Monitor 2011 – The Digital State of Affairs in Norwegian Schools

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English abstract

Monitor 2011 is the fifth quantitative survey in a series of studies on the use of digital tools in schools, teachers’, and learners’ digital competence, as well as the digital priorities of school principals. The quantitative surveys have been conducted every other year since 2003 in order to provide information on the digital condition in schools. The respondents are school principals, teachers, seventh and ninth grade learners, and upper secondary school learners (second year).

Keywords: Digital competence, pedagogical use of ICT, school development, school management.
From 2003 to 2009, the Monitor reports were conducted by the National Network for IT-Research and Competence in Education (ITU) and were called ITU Monitor. In 2010, ITU became a part of the Norwegian Centre for ICT in Education and the name of the report simultaneously changed to Monitor. Furthermore, the quantitative survey was supplemented by a qualitative study intended to provide in-depth information on the digital condition in schools. The first qualitative Monitor was published under the name Monitor 2010 – Discussions about ICT in Schools. The Monitor series now contains six reports, as well as several academic articles and other publications.

The Monitor survey seeks to document longitudinal developments from 2003, when digital tools were first introduced in most schools, until the present, when digital competence is an essential aspect of ICT integration in compulsory education. Year by year, schools have increasingly invested in equipment and teachers’ competence. There are, however, substantial differences, both at the individual and school levels.

As with earlier editions, Monitor 2011 focuses on various perspectives of the concept of digital competence. The concept is discussed in detail and is linked to learners’ different ways of mastering various tasks with and through ICT. Furthermore, the concept is connected to the curriculum and its competence targets. In the Monitor 2011 report, the concept of digital competence is operationalized through the following five areas:

- Operational use of ICT
- Acquisition and handling of digital information
- Production and processing of digital information
- Digital judgement
- Digital communication

In order to clarify the theoretical background and perspectives on which the survey is based, we have reviewed selected literature and research within key thematic areas, including digital competence and school administration.

Selection of respondents

Recruitment of respondents was performed in two stages. Firstly, the schools were selected based on three different strata, followed by the principals at the different schools selecting learners and teachers. There is a reasonable response rate among school principals, somewhat less among learners and teachers. The analysis of dropout from the study indicates that there are no systematic biases in the final sample. Even so, we must be cautious in concluding that the findings of this study are representative of the entire population of school principals, teachers, seventh and ninth grade pupils, and second year learners at the upper secondary level. The selection in this study provides interesting information about how school principals, teachers, and learners perceive the situation in their
schools. It is also very important to compare and discuss the findings of this survey with other studies, such as the PISA (Programme for International Student Assessment) 2006 and 2009.

The school principals’ priorities

- Upper secondary level school principals increasingly find that they have better access to ICT resources than school principals at the primary and lower secondary levels.

- School principals are now generally placing less emphasis on raising teachers’ competence in operational use of ICT. In primary and lower secondary schools, educational competence and the use of subject-specific programs have a higher priority.

- Almost all school principals set requirements for teachers’ use of ICT.

School principals find it challenging to implement ICT, and many encounter limits set by tight budgets. Half of the principals in primary and lower secondary schools find that the school has sufficient access to ICT resources, while the corresponding figure for principals in upper secondary schools is 78%. In other words, principals in upper secondary schools find, to a greater extent than principals in primary and lower secondary schools, that they have the equipment they need. Upper secondary school principals also set aside more resources for integration with subject-specific digital teaching aids than principals in primary and lower secondary schools. There are also differences when it comes to how the respective school levels prioritise different digital competence areas. Less emphasis is consistently being placed on raising competence in the basic use of ICT in primary and lower secondary schools, whereas educational ICT competence in subjects and the use of subject-specific programs have higher priority. At the upper secondary level, there is a gradual reduction in the prioritising of all three forms of raising competence. Very few school principals – at any level – either wholly or partially disagree that they set requirements for teachers’ use of ICT.

Teachers’ digital competence and use of digital tools

- Teachers at all levels report that the use of computers in subjects is increasing.

- Teachers in upper secondary schools make more frequent use of computers than those in primary and lower secondary schools.

- Teachers are generally positive towards the use of interactive whiteboards – primary and lower secondary school teachers more so than upper secondary teachers.

Monitor 2011 also follows up on the reviews in previous editions of teachers’ use of ICT and digital competence. We have found great variations among the different school levels and subjects when it comes to teachers’ use of computers. Teachers in upper secondary schools responded that they use computers in school to a significantly greater extent than primary and lower secondary school teachers. When we compare the respondents in Monitor 2011 with those from ITU Monitor 2009 and previous surveys, computer use appears to have increased from previous years. Teachers’ use of computers is high – or fairly high – in most subjects, although upper secondary science and ninth grade mathematics lag somewhat behind. Among the subjects, Norwegian is distinguished by
frequent use. When it comes to the use of interactive whiteboards, seventh grade teachers are consistently ahead of ninth grade teachers, while upper secondary level teachers report the least use of interactive whiteboards. There are differences in the perceptions that teachers have about interactive whiteboards. Broadly speaking, primary and lower secondary school teachers are more positive about the possibilities offered by the interactive whiteboards, including teaching efficiency and variability, as well as perceptions about lesson preparation. We have also found a common perception among teachers that the computer equipment generally works well for simpler tasks, but takes too long to start up. The teachers also reported that the computers are not particularly well suited for advanced work or Internet use.

Learners' digital competence

Analyses in Monitor 2011 show that the use of digital tools and digital competence are gaining a more central place in schools.

- Learners’ use of digital tools in school is showing positive development in all subject areas.

- Upper secondary schools are still far ahead of the primary and lower secondary levels – both in general computer use and in individual subjects.

- Primary and lower secondary schools use interactive whiteboards significantly more than upper secondary schools.

- Monitor 2011 includes a test of learners’ digital competence on the basis of individual competence targets in the curricula. Analysis of the results indicates differences in learners’ digital competence, i.e., learners have different levels of digital competence when they finish school. As a result, learners have different qualifications for further education or working life.

The learners in the selected grades use computers to a great extent in their schoolwork, but with significant variability among different grades. The majority of second year students at the upper secondary level are frequent users, whereas only 15% of primary school learners and 27% of lower secondary learners use computers in school for four hours or more a week. In seventh grade, it is common for the school to have a computer room. About half of seventh graders report using a computer in a specific computer room. In later years, computers are increasingly used in the classroom, and a greater proportion of older learners have their own computers.

This sample found that learners in 2011 use computers in subjects to a greater extent than in earlier years. Even so, there are differences among subjects when it comes to using computers. A large proportion of upper secondary learners use a computer weekly or more in the subjects of Norwegian, English, and Social Sciences (over 80% of learners), while a smaller proportion of seventh and ninth grade pupils use a computer weekly or more in these three subjects.

We have also looked more closely at how learners and teachers perceive the quality of their schools’ computers. Learners are unsatisfied with the quality of the computers they are using and report that computers work well for less advanced activities, but are often too slow for more complex applications and Internet use. Answers from teachers tend to support learners’ claims that school computers are of varying quality.
Monitor 2011 also asked learners and teachers about the use of interactive whiteboards. Interactive whiteboards are entering the classrooms and, over the last three to four years in particular, investment in this type of technology has vastly increased. Seventh and ninth grade learners report considerable use of interactive whiteboards, but the differences in use in five various subjects are not as great as the differences in the use of computers in the same subjects. Learners at the upper secondary level generally report less use of interactive whiteboards than primary and lower secondary learners.

References