

Lower Secondary School Dot Com

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“A thing has a virtual existence when it has all the conditions necessary to its actual existence.”—Fleming

With the implementation of the Knowledge Promotion Reform, digital competence has figured prominently in Norwegian education, with the best example perhaps being that the national curriculum defines the use of digital tools as a fundamental skill. The curriculum’s promotion of digital knowledge is a continuance of previous national initiatives. In the action plan for *IT in Norwegian Education 1996–99*,¹ the implementation of technology was central. The following action plan for ICT in education (2000–2003)² continued to focus on the challenges related to implementing ICT in education, while also prioritizing the development of schools and holistic perspectives on the professional and educational use of ICT through national projects such as PILOT³ and PLUTO⁴.

Several projects and activities that were carried out in the 2000–2003 period helped lay the foundation for the subsequent *Programme for Digital Competence 2004–2008*⁵. While furthering the previous action plans’ overall development of schools and implementation of ICT, the programme also introduced an innovation, namely the setting of new and ambitious national objectives and priorities through the vision of “digital competence for all”.

The concept of digital competence was continued in *An Information Society for All*, which stated *inter alia*: “The Government aims to promote a modern school that actively and critically relates to new technology, and that draws on the potential that lies in the meeting point between a digital youth culture and the school’s more traditional culture for learning” (Report to the Storting no. 17 (2006–2007): 57)⁶.

Through the Knowledge Promotion Reform, Norwegian primary schools have received a clear mandate to develop the teaching methods that they themselves find most appropriate. The schools have in all likelihood needed the time since 2006 to adapt to a system that features more accountability. For example, the indications are that the development of local curricula in lower secondary schools is done primarily by teachers working in teams and that this work method may ease the teachers’ workload⁷.

The development of both general and school-specific ICT systems has attained a relatively high level of maturity. There is a common perception that ICT, when used properly, can increase efficiency

in and between educational institutions, and this opinion is shared by the authorities and the school owners. Improved infrastructure, system integration, data transfer and new functionality aim to support and increase the efficiency of the schools' administrative processes.

The fact that teachers spend more of their time on administration (pupil administration, writing reports) is a problem. Can teachers use technology to eliminate unnecessary chores and free up time for teaching? Improved functionality and integration between e.g. school administration systems and learning platforms might be one way of making these processes more efficient.

Technology, such as it is implemented in educational institutions today, supports predefined and predictable organizational processes – it supports how work is expected to be performed. Knowledge workers such as teachers and pupils need technology support for different work forms. Research, experimentation, interpretation, discovery, collaboration – all these processes must be supported by ICT both in and outside of the educational setting, whether in the classroom, at home, or in the teachers' lounge. Today's ICT systems can deliver much of this, but in the near future some of the following trends may also be realized in Norwegian schools:

Context-aware systems can “understand” their given context and can adapt their behaviour according to the situation at hand.

Low-cost mobile computers are small, simple, and inexpensive portable units such as tablet computers, smartphones or small laptops.

The concept of Web 2.0 and social software covers several trends, technologies, and services that are used on the Internet, and represents a transformation in how the Internet is used.

In general, the increasing complexity of ICT and the need for more flexible and efficient services resulted in the development of new approaches and architectures for providing ICT, such as virtualization, cloud computing and service-oriented architectures.

Schools today enjoy greater freedom to develop teaching methods locally, at the same time as they are exposed to a wide range of ICT-based systems. This offers the possibility to transform schools into important agents of innovation, which in turn might revitalize the schools as a powerful arena for learning, one that sustains the pupils' natural motivation for personal development and learning, unlike today's system where the pupils' eagerness for learning is gradually drained over the course of their primary education⁸.

According to a study by Einar and Sidsel Skaalvik at NTNU (quoted in *Dagsavisen*, 6 January 2011), “During the transition from fourth to fifth grade, pupils become less motivated and make less of an effort. And as if that was not enough, their effort and motivation decreases every subsequent year until tenth grade.” There are thus large groups of young people who have lost the motivation to continue their education and who may be in danger of dropping out of school. According to the authors of the study, “The schools cater for the needs of neither the strongest nor the weakest pupils, and are more geared towards the needs of the average or slightly above average pupils.”

There is a clear connection between the learning environment and how the teacher performs as the classroom leader. Good classroom management has been a prioritized area, but as yet the challenges

related to the use of digital media have been largely neglected. The pupils' use of computers and other digital devices challenges the teacher's role, and classroom management in a digital classroom is important in this context. It is crucial that a platform of knowledge is established so as to evaluate effective measures that can strengthen the teacher's leadership of the classroom. Good classroom management will always play a key role in preventing drop-out.

Pupils are by and large active users of various digital tools and media outside of school, but the competence they develop is insufficiently appreciated and utilized at school. Realizing the pupils' digital competence in learning activities is an important measure, as it will help make the school more relevant for pupils and ensure the inclusion of valuable competence. If the schools are to appreciate the pupils' digital competence, this competence must be reflected both in the curricula and in assessment systems. The degree to which the use of digital media can help prevent pupils from dropping out depends on the quality of the practices that the schools are able to institute. As such it is important to identify best practices, both in the general use of digital media for educational purposes, but of course also when digital media are used in connection with efforts to prevent drop-out.

Incorporating digital media and ICT in education cannot guarantee that pupils will complete their 13-year education, though there are some relatively successful international examples, such as *Oneeighty*⁹ in Sweden and *Notschool* in the UK¹⁰. Such schools have largely dealt with finding solutions for marginalized pupils, and though it is commendable that many of the pupils receive help to find a place in society where they can function satisfactorily (whether at school or in the workforce), such solutions can hardly serve as a model that can be applied to a large number of unmotivated pupils who are in danger of dropping out of school before completing their 13-year education. Expecting all pupils to complete 13 years of schooling seems unrealistic, even though the goal must be that the percentage should be as large as possible. There will always be some pupils, however, who will require alternative solutions.

What these successful international initiatives have in common is their focus on giving pupils a voice in society on their own terms. Such schools facilitate the use of digital media for communication between teachers and pupils, and among the pupils themselves, where pupils feel that they are taken seriously. Could this perspective be applied to larger groups of pupils as well, and could it help prevent pupils from dropping out of primary education at an early stage? *Globalskolen*¹¹ (the Global School) has positive experiences with teaching individual pupils who for various reasons reside abroad. The school follows the Norwegian curriculum, is approved by the Directorate for Education and Training under the system of complementary education, and currently has around 1,050 pupils. Would it be possible to combine perspectives from e.g. *Oneeighty* and *Globalskolen* to provide an option for pupils who have dropped out of school? Increased flexibility at school, with digital media being used on the pupils' terms, might also be relevant as a preventive measure.

Digital media and ICT could serve as an impetus and hub for innovation in the lower secondary school. An exciting thought for lower secondary education may be to develop a virtual school that offers online and pupil-centric education and that uses new forms of learning and collaboration. Such an online teaching programme could be based on 24-hour teacher availability, the use of social networks, and individual tuition in an expanded range of subjects that could well be provided by established online education enterprises. To increase motivation and prevent pupils from dropping

out of lower secondary education, there is a need to try out new teaching methods that continue to build on best practices and knowledge.

- 1 The Ministry of Church Affairs, Education and Research (1996): IT i norsk utdanning. Plan for 1996–1999.
- 2 The Ministry of Church Affairs, Education and Research (2000): IKT i norsk utdanning. Plan for 2000–2003.
- 3 PILOT (Project for Innovation in Learning, Organization, and Technology) was Norway's largest and most comprehensive innovation project related to the educational use of ICT in school. 120 schools were involved in the project (1999–2003), which was initiated by the Ministry of Education and Research. The Research and Competence Network for IT in Education (ITU) coordinated the research. One conclusion from the project was that schools that worked systematically with organizational frameworks, flexible methods and that focused on learning were the most successful in regard to the educational use of ICT.
- 4 PLUTO (Project for Teacher Training, Technology and Readjustment) was a transitional project for ICT that was initiated by ITU (1999–2003).
- 5 The Ministry of Education and Research (2004): Program for digital kompetanse 2004-2008.
- 6 Report to the Storting no. 17 (2006–2007): Eit informasjonssamfunn for alle.
- 7 Janet Hodgson, Wenche Rønning, Anne Sofie Skogvold, and Peter Tomlinson (2010): På vei fra læreplan til klasserom. Om læreres fortolkning, planlegging og syn på LK06. NF Report no. 3/2010 (Nordland Research Institute).
- 8 Dagsavisen, 6 January 2011.
- 9 <http://www.oneeighty.se/>
- 10 <http://notschool.net>
- 11 <http://www.globalskolen.no/web/>