring – a challenge towards assuming versatile roles "The educator helps students to learn, the social networker creates a good atmosphere and the technologist helps with technical issues"

Arja Kukkonen and *Sini Lehto*

Summary

This article discusses online tutoring and the duties and challenges encountered in the role of online tutor. Online instruction and communication while teaching challenges the tutor to assume a variety of roles and to use them appropriately in changing teaching situations and different stages of the online module. The article uses the results of an inquiry conducted among the tutors of the Organisational Change online learning module of the TieVie expert training programme in the autumn of 2005. This material of experiences reflects the online tutors' points of view and gives a vivid description of the role challenges encountered by them. According to the tutors, e-learning tends to emphasise pedagogical, social and administrative roles rather than content and technical expertise.

1 The experiences of online tutors as the starting point for an examination

This article focuses on describing the tutoring and the experiences of tutors during the Organisational Change online module in the TieVie expert training programme. The article examines the differences in the roles and activities of the tutors instructing in the online module. Online tutoring is a complicated, interesting and challenging phenomenon, and understanding it in depth enables high quality instruction based on considered practices in an online environment.

The article makes use of the inquiry sent to the tutors of the Organisational Change module implemented in the autumn of 2005, which focused on the tutors' own views on the roles, duties and activities of an online tutor during the different stages of the online module. The inquiry was carried out using an online form, and eight of the ten tutors responded to the inquiry. The results were processed anonymously. The questionnaire contained eight multiple choice questions and eleven open-ended questions, the results of which were studied with the qualitative content analysis method. The authors of this article have participated in both the development and implementation of the online module, and acted as tutors during it.

2 The Organisational Change online module

The Organisational Change module was a part of the TieVie expert training programme in which a total of 15 ECTS credits were awarded. The online module (2 ECTS credits) was intended to provide basic knowledge on the strategy work and quality control aspects in the development of the use of ICT in teaching, and it lasted for five weeks. The work in the module was divided into four stages: 1) orientation, 2) evaluation of the present state, 3) execution and 4) summarising and contemplation. The work was conducted completely online on the WebCT learning platform. Of the tools available in WebCT, chat and group discussion areas were used. The instructions and materials of the online course were made available on a website produced with ApuMatti[1] .

Collaborative work in the online module took place in the form of role discussions. The aim of the work was to create a development strategy for the use of ICT in teaching for a hypothetical university institution. The tutors would distribute dual roles to the participants of their groups, consisting of a role connected with the mission and position of the university institution (for example professor, teacher or ICT designer) and a general strategic role (flag bearer, citizen or cynic)[2] . This imaginary frame story formed the basis for group discussion, where the participants' discussion was based on their roles given at the beginning of the module. The role discussion enabled the development work of the use of ICT in teaching and the related multi-dimensional field to be examined from a different perspective. A total of over 1200 online discussion messages were sent during the module, and the groups also participated in chat sessions lasting 30–60 minutes. The most enthusiastic participants visited the course area over 300 times during the online module, and sent over 20 discussion messages. According to the feedback gathered on the module, the role work used in the module was seen as partly motivating and partly restrictive. It was sometimes difficult for the participants to keep to or think through the assigned roles. On the other hand, it was felt that the roles helped them to widen their perspectives. The roles definitely evolved along the way, and some genuine opinions and comments by the participants outside their respective roles entered the discussion.

3 Tutoring during the Organisational Change online module

A total of 102 experts on different fields from nearly all the universities in Finland took part in the Organisational Change module. The participants were divided into ten groups, with a tutor of its own in each one of them. One tutor thus had a group of about ten people under his or her instruction.

The online module was based on independent working in groups supported by the tutors and the person in charge of the module. The evaluation of the module was based on the activeness of the group, completion of assignments and the tutors' views on the operation of their respective groups. To assure that tutoring was done uniformly, the tutors were given written instructions and a joint familiarisation meeting was arranged where the course materials and duties of the tutors were explained and the implementation of the course could be discussed on a general level.

[1] ApuMatti is a tool developed in the University of Helsinki for developing and publishing digital learning materials in an online environment.
[2] Mantere 2003.

When the tutors were chosen for the module, the aim was to recruit persons with prior experience in online tutoring and preferably also in the Organisational Change module either as a participant or as a tutor. According to the inquiry conducted among the tutors, half of them were qualified teachers, meaning they had completed the pedagogical studies required of teachers in Finland. Their amount of teaching experience varied greatly, from less than a year to several years. Half of the tutors had previous experience of tutoring online modules in the TieVie expert training. All but one had experience in acting as tutors in some other online module.

3.1 The roles of the online tutor

Online teaching does not add any new roles or responsibilities to those of a tutor. However, the professional skills needed in tutoring tend to be emphasised differently in an online environment. A new, partly unknown context creates challenges on the flexibility, perseverance and innovativeness[3] aspects of tutoring work. To respond to these challenges, the tutor must assume several different roles which can be divided into five different categories: administrative, pedagogical, content, social and technical roles[4]. These categories where also used in the inquiry addressed to the tutors of the Organisational Change module.

Administrative tasks start well before the online course begins and continue even after it has ended. In the Organisational Change module, administrative tasks were divided between the tutors and the person in charge of the online module. The duties of the person in charge included planning the overall implementation of the module, assuming the administrator's tasks on the online learning platform used (such as creating user id's and passwords, granting read and write privileges) and communications. The person in charge was also responsible for presenting the online module in the contact seminar and sending weekly email newsletters to the participants. The administrative tasks of the tutors included taking care of informing and instructing the group, registering the completed assignments of the participants and providing these credit records to the person in charge of the module.

The pedagogical role was mostly the responsibility of the tutors. The pedagogical tasks included the guidance of the learning process, giving feedback and evaluation. It was the job of the tutors to instruct the participants in adopting the working methods chosen for the course, to support the progress of their work and to help with any problems that arose. The job of the tutors was also to encourage and motivate, and to take care of the participants who had difficulties in getting ahead with the learning process. According to research, there is a greater need for instruction in online teaching than in face to face teaching[5]. Lehtinen[6] uses the term "scaffolding" to describe the construction of a framework to support learning. In this model, the tutor does not directly interfere with the information construction process of the student, but instead aims to give strategic, well-timed tips to the student on how to advance in the process of learning, and to help the student to evaluate his/her own performance. Constant feedback has an important role in online teaching as well as in teaching in general, since students need support during the whole learning process. The role of a tutor as an active instructor is to turn "messing around online" and random development of information[7] into genuine dialogue and sharing of expertise.

[3] Anderson 2004.
[4] Cf. Tervola 2003 and Ahonen et al. 2002. See also Anderson et al. 2001 and Anderson 2004.
[5] Kynäslahti & Wager 1999.
[6] Lehtinen 1997.
[7] Heiskanen et al. 2000.

The content role was also divided between the person in charge of the course and the tutors. The person in charge designed the contents and online materials of the module. During the module the tutors then acted as content experts based on their own starting points. Instead of providing direct content expertise, the tutors could also direct participants to appropriate sources of information. The most important mission of the tutors was, however, to lead the participants to the necessary information, keeping in mind that content serves as a resource for learning, not as the target of the learning itself.

The social role of the tutors included the creation of an open atmosphere for learning, directing online discussion and acting as a role model. A friendly, social learning environment promotes familiarisation of the participants with each other and the teacher, and it makes it easier to group the participants together. An open and confidential atmosphere of communication gives each participant the possibility to participate in the work as an equal member of the group. The role of the tutor is significant in starting the online discussion, maintaining it and bringing it to a finish. Tutors act as organisers of online discussion, whose job includes ensuring that the schedules and rules of discussion are being followed, giving instructions on the completion of assignments and controlling the process of discussion[8]. In directing online discussions, possible social roles include 1) host or hostess bringing the people together, 2) weaver who links the comments with each other, 3) participant who learns while participating or 4) provoker who aims to induce and confound[9]. Summarising the online discussions of the groups was highly important. The purpose of the summaries is to form a synthesis of the state of the discussion, combining themes and differing opinions and to refer to the original posts. The tutor's example can affect the online behaviour of the participants, and therefore the tutor should show by his or her example what kind of participation in the online discussion is expected from the participants.

Technical tasks in online teaching include the use of ICT in teaching and acting as a technical support person. Besides having skills as a user of technical applications the tutor also needs to be skilled in instructing their use[10]. The role of the technical support person also usually falls on the tutor, unless the organisation has a special technical support person. In the Organisational Change module, the WebCT specialists of the teaching technology unit of the University of Helsinki were primarily responsible for technical support. The person in charge of the module and the tutors naturally participated in giving technical assistance as allowed by the resources.

4 The tutor's viewpoint: how to act as a tutor?

The views of the tutors on their own activities during the Organisational Change module were divided into four subcategories based on the materials from the inquiry: pedagogical background of tutoring, ways of tutoring in different parts of the online module, ways of tutoring in directing online discussion, and practices and challenges of directing online discussion. In the following chapters, the views of the tutors are discussed in terms of these subcategories.

[8] Manninen & Nevgi 2000.
[9] Ahonen et al. 2002.
[10] On the technical role of an online tutor, see for example Barker 2002.

4.1 Pedagogical background of tutoring

The pedagogic background of a tutor, including the tutor's views on teaching, studying and learning, are worth paying attention to when ensuring the success and meaningfulness of online instruction. The most central questions are related to the ability of the tutor to confront the learner in the learning process, and not so much to the technical and instrumental viewpoints.[11] The tutor's pedagogical thinking affects the quality of instruction in a significant way. By examining their own pedagogical thinking and theory of learning and by becoming conscious of their effects on their instruction, the tutors create an opportunity for meaningful online instruction.[12]

The background thoughts reported by the tutors of the Organisational Change module resembled most closely socio-constructivism[13], where emphasis is placed on the social construction of knowledge and learning is seen as a social, interactive and collaborative process. The tutors explained their role as that of an instructor and encourager; the idea was to make the members of their own group to discuss with each other, intervening and giving additional instructions only when necessary. The aim was to make the tutored group self-guided. According to the constructivist view of learning, the learner builds his or her own meaning of an issue independently instead of assuming it directly in the form in which it was expressed. The building of meanings is essential in learning, and requires understanding.

The tutors also placed importance on the direction of the learning process. "*The participants must feel that they are being guided and the context must be clearly defined.*" "*I implemented the model of collaborative learning with a light touch*." One tutor mentioned having used the meaningful learning model of Ausubel and Engenström as his background idea. "*Learning is always challenging and requires work, but at the same time it intertwines with prior competence, work duties and your own reality and therefore becomes interesting, useful and critical of the current state of matters*."

Supporting the participants' work, encouragement and motivation were seen as pedagogically important issues. "*From the viewpoint of content, I thought it was a good idea to emphasise the use of theory. In a practical assignment, there is the danger that discussion is only based on experience without proper familiarisation with the learning materials and tools of the module.*" The tutors wanted the level of the discussion to remain high, and reported that they would "*return the participants to the themes as necessary and bring stimuli and additional instruction when needed*".

4.2 Ways of tutoring at different stages of the Organisational Change online module

The roles of the tutors in the different phases of the Organisational Change module differed greatly. In the starting phase, the emphasis was on giving information, forming groups and launching the online working. After the module had started properly, the main task of the tutors was to direct the online discussions, which is discussed in detail in the following chapter. When the module was nearing completion, tutors increasingly adopted the role of evaluator.

[11] Kiviniemi 2000, according to Leppisaari and Helenius 2005.
[12] Leppisaari & Helenius 2005.
[13] Tynjälä 1999.

At the beginning of the module, the tutors had the largest variety of roles to assume. The proper starting of online work requires administrative, social, pedagogical and technical tasks to be performed by the tutor. In the first week, the job of the tutors included the division of the roles related to their work between the participants on the orientation discussion area or by email. They also had to organise a time when all the participants would participate in an online chat and attend the online chat meeting (introducing themselves, explaining the roles, helping with problems and guiding the participants ahead). In addition they had to ensure that all the group members were attending and that all had by the end of the week received a role related to their work and a strategic role, and that the roles were distributed evenly. According to the online inquiry, the tutors acted according to the instructions given, each with their own style. The emphasis in their work was on spreading information and activating and encouraging the participants. "*I aimed at creating a relaxed and enthusiastic atmosphere to facilitate participation in discussion. I made sure that the assignment was known and understood.*" At the start of the module, all the tutors were active and aiming towards a tutor-guided working method.

Meanwhile towards the end of the online period, the tutors mostly performed administrative and pedagogical roles, with the primary task of evaluating and reporting the completed assignments to the person in charge. One tutor described that her way of directing was "*clearly demanding with a firm intervention in case of minimal presentations and non-attendance*", in other words active participation was encouraged through clear instructions and by sticking to the evaluation principles that had been stated to start with. The same tutor considered especially encouragement, expressing gratitude and responding to contacts by participants as significant tasks in the work of a tutor. Most of the tutors did not place much emphasis on giving individual feedback, as the focus was on encouraging the completion of missing assignments instead.

4.3 Methods of tutoring in the direction of online discussions

When the Organisational Change module was well under way, the tasks of the tutors were focusing on the direction of discussions. The direction of discussion is the most resource-consuming of the tutor's tasks in online teaching[14]. Directing online discussions requires the tutor to be able to guide and activate the discussion of the group and to encourage and motivate the members to participate. The tutors opened new discussions in the discussion areas of the groups, followed the discussions and participated in them if they wanted to. The tutors also had to summarise the discussions that had taken place and make sure that everyone was discussing in the right place. When the module neared its end, the tutors fixed a time for the group's final feedback discussion on the chat board. At this stage one could see the greatest differences in the work of the tutors, as some of the tutors were very active in participating in the online discussions, while some assumed the role of a more passive tutor.

The active tutors attempted to activate their group by leading the discussion by their own example. In addition to actively participating in the discussion, they paid attention to linking the comments together and summarising the discussion. Some tutors preferred, however, to remain in the background and only to attempt to shake the passive bystanders to join the discussion. One of the tutors reported: "*I was a rather 'passive' tutor in that I did not participate much in the online discussions except for making summaries. At this stage I also did not try to remind or demand the non-active students to participate.*" The tutors also seemed to connect their own actions with the

[14] Soila 2003.

activity of the participants. If the group proved to be an active one the tutor would remain in the background, but if the group did not start the discussion independently the tutor opened the discussion in a more active way. "*My group was so active that the participants did not require any encouragement at all. The group members also supported each other with the content in an admirable way, so my role as a tutor was to remain in the background most of the time.*" "*Sometimes I had to call out after the lost souls a little*".

The tutors themselves felt that their roles were social, pedagogical and administrative rather than technical or content related. Between individual tutors there were sometimes great differences in the emphasis of different roles in their activities. The tutor's role in the Organisational Change module is crystallised in the report of one tutor: "*I administered the activities of my group according to the instructions given. The pedagogical role was fulfilled with my way of acting according to a certain didactic model. Socially I was an active member of the group and promoted communality. My technical impact was minimal in comparison to other aspects.*"

4.4 Practices and challenges in directing online discussions

The tutors were asked to list their three most important practices or methods in directing online discussions. One tutor informed using her own example as a model for content, discussion and critical contemplation without forgetting the importance of humour. She actively participated in the discussion together with the group and followed the progress closely without restricting the space of the group members. The tutors mostly reported provision of instructions, monitoring, motivating, scheduling, activating, keeping sure the discussion stayed on topic and summarising the discussion as their direction methods. "*I read the comments and summarised. I did not comment, evaluate or criticise the content. I assumed a consciously neutral position. I was positive and encouraging and gave friendly feedback. I tried to promote interaction and indicated that I was present, but I let the matters happen at the pace and in the way shown by the group. I consciously avoided an exceedingly teacher-like role.*"

What the tutors considered most difficult was to make all the participants enthusiastic about their roles and actively participate in the discussion. "*Most common problems in carrying out educational discussions are related the activation of learners and maintaining the discussion*".[15] The different amounts and timings of activity were seen as problems in group work. "*One had to be understanding and accept the delays in schedules due to the other commitments of the group members.*" The inexperience of the participants as online learners and teachers generally came as a surprise to the tutors, and resulted in the assignments on the online module being rather challenging for some of the group members. The tutors also felt that they could have familiarised themselves with the course materials more thoroughly beforehand. Summarising the discussions proved to be a challenge due to the abundance of discussion. The supplementary materials of the course were criticised by the tutors. "*The materials should have been prepared more in accordance with the assignments.*" One of the tutors also wished that a greater variety of working methods should have been used in the online course.

[15] Soila 2003.

5 From monitoring the completion of assignments to dialogic confrontation with people

Generally speaking, many different factors affect online tutoring and the assumption of the roles associated with it. Some of these factors are individual, while others are related to the online module and the participant group. The practices of individual tutors and the experiences of successful online tutoring may vary greatly between different implementations of the same online module, so analysing and reflecting on his/her own activity gives the online tutor information that is valuable in developing his/her work. This article has aimed to share expertise by shedding light on the experiences received in online tutoring and to bring forward the cognitive tools that have been found in those experiences to benefit the field of online teaching. It is worth noticing that a deep analysis of the discussions that took place during the modules would perhaps provide a more objective way to discover the actual practices of guidance and roles of the tutors.

The experience of the tutors in the Organisational Change module was mostly a positive one. The feedback received from the students supported the tutors' views on successful group guidance. However, there is room for improvement even in successful online tutoring, and many issues that deserve attention were also discovered during this online module. For some tutors, other occupational duties hindered full commitment to tutoring, although many felt that they had attained an inspiring and motivated attitude for direction also within the limits of the given time resources and other work assignments. The tutors were contemplating more on the need to provide more detailed instructions for online discussions and on the need to participate more actively in the discussions. One of the participants also commented on the lack of activity: "*Everything was already said in chat, and there was nothing left to discuss in the discussion area.*" Also the division and assumption of the roles given to the participants required instruction on the part of the tutor, which was perhaps inadequate without a face to face meeting. The participants may have felt that their role was too distant to them, and therefore could not participate in the online conversation. The tutors may also experience difficulties in creating a confidential relationship with a role character and making the role characters form groups.

A familiarisation meeting was arranged for the tutors of the Organisational Change module in the autumn of 2005, where the goals, method of implementation, scheduling and practices of online tutoring used in the module were discussed together with the person in charge of the module. All the tutors did not participate in the familiarisation meeting. Those who were present considered the familiarisation to be adequate, although it seemed that the tutors needed more information on the contents of the online discussion in the first week and on compensatory assignments. In addition, the tutors suggested that support and concrete forums for their collegiality and sharing of expertise between tutors should be established. It would be beneficial if a discussion area was opened for tutors where the community of tutors could share support on questions related to tutoring.

To further develop tutoring in the online module, attention should be paid to create a unified working method for the tutors. The tutors should already receive more detailed instructions at the familiarisation stage, but on the other hand small differences caused by personal tutoring methods should still be allowed. The various things that different students expect from a tutor should also be taken into account. While some require detailed instructions and active participation in the discussions, others hope that the tutor leaves space for the participants' own thoughts

and opinions. One method of developing tutoring could be that the tutor and group members discuss and agree on the working methods and rules of conduct in the group at the beginning of the online module within the limits of generally accepted guidelines.

A challenge exceeding the limits of the Organisational Change module is how to make participants really interact and cooperate in ways promoting expertise also on the web[16]. Online discussion too often seems to lack the characteristics of true dialogue. The need for dialogic confrontation in instruction also remains – the nature of an online environment tends to bring participants apart from each other, but this can be overcome by the tutors' activity, and genuine encounters between people can thus be promoted[17].

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[16] Korhonen 2005.
[17] Leppisaari & Helenius 2005.

To guide or not to guide, that is the question. Practical advice for mentors.

Tove Forslund and *Kati Hietalahti*

Abstract

The aim of this article is to analyse the role and functions of TieVie mentors based on two mentors' experience in several years of mentoring activities in TieVie training programmes[1]. Our experiences show that the most important function of a mentor is to guide the participants so that they finish their training programme successfully and to open the doors for them to the national network by asking the right questions, giving advice, motivating and listening. The mentor is the organiser, pedagogical expert and guide of the mentoring group. In this challenging task, the major pitfalls are formed by the use of time, maintenance of two-way communication and the ability to step aside. The analysis of mentoring activities at the Tritonia Learning Centre is based on Gilly Salmons ideas of e-moderating. An assessment was carried out among those who have participated in TieVie training at Åbo Akademi University in Turku and its results are discussed from four perspectives on mentoring.

1 Introduction

The authors of this article have functioned as mentors in TieVie training programmes, one of them for three years and the other one for six years. The article is based on our experiences in mentoring. We will first look at mentoring from a more general perspective and then describe how we carried out mentoring at theTritonia Learning Centre in Vaasa and Åbo Akademi University in Turku.

We see the mentor's expertise and responsibility as a many-sided combination of knowledge of human nature, knowledge of substance and skills of guidance. The title of our article, "To guide or not to guide" summarises our view on the mentor's multifaceted proficiency. The mentor has an important role as an activator in the training process, supporting and motivating the participants to complete their training and carry out their development projects[2]. The mentor must be able to see when guidance is needed and also to understand when it is time to step aside. The mentor needs also to know how to adapt his/her guidance to both the levels of skills and the personality of those guided. The most important skills of the mentor are to listen and to ask the right questions.

[1] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).

[2] See Airaksinen & Frilander 2008 in this publication.

Mentors of e-learning are often pioneers in their area and they are paving the road for a new kind of thinking. The mentor directs participants of TieVie training programmes to understand the goals and current situation of e-learning and to find the resources and support available for the development of teaching both at their own universities and on the national level.

2 The mentor – what does it mean?

The word "mentor" has its roots in Greek mythology, where Mentor was the trusted friend of Odysseus, in whose semblance Athene gave advice to Odysseus' son Telemachus when Odysseus was on his travels. This advisory role still remains in the modern mentor's job description. Today, the word mentoe is used, for instance, older and more experienced workers who guide the newly employed and convey their knowledge and skills to them. Nakari etc.[3] have defined mentoring in terms of transmitting and conveying experiences, viewpoints and knowledge from one person to another. Based on these definitions, we consider mentoring in this article in terms of free-form guidance based on two-way communication and exchange of experiences.

The functions of a mentor require that the mentor is committed to support the person needing guidance for quite a long time. Irrespective of where the mentor is functioning, he/she is never the private assistant, psychologist or priest of someone, but explicitly a discussion partner and guide who is sharing his/her tacit knowledge and experience.

Mentoring also reminds of supervision of work, by the help of which one tries to develop experts in their work and enhance their competence[4] . Compared to actual supervision of work, mentoring activities are based on free will and experience. What is typical to mentoring relationship is two-way communication, in which both mentor and actor listen to each other and aim at a joint understanding, in addition to presenting their own experiences and viewpoints. Confidential dialogue is one of the central working methods. Mentoring may also be implemented in small groups as was done in the TieVie training programmes (for closer details, see Chapter 3).

In an optimum situation, mentoring is a rewarding learning experience for both the parties. In this way the idea of mentoring illustrates the core of the modern view on learning, i.e. construction of knowledge through interaction, testing of existing knowledge, questioning of one's own thoughts and active production of new knowledge structures.

2.1 Goal of mentoring

In the previous chapter we discussed what mentoring is all about in general. Here we focus on what mentoring means in the context of TieVie training. In the mentoring handbook that was made available to the TieVie mentors, the purpose of mentoring activities was formulated as follows, which has also functioned as the guideline for our mentoring in the TieVie training programmes:

[3] Nakari et al. 1996.
[4] Nakari et al. 1996.

"*The purpose of mentoring activities is to support the participants in the course to complete their training and to promote their project work, to tie the participants' project work to the university's own activities and to add to the participants' knowledge of their own universities.*"

In the TieVie programmes, an important goal of the mentoring activities is to support the participants so that they can complete the training programme they are taking part in, both from the viewpoint of the participants themselves and from the viewpoint of the university that benefits from the fact that there are employees with a formal expertise on the area. The aim of the TieVie programmes is to create a pool of experts in the university who may be utilised in the future as, for instance, envoys in their own units and as resource persons in various working groups and support services. Through mentoring activities it is possible to create a feeling of involvement in the e-learning activities of the university among the participants and to get them to become part of the national network of experts in e-learning. The TieVie programmes give the participants an idea of the current state of e-learning in the entire country. On the basis of the assessments in our mentoring groups we can see that the participants appreciate the opportunity offered by the TieVie programmes to become networked with experts and colleagues with similar interests in other universities.

2.2 Mentors' tasks and roles

The mentor's tasks are described in the TieVie mentors' guide. Based on this description of their functions, we can view mentors' tasks from four points of views:

- organisational *(to promote the studies by making sure that the group together adheres to the schedules, to discuss together with the participants how the online assignments should be carried out, etc.)*
- pedagogical *(to create a forum for exchange of pedagogical ideas and thoughts, etc.)*
- technical *(to make sure that the participants learn different e-learning tools, to help in technical aspects of carrying out the assignments, etc.)*
- social *(to make sure that the participants meet and learn to know other course participants from their own universities, to create an atmosphere where the participants motivate each other to complete the course, etc.)*.

The mentor should find a balance between informing, counselling and tutoring. We visualise in Figure 1 the stepwise model that illustrates how tutoring can be built up. The model has been created for the tutoring of new students, but it can also be used in other tutoring activities:

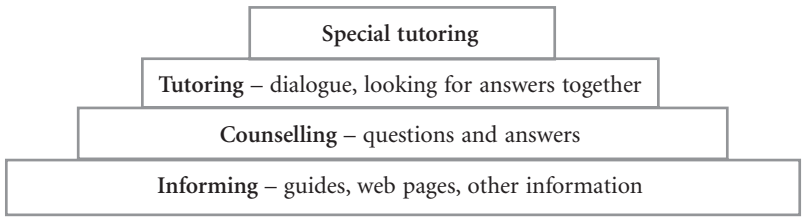

Figure 1: The steps in the tutoring of studies[5]

[5] Mikkonen et al. 2003.

The mentor's job description covers the three lowest steps. Special tutoring, such as technical support in the production of online courses, is not one of the mentor's functions. It is obvious that a mentor may have a special tutoring function in his/or her job at the university, such as technical support for the learning platforms, and may then even provide special tutoring in the mentoring meetings as necessary, but the mentor's main function is to be able to refer the TieVie participants to the correct support person. The TieVie mentor must therefore know his or her own university's support services for e-learning.

The mentor's tutoring is based on informing and counselling. The informer's role is important especially at the start of each TieVie programme, at which time the participants may easily feel that they are drowned in the flow of information. This is where the mentor can be of assistance by helping to sieve information. The informing function is, however, important throughout the training programme, because the more successful the information is, the less tutoring and counselling is needed. Counselling is about informing and advice that responds to expressed needs, while tutoring itself consists of discussions to help those tutored to tutor themselves.[6] Sufficient and well-structured information also supports self-direction among the participants.

Mentoring activities are often based on communication between two persons, a mentor and an actor. In TieVie training this communication takes place in small groups with 2-6 participants. The nature of mentoring is then quite different from a discussion taking place between two people. The first challenge is to build up a confidential and open atmosphere in the meetings. The second challenge for the mentor is to realise he or she is not the only one giving advice and tutoring, as he or she can support the participants to become self-directed so they can tutor one another. This means that the mentor should try to direct the discussions in such a way that the participants share their experiences, give advice and ideas to each other in a constructive manner, and listen to each other.

The most essential skills of a mentor are the ability to encourage, give advice and motivate. It is important in mentoring activities to know how to ask the right questions to drive the train of thoughts forward. Besides, one should not think too lightly about the impact that the mentor's views, attitudes and thoughts may have on the participants in the course. Although the mentor does have a major and important role in the process of promoting the participants' projects and to make them complete the programme, the participants must be allowed to make their own decisions so that they feel at the end of the programme that it was their project that they carried through themselves – even if it was accomplished with the mentor's support who referred him or her to the resources, introduced alternative approaches and gave constructive feedback.

2.3 Pitfalls of mentoring

Up till now we have discussed how the mentor should act – now we will shed light on what the mentor should try to avoid. Maybe the three most common pitfalls in mentoring are the use of time, maintaining dialogue, and the ability to step aside as necessary.

[6] Ihonen 2003.

Experience shows that the *use of time* is one of the major pitfalls in mentoring. Many people are hindered from starting to mentor by the fear of an infinite amount of work. Although it is important for the mentoring process that the mentor and the person being tutored meet often enough, it is good to remember that they should already at the beginning of the mentoring relationship agree on the limits of mentoring and the division of responsibilities. The mentor need not be available 24 hours per day. One meeting once a month can be adequate, depending of course on the length of the mentoring relationship. It is also easier to keep control of your use of time, if you as a tutor are aware that you need not be able to do everything yourself but can refer the participants to other support persons and sources of information.

Maintenance of two-way communication is another pitfall in mentoring activities. It is often easy for the mentor to forget that one of the mentor's most important functions is to listen and ask questions, not to put forward his or her own ideas and knowledge. The mentor is easily tempted to give instructions, giving the course participant a fish instead of a fishing rod, which is not always a valid approach in the long run. Indeed, mentoring is based on dialogue which not only promotes learning but also improves the atmosphere in the mentoring meetings when the participants have an opportunity to influence how the meetings take shape. Two-way communication can be achieved through the mentor's genuine interest in his/her actors and their problems and his/her committed presence in the meetings. In the best cases this dialogue is rewarding both for the mentor and for the actors, complementing both parties' knowledge of the stuff and communicative skills.

Thirdly, the mentor shall know when the participants have developed so much that it is time for them to *step aside.* The mentor may forget that the participants are likely to have developed quite a lot after the previous meetings. The mentor should launch each meeting by letting the participants air their feelings and also by finding out how the participants feel they have developed after the previous meetings and which issues have arisen. After this it is the mentor's challenging task to adjust his or her tutoring accordingly, as otherwise the mentor is not likely to be successful in maintaining the participants' motivation.

3 Mentoring activities as part of the TieVie training programmes

Mentoring formed a compulsory part of the TieVie training programme (5 ECTS credits), but it was only introduced to the TieVie expert training programme (15 ECTS credits) 2005. It would certainly have been a good thing if there had been mentoring right from the start even in the TieVie expert training.

Mentoring activities include *mentoring meetings* with the entire group, in which the participants are given information, advice and tutoring both by each other and by the mentor. Mentoring also includes *individual consultations* (phone calls, questions by e-mail, informal discussions after a mentoring meeting with one of the participants staying for a chat, etc.). One part of mentoring is also formed by the *summaries* that the mentor wrote after the meetings and other structured and *addressed information* that was sent to the mentoring group *by e-mail.*

In this chapter we will be presenting two mentoring cases, one from Tritonia Learning Centre in Vaasa and the other one from Åbo Akademi University in Turku. Through these two different

examples we will see how the various tasks of a mentor can be implemented in different ways. It is common for both of the examples that they put emphasis on listening and questions as an important part of the mentor's tutoring and that there is a focus on the mentor's ability to identify the participants' own need for development.

3.1 CASE: TieVie mentoring activities at the Tritonia Learning Centre in Vaasa

Kati Hietalahti

I functioned as a TieVie mentor in Vaasa for three years in a row from 2002 to 2005. In my group there were participants from both the University of Vaasa and Åbo Akademi University. During my time as a mentor, I was working as a planner of e-learning at the Tritonia Learning Centre. Mentoring was such an integrated part of my job description that it was sometimes difficult to distinguish what I was doing in the position of a mentor and what I was doing within the framework of my other duties. Here is a description of my mentoring experiences from those three years.

My own mentoring groups with 4-6 persons were optimal in size for efficient group work. We met once before the actual start of the training programme, once during each TieVie online module and sometimes we met even after the programme had ended. The structure of the TieVie programme determined when we met and which themes we discussed in the meetings. In this way I tried to make the participants committed to the TieVie programme. Contacts with the mentoring group also took place by e-mail, phone, corridor and coffee table discussions and, if necessary, also in individual meetings.

In the mentoring meetings we discussed the goals and progress of the TieVie training programme, pedagogical principles of e-learning, virtualisation strategies and support functions in our own university, and also discussed how the development projects were advancing or not. A few times I also arranged, together with my colleagues, tailored technical training sessions for my mentoring groups, as I was – by virtue of my position – one of those who were responsible for personnel training at the Tritonia Learning Centre. But as we have pointed out in this article, this was not really part of the duties of a TieVie mentor.

The mentoring activities included all the ingredients of tutoring mentioned in Chapter 2.2., i.e. informing, counselling, tutoring and special tutoring. I constantly adjusted my tutoring to the group's development by not only listening to the participants' wishes but also by utilizing the five-stage model of tutoring developed by Gilly Salmon for e-learning (The 5-Stage Model of E-moderating).[7] as part of mentoring. The idea in this model is that different kind of guidance is needed at the various stages of the learning and studying process. First, the mentor offers motivation and encouragement, after which he/she, with the process advancing, gives concrete support as the participants get to know each other and the online learning platform and are carrying out their assignments. The tutor then gives feedback and support as needed to accomplish learning dialogue and development among the participants. Even though the model has been developed for the tutoring of e-learning, I think it is also suitable for tutoring in face to face meetings. In Figure 2 I have applied Salmon's thoughts about moderating to my own mentoring process.

[7] Salmon 2004.

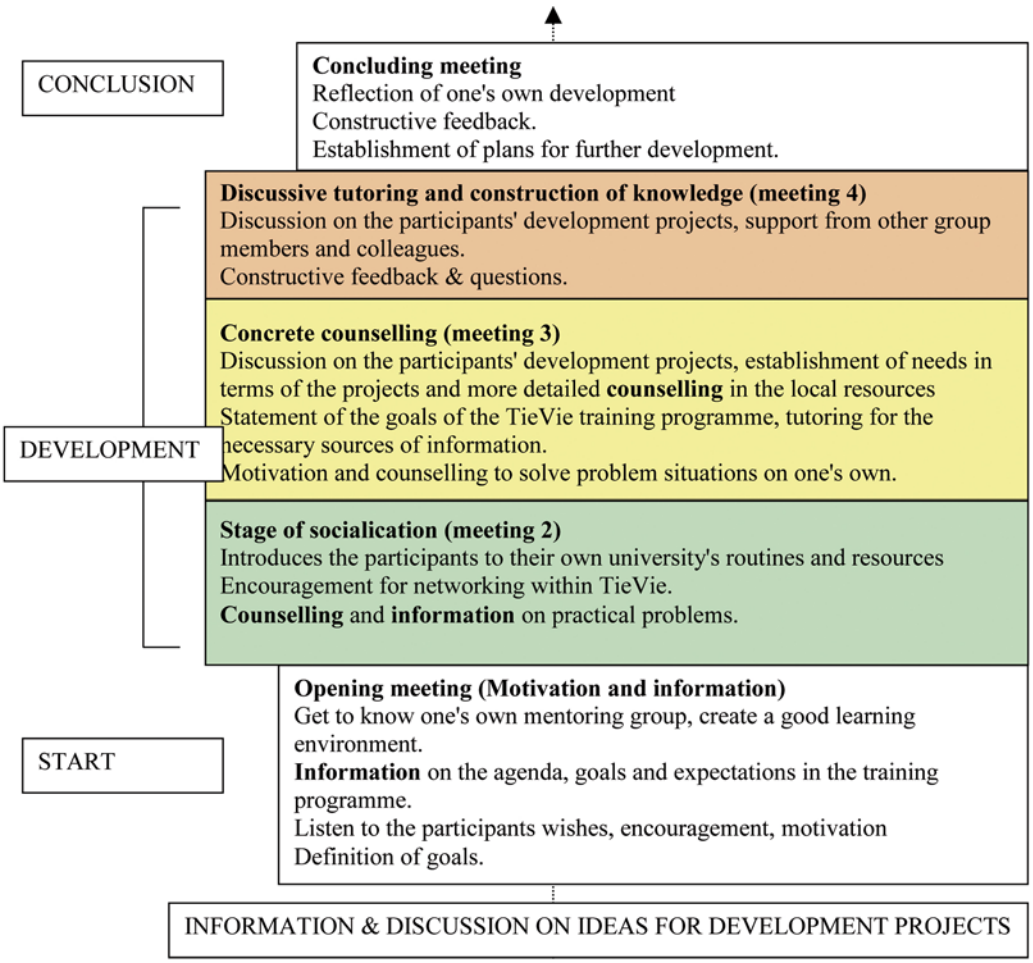

Figure 2. Description of the process of tutoring by a mentor based on Salmon's (2004) thoughts about e-moderation.

In the description of the process of tutoring by a mentor that was presented in Figure 2, I have divided tutoring into three sections: the start, development and conclusion. Although I have discussed these three stages and the meetings belonging to them as if one meeting would follow another, it need not really be so, as each level can comprise parts from the other levels and there can be several meetings on each level. The purpose of this model is to visualise explicitly the various needs for tutoring at the different stages of the process, and to show how the participant becomes more autonomous during the process. Next I will give a more detailed account of each stage.

As shown in Figure 2, the mentor's work actually already starts before the first meeting. At this stage the mentor shall call together the participants. In the invitation mentor describes the contents of the first meeting and asks all the participants to prepare themselves for the meeting so that they are ready to discuss about their own goals and thoughts for fellow actors. Essential thing in the success of the first meeting is that mentor has prepared also himself well by reading preliminary project plans of actors before hands.

Most important things of mentoring in the very beginning of the journey are to establish good and positive atmosphere in the mentoring group, to motivate the participants to accept the challenge, and to inform the participants of the length, goals, contents and working methods of the training programme. A good atmosphere encourages the participants from the very start to present their own thoughts and possible fears related to the start of the programme. In my mentoring groups the participants were often afraid of committing themselves to a long training programme, and above all they were worried about how much time and resources it would take to finalize the development project. At this stage I gave them as much information as possible about the programme and its requirements and encouraged them to meet the challenge piece by piece by setting realistically defined intermediate goals. You may get choked if you eat a whole roll at a time, but in small mouthfuls it tastes great! In addition to each participant's own goals, we formulated also common goals and responsibilities for the whole mentoring group. In this way everyone got a good idea of the group's activities and his or her own role as a member of the group.

The development phase presented in Figure 2 includes all the meetings that occur between the start and conclusion of the course, of which there can be almost as many as you like depending on the length of the training programme. At the *socialisation* stage I tried to introduce the participants to the TieVie network by, for instance, taking part actively in the group discussions on the net. Motivating the participants to take part in online discussions during busy working days was often difficult especially at the beginning of the programme. At that stage they could not yet see how useful it was to take part in the discussions. The participants were then still only beginning work on their projects. As a mentor I tried to support them to develop their projects by giving them advice and information in the practical problems that they came upon. I also referred them to the support services and routines in their own universities.

At the stage of *concrete counselling* the programme has already advanced quite far and the participants' development projects begin to take shape. The participants are also beginning to get familiar with the TieVie network. The participants also begin to become aware of their strengths and possible weaknesses in terms of the TieVie programme. At this stage I used most of the time to discuss the participants' development projects and to establish what was needed to carry through the projects. In this way I could refer the participants to the resources. As the training programme advances, it is also good to remind them of the goals of the programme and the individual participants and to discuss how to hold on to the goals or if they should be adjusted. The third meeting often took place in the middle of the TieVie programme, and at that time there was again a need to try to motivate the participants to keep up working. It also became apparent in the feedback that the discussions that were carried out in the mentor group were even one of the most important reasons why they were able to complete the training.

The last stage of the development phase, *discussive tutoring and construction of knowledge*, is a stage where the participants have often come quite far in the completion of their development projects and are aware of the available resources. At this stage I tried mostly just to listen and discuss and give constructive feedback. Especially at the end of the programme we had highly rewarding discussions in the mentoring group, as the participants had acquired such a wealth of new viewpoints and experiences. As a mentor I tried to transfer the responsibility in the meetings to the participants to the highest possible extent, and withdrew myself just a little bit.

As it is the time for the *concluding meeting,* the programme is already in its final yards and the development projects are almost completed. At this stage we held an evaluation discussion. Each participant had an opportunity to present the end-product of his or her project work and we discussed their working processes together, as we all were familiar with them thanks to the mentoring meetings. We tried to return to the policy definitions that we had made in the first meeting, and compared them with the thoughts that the participants now had. In this way we made the learning process visible. In addition, we also took a look forward and decided that we would also meet in the future, if possible.

As has become apparent above, the function of a TieVie mentor is mainly to guide the participants to complete the TieVie programme and to carry out the development projects. It is the mentor's task to lead the participants through the programme from its beginning to its end. In this example I have summarised my own mentoring process as a kind of story with a beginning, middle and end. The raw manuscript of this story was written by the TieVie team, with the mentor as the director. The final form and the end-products of the process are a result of communication between the TieVie network, the mentor and the mentoring group.

3.2 CASE: TieVie mentoring at Åbo Akademi University in Turku

Tove Forslund

The TieVie mentoring activities at Åbo Akademi have functioned locally, i.e. the course participants in Turku have had a mentoring group of their own, while the participants in Vaasa have taken part in their own local mentoring group. Personally, I took part in the first TieVie expert training programme that started in 2001, and have been functioning as a mentor ever since. I also organised some informal mentoring meetings for the participants in the TieVie expert training and supported the idea when mentoring was introduced as an official part to the programme in 2005.

I have seen it as the most important function of the mentor to support the participants in different ways to complete their training programme – a task that I have not by any means managed to carry out fully successfully (of the 52 participants at Åbo Akademi in Turku who have started their TieVie studies, i.e. participated in at least some part of the programme, approx. 10 persons have discontinued their education by August 2006). In the evaluation that was carried out in the summer of 2006 among the TieVie participants of Åbo Akademi University, the reason reported for discontinuation was partly lack of time, and partly lack of motivation. The mentor cannot do anything about the lack of time and much too large a number of numerous simultaneous projects – but the mentor must show understanding when a participant drops out and make sure that in such situations he or she is not made to feel any more guilt. In the cases where the cause of dropping out was lack of motivation, the mentor could possible have done more, for instance by trying to reformulate the project together with the participant to fit into the course or support the participant's daily work better, or by encouraging him or her to consider alternative methods to carry out the assignments in the TieVie programme.

I have certainly also had an agenda of my own for mentoring based on the fact that I have been a project leader for e-learning activities at Åbo Akademi University in Turku and head of the Learning Centre. I have seen it as an important goal to keep the TieVie participants informed of e-learning activities at Åbo Akademi to make sure they feel they are familiar with these activities.

I have also tried to keep them from reinventing the wheel and encouraged them to make use of others' experiences and any support services for the development of teaching available at the Akademi University. At the same time I have also aimed through the mentoring activities to create a pool of resource persons that Åbo Akademi can resort to in e-learning issues. This requires, of course, that these people feel involved and know what activities are going on in the Learning Centre.

I have also encouraged the participants to carry out development projects which can benefit their entire departments, teacher colleagues in other subjects or the activities of the Learning Centre as a whole. I believe that it is more motivating for adult students to carry out assignments that do not end up in the desk drawer but which others can share in and develop further in turn. TieVie participants have often demonstrated their projects in the miniconferences on course development that are arranged annually by Åbo Akademi and where the staff members present their teaching to each other.

In the assessment carried out in the summer of 2006, the TieVie participants were asked, among other things, what they felt to be the most important purpose of the mentoring meetings, i.e. if they had a mostly organisational, pedagogical, technical or social purpose.

What the majority clearly felt to be the least important was the *technical* part (getting help on how one should technically carry out the assignments in the TieVie programme, learning different e-learnin tools – which was also something that we did not allocate too much time to in the mentoring meetings. In connection with certain training programmes we made quite ambitious plans at the start of the course, such that the participants would give short courses to each other in the use of different techniques, but this did not quite come out as planned.

It became apparent in certain evaluations that the most important function of mentoring for the respondent was *pedagogical* – this applied mainly to the TieVie training (5 ECTS credits). Issues mentioned here included literature hints, rewarding discussions on the application of certain pedagogical models, and the opportunity to familiarise oneself with the others' online courses and experiences of different issues related to teaching and learning. Besides, one of the respondents pointed out that his own somewhat negative attitude to online courses was changed during the mentoring meetings and became much more positive. Many also thought that it was a good thing to discuss thoroughly the assignments, so they could establish together how they should be carried out. Many of them also pointed out that the pedagogical goals were met by both the mentor and the other course participants. Someone wished that more pedagogical ideas and working methods could have been introduced in the mentoring meetings.

What was quite clearly the most important thing to most in mentoring was the *organisational and social* function that the mentoring meetings had. Many of them pointed out above all that the mentoring meetings helped the participants to keep to their schedules and encouraged them to continue. Besides, they offered an opportunity to meet the other course participants face to face (and to assemble in a Swedish-speaking group) – many pointed out that it was very rewarding to get to know each other across faculty boundaries, as such opportunities are, despite everything, surprisingly few. The meetings also gave the participants an opportunity for abreaction after frustrating assignments, frustration for their lack of time, etc.

Someone said, however, that it does not help however good mentoring is, if there is no encouragement whatsoever for e-learning in the participant's own department. There were also wishes in some cases for a more detailed discussion of the development project plans before the start of the course, i.e. the mentor should have helped the course participants to produce project plans that could be realistically carried through in the course of the programme and were also supported by the training programmes. This is also something that experience has taught me as a mentor, but the importance of which I did not realise when the first programmes were being organised.

Some people wished that the mentoring meetings should have also functioned as a kind of short courses (guidance in the use of e-learning tools, tips on pedagogical working methods), while many of them clearly thought that the organisational and social purposes were the most important, i.e. the mentoring meetings helped to structure the programme and complete the training. Besides, they offered the participants an opportunity to learn to know new colleagues at the Åbo Akademi and provided the social forum that was needed for the participants to maintain their motivation.

"Without the mentoring meetings I would hardly have completed the training programme".

Extract from an evaluation by a TieVie participant at Åbo Akademi University.

4 Summary

We can say, both as we read the TieVie mentors' guide and look at our own experiences, that mentors' functions in the TieVie training programmes are numerous and challenging – every mentor has surely focused on different functions and, above all, the mentors have carried out their mentoring in somewhat different ways, which we also see in our own examples. We have also functioned a little differently in each group, but it is a natural consequence of mentoring being based on two-way communication. The mentor also needs to be able to adjust his or her guidance to the development of the mentoring group. We all have, however, surely fallen in one of the pitfalls that we have described in our article, or have at least balanced on the edge of a pitfall. There can, for instance, be a strong temptation to steer the group in the direction desired by the mentor, and it may be difficult for the mentor to step back.

However, the experiences from both Vaasa and Turku showed that the mentoring groups fulfilled an important function and helped the TieVie participants to complete their courses. Especially if mentoring was also an integrated part of the mentor's other work, it was also a highly rewarding function – the mentoring meetings then were a forum for mutual learning and exchange of experiences, where we mentors learnt quite as much as those in our guidance.

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Megaconference – conference networking in TieVie training

Markku Närhi, Merja Peurasaari, Kari Tuononen and *Taru Valovirta*

Summary

This article discusses the use of MCU (Multipoint Control Unit) videoconferencing in the national TieVie training programmes. The article describes the general use of videoconferencing in teaching from a historical and operational viewpoint, and the use of videoconferencing technology in the TieVie training. It provides information on the technical aspects of videoconferencing and the arrangements that were necessary for the megaconference. The article also describes the experiences of the megaconference participants and the feedback received on it, and evaluates the implementations of videoconferences.

1 Videoconferencing as a teaching tool

The field of video communications has become more varied and widely used in the 21st century. While traditional videoconferencing is constantly evolving, video calls between workstations, web video, streaming media and recordings available on the net have all added to the variety of video communication. This progress has largely been due to the shift towards IP conferencing. It could be said that if the eighties were the times of video conferencing by satellite, the nineties were the era of ISDN and since the year 2000, IP has been the technology most used.

Many expectations have been placed on videoconferencing technology, such as the anticipated savings in time and costs. Viewed from this perspective, shortcomings in the quality of picture and sound have been bearable. However, the era of IP technology has finally started to realise the expectations put on videoconferencing in the eighties.

Many people think that the use of videoconferencing is nowadays divided into two categories. The heavy conferencing room systems used by large organisations, typically with special cameras and microphones, bridging hardware required by MCU conferencing systems and stiff booking procedures, form one category. The other one is formed by services such as MSN messenger[1] and Skype[2] which teenage girls use to chat with their best friends and in which the only requirement is that both computers are fitted with the same software[3], a web camera and a microphone.

Educational organisations mostly use videoconferencing systems that have separate facilities for the equipment. The organising of a videoconference often requires testing, booking of the facilities and other preparations. A videoconference as a situation may be a new experience both to the

[1] A quick messaging software published and developed by Microsoft.
[2] A popular free software used for voice over IP telephone calls, developed by Skype Technologies.
[3] Tietokonelehti 11/2006.

teacher and to the target group. The tools, spaces and practices of videoconferencing shape depending on the use, and this also familiarises the participants with the systems. This represents a clear insecurity factor to the teacher who confronts a new situation. Practice has shown that videoconferencing is often started in the meetings of networks and work groups. These experiences may encourage for experimentation with videoconferencing in a teaching context as well.

It seems that traditional lectures can be adapted to videoconferencing with relative ease. The presenting of PowerPoint slides in lectures is relatively easy with modern appliances, and the quality has also improved over time. One could ask if it is practical to assemble students in a special videoconferencing room to participate in a videoconferencing lecture or whether other more practical and flexible solutions exist. In many institutions of higher learning, teaching based on lecturing is nowadays transmitted by one-way live video transmission, which is also recorded for later viewing.

If the method of teaching relies on certain interactive elements, two-way communication such as videoconferencing offers the best solution. Even with all the prior work required, the investment is well worth it, as it enables the sharing of expertise and experience both within and between different disciplines, and for a larger audience[4]

2 Videoconferencing as a part of the TieVie training programmes

Since the TieVie training (5 ECTS) implemented in 2003–2004, the national TieVie training programmes[5] included a megaconference implemented as a MCU videoconference. The 'megaconference' refers here to a larger than usual videoconference with many participants, which is also transmitted live and recorded. It typically benefits from more than one video bridging unit being linked together. The megaconference was added to the training to give the participants a first-hand experience of MCU videoconferencing and knowledge on the use of videoconferencing in teaching. Since the participants in the training are physically located in universities all over Finland, making use of the possibilities of videoconferencing has become a natural part of the training. The fact that videoconferencing equipment has become more and more common in different organisations in the 21st century has made participation from remote locations possible.

The development of video technology has made the organising of extensive nationwide conferences easier. MCU videoconferencing capacity has increased and the technology has become easier to implement. There has also been significant progress in support services, and the number of facilities equipped with videoconferencing equipment in institutions of higher education has increased. At the same time, national cooperation for the development of video technology has pulled its ranks together (VideoFunet[6]). These factors have contributed to video technology becoming part of the operation of the institutions of higher education.

[4] Tuononen 2006.

[5] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits)..

[6] The VideoFunet video technology service website for universities and institutions of higher learning: http://www.video.funet.fi/index.php?lang=en.

The general goal of the megaconference in the TieVie training programme (5 ECTS) has been to offer the participants information on the use of videoconferencing technology in teaching, to familiarise the participants with videoconferencing and to provide a concrete example and experience of the use of video conferencing in teaching. In the TieVie training, the conference was mostly teacher-led with different expert presentations. Since the academic year 2005–2006, the megaconference was part of the TieVie expert training programme (15 ECTS credits). Two separate conferences were included in the training which did not, however, form a separate module but were instead included in some of the online modules of the TieVie expert training. The megaconference has, for example, marked the end of the previous online module and started the following module. In the TieVie expert training, the goals of the first megaconference were similar to the megaconference in the TieVie training, while the second conference also dealt with the integral contents of the online module related to the conference.

In the TieVie programmes the megaconferences were implemented as MCU videoconferences with 11–12 participating units, in other words one in each participating university town. In this way the possibility to participate could be guaranteed for all participants in the training programmes. In the larger university towns (Helsinki metropolitan area, Tampere and Turku), the aim was to concentrate the participants in the premises of one participating university.

In the TieVie expert training, in addition to the teacher-led working method an attempt was also made to divide the 11–12 participating units into three groups for part of the time to enable more interactive working method in smaller groups and local groups (see Figure 1). This enabled the participants to take part more actively in the video conferences.

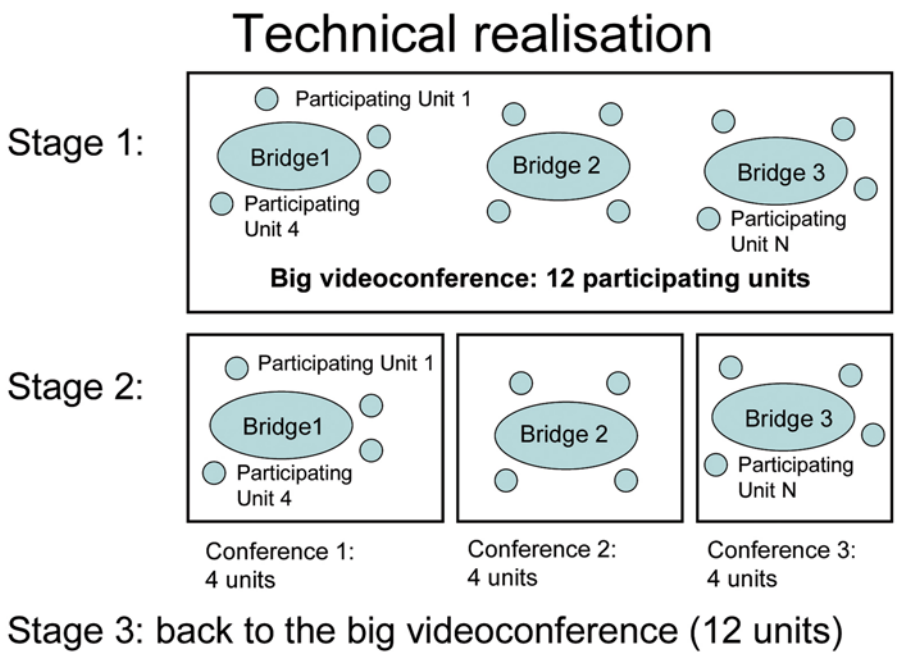

Figure 1. Division of the participating units into groups in the megaconference.

3 Implementation of the megaconference – elements of successful videoconferencing

The implementation of the megaconferences in TieVie programmes required close cooperation between different organisations. The TieVie contact persons in different universities were responsible for the local arrangements, and were instructed by the organisers of TieVie well before the megaconference. The task of the local contact persons was to reserve a videoconferencing room at their university and to keep in touch with the technical support staff in their own university to ensure local success of the megaconference. Megaconferences mostly included presentations by experts from more than one location and commentaries from all the participating locations, and therefore the local organisers had to ensure seamless operation of the technology.

Cooperation was often made easier by the fact that developers and support personnel working with videoconferencing in different universities already knew each other thanks to the increased nationwide cooperation, and the connections had been tested before in connection with other arrangements. Additionally, the experts responsible for the development of the training programmes were able, with the help of technical experts, to define both the technical and pedagogical requirements for the implementation of the megaconferencies.

Technically, the megaconferencies were carried through so that all the participating locations were connected into a common conference with the help of MCU videoconferencing using the bridging hardware either at the University of Helsinki, the University of Oulu or both. The person responsible for the bridging hardware took care of the communications necessary for the video conference well prior to the megaconference. The connections were tested beforehand to avoid any problems.

Each remote unit had a local instructor, either a TieVie contact person or one of the participants in the training programme, who acted as the local chairman in the conference. The chairman of the entire conference presented the seminar, chaired the conference and gave the floor to the different remote locations as necessary. In a videoconference of this scale (more than 10 different participating remote units plus those following the live transmission), the role of the chairman became increasingly important.

The division of the screen in a videoconference is usually done so that, after the initial presentation of the different participating locations, everyone can see every participating location on the screen, with the location currently speaking occupying the largest area on the screen. This arrangement has helped to introduce an element of communality into the seminars. When the actual conference presentations begin, the division of the screen was changed so that only the presenter and his materials were shown on the screen. The screen division reverted back to the "everyone sees everyone" mode in the discussion part of the conference.

Organising a videoconference in this fashion required an overall view of the use of video technology (see Figure 2). In the TieVie megaconferences, the aim was to benefit from all the possibilities offered by video technology. In addition to being video conferences, the megaconferences were also transmitted live and recorded at the same time. This made it possible to follow the conference on one's own workstation, for example, if the participant was unable to make it to one of the remote videoconferencing units. The recorded media was available almost immediately after the conference had finished. To provide commentary and feedback, a common online chat room was especially useful for those following the live transmission.

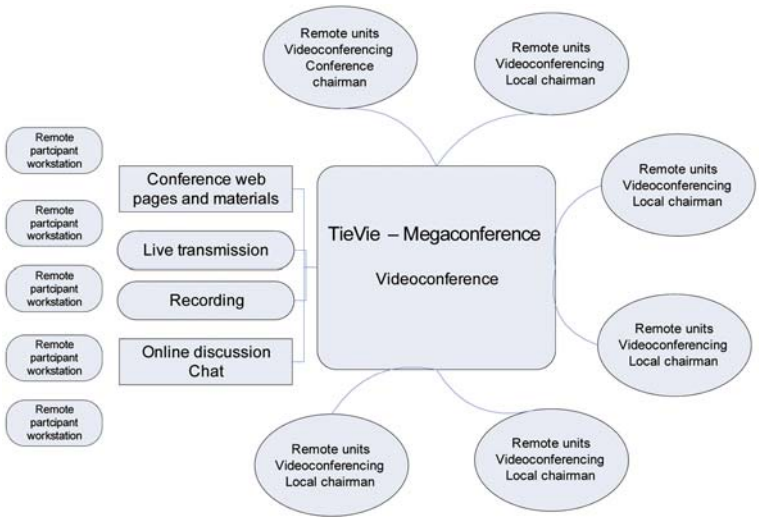

Figure 2. The structure of the implementation of the TieVie megaconference

4 Megaconferences as experienced by the participants in TieVie training programmes

After each implementation, the participants were asked to give feedback on the megaconferences. For the most part, the feedback was positive. The participants gave their thanks for the good arrangements, the implementation and also most of the expert presentations. According to the feedback, the megaconferences succeeded, both through their method of implementation and through their content, in giving a concrete example of the use of videotechnology in teaching and also in other circumstances. Many participants were surprised by how well the technology functioned, and by the opportunities offered by videoconferencing, especially the high level of interactivity and their own possibility to participate.

The most common technical problem encountered during a conference, especially at the first implementations, was that one of the remote units would lose connection with the bridging hardware. Problems such as this became less and less frequent in the last years of TieVie programmes. Live online transmission of the conference provided a possibility to keep on following the conference even when the connection with the bridge was off. The possibility to view a recording of the megaconference after it had taken place was also credited with thanks.

In the feedback, the participants wished that they could have participated more personally in the megaconference and interact with the other remote locations. However, since a total of more than ten remote locations and over one hundred participants took part in the conference, it was impossible to give everyone an opportunity for personal participation. Therefore, most of the seminar consisted of following the presentations, but the participants were also given activating assignments during the seminar. The participants also indicated that receiving the materials used in the conferences in advance would have made it easier to follow the conference. However, due to scheduling issues the organisers were not always able to distribute the materials used in conference beforehand.

In the megaconference of a TieVie training held in January 2005, the participants were asked what possibilities videoconferencing could offer for the development of teaching. The participants thought that videoconferencing made it possible, for example, to use visiting lecturers without the burden of travel costs. Other possibilities included cooperation between different universities, for example within academic disciplines, and international connections in project and teaching activities. The technology was also seen as making it possible to teach groups in different geographical locations. A native speaker of a language brought to lecture with video technology was seen as a way to make the teaching of languages more interesting. Also when studying a relatively rare language, it could be possible to arrange remote learning groups in cases where group sizes would not otherwise justify the arrangement of teaching on the site.

The participants did, however, point out that technical appliances should not be used in teaching just because they exist, as they must provide some additional value, for example, by improving the quality of teaching. The participants contemplated, for example, how easily different subjects can be adapted into video transmitted teaching. When courses are arranged that contain, for example, mathematical exercises, it should be ensured that there is a possibility to demonstrate things and also that the students can participate actively. The participants also considered that practically oriented courses and courses placing emphasis on contact education were not suitable for teaching by video.

The participants commented that videoconferencing should not be considered as the only alternative for the implementation of the entire course. Just following a video transmission without active participation or an opportunity to provide comment is not as interesting as following a traditional lecture, and therefore video lectures should include activating parts. Videoconferencing was seen as a good solution when, for example, it would not be possible to follow the teaching otherwise due to the distance or other factors.

5 Discussion

Based on the feedback received from the participants and the estimates of the developers, it can be said that quite a high degree of success was achieved in implementing the TieVie megaconferences. Central factors to this success were the consistent action by the chairman of the conference and the activation measures by the local instructors at the different remote points. Preliminary planning, both from a pedagogical and a technical point of view, was also instrumental in the successful realisation of the conferences.

The experiences gained from the TieVie megaconferences could be used when different kinds of seminars using videoconferencing are being planned. TieVie megaconference implementations have created an efficient and practical model for applying video technology in national and international education and training. Video conferencing has acted as a medium for communality and sharing of expertise.

In the future, the use of video technology will increase further, especially in personal conferencing. Web-based conferencing technologies are starting to take the place of traditional videoconferencing as a personal conferencing method. These have, in some institutions of higher learning, already been implemented also for teaching purposes. Their potential is based on the ease of use: all the user needs besides a web browser and a suitably fast internet connection is a web camera and a

microphone. The affordable price of the equipment, together with the rapidly increasing technical quality of the conference, are making browser-based group work an easily adaptable and expandable method for real time communication in small groups.

Producing lectures for online use is a flexible method for replacing lectures transmitted as videoconferences to implement teaching in a lecture form. This means that interactivity is realised through other channels. Online lectures will, however, not replace large national or international seminars implemented using video technology and videoconferencing in particular, such as the TieVie megaconference. Hopefully, the examples set by different teaching modules arranged using video technology will contribute to a new culture of online learning and network cooperation that is increasingly based on synchronous interaction, through which we can continue to produce better and more diversified technology-supported learning processes to support teaching and research in the universities.

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The power of networked cooperation and the quality of e-learning – from fruitful cooperation to concrete results

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Abstract

The article aims at describing the cooperation between two Finnish nationwide virtual university projects – TieVie and VOPLA – and cooperation in training that has evolved as its result. TieVie is a virtual university project that implemented nationwide training in the use of ICT in teaching, while VOPLA is a project on Quality Management and Quality Service for eLearning. The authors discuss the reasons for this cooperation, how the two parties cooperated and what the results were like. The article also evaluates the cooperation that was realised and the concrete result of the cooperation, i.e. the online course entitled "Teacher as Developer of the Quality of E-Learning".

1 Cooperation inspired by joint goals

In the early years of its operation, the TieVie project[1] functioned quite independently as a virtual university project offering training in the educational use of information and communication technology (ICT). In addition to its independent functions, the project also cooperated with other national virtual university projects and with the Service Unit of the Finnish Virtual University[2]. Towards the end of 2004, a need arose in TieVie to reform the contents of the TieVie expert training programme (15 ECTS credits), with the desire to add the viewpoint of the quality of teaching to the training which had become a topical issue through, among other things, the Bologna process[3] and the related general quality work at the universities. Based on the reform, an interest in cooperation with the VOPLA[4] (Quality Management and Quality Service for eLearning) project, launched in 2004, arose in the TieVie project. These two projects shared partly similar goals and the same field of operations.

VOPLA is a joint project of three universities, those of Helsinki and Kuopio and the Lappeenranta University of Technology. The project is coordinated by the Centre for Educational Technology at the University of Helsinki, and it is funded by the Ministry of Education. The aim of the VOPLA project is to support and promote quality awareness and expertise in e-learning among the staff members of Finnish universities, and their commitment to quality work.

[1] See project description, Peurasaari et al. 2008 in this publication.
[2] See the website of the Finnish Virtual University. http://www.virtuaaliyliopisto.fi/vy_front_page_eng.asp.
[3] See the Bologna process. OPM. http://www.minedu.fi/OPM/Koulutus/artikkelit/bologna/index.html?lang=en.
[4] See the website of the VOPLA project. http://www.vopla.fi/in_english/.

The VOPLA project was launched in 2004 with a preliminary study phase, a result of which was the publication "Verkko-opetuksen laatu yliopisto-opetuksessa" [Quality of E-Learning in University Teaching][5]. In 2005 the first version of a freely available quality manual for e-learning was developed and published. In 2006 the contents of the quality manual and a model for developing quality management were tested in pilot studies. The pilots reported on their own quality development projects in the second VOPLA publication[6]. In 2007 the VOPLA results and productions were evaluated further, and the quality manual was developed further based on the feedback that was received. The results of the VOPLA project have been disseminated widely in the operational field of the universities by arranging seminars and workshops.

Plans for cooperation between TieVie and VOPLA were started early in 2005. It was easy to prepare for cooperation, as the actors in both of the projects knew each other and how they were operating. In this way the idea of exchanging expertise and views emerged. From the TieVie point of view, an important area of cooperation was seen in the utilisation of VOPLA expertise and materials[7] in the training programmes arranged by the TieVie project, such as the TieVie expert training that was being reformed at the time. From the viewpoint of VOPLA, the main issue in the cooperation was the opportunity to test the VOPLA quality service, materials and ideas in the TieVie programmes, and to promote quality management and quality thinking in e-learning. There was a desire in this cooperation to keep constantly in mind the linking of quality work in the educational use of ICT to all development of teaching and more widely to quality work in Finnish universities. Differentiation between these things was not considered desirable.

2 Online Course: Teacher as Developer of the Quality of E-learning

Quality issues related to teaching and thereby also e-learning had been strongly prevalent in the university sector. One of the tasks of the TieVie project was to implement a national online course on the quality of e-learning entitled "Teacher as Developer of the Quality of E-learning" (2 ECTS credits). It was natural to extend the cooperation with VOPLA to this online course. The course was designed in cooperation between the TieVie and VOPLA projects. For the part of the TieVie project, the parties responsible for the training were the universities of Helsinki and Oulu.

2.1 Teachers in search of the quality of e-learning

The goal of the "Teacher as Developer of the Quality of E-Learning" online course was that after completing the course the participants should be able to identify factors affecting the quality of their online teaching and would be able to justify the quality of their work. With the help of the thoughts and tools acquired in the course, the participants could more consciously implement higher-quality e-learning that would give the students an opportunity for deeper learning. The teachers' own teaching and learning experiences were utilised in the planning of the course. Materials connected with the quality of e-learning were also used to stimulate thinking.

[5] Verkko-opetuksen laatu yliopisto-opetuksessa. Report I by the Quality Management and Quality Service for eLearning project. 2005.
[6] Laatuaskeleita – kokemuksia verkko-opetuksen laatutyöstä. 2007.
[7] For more, see the quality manual for e-learning http://www.vopla.fi/quality_manual_for_e-learning/.

The course consisted of five modules, the contents of which are shown in the figure below.

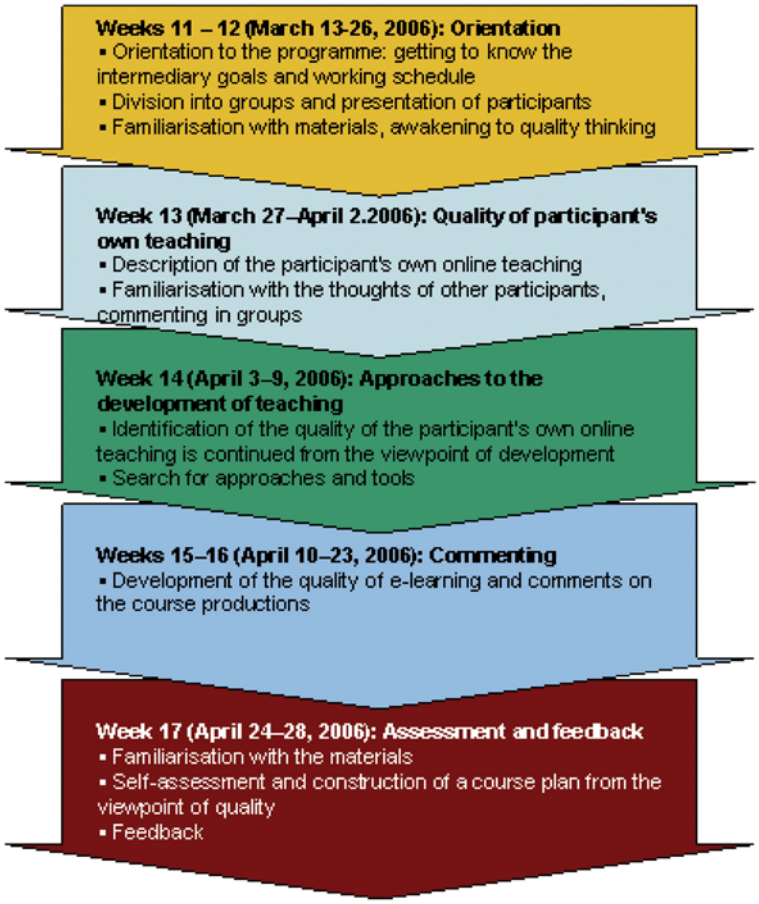

Figure 1. Structure and progress of the course "Teacher as Developer of the Quality of E-Learning".

The online course "Teacher as Developer of the Quality of E-Learning" was offered to the staff at all Finnish universities. The student places in the course were divided by quotas representing the sizes of the universities. The universities were also offered an opportunity to bring a larger number of participants to the course than allowed by their quota. In such cases the university was required, however, to contribute to the implementation of the course by offering tutoring resources. This opportunity was utilised by a couple of universities. The course was also offered as a paid service to participants from Finnish polytechnics. This online course attracted a number of persons interested in quality issues in different parts of the country. The total number of participants in the course was 112 from 16 universities and two polytechnics. 94 of the participants were awarded a certificate, so the completion rate was 84 %. The course was implemented in the WebCT learning environment of the University of Helsinki. 1 396 messages were sent during the course indicating high activeness among the participants to discuss issues related to the quality of e-learning.

The guidance of the participants in the course was based on phased tutorial materials and learning assignments. The person in charge of the course informed the participants of the progress of the course by e-mail. Working in the online learning environment was supported by 11 experts of e-learning who functioned as tutors, three of whom came from the VOPLA project. In discussions the role of the tutors was to encourage the participants. A set of instructions and a plan for using their time had been drawn up for the tutors. The role of the tutors in the discussions was to encourage the participants and to support the groups especially at the start of each period and to initiate the discussion. The tutors clarified the instructions as necessary, monitored the discussion in the groups, and provided group feedback.

The course materials were linked to the WebCT learning environment. The materials included the course timetable and assignments, group information, rules of the game for online discussions, information on course tutoring and evaluation, and the agreement that each participant had accepted before the course started.

Module I: Orientation

The participants were divided into ten small groups before the course. An effort was made to take the participants' fields of science into account in the formation of the groups. In the first week the participants presented themselves to each other in their small groups. The participants had an opportunity also to follow the discussions of the other groups. The fact that the participants introduced themselves had a significance in that groups were formed, as the participants got an idea of their future discussion partners.

In the second week of orientation, the participants were to describe learning and teaching situations connected with e-learning in which they thought high quality and good practices could be seen. The participants were to, for instance narrate how quality is manifested in practice, which factors or action models produce high quality, and how quality can be seen in the activities of learners and teachers. If the participants did not have any experience in e-learning, they were asked to describe similar situations in face-to-face teaching or learning. Although the course focused on e-learning, there was a desire also to link the course contents to the quality of teaching in general and to quality management efforts in the universities, so that any principles and contents related to the quality of e-learning discussed in the course could also be applied to all teaching. This is why e-learning was understood in a broad manner in this course: a) e-learning in support of face-to-face teaching, b) blended learning, and c) pure e-learning.

Module II: Quality of the participant's own teaching

In module II the goal was to link quality thinking more solidly and systematically to the participant's own work by identifying factors affecting the quality of e-learning. The participants were asked to choose two or three of the quality experiences described by their group members that they commented on in more detail. To help starting discussion the following kinds of questions were offered: Which have been issues and critical points affecting quality? Which issues or practices have been good and promoted the students' learning? How student feedback can be used? At the end of the week the tutors drew up a summary of the group discussions that functioned as a support material for work in the next module.

Module III: Approaches to developing teaching

In module III the goal was to deepen the identification of factors affecting the quality of the participant's own online teaching, and to find approaches and tools to develop teaching. The participants were asked to provide a description of 2 to 5 pages defining the quality of their own online teaching or work, which provided the draft version for the "quality manual" of their own work. The quality manual was outlined by determining the quality requirements for their work and by planning how the goals could be achieved and how they would be assessed.

The loose determination of the quality manual forced the group and individual participants to consider how quality can be determined and what a quality manual can be all about. According to the feedback given by the participants, a significant thing about the assignment was that they could see that even the other participants' ideas were still unfinished. With several people searching for approaches to define quality, the approaches were more varied. The quality manuals took the shape of text documents or matrices ranging from a few pages to ten or so pages which focused on, among other things, the planning process, introduced memo lists to support planning and tutoring, or discussed the issue from the viewpoint of style in teaching.

Module IV: Commenting

The commenting stage started with familiarisation with the drafts of the quality manuals of e-learning or their own work produced by the group members. The participants were asked to choose 2 to 3 of them that they would get acquainted with, and to give feedback on them and ask questions to elicit more details from their colleagues. The following were suggested as examples of questions: *are the quality goals clear, are the means to reach the goal functional, and has the assessment been considered well – and which tips and experiences could you share on this basis?*

The comments in the feedback discussion reflected the participants' own teaching experiences on the principles of quality, and approaches to teaching as well as the bonds of the approaches to situations and fields of science were considered. Questions to elicit more detail were asked, and ideas were exchanged on student management, indicators in assessment, teacher's role in online discussions, ethical issues in e-learning, pedagogy and resources as well as monetary compensations for teaching. Some of the participants thought that familiarisation with the descriptions of their university's quality systems had opened up perspectives on their own operational environments. The course materials were used actively as a basis for the discussions and the participants' own development plans.

Module V: Evaluation and feedback

The last week of the course was spent on evaluation and giving feedback. The discussion was opened with the group feedback given by the tutors on the quality manuals and the contents of the course, and an invitation was made to continue the discussion by making use of the course readings. The participants were asked to consider how their ideas of quality had strengthened or changed during the course, what new ideas had emerged, what they thought about quality now, and how the discussion on quality could be continued in their own organisations. The participants were also asked to return to their considerations at the start of the course and to think if their own goals for the training had been realised. The participants were encouraged to repeat what was good and worth preserving in their own work, what they wanted to emphasise in their work, and if they planned to do something differently in the future.

2.2 The course as experienced by the participants

The participants' experiences in and prejudices against e-learning varied. For some of them, the network was a tool that they had already been using for quite a while, while others were only thinking about making use of e-learning in their own teaching. So, some were searching for tips for their existing online courses, while others were looking for ideas to launch e-learning. The discussions also revealed experiences in the use of different technical tools and certain objects of interest, such as personal online study plans. The participants felt that the course provided a broad perspective on teaching – they saw how differently people in different universities experienced issues related to e-learning. Many of them said that they had learnt new things about quality and quality thinking, and expressed their thanks for the ideas given to them by the group.

The discussion was anchored around the concept of quality. The subject lines of the messages such as "How does quality show" and "What is quality all about" illustrate how the discussion was targeted at quality definition. The references to personal experiences often seen in the subject lines made the starting-points quite tangible. On the other hand, discussion could start from very abstract questions such as the atmosphere in the course, then proceed to a consideration of how quality or a good learning experience is determined. The concept of quality was also questioned and its situational and contextual ties were considered: whose quality is being produced? "Quality is quite difficult as a concept and it may mean different things to the teacher and student."[8] The participants felt that their quality thinking had been aroused. Quality was not any more about mystical eulogy, and it was understood more in terms of flexibility.

It was felt to be very rewarding to exchange experiences with the other participants. The course provided eblightening experiences and individual tips, and the participants heard about different ways to add to interaction in e-learning. According to the participants, "the productions became good, partly already tested practices and new concrete ideas to avoid the pitfalls of e-learning". According to the course feedback, these "good learning and teaching experiences described by the others have remained germinating in the mind, and I am thinking how to accomplish something similar myself".

The collages from the discussions in different groups collected by the tutors revealed highly similar themes. These included, among others, the significance of planning teaching, the relationship between face-to-face and online teaching, tutoring of online discussions, support of self-regulation and the significance of online presence. The collages from the discussions also focused on the themes of dimensioning, construction of assignments that require the students to think themselves and are felt to be personal and authentic, clarity of assignments and course structure, dynamics of group, pair and individual work, consideration of communality in learning and online learning materials.

The discussion collages also highlighted assessment, which was discussed in terms of pair and peer assessment among the students and assessment carried out by the teacher. Issues connected with assessment included documentation of learning, overall assessment of the course, and quality improvement with the help of feedback. An important theme in the discussions were the different roles or actors in teaching and learning, such as the roles of the tutoring teacher and

[8] Quotations directly from the feedback given by the students at the end of the course. Feedback was given by 51 persons altogether, i.e. about half of the participants.

students, the accessibility of and encounters with the teacher, and taking into account the differences between the students, their different learning strategies and different starting levels. Differences in interaction and the linking of e-learning with face-to-face teaching were also discussed a lot. In addition, the resources available to teaching and their relation to the quality of teaching were also discussed in the context of implementing e-learning. The technical approaches and the significance of proper functioning of technology were themes present throughout the discussion.

According to the final feedback, many of the participants felt that their own learning was most supported and their work was most influenced by the construction of the quality manual, "outlining my own teaching when I was working on the quality manual and comparison with the others' quality thinking". "Working on the quality manual was a challenging task, but it was also the most useful one." The feelings after the course seemed to be confusing in the case of some of the participants, or at least they needed some time to think what everything meant for their own activities: "This course has meant the beginning for a new way of thinking, but what I need now is some time to think. And most likely a little more experience. Luckily, I now need not experience everything myself, as I can make use of others' experiences."

2.3 How did the course meet the quality goals?

The EU's aspirations for a European Higher Education Area add to competition among the education providers, thus creating a need for monitoring the quality of education[9] . The competition for trainees also puts emphasis on the teachers to show that their teaching is good and has a high quality. The course entitled "Teacher as Developer of E-Learning" and its contents provided an emphatic introduction to quality work in e-learning and the need to concretise quality management in the operational field of the universities. At the same time the course also supported the university teachers' possibilities to acquaint themselves with quality thinking in teaching and e-learning and to remove at least some of the rather negative tone that quality management has had in the academic community.

The VOPLA working group assessed the planning and implementation of the "Teacher as Developer of E-Learning" in accordance with the contents of the quality manual for e-learning[10] . In the design phase of the course time was spent on defining the goals and contents in such a way that they were also recorded by the participants as concretely and clearly as possible. The ideas and know-how of the TieVie and VOPLA projects as well as other university actors were utilised in the planning phase. The goals were adjusted to be appropriate for the course, and they were presented clearly. The use of the online method was also justified, as there were participants from different parts of Finland. The planners of the course had made sure that the methods of study were in line with the goals and that the assignments supported learning. The application of new knowledge to practice had been considered well in the design of the assignments.

Course feedback and assessment had also been planned well in advance, so the feedback inquiry form was submitted electronically right after the course. The participants also had the opportunity throughout the course to evaluate and reflect on their own learning through the assignments. Further use and modification of the course and its materials in the future is also possible, as the structure, instructions and content materials are separate from each other.

[9] Verkko-opetuksen laatu yliopisto-opetuksessa. Report I by the Quality Management and Quality Service for eLearning project. 2005.
[10] http://www.vopla.fi/QualityManual/.

Quality is a difficult and ambiguous concept. The course participants had different views on quality, and so had the tutors. Therefore, it would have been a good idea to organise a joint meeting for the tutors before the start of the course. They could have discussed in the meeting how quality is understood in e-learning and how quality can be seen in everyday work. It was not possible this time, however, within the allocated resources.

3 Fruits of the cooperation

From the perspective of the TieVie project, the main goals for the cooperation with VOPLA materialised well: the viewpoint of quality was integrated into the contents of the TieVie expert training programme, and the VOPLA expertise in the planning and implementation of the "Teacher as Developer of E-Learning" course was very valuable to the TieVie project. The VOPLA expertise in the seminars of the TieVie expert training has reinforced the contribution of TieVie training in terms of its contents. The publications produced by VOPLA on the quality of e-learning have been important materials in the TieVie expert training and in the "Teacher as Developer of E-Learning" online course. A significant result of the cooperation is that the VOPLA project implemented a "Teacher as Developer of E-Learning" online course in the spring 2007, and another one in the autumn 2007.

From the viewpoint of the VOPLA project, the cooperation with the TieVie project has spread the awareness of quality thinking in e-learning in the universities. The participants in the TieVie expert training have acquainted themselves with the results of the VOPLA project. Without TieVie and the expert participants in its training programmes, VOPLA might not have been able to reach such a large target group in such a good interactive relationship that the TieVie community[11] has offered for VOPLA and the developers of the educational use of ICT. VOPLA has had several opportunities to test its thoughts and quality materials in TieVie programmes and to collect feedback on them and on quality thinking to help develop further the quality manual and tools for e-learning. The cooperation has helped to establish and deepen the idea of quality in e-learning and factors affecting it. Talking about quality may cause anxiety, and therefore making it more concrete and linking it to everyday work is especially important. In the future, quality could be more fully built into the entire expert training programme, as quality is beginning to become part of every university employee's normal everyday work[12] .

As any activity, the cooperation between TieVie and VOPLA could have been carried out even better. The workshop arranged jointly in the University Teaching Development Conference by Peda-Forum[13] in August 2005 was a good type of cooperation that could have been implemented more often. In addition, VOPLA could have offered the TieVie planning group, tutors and alumni training in the quality of e-learning, and the projects together could even have planned international operations. On the whole, sharing of expertise between the projects could have been more

[11] Participants in the training programmes, planning team, educators, contact persons, mentors, online tutors, seminar speakers and material producers.

[12] This and the following paragraph includes quotes from an assessment of the cooperation between the projects carried out by Sari Tervonen, an actor in the VOPLA project.

[13] See the Peda-forum website, http://www.peda-forum.fi/index.php?10. Peda-forum is a Finnish network of expertise in university pedagogy and academic development.

plentiful. Everything could not be done mostly due to a lack of resources, i.e. the projects did not have enough time or money for activities that were not really part of the core operations of either party.

The cooperation between TieVie and VOPLA has been carried out in a good and constructive spirit. Joint planning has been successful between the projects, even better than anticipated at the start of the cooperation. Cooperation between the projects developed into a good way of action: a small, intensively working group was designing and implementing the policies and decisions of a larger cooperation forum. Constant communication was a good approach. This kind of way of action for cooperation can also be recommended for others.

The cooperation between the projects to introduce quality management in teaching and e-learning brought an added value to the national training offerings in the use of ICT in teaching. It also brought benefits of synergy, as the resources of two projects related to e-learning could be united to spread quality awareness on a wider scale. It was possible now to design the TieVie expert training programme and the "Teacher as Developer of E-Learning" course together, which was likely to improve the quality and effectiveness of their implementation. Both the projects were also functioning throughout the cooperation successfully and productively in their own fields, in addition to this the actors committed to the activities and goals made sure that the objectives of the cooperation were met excellently.

Both of the projects have concretised quality thinking and brought it closer to the actors in higher education, whereby it is easier to see that quality thinking is not about criticism or "breathing down anyone's neck", but about pointing out good practices and working approaches also to the benefit of others. The projects feel that they have successfully lowered the teachers' threshold in joining in quality work, and the quality of teaching has become more of a common thing. The appreciation of teaching at the university has also risen as viewpoints related to the quality of teaching have been highlighted.

Thanks to their good cooperation, the TieVie and VOPLA projects have helped to develop the use and quality management of ICT in teaching in Finnish higher education. In the future, it is even more important to build in the quality perspective more tightly into the educational use of ICT, as the universities will be offering an increasing degree of e-learning. It is also important that a sufficient amount of time and money is allocated for e-learning, so that the teachers and other stakeholders involved in e-learning can develop e-learning genuinely as part of their development of university teaching. The general trend seems to be that the development of the use of ICT in teaching and its quality are integrated with the development of the quality of teaching. This kind of development is most desirable and sensible, because the educational use of ICT is not something to be considered separately from other teaching activities.

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Part 3
Results of the training – Examining the development projects of the participant

A peek into the development of the educational use of ICT in Finnish universities
A discussion of the development projects carried out in the TieVie training programmes

Paula Airaksinen and *Hanna Frilander*

Abstract

The article aims at describing the development projects in the educational use of ICT in Finnish universities carried out by the support of the TieVie training programmes[1] in 2001–2007. The article is based on two theses in which the contents and lifespan of the development projects were studied on the basis of the participants' own descriptions of their development projects and an inquiry made among the TieVie participants at the University of Jyväskylä. The examination of the development projects in the TieVie programmes described in this article shows how the use of ICT in teaching has developed in the universities during the years of the TieVie programmes, and how different projects suit the university and the university's personnel training. In brief, we can say that the investments in the development of the use of ICT in teaching and the support given to the TieVie training programmes have indeed furthered university teaching.

1 Development projects as an essential part of the TieVie training programmes

The development projects to support teaching and learning in various ways have provided the main thread between the participants' activities and the contents of training in the TieVie training programme (5 credits) and TieVie expert training programme (15 ECTS credits). An effort has been made to use the development projects to tie the training tightly with the participants' work and to illustrate concretely the contents of the training in their genuine environment of manifestation. The development projects try to exert a direct influence on the universities' teaching and tutoring practices and activities in general. The development projects have been for each participant projects carried out during the programme to examine the use of ICT in teaching and learning.[2]

The participants in the training programmes were already told about the development project at the time of recruitment about six months before the training actually started. The development project to be implemented in the TieVie training in 2004 was described in the TieVie portal[3] as follows:

[1] TieVie training programmes or TieVie programmes refer to both the TieVie training programme (5 ECTS credits) and the TieVie expert training programme (15 ECTS credits).

[2] The overall implementation and structure of the TieVie programmes is described in more detail in the article Peurasaari et al. 2008 in this publication.

[3] TieVie portal, http://www.tievie.fi.

"During the programme each participant shall plan and, if possible, also implement a development project of teaching, making use of information and communication technology. The projects may be connected with, for instance, implementation of teaching utilising ICT, production of online learning materials, curriculum development, strategy work or the establishment of support services in the participant's own university. The projects will be narrowed down and problems will be specified in more detail during the training in cooperation between the participants, educators and mentors."

The development project in the TieVie expert training in 2006 was described as follows:

"During the TieVie expert training programme, each participant shall carry out a development project either alone, in pairs or in cooperation with several participants, to develop university teaching utilising information and communication technology. The planning and implementa tion of the development project provides the main thread for the programme. It is important to link the development project to the participant's own working duties and to the operations of his or her own organisation.

(—)

The development projects in the TieVie expert training programme can be quite diverse depending on the participant's interests, background and working duties. The final result of the development project at the end of the programme may consist of a plan, report, study, document or some other assignment that has been carried out in part or in full. A development project may consist of, for instance,

- *issues related to the quality of ICT-assisted teaching,*
- *development of teaching in the department/unit by making use of ICT,*
- *planning and implementation of networked teaching in, for instance, a national or international network,*
- *Masters programmes,*
- *strategy work for the educational use of ICT and/or promoting the execution of strategy in the participant's own unit/organisation,*
- *planning and/or implementation of personnel training in the educational use of ICT in the participant's own university, or*
- *issues related to the support or technical approaches of the educational use of ICT.*

The development project in TieVie expert training programme cannot be constituted by an individual course for basic or advanced education."

The dimensioning of the development project as part of the entire programme was also visible to the participants in 2006. In the programme of 15 ECTS credits, 2 credits were allocated for the implementation of the project, but it was also stated that it was difficult to dimension the amount of work connected with the development project as a whole, as most of the participants also work on issues related to their development projects as part of the normal working duties.[4]

The participants in the TieVie programmes already designed and outlined their development projects at the time when they applied for the programme. The participants were requested to describe their development projects in their application forms, and the descriptions of the projects

[4] TieVie-portal. http://www.tievie.fi.

were specified in more detail ever since the first orienting online period. At the end of the programme, the development projects were reported by the participants in the final reports in the case of the TieVie training, and both in writing in the participant's portfolio and orally in the closing seminar in the TieVie expert training.

The tutoring of the development projects in the processes of the TieVie training programmes has been diverse. During the TieVie expert training, support for the development projects was given through the online periods, face to face seminars, peer support and the participant's own portfolio work, and in the last years of the programmes also through local mentoring[5] . The participants worked on their development projects with the help of assignments at the various stages of the programme. Peer tutoring for the development projects was given by the other participants in the training, the educators and tutors as well as local mentors. During the TieVie training the development project proceeded, in accordance with the training process, from the selection of media and tools to the tutoring and assessment plan. TieVie training also involved mentoring from the very start, with the support of development projects as one of its explicit functions.

The discussion on the development projects in this article (Chapter 2) is based on the descriptions of the development projects in the participant records in the years (2001–2007) when training programmes were organised. The scrutiny focuses especially on the first national TieVie training in both programmes in 2001–2002, as well as the last TieVie training programme in 2004–2005 and the last expert training programme in 2006–2007. A total of 442 development projects are studied, 155 from the TieVie expert training and 287 from the TieVie training. Chapter 3 describes the life-cycle, current state and impacts on their developers and the environment of the development projects by participants from the University of Jyväskylä. The viewpoint in the evaluation was how the development projects have continued to live their lives in the activities of the universities, thereby helping to support the development of the use of ICT in teaching more broadly. The discussion is based on an online inquiry conducted among those who participated in the programmes in 2006, in which responses were received from 19 of the 102 TieVie participants registered at the University of Jyväskylä. In addition to the inquiry, the author has used in her article her own experiences in support work for the educational use of ICT in the virtual university project of the University of Jyväskylä in 2001–2006. Although the response rate was low, the responses together with the author's own experiences do provide a general picture of the developmental trends.

2 Development projects in the TieVie training programmes 2001–2007 – the whole spectrum of university activities developing teaching

There have been nearly as many development projects in the TieVie programmes as there have been participants. Each participant has had his or her own development project, but in some cases the participants have carried out their projects in small groups or pairs. In most cases the project has been, however, a personal developmental task, although it may have had strong and quite broad connections with, for instance, teaching in the participant's own department or with other teachers, development of teaching in educational networks, or European cooperation through some EU project.

[5] For more on mentoring, see Forslund & Hietalahti in this publication.

In the TieVie training the projects were typically aimed to develop a single university teacher's individual course in terms of its materials, teaching methods or both. In the TieVie expert training, the projects were more comprehensive in scope and they were targeted, among others, at developing teaching in an individual department or programme, at support services in a many-sided way or at the university's strategy work on the use of ICT in teaching. An effort has been made in the TieVie programmes to support various kinds of activities: the TieVie expert training supported the development of activities and a change to the teaching culture in the universities, while the TieVie training reinforced more concretely the development of teaching through new practices of teaching.

The development projects in the TieVie programmes have focused on the following areas of teaching: 1) support of learning and development of teaching, 2) tutoring practices, 3) construction of teaching networks or development of the activities of existing networks, 4) application or construction of a new technical innovation to be suitable for teaching, 5) development of personnel training in universities and support services for the use of ICT in teaching and learning, and 6) strategy and quality work in teaching. The projects in the TieVie training focused mainly on the first three areas, while the projects in the TieVie expert training concentrated variably on all the areas, with a focus on the development of teaching and learning. Almost none of the projects focused on a single area only, as they had ingredients from several areas.

2.1 Support of learning and development of teaching

TieVie development projects have provided support the development of teaching throughout the history of the TieVie project. The idea of supporting learning is always involved, even if the main viewpoint of a project is some other target of development, such as networking or technology. Of all the projects of the participants in TieVie programmes, majority are projects purely for the development of teaching and support of learning. In the projects carried out in the TieVie expert training, there is a larger proportion of projects that are do not directly support learning or develop teaching than in the TieVie training.

The projects supporting the development of teaching and learning were divided into differently oriented areas. A development project could be targeted at the design, construction or development of learning materials or other materials supporting learning, the virtualisation of an individual course, the development of an entire study programme making use of e-learning, or as a project studying in general different possibilities of e-learning. The most common type of project is to plan a course or study module in such a way that utilises in a way or another the ICT in teaching and learning. Throughout the history of the TieVie programmes, a special group of its own has been formed by the libraries' joint projects to teach information retrieval with the help of ICT.

Development projects to support learning and the development of teaching are usually justified by referring to the need for more flexible teaching. The need is caused by the increasingly heterogeneous groups of students or by the size of the target group for teaching. Another common argument for e-learning is the increased need for distance education. Various training programmes have been created, for instance, for students who are working or whose graduation has delayed, for whom an effort is made to support their progress in the studies by using methods of e-learning. These methods are expected to enable flexible working methods in terms of time and place. There is also a desire to develop distance education in various international projects in which

there are students from different countries. E-learning is also seen in many project descriptions as a clearly and solely pedagogically justified approach to develop teaching, in which the aim is to add to group work between the students and interaction between the students and between the teacher and students through approaches based on ICT. These projects very often also refer to the development of peer tutoring, assessment of learning and portfolio work.

It is also felt that ICT can motivate the students to study harder and elevate the profile of their departments in the university community. Development measures often aim not only at the quality of teaching and deeper learning, but also at redirection of the resources so that, for instance, the valuable time spent in face to face teaching could be used in an expedient manner.

In those development projects of the participants in the TieVie programmes in which the main focus was on studying different possibilities for e-learning, the issues most often involve the development of online interaction, supporting the self-regulation of the students, development of different activation methods, or acquisition of experiences and ideas of the educational use of ICT in general. The purpose of a development project to establish possibilities can also be to develop a material-focused course into a more interactive one that activates the student better, as just the availability of materials is not felt to support learning adequately. Meanwhile projects aiming at developing learning materials try to create, with the help of ICT, materials that are interactive and illustrative as such, and the materials projects often focus on a variety of assignments. A special case of learning materials in the development projects can be seen in those which concentrate on developing the web pages for a course or study module, thereby aiming at improved educational communication.

2.2 Tutoring practices

We can see a kind of special group to develop teaching in the development projects of the TieVie participants which focus especially on tutoring. In these projects, the main emphasis is in supporting and making more efficient the planning of studies by the student. It is often mentioned in these projects that the issue in the core of development are the learning skills, the personal study plan and its guidance process, dissemination of information on the studies or in general the arrangement of information related to study matters in a functional manner that makes it easier for the student to carry out his or her studies.

The projects concentrating on the development of tutoring practices most often focus on the construction of various web sites or portals on tutoring. On the other hand, it is also common that the project tries to design good tutoring practices and make the interaction between students and departments more efficient in different ways. The problems mentioned as needing to be solved in the projects include the lack of tutoring, increased need for it and different problems in disseminating information: the information is fragmented and hidden, the practices are not transparent or available, and not enough resources have been allocated to tutoring.

2.3 Construction of teaching networks or developing the activities of an existing network

In addition to the projects on tutoring described above, the network projects can be thought of as another special group of development projects aiming at the development of teaching and learning. In these projects, the teaching arrangements or other activities are always examined as something between several departments, fields of science, universities or states in the EU or globally. The activities of the networks aim at combining available resources and expertise. The area to be developed in a network project can be an individual set of courses, learning materials or improvement of the operation or communication of the network and the development of new network practices.

The university world does not seem networked activities as a fully painless thing – quite on the contrary: the practices of networks are new, and their development is often threatened by structural obstacles. However, the keyword in networks is always cooperation. Cooperation is seen useful in highly different contexts. On the one hand, a network can mean the cooperation circle assembled to unite the forces of a small group of disciplines, in which the network is often the vital condition for even multidisciplinary contents of learning. On the other hand, a network can be built around strong sciences, in which case sharing of expertise and adding to the mobility of students, flexibility of teaching and internationalisation may motivate cooperation. A network can also provide functional means to give rise desired but currently non-existent cooperation between various stakeholders.

2.4 Construction of a technical innovation or its application to suit teaching

The goal in the participants' development projects focusing on technology is usually to develop learning environments, to design and implement various technical tools for e-learning, or to search for, test and introduce readily available tools. A special group among these projects are those aiming at technical planning and implementation of data stores and databanks. A few projects have also tried to construct some kind of project management tools or to produce new kinds of learning materials through technical inventions. There is always a connection to teaching underlying development projects oriented towards technology. The connection is often built on diversified improvement of the availability or usability of technical applications or learning materials used in teaching.

2.5 Personnel training and support services for the use of ICT in teaching

The projects carried out in the TieVie programmes to develop personnel training and support services are focused on TieVie expert training. There have been some projects, however, also in the TieVie training. These projects aim at developing a functional support service conception for a university, to build models for the support service or personnel training, establish the skills, attitudes and need for support among the personnel, or to study the university's internal network for the use of ICT in teaching and the support services.

The projects for the development of personnel training often justify their need in the same way as those for the development of teaching and learning, and they also aim at flexibility and motivation. An effort is made to utilise ICT in both personnel training programmes aimed at developing narrow special skills and in the development of an entire departmental community. At the hub of

a development project we have in the narrowest cases the construction of support materials, and in the widest cases the planning and introduction of an entire action programme. The need to coordinate the activities in this area in the university and to add to cooperation between the actors in the area are often described as issues underlying projects related to support services and personnel training. A group of their own among these projects is clearly formed by the ones in which the target is to develop the author's own work, such as the practices and roles of a support person.

2.6 Strategy and quality work in teaching

A peculiar group among the development projects in the TieVie expert training are the various projects related to strategy work and ones to support quality work in teaching. These projects consider it to be important to form an overall picture of the educational use of ICT and manage its development. The core issues in the projects are also often connected with support and training in e-learning, but also otherwise with the utilisation of good practices and increased cooperation. It is often mentioned in quality and strategy projects that they aim at providing various reports and process descriptions.

As its very own special group, the TieVie expert training of 2006–2007 puts a focus on development projects oriented to quality work in teaching. These projects focus on, among other things, issues for the development of teaching such as assessment and quality assurance, understanding and managing change, monitoring and documentation of operations, and fluent and transparent operations across departmental boundaries. These projects are characterised by comprehensiveness, thoroughness and seeing the operations tightly as part of their environment.

3 Impacts of the development projects on the development of the educational use of ICT at the University of Jyväskylä

The University of Jyväskylä is the second largest university in Finland in terms of the number of Master's degrees taken. There are 16,000 students at the university, or 40,000 if those participating in adult education are also counted in. There are 80 major subjects and more than one hundred disciplines in seven faculties, those of humanities, information technology, education, sport and health sciences, mathematics and science, business and economics, and social sciences. The university has been nominated a national high-quality university in adult education.[6]

The University of Jyväskylä has not only sent participants actively to the TieVie training programmes, but also participated since 2001 in the network of five Finnish universities to construct and implement the TieVie project. At the University of Jyväskylä, the TieVie programmes have from their very beginning been the responsibility of the Virtual University Project. The Virtual University Project is part of the national Finnish Virtual University that was launched in Finland both at the initiative of the universities themselves and based on the policy statements in the Information Strategy for Education and Research for 2000–2004 issued by the Ministry of Education.[7] The Virtual University Project of the University of Jyväskylä has aimed to develop the

[6] University of Jyväskylä website http://www.jyu.fi/en/.
[7] Finnish Virtual University website http://www.virtuaaliyliopisto.fi/?node=vy_tietoa_svy_toiminta_sopi_fin.

use of ICT as a tool in teaching and research in 2001–2006. The virtual university activities have also aimed to effect broader impacts on and structural changes to the university's own and inter-university activities.[8]

The TieVie programmes have had an important role in the development of the use of ICT in teaching at the University of Jyväskylä. In 2001–2007 a total of 128 members of the personnel from different faculties took part in the training. Most of them, 102, were still registered at the university in the autumn of 2006. The long duration of the TieVie programmes and co-operation across university boundaries have provided valuable support for local development of the educational use of ICT. The development projects carried out by the participants during the training have also supported significantly the development of a culture of the e-learning in the departments. It is interesting to look at how the ideas generated by this training have continued to live in the university's activities, thereby supporting the development of the use of ICT in teaching. The issue is studied below by taking a look at the life-cycles and current status of the development projects carried out by the TieVie participants at the University of Jyväskylä, which were established in an internal TieVie inquiry at the university in the autumn of 2006.

3.1 Types of projects at the University of Jyväskylä

The projects of those who responded to the TieVie inquiry in the autumn of 2006 show much the same distribution as TieVie programmes in general. Most of the projects launched in the TieVie training can be located in area 1, support of learning and development of teaching. These projects are typically online courses and often feature a mixture of online and face to face teaching. Some of the respondents mentioned that the online course was an alternative to face-to-face teaching. The online course projects in the last years of the TieVie programmes also strongly aimed at course assessment and further development on the basis of previous experiences.

The next largest number of projects fall within area 2, the tutoring practices. The contents of these development projects in the TieVie expert training aim at supporting and developing departmental activities and teaching, such as supporting practices related to the personal study plans and tutoring by means of ICT.

Two of the development projects of the respondents can be placed in area 3, construction of a technical innovation or its application to suit teaching. The goal of such projects has been to support the activities of either a department or the entire university, such as "The online visual personal study plan" and a project that was producing the model for a website that could be easily cloned for use by the whole university.

Only one project can be assigned to area 4, construction of teaching networks or developing the operation of existing networks. The project in questions was related to the initiation of a larger co-operation project in one discipline in Scandinavia. We need to remember here that in practice the division cannot be performed quite so straight-forwardly, as projects can show ingredients from several areas.

[8] University of Jyväskylä Virtual University Project website http://virtuaaliyliopisto.jyu.fi/etusivu/hanke/hanke.

3.2 Life-cycles and current status of the projects

We asked the participants in TieVie programmes in different years what the status of their development projects was now. Most of the respondents said that their projects were alive and could still be seen in everyday activities. Causes for the vitality of the projects included the respondents' own enthusiasm in the development of the use ICT in teaching as well as the skills and expertise increased during the TieVie programmes which many thought were supported excellently by the development project. The life-cycle of the development project was also increased by the true need for development arising from the faculty, department or the respondent's own work, such as the need for international and inter-university co-operation and the need for organisation and redesign due to the increase in the number of students. The predicted life-cycle was also increased by the strong views connected with the project work of ICT as a tool that would ease teaching, learning and work, whereby the objects of development included issues such as alternative teaching methods, more flexible communication and distribution of materials or information management. The vitality of the projects was also nourished by the "excellent implementation" of the cooperation in the words of one of the respondents, and the department's support to the project.

Many of the respondents mentioned that it was essential to have the support of the department. Spiritual support, i.e. considering the project to be important and encouragement, were felt to be important. Some of the departments supported the participants by helping them to apply for project funding. Thanks to project funding, one of the participants was granted a leave of absence to promote his development project, while another department supported a participant by funding the arrangements for simultaneous teaching. A department could also assist in technological issues, such as maintaining a website. Some of the respondents said that the co-operation on the project carried out at the department was important: the professor in charge of the course, for instance, gave valuable comments on the materials and on doing the assignments, which helped to plan the development project. Some of the participants were offered time to do development work and an opportunity to take part in training or get a travel allowance (especially in international activities), for instance. One of the respondents said that her nearest superior was one of the starters of a large project, and a few respondents also mentioned the support offered by the Virtual University Project of the University of Jyväskylä as something essentially important for success in the project. Some also reported that they had received valuable technical and content support from other actors in the teaching network.

Only a few respondents thought that their projects had not survived. Causes mentioned included their discontinuation of the TieVie programme due to technical problems, lack of support by the department, and limited time due to other working duties, such as the process of preparing a doctoral dissertation.

Many of the projects have developed and expanded after the programme into practices supporting teaching and work at the universities more broadly, as shown by the following responses to the inquiry[9]:

> "*We have been carrying our website reforms along the lines of the development project in the [xxxx] developer group. The user base will expand. The website and its maintenance, the amount of its use will expand (on the university level).*"

[9] Names and departments have been removed from the responses to ensure anonymity.

"Inspired by the TieVie training programme, I basically launched my own e-learning projects at the [department] as regards quality management, and they have already become an established part of the teaching offered by us."

"Online tutoring of practical training was experimented with in [the project] and it will be applied in [the subject], for instance, next spring."

Meanwhile the next responses illustrate how the responsibility for a project may have been moved elsewhere, but the project is still alive:

"As far as I know the course is under way right now and apparently at least mostly in the same shape as then."

"The regular teacher knows e-learning and is continuing it, so teaching in [xxx] is continuing."

"The project is kicking and alive – without me."

Many of the responses show that many of the online courses developed during the training are still in use as parts of teaching in the departments and they are developed further every year:

"One part of the course is still organised through e-learning."

"Parts of the [project] are alive and will be once again specified in more detail in the spring as a new course starts."

"A stage of rigorous testing is under way in the [faculty] in connection with the course in information acquisition."

Some of the respondents mentioned that there is currently a "take-five" situation in the project. The project and development of the use of ICT in teaching is, however, pointed out in appropriate places in the department's development measures:

"The idea basically exists. However, I have not taught virtually ever since. I did participate brainstorming in the e-learning project of the language departments and at the stage when the readiness for participation in e-learning in the [discipline] classrooms was established."

"The project is a little like sleeping right now, but when a new programme starts in the [department] the online environment will be revived again."

We can say in general that the TieVie development projects that have survived have introduced new perspectives to the operational culture of the departments or the entire university on the use of ICT in teaching, learning and work at the universities. Many of the projects have become part of the permanent, well-established methods of work at the departments. Along with the projects, the departments may also have noticed other needs that can be supported through ICT. Colleagues may have become enthusiastic about using ICT in their teaching, or the participant may have inspired his or her colleague to apply for a TieVie programme, for instance, whereby the department has acquired more skilled actors. Many of the respondents mentioned that their ICT skills and use of the net in support of teaching have been reinforced during and after the training

programme. It remains partly to be guessed what ramifications the projects launched have had on a broader scale. Having been involved in support functions of the educational use of ICT for many years in the university, the author has seen that those who have completed the TieVie programmes have often belonged to the enthusiastic pioneers for the development of the e-learning who will also show the way to their colleagues in their departments. It is a pleasure to see that many of them are still developing their own and the department's teaching also from the ICT point of view.

3.3 TieVie training programmes in support of local development work

All the participants in the TieVie programmes from the University of Jyväskylä who responded to the inquiry reported that they had successfully carried out their development projects during the programme. This clearly shows how well-planned, organised, assessed and further developed long-term training programmes, implemented through national cooperation, support the commitment of the participants both to their own training and to the completion of their development projects. The Virtual University Project of the University of Jyväskylä also organised a broad-scale training in ICT locally in 2005–2006. It can be seen quite clearly that despite various attempts the commitment of university personnel to persistent collaborative work and the completion of a development project has been much stronger in the national TieVie programmes than in this local implementation.

In addition to the development projects, the TieVie programmes have also been fruitful otherwise for the development of the educational use of ICT at the University of Jyväskylä, such as the enthusiasm and interest inspired in the participants to follow issues related to use of ICT in teaching and to develop them further. Many of those who participated in the programmes have produced new online courses and are thinking about further development of their courses and materials. It was mentioned that the TieVie expert training in particular had made the participants well resourced to see things more broadly than before, such as from the perspective of the development of cooperation in the entire department. Some of the participants mentioned that they had reported on their experiences of e-learning on various occasions, thus helping to spread experiences and know-how in the use of ICT in teaching. For some of the respondents, the training has offered new opportunities in the working career in, for instance, national project cooperation and online tutoring. There have also been newspaper articles on the projects.

The Virtual University Project's support services for ICT at the University of Jyväskylä have also been helpful to many participants in carrying out their TieVie projects. Support has been needed in, among other things, the use of learning environments, video processing and various problems in other programmes. The TieVie participants have been taking part actively in the ICT courses organised over the years by the Virtual University Project of the University of Jyväskylä. The support team for the Virtual University Project was also mentioned as a competent and willing helper in various questions: the Virtual University Project was been supporting the project work of the participants by giving feedback at the various stages of the project as well as knowledge and models of what other disciplines have accomplished. In this way the ICT support services and the TieVie training programmes have linked together to develop the use of ICT in teaching at the University of Jyväskylä.

In general, the most prevalent contribution of the TieVie programmes has been seen in the lessons learnt in online pedagogy, personal experiences in e-learning, opening of new perspectives on the development of teaching, good networks and functional methods of work, new e-learning tools, support for planning and seeing the learning process from the viewpoints of the learner and learning, as well as information on where the nation is heading in the field of information technology. As most of the participants have belonged to quite ordinary people in the educational use of ICT, it may be a significant finding that their own courage to try something new has increased and that "information technology can be learnt". The strategic part of the TieVie expert training was thought to provide useful knowledge from the viewpoint of the educational use of ICT in teaching, and so was the familiarisation with quality work in universities. Discussion and networking with participants from other universities was also thought to be highly important.

All of those who responded to the TieVie inquiry at the University of Jyväskylä were convinced that the development project during the TieVie training programmes supported learning well. Because of the project, they had to familiarise themselves with the issues as a whole and to consider theory and practice at once. They could make a concrete experiment with what they had learnt in a suitably simple and limited project. The participant's own project enlivened theoretical studies by, for instance, familiarising them with strategy work in an interesting way.

4 In conclusion

TieVie training programmes have been implemented for six years between 2001–2007. During this time views, practices and activities in the universities in the e-learning have developed and changed. A huge amount of various kinds of target-oriented development activity has been carried out in teaching with the virtual university funding of the Ministry of Education, and also without it, and the TieVie project has also been able to support these operations. We can assume that in the course of the six years of TieVie programames the development in the views on the educational use of ICT and new experiences have also been reflected in practical activities. What does it look like from the viewpoint of the development projects?

The development projects carried out in the TieVie programmes clearly mirror the national development targets for the university institution. For instance, the emerging quality work at the universities is creeping into the development projects in the final years of the training programmes so strongly that in many projects the most essential contents are described from the viewpoint of the quality of teaching. The project descriptions mention, for instance, that the aim is to build a quality system, create a quality manual or outline a process for e-learning. In the first year of TieVie training programmes, the concept of quality was only used once in the descriptions of the development projects.

The contents of the descriptions of the development projects have also developed otherwise over the years. This has certainly also been caused by the fact that a constantly increasing amount of research data on the use of ICT in teaching has become available. Teachers and other staff have also been accumulating experiences over the tears. The early development projects focus on experimentation and construction of materials. The development project was described in those

times in terms of "transferring" teaching to the network. Later development projects focus increasingly on the consideration of the special features of the network so that no effort is made to transfer teaching as such to the network, as it is planned to be exactly suitable for online use. Familiarity with different pedagogical models and the teachers' enthusiasm to make use of them also seem to have increased over the years. In later years the projects refer more and more often to things such as problem-based learning (PBL) as a model for planning e-learning. Another clear change when moving from early years of the TieVie project to more recent years is the fact that in the early years, the goal was almost always to create something new, while later the aim has been to evaluate and develop existing practices or to construct a quality manual for e-learning, an action plan or uniform model for e-learning for a degree programme or department. This would seem to mirror the fact that the use of ICT in teaching has been seen all the more frequently as part of ordinary teaching activities at the universities.

Some of the most recent new fields in the e-learning that have also been discussed in the very latest TieVie programmes include management trainings and projects aiming to directly develop the operational culture. In these kinds of projects it is easy to see that the use of ICT in teaching is a way of action that can be painlessly and without any risks taken into use even in more challenging contexts.

On the basis of the responses to the inquiry made at the University of Jyväskylä, we can say that a development project carried out during a training programme supports learning well by linking theory and practice together and by vitalising learning. Based on this, different development assignments in personnel training are thus pedagogically highly recommendable. The TieVie efficacy study[10] also shows how a development project supports training and links theory and practice together in an appropriate manner.

The inquiry made at the University of Jyväskylä and the TieVie efficacy study also show that it is worth investing on projects at the university. They offer an opportunity to develop things and view them from new perspectives, which may give rise to new tools, action models and practices. The life-cycle of projects as such may be short, but the action initiated in a project may at best produce results that gradually merge as part of the everyday activities of the university, changing and reorganising them.

In the light of the TieVie development projects, the trends in the e-learning seem to follow the trends in the development of teaching and higher education. If new developmental efforts, such as quality assurance, are introduced to education, it can easily also be seen in the educational use of ICT. The use of ICT in teaching seems to have become part of basic teaching in the departments. It need not be justified any more with special reasons, although it may still be used to solve problems in teaching and to fulfil expediently the needs of distance education. Based on this scrutiny of the TieVie development projects alone we can say that the investments in the e-learning through the development projects have taken teaching a long step forward in the universities. Information and communication technology is being applied to such an extent that we cannot speak about a marginal activity any more. The development projects carried out by the participants in the TieVie training programmes show that the use of ICT in teaching is especially about the development of teaching in its many forms.

[10] Tenhula 2007.

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The TieVie project is a support service project for the Finnish Virtual University which offered training in the educational use of information and communication technologies (ICT) to the staff of Finnish universities in 2001–2006. It was financed by the Ministry of Education as part of Virtual University project funding. The TieVie project was launched based on the need to strengthen the e-learning skills and expertise among Finnish university staff. This need was pointed out in the national strategy for education, training and research in the information society outlined by the Ministry of Education.

This publication arose from the desire to describe and analyse the TieVie project from different viewpoints, and to share the experiences gained from the training programmes. Articles describe the TieVie project and training programmes, results of the training, viewpoints related to networking, and the position of the TieVie project in a wider social context. We hope this compilation gives the reader inspiration, ideas and new perspectives to develop the e-learning in higher education and encourages networking on both national and international forums.

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