How can ICT and Learning Management Systems (LMS) support full time teacher education students in their collaborative learning processes? If ICT is the answer in teacher education - What should be the question?

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Abstract

From the beginning of this century Norwegian teacher education has been transformed through national laws. This is supported by investment in ICT-projects supposed to strengthen student active learning processes. The on-campus-students had problems with understanding the purpose of collaborating on-line with students they met every day and also with participating in learning activities not yet used in schools. This paper discusses how a group of students teachers appreciated on-line learning activities when they were interviewed by their graduation and after one and three years as teachers in a period when teacher education was in front of the schools’ development.

Key words
Student teachers, on-line, collaborative learning, ICT competent teachers.

Introduction

Higher education, and especially teacher education in Norway, has been transformed the last few years, through national laws. One example is the Parliamentary Proposition no. 27; (2001-2002) the so-called “Quality reform” concerning higher education in general. Another example is the National law for Teacher Education 2003. Both these law reforms propose more use of assessment for learning purposes (formative assessment), closer follow up of students at all levels, combined with more active learning processes. Information and communication technologies (ICT) are expected to strengthen the learning environments in significant ways. Altogether this means a totally different way of viewing learning, from receiving information to constructing knowledge, which represents a major change in the traditions of teaching and learning from product to process for faculty as well as students. The aim of the reforms is to make a qualitatively better teacher education for every single student.

This article focuses on an ICT based project connected to the wide reforms in Norwegian teacher education; INVITIS- prosjektet (Innovation by means of ICT in education of language teachers1 at the University of Bergen. The project was part of a national project; PLUTO (Program for teacher education, technology and change)2 lasting from 2000 to 2003. The aim of the project was by means of LMS (Learning Management Systems) to integrate as many different forms of student active learning activities as possible connected to ICT, to integrate it in ways that could support learning, and to give the students relevant experience and competence for their future work as teachers. For the students this meant a dramatic change. Norway has good access to technology in schools and education compared to other countries (OECD, 2002, 2003). As recent as towards the end of the 1990’s, however, the main focus in national plans and curriculum has been on acquiring equipment and learning

1 http://www.itu.no/filearchive/fil_Sluttrapp_INVITIS.pdf
2 http://www.itu.no/Prosjekter/1079504497.79/view
how to use the technology (Krumsvik 2006). The Action Plan for ICT in Norwegian Education for the period 2000-2003 initiated a change to this. In addition to an escalation and increased focus on ICT in education, the plan acknowledged previous difficulties, and emphasised the need for knowledge and experience of how to make ICT an integral part of education. What the plan seems to advertise for, is what Koschmann (1996) calls Computer Supported Collaborative Learning (CSCL). A change from a behaviouristic and cognitive, to a socio-cultural way of viewing ICT in education. As a consequence, two national four year projects were initiated; PLUTO in teacher education and PILOT (Project of Innovations, Learning, Organisation and Technology) involving 120 primary, secondary and upper secondary schools (Erstad, 2004; Krumsvik 2006). While most of the teacher education institutions in Norway were involved, only a relatively small proportion of schools were participating which meant that the student teachers were asked to use learning activities not yet used in schools they were practising, and that teacher education gathered experience in using ICT in education before the schools. During the last two or three years this situation in schools has changed dramatically. Through Programme for Digital Competence 2004-2008, the educational authorities state that ICT should be integrated in all kinds of learning activities in Norwegian education at all levels, and that Norway should be a leading nation concerning development and utilization of ICT. Schools should be equipped with the facilities they need in order to carry out these aims.4 In order to secure these aims, the new Norwegian school reform “Knowledge Promotion” working from 2006, states that every pupil’s ability to make use of information and communication tools should be one of the five basic skills together with basic abilities like reading, writing, doing arithmetic and the ability to express oneself orally.

Challenges for teacher educators

Like teachers in schools, teacher educators have to cope with many different challenges. One of them is to enable the students to reflect upon their own values, beliefs and opinions related to pedagogical theory and classroom practice and to create enhancing situations for these reflections. Students need suitable meeting places and exercises that challenge their opinions and stimulate to reflection and collaboration. When people co-operate, they are not only acquiring knowledge of the existing, they also renew the existing, according to Engeström (1998). An important question is if ICT can meet and support these challenges. Is Internet merely an information-moving technology, or is it possible to build an on-line learning community for teacher students? Learning management systems (LMS) are used to organize access to on-line learning for students, teachers and administrators. The LMS has possibilities for creating closed rooms where students can collaborate without access for any other than the teacher and the selected number of students. These closed rooms or spaces are suitable for publishing portfolios, giving and receiving feedback from peers and for discussions. Another important challenge for teacher educators is to care for learning activities that are meaningful and can act as models for future teachers’ in their future organizing of teaching and learning activities.

Context

Most of the students participating in the INVITIS-project had graduate-level university degrees in two subjects. In the one year study (PGCE) students were divided into seminar groups, consisting of twenty students. These groups again were divided into Basic groups, consisting of five students. The students met regularly in the Seminar groups discussing topics

3 http://pilot.ls.no
4 http://odin.dep.no/kd/norsk/tema/utdanning/ikt/045011-990066/ind-bn.html
related to theory and school practice. The five students in the Basic group were assigned to have practice teaching at the same school. Preparing for the work with their portfolio, the students in the Seminar groups learnt about process writing, and how to give feedback to each others’ texts. In the Basic groups they shared their texts giving feedback face to face.

Due to the INVITIS-project, many different on-line activities were initiated. Among many other enterprises in the two subjects they were going to teach, the students were asked to publish texts compiling their working- and later presentation portfolio in pedagogy. They were also asked to give feedback to text drafts for the rest of the Basic group in “closed rooms” on the LMS and to rewrite their texts based on this feedback. They were also asked to discuss different topics; for example an article from their curriculum in an asynchronous forum for the Seminar group.

Many students argued against collaborating on-line, and some students even boycotted the project. Their main argument was that being on-campus students meeting every day, and not distance learning students, it was difficult to understand why they had to use the LMS instead of just giving feedback face to face. Another argument was that the schools where they practiced, were badly equipped, and few, if any teachers or schools practised any ICT-based activities.

Research questions
In light of the above, the questions this paper seeks to answer is: What are the most productive learning activities in teacher education? What do the students think about the ICT activities; when they are graduating, after one year and after three years as teachers? What do they see as the most important differences between collaboration and feedback processes in on-line and face to face contexts and what are the most important assumptions for successful collaboration?

Methods
In order to answer these questions altogether ten students in two different generations were interviewed. The first group, A, graduated spring 2003, group B in December the same year. The students in group A were interviewed again as teachers after one and three years and asked the same questions.

The study was conducted by means of qualitative analysis. The five students were interviewed after the course was finished. The interviews were typed and transcribed. The analysis focused on similarities and differences in the students opinions.

All the interviews were semi-structured with several pre-prepared questions. The semi-structured design ensured that all the respondents were confronted with the same set of core questions. This was important for the reliability of the study. But in addition to the core questions, follow-up questions were formulated. These offered the interviewees the opportunity to introduce unexpected ideas and thoughts. All interviews were fully transcribed before the structural phase of the analysis.

As an introduction to their presentation portfolio the students were asked to write an essay about their own learning process. This introduction is also used in the analysis.

Findings
So what are the most productive learning processes for in-service teacher students according to themselves as graduates? Above all they mention practice in school. School and the profession as a teacher is the aim of their long university education. As university students having graduated after many years’ study, they know they can handle the theoretical challenges. Their anxiety is connected to pupils, teachers, schools and education and how they will manage to handle all this (Fuller & Brown, 1975; Ginns et.al., 2001; Smith, K. & Sela,
O. 2005). Furthermore they all mention collaboration in the small Basic groups as very important for their personal development during teacher education. Altogether the students seem to appreciate the great change initiated by the authorities through the Quality reform. They agree that as future teachers it is important to contribute and participate in their own learning process.

Concerning the ICT project their opinions seem to differ more. Though all the students say they appreciate some of the knowledge they have gained through the project, their enthusiasm varies a lot. Some students say that they learnt little if anything from the on-line activities, others see a great learning potential. Actually, all the students state that their motivation was small when they started their study due to some important factors. First they felt no ownership to the on-line project. They did not see any links between their own aims for their teacher education and the ICT-project. Mainly, this is due to the fact that they did not participate in making the goals. What they knew about ICT and learning, was that it was very useful for distance learning. They had problems with understanding that it had any kind of relevance for campus activities. Second their problems were connected to handling the technology. Teacher educators as well as many students had little experience with the new technology and when the facilitators had problems as well, the motivation was low beforehand, the consequence for some students was to give in. Third, many different on-line based enterprises like different LMS and synchronous as well as asynchronous discussions were launched and this turned out to be still another obstacle. But perhaps the main problem was that few if any of the schools they practised in, used any kind of on-line communication and had very little focus on ICT in education. This corresponds to other studies of ICT supported teachers education contexts in Norway during the same period (Hauge 2006).

In spite of different obstacles, some students graduating their teacher education, agree that that use of LMS in process writing leads to other and more productive learning processes than to meet in a physical contexts due to some important assumptions. Most important seems to be that the difference in space gives more time and room for reflection. They also say that they understand the other students’ thoughts and feelings better when they are closely reading his or her text. Another difference in the virtual feedback process compared to a physical meeting, is that they have to write their feedback, and writing means thinking more closely before giving response. At the end of the course, the students realised that through sharing texts they had built a knowledge base together. They also see that as future teachers they had learnt a lot from giving written feedback to other students.

Another useful activity contributing to reflection around their own values and beliefs, were the discussions going on in the asynchronous forums. When connected to theoretical questions and class-room activities the discussions were said to bring a new dimension to the learning process. According to the students, on-line discussions favour other students than discussions in face to face contexts where very often one or two persons are dominating. So they experienced that other students were heard and seen in on-line discussions than in face to face groups. They also mention that distance in time and space made a deeper reflection possible. They read the other students’ arguments and thought about it for a while before they responded.

**Attitudes to ICT after one and three years of teaching experience**

After one year in schools, the new teachers report little or no difference in their attitudes to ICT. One of them is working in a lower secondary school; four in upper secondary schools. One is teaching at a school with little focus and poor equipment concerning ICT. During the year 2003-2004; their first year as teachers, the four experienced that ICT was rarely used in the school society. They understood that their colleagues knew little about the new
technology. Consequently, they found that their knowledge and experience concerning ICT was an advantage; a fact that gave them more self-confidence as teachers, combined with admiration and credit from pupils as well as teachers. They all used PowerPoint or made websites for their own classes during this first year as teachers.

However, after three years the situation in schools has changed for the teachers. Except for the teacher who still works at a school with no ICT facilities, and another who is contemporary out of school, there seems to be an orientation towards more interactive use of ICT. The three teachers are engaged in the schools’ and college’s plans and activities concerning implementation of ICT. They either use LMS and e-portfolio in their classes or plan to do it. They are all given responsibility in the school development concerning implementation. Apparently they are considered to be resource persons by themselves as well as the school society. They all appreciate the project they joined in teacher education, and express that they learnt a lot. Their competence concerning ICT has contributed to experiences that gave them confidence and self-affirmation as teachers in a vulnerable period as new teachers (Rippon & Martin, 2006). Obviously, it was impossible for them to see the same value while they were practicing as student teachers or as first-year teachers in schools where on-line education was a less known phenomenon. One of the students concludes: “The schools were far behind what we learnt in teacher education. But since the schools did not practice any ICT based activities, it was difficult for us to see how useful it actually was to us”.

Conclusion
Concerning on-line education for on-campus students, the INVITIS-project shows that it is possible for teacher educators’ to support the challenges of collaborative reflection by means of ICT and LMS. According to some of the students; given certain assumptions, there is a great potential for productive learning processes. These should be text-based asynchronous activities, taking place in closed rooms on the LMS. Given some important conditions, the LMS can meet the teacher educators’ challenges concerning creating enhancing situations for reflection on values and beliefs related to theory and practice. The closed space in an LMS can offer a learning community or a common “zone of possibilities” (Engeström 1998).

First and foremost the students underline that they should know each other and feel confident. Publishing unfinished texts is a tough and vulnerable process. They underline the importance of being a small group, consisting of four or five students. Nobody else than the group and the teacher should have insight into the room. Moreover that the students ought to be included in the main principles and views on learning from the very beginning; understand why they should use the LMS. They also stress the importance of some basic knowledge or tools before the process start. Tools like how to handle the technology, the basic principles in process writing and how to give feedback.

Another conclusion in this study seems to be that student teachers’ focus during their education is on what is going on in schools. To a large extent this affects their motivation for learning activities presented by teacher educators. They find the evidence for truth and importance in school practice. What seems to be another point for the “new” teachers, is that their competence is not fully appreciated until the schools’ interest and engagement for using ICT is launched by the authorities. This underlines the necessity of collaboration and dialogue between teacher education and schools.

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