Enterprise Learning in Hordaland County, Norway
– A Broad ICT for Learning Approach and It’s Effects

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Background
Traditionally in Norway new national school reforms are intended for all teachers, pupils and students according to welfare state principles⁴. Furthermore, when a new program or project is being introduced in Hordaland County the program or project will include all schools and partakers. All efforts that have been made trying to introduce learning through the use of ICT-tools must be seen in this context.

The Department of Education in Hordaland is responsible for all education at secondary level. With 46 secondary schools and 18 000 students Hordaland is one of the largest counties when it comes to education in Norway. An important task for the Department is to provide free learning resources for all students – both analog and digital.²

History
Around the change of the millennium the Department of Education and regional authorities decided that all school should get access to Internet and email through a centralized service. An even greater aim was to connect all schools in a pedagogical and administrative net of 100 MB. This was achieved in 2002. Consequently, Hordaland was at that time in a quite unique situation net-wise. However, good access to the Internet did not change the ways learning was being conducted.

A portal – www.skoleportalen.no - was published in the autumn of 2003. The portal contained access to an lms, a tool for publishing on the Internet, email, news, link repository and more. This portal was at the time a “state of the art” solution in Norway, both technically and service wise.

A lot of courses were being held to promote the use of the portal. Each school appointed two super-users who instructed their colleagues locally.

¹ An example is the 2006 Knowledge Promotion Reform which states that pupils and students at all levels are to learn digital literacy as a basic skill.
²You can find more information concerning Norwegian secondary education and training on these pages: http://www.regjeringen.no/en/dep/kd/Selected-topics/upper-secondary-education.html?id=87102
The formation of a larger project

It became evident, however, that the overall activity on the portal did not give the results we had hoped for. Aiming for all teachers to use for instance the lms to a certain degree (instrumental at first, then in a more pedagogical sense), the Department and regional authorities decided to go forth with new measures.

A group of six “eTeachers” was established. These six persons were to have a high degree of digital literacy especially in terms of using the lms in a pedagogical manner. They were each responsible for stimulating and supporting innovative use of ICT in their regions.

In addition a program for school leaders was implemented. Over 200 of our school leaders were given lectures on the possibilities and challenges of learning in a changing world dominated by web2.0 applications. Among the speakers in the program were prof. Wim Veen and prof. Arne Krokan – both renowned within the field ICT and learning. As a result of the leader program all schools wrote their own local ICT-plan.

Four schools were chosen to be pilot schools. One of these schools was a test school for implementing wifi at all schools. We provided laptops for all first years students. These schools were to work together in five different subjects creating learning resources for each other. Different ways of organizing the project at each school were also tried out, following slightly different cultures of organization at each school.

It was clear from the beginning that all students in all schools eventually would get a laptop of their own. This alone meant that the project had to be scaled up at some time, and the other single projects were also due to be organized in a common framework.

A common framework – The Digital School project

An umbrella project “The Digital School” was created around three different pillars:

- Infrastructure
- Content
- Digital literacy/competencies

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3 eTeachers is a sub-project in Program for Læring og digital kompetanse 2006-2010 ” in Hordaland County
4 Former keynote speaker at Online EDUCA.
5 The SIKT-project in “Program for Læring og digital kompetanse 2006-2010 ” in Hordaland County. Pilots in a technical, organizational and pedagogical sense.
Leaders from different departments at the county administration were placed on the project board, making it a joint effort from Hordaland County Administration and - not to forget - the regional authorities\(^6\).

**Infrastructure**
Over the years 2006-2010 laptops were introduced to all students. All schools were given sufficient wifi/ broadband connections. Infrastructure for videoconferencing was built, and around 70% of the schools were given equipment for videoconferencing. Most schools received a few Smart Boards.

**Content**
In 2006 the National Department of Education set aside 50 million NOK for the development of digital resources for secondary education as an alternative to analog text books. At the time, the market for online learning resources for secondary education was poor. Each of the counties were invited to send in applications to the department with suggestions of how to do this. However, the counties decided that collaborating on an application to the Department would be smarter, hence the National Digital Learning Arena (www.ndla.no) was founded. All counties but Oslo are involved in NDLA.

At first NDLA published a net solution for the subjects Health and Social Life, Natural Science and Norwegian. A lot of online digital subjects has been published since, and the aims are to produce a complete alternative to analog text books for most subjects in secondary education in Norway.

Hordaland County very active in founding NDLA and has contributed with a lot of resources during the organization’s existence. Within the project “The Digital School” NDLA was our answer to provide digital content for teachers and students.

**Digital Literacy/Competencies**
Under the main project the regional “eTeachers” were organized into PDS (roughly translated as “Pedagogical Digital Support system”).\(^7\)

The PDS played a vital role in the project and continues to do so today. The apparatus is continuously working hard to implement “Digital school” in all of our schools.

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\(^6\) Digital School Project 2007-2010 in Hordaland County.

\(^7\) At school level: eCoordinators, ICT-consultants and web editors and school leaders. At regional level: eTeachers and six representatives for the school leaders. At Department level: Dep. of Education and Organization (ICT) consultants.
The four pilot schools have been used both for testing different technical, organizational and pedagogical solutions, and not least as arenas for our joint work on the ICT-plans. As time passed the need for arenas to discuss central issues concerning digital literacy emerged.

Arenas were made also for the work of PDS. Yearly, two seminars over two days have been held with the eCoordinators, eTeachers and the Department of Education present. Exchanging experiences, planning together and learning together are key elements at these seminars.

In the same context – but for our regular teachers - our conference has been very valuable. The concept of the conference “Dei gode døma” (http://deigodedoma.no) – “the good examples” – is to show how learning can be achieved by use of ICT-tools, programs, services etc. 500 of our teachers have attended each of these conferences. Our concept and programs has drawn speakers from the Ministry of Education\(^8\) as well as national and international\(^9\) capacities.

**ICT for Learning – for all?**

As a result of our efforts so far all teachers and students are rather well equipped as far as technology and programs/services goes. The question whether our aims have been met at this point – that all teachers and students possess digital literacy and use this knowledge in all subjects is however complex. What is digital literacy? What does it mean in different subjects? Our 2009 survey\(^{10}\) showed that most of our teachers have an instrumental use of ICT tools, the lms in particular.

School reforms are estimated to take approximately 5-10 years to implement in a broader sense. Over the next five years we will definitely see changes in the way learning is being conducted in schools in Hordaland. For Hordaland to be successful it is vital that:

- the conference “The good Examples” showing best practices continues. Each single school should also give more attention to best practice examples at their school.\(^{11}\) Best practices using NDLA online subjects is of course very important in this context.

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\(^8\) Minister of Education Bård Vegar Solhjell in 2009.


\(^{11}\) Quoted freely from Stephen Heppel’s key note speech at the 2010 “Dei gode døma” conference.
• school leaders take more responsibility in making room for a transition that will take place in the near future. For instance enough time and arenas for the teachers to discuss aims concerning digital literacy and pedagogical use of ICT. An ICT-plan with measurable aims is important for school development.

• the PDS-apparatus continues its work at all schools. Some schools need more attention than others, and we have designed a “package” for schools that want help from PDS

• the pedagogical use of ICT - and networked learning in particular\textsuperscript{12} - is being discussed, tested and spread throughout the county and elsewhere. Different didactical methods, web2.0/social media tools and subject oriented tools have to be tried out on a much larger scale.

• national curricula and forms of exams to a greater extent will comply with the changes that are taking place in schools. It is important that curricula specifies what digital literacy actually implies in the different subjects. Our exams are still very traditional and do not reflect the possibilities that learning through ICT inhabits.

The impact of enterprise learning through ICT have already changed learning in Hordaland to a considerable extent, and what has been done has been noticed by other counties and at the national level. Following the suggested list of five points will hopefully bring about even greater changes in the near future, disruptive for quite a few, for learning in the post-modern school have to reflect the needs of a post-modern world.

References:
The Conference “Dei gode døma”:
Home pages, http://deigodedoma.no
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Documents:
Den digitale skulen – berbare elev pc’ar, Hordaland County, 2007

\textsuperscript{12}The Connectivism theory by George Siemens will for instance be used. http://www.itdl.org/Journal/Jan_05/article01.htm
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