LOGGED-ON State-of-Art report - Norway

1.0 Introduction

1.1 Demographics of Norway

The Kingdom of Norway has a total area of 385,252 square kilometres (148,747 sq mi) and shares a long eastern border with Sweden (1,619 km long). Norway is bordered also by Finland and Russia to the north-east, and the Skagerrak Strait to the south, with Denmark on the other side. Norway has an extensive coastline, facing the North Atlantic Ocean and the Barents Sea.

The country maintains a combination of market economy and a Nordic welfare model with universal health care and a comprehensive social security system. Norway has extensive reserves of petroleum, natural gas, minerals, lumber, seafood, fresh water, and hydropower. The petroleum industry accounts for around a quarter of the country's gross domestic product.

Norway, a unitary state, is divided into nineteen first-level administrative counties (*fylke*). These counties are then sub-divided into 430 second-level municipalities (*kommuner*), which in turn are administrated by directly elected municipal council, headed by a mayor and a small executive cabinet.

1.2 Population

The total population of Norway on 1 January 2013 was 5,051,275. Statistics Norway estimated that the 5,000,000 milestone was reached in March 2012. The growth rate of Norway is currently about 1,3%.

Ethnically, the residents of Norway are predominantly ethnic Norwegians who are of North Germanic / Nordic descent, although there are communities of the Scandinavian native people Sami who settled the area around 8,000 years ago, probably from continental Europe through the Norwegian coast and through Finland along the inland glaciers. The national minorities of Norway include Scandinavian Romani, Roma, Jews, and Kvener, as well as a small Finnish community.

In the last decades, Norway has become home to increasing numbers of immigrants, foreign workers, and asylum-seekers from various parts of the world. These immigrants constituted 13% of the population at the start of 2015, and an additional 2,6% were born in Norway by immigrant parents.

Of these immigrants, 51% have a western background (commonwealth, North America or European) while 49% have a non-western background (Turkey, Morocco, Iraq, Somalia, Pakistan, Iran).
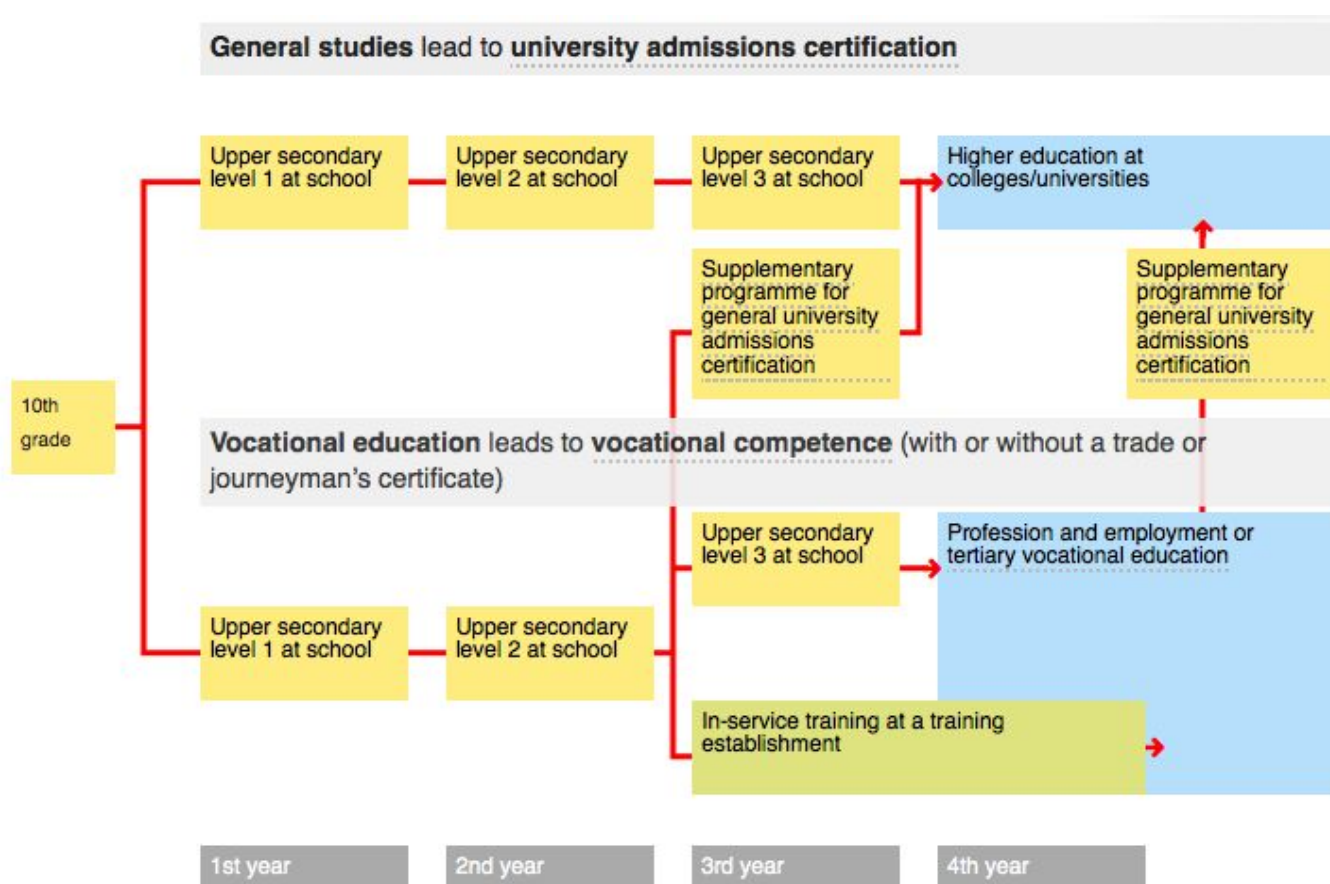
1.3 Description of the Norwegian education system

Public education in Norway is virtually free, regardless of nationality. The academic year has two semesters, from August to December and from January to June. The ultimate responsibility for the education lies with the Norwegian Ministry of Education and Research.

The majority of Norwegian children attend kindergarten a few years prior to starting school. In Norway the children start school the year they turn 6 years of age. They attend primary school from grades 1 to 7. After which they attend Lower secondary school from grades 8 to 10. Students that have finished year 10 have completed their formal education, however 97% of students go on to take Upper secondary education.

In 1994 Norway had the first of the major changes for upper secondary education. The reform from 1994 gave ALL 16-17 year olds the right to upper secondary education, and they all received guarantees of getting one of their three study choices. This guarantee applies to all, regardless of prior conditions (physical or mental handicap), adaptation needs, background (minority) or grades.

Upper Secondary education in Norway builds upon the 10th grade from the lower secondary school and generally leads to higher education, vocational skills or basic skills. One must apply for a place in secondary education. Upper Secondary education is usually given as 3 years in school (general studies) or with 2 years in school and 2 years in a working environment (vocational apprenticeship). All students have the right to one re-election so that their education may be extended by one year.

The main model for vocational education programs is two years in school and subsequent two years in a company (2+2 model). The first year has a wide entrance to the vocational program because one wants to give students the opportunity for flexibility and a possible change.

The workplace requires great adaptability and it was therefore important to ensure this already at the start of the training course.

Even though Reform 94 in many ways was successful in itself, it also paved the way for a new reform of the vocational programs. This came in 2006 and was called "The knowledge lift". With the introduction of the new reform, 15 educational programs were reduced to 12 - nine vocational and three that gave access to

higher education. Several educational programs were merged and given new names. Educational courses at Vg2 (second year of education) level cover about 50 program areas. After their second year, vocational students have about 180 trades to choose from.

Developments in industrial structures, information and communication technologies, increased competition and efficiency mean the need for unskilled labour has declined. The demand for workers with technical and vocational upper secondary education and people with higher education will continue to increase. The employment rate among skilled workers is higher than in the general population, they have more often permanent positions than the general population, and they tend to have full-time work. In the coming years there will probably be a shortage of civil engineers, engineers and other scientists, nurses, teachers, kindergarten teachers and people with professional training in areas such as construction and health care.

Higher education in Norway is offered by a range of seven universities, five specialised colleges, 25 university colleges as well as a range of private colleges. Education follows the Bologna Process involving Bachelor (3 years), Master (2 years) and PhD (3 years) degrees. Acceptance is offered after finishing upper secondary school with general study competence.

2.0 Current ICT situation - National

Every second year since 2003 there has been a nationwide survey of Norwegian schools recording and analysing the use of computers in education. In 2010 the "Centre for ICT in education" was established and lies under the jurisdiction of the Norwegian department of education. The center's mandate is to contribute to the use of ICT for enhancing the quality of education and better learning outcomes and learning for children, pupils and students. The latest survey was taken in 2013 and many of the results shown in this document are taken from that report (ITU Monitor 2013). We would like to acknowledge and thank the authors of the report for the use of their findings. A new survey (Monitor 2015) has just been undertaken, but the results have yet to be published.
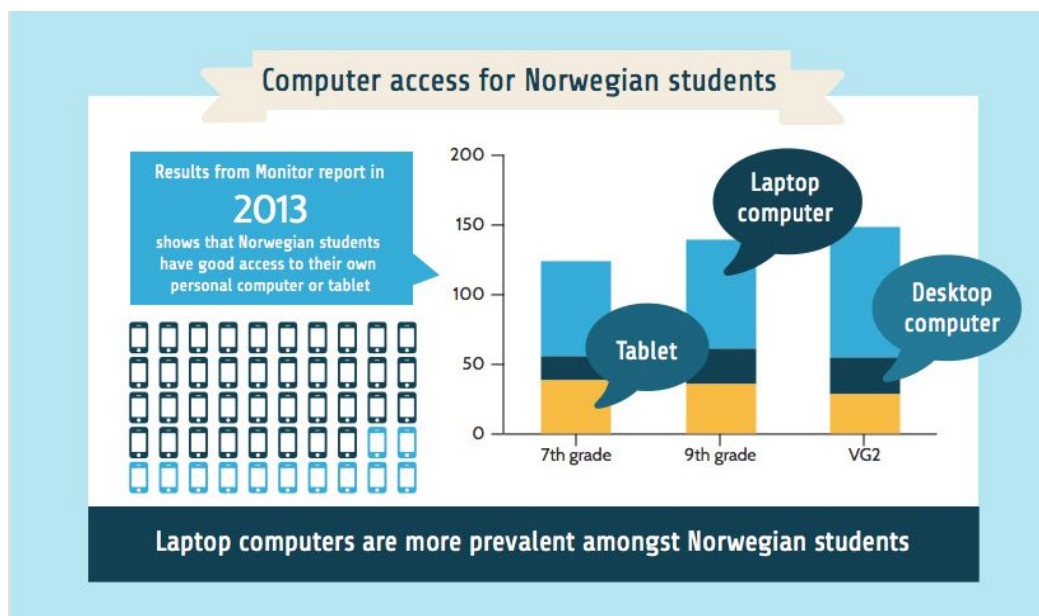
In 2006 the ability to master digital tools and media was introduced as one of the five basic skills to be included across all subjects in the revised Norwegian national curriculum. The new curriculum contains specific competence goals or digital literacy levels describing what Norwegian students should master with regard to the use of digital tools and media in their various subjects and at the various levels.

In this State-of-art document, we choose to define digital literacy as "the ability to acquire and process information, possessing digital judgment and to produce and process information".

2.1 General use of ICT in Norwegian schools

Computer access:
The ITU Monitor 2013 survey found that 67.8% of students in 7th grade, 78.7% of students in 9th grade and 93.3% of pupils in their 2nd year of Upper Secondary school (VG2) state that they have their own laptop. The proportion who have their own desktop computer, however, is respectively 17%, 25% and 26%. The survey also found that among students in the 7th and 9th grades tablets are more prevalent than desktops, while at VG2 level the difference between tablets and desktop computers is rather small.

The findings also underpin the trend of laptops taking over from desktop computers. The question is whether tablets, along with mobile phones, will take over the role as the most widespread technology amongst young people? The proportion of students who report that they have their own tablet, is 39.3% of students in 7th grade, 36.5% of students in the 9th grade and 28.7% of pupils in VG2. At school there is less use of tablets.
This may indicate that the use of ICT in schools still relies on "traditional" technology such as computers.

Use of social media and listening to music are the most common activities when computers and tablets are used at home. After this follows the use of chat applications such as Skype and Facebook messenger.

Computer time in school:
In a European context, students in Norwegian schools have good access to technology (European Schoolnet, 2013a; Frønes et al., 2011). Chapter 2.4 of this report contains figures from the Directorate of Education which show that there are fewer students per computer in the schools.

According to the Monitor report the majority of students in the 7th and 9th grade are using computers approximately three hours or less per week. When we know that these classes have between 22 and 26 hours per week, three hours provides a relatively small proportion of students' time spent at school.

The results in Figure 1.1 show that computers are used less in the 7th and 9th grade compared to the Upper Secondary students (VG2). The figure also shows that over half, 56%, of VG2 students use computers at school more than 9 hours a week.
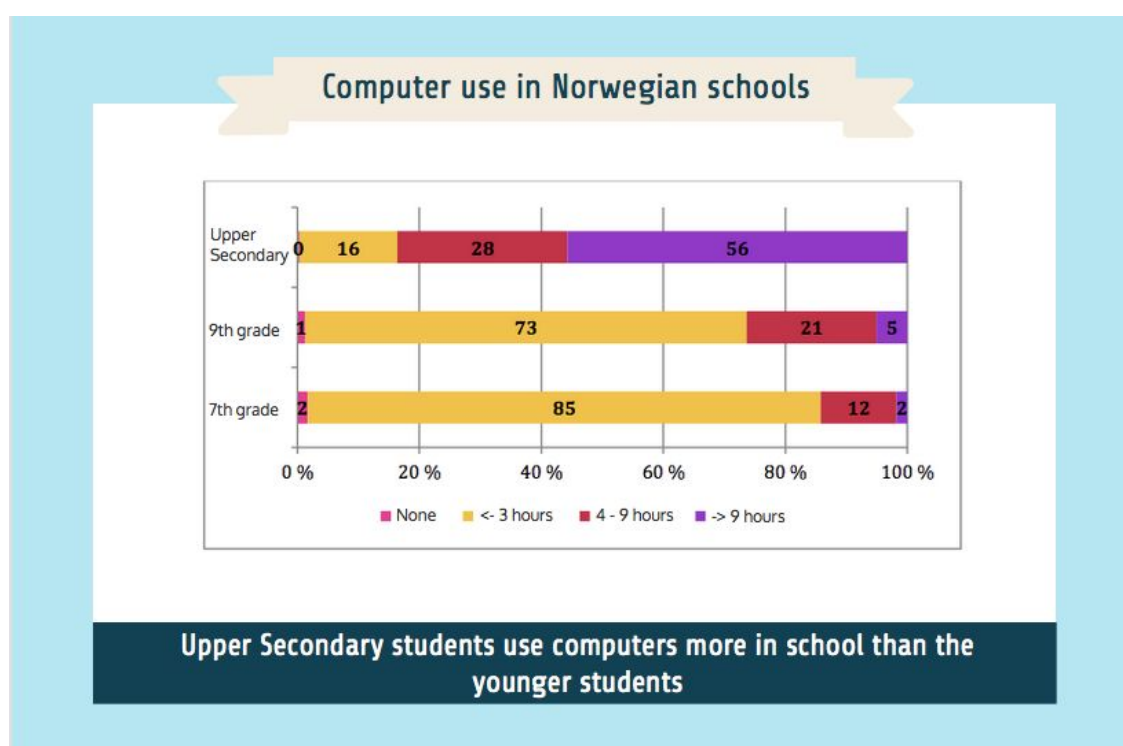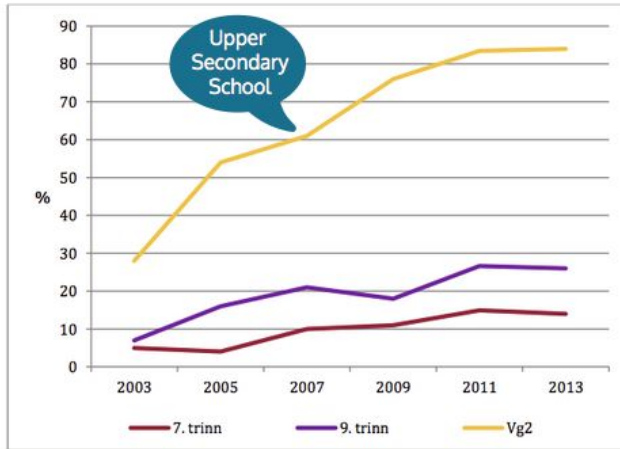

Figure 1.1. Overview of how often students use computers in school in teaching (figures in percent).

The survey has also looked at the change between 2003 and 2013.

From these results (Figure 1.2) it is quite clear that the use of computers in the Upper Secondary schools has increased considerably over the past 10 years. This is understandable due to the fact that the Norwegian government in 2006 required all Upper Secondary school students to have access to a laptop PC (either privately owned or purchased/subsidised by the school or regional county).
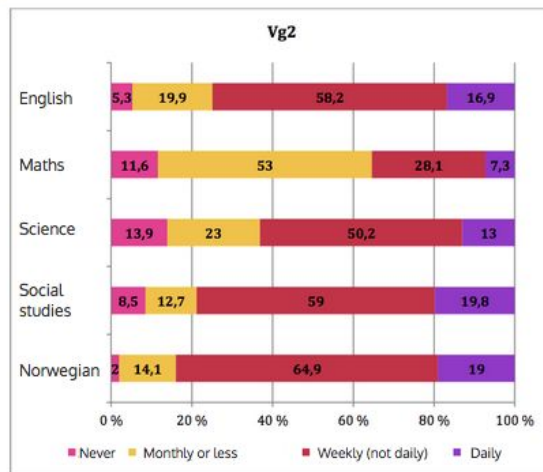
Figure 1.2. Percentage of students who use computers four hours or more per week at school.

Use of computers in the different subjects:

In the 2013 survey Upper Secondary students were asked how often they use their computer in the following subjects: Norwegian, social studies, science, mathematics and English. These results are presented below in Figure 1.3.

Figure 1.3. Approximately how often do you use your computer in the following subjects at VG2?

From these results it is clear that mathematics and science are the subjects that are (seemingly) most difficult to combine with computers although this trend has been changing in recent years.

2.2 Digital literacy in the Norwegian school system

In this State-of-art report we have chosen to define digital literacy in Norwegian schools as: "the skills, knowledge, creativity and attitudes necessary for safe and active use of digital media in order to understand, learn and solve problems and master the different aspects of the knowledge society".

In the following sections we look at the differences between the digital literacy amongst Upper Secondary students and their teachers.

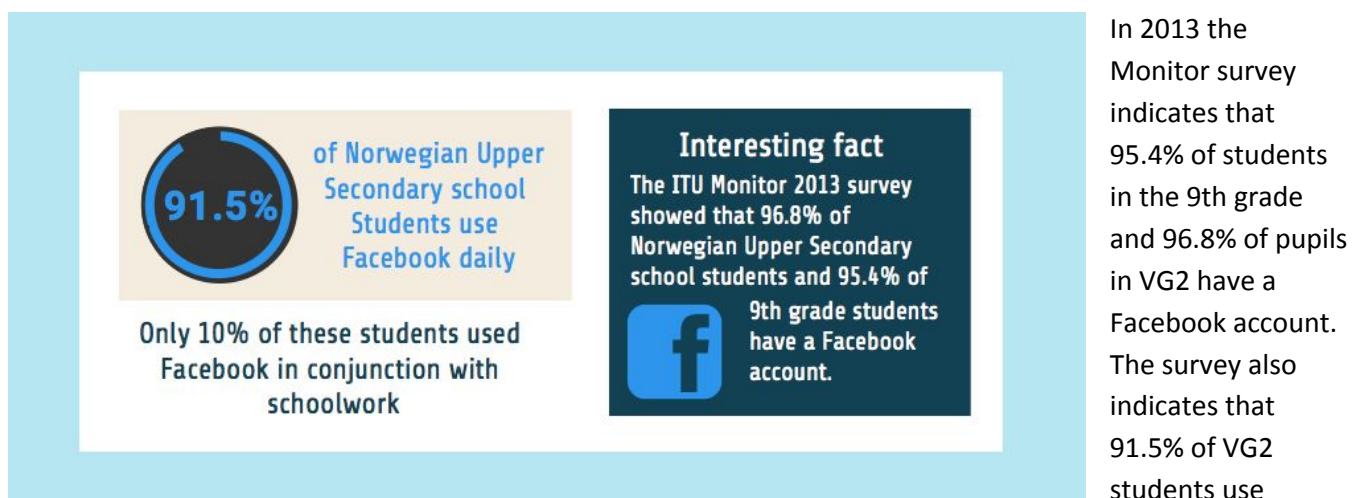**Digital literacy amongst Upper Secondary students:**

Using a series of tests (both practical and theoretical) the students from the Upper Secondary schools involved in the 2013 survey showed that they were more competent in their use of digital tools than the younger students (grades 7 and 9).

The survey also indicates that academically strong students do relatively better in the digital literacy test. One explanation for this may be that the tests were based upon areas that are commonly used in schools (not necessarily at home).   The analysis of the survey results indicate that there are differences between schools, and it is the school's responsibility to meet expectations of the education act.

A large number of the students seem to be aware of errors that can be found on the Internet. Despite this it is important to maintain the good work with digital judgment, netiquette and copyright. When comparing the different schools participating in the study, differences in digital literacy can be found. The school's commitment to and work with ICT and digital literacy will affect how students perform.

Paper textbooks still stand strong in the Norwegian school. This may be due to several factors. Textbooks are a secure source to achieve the competency goals in the individual subjects. The books are independent of technology and do not have the same disruptive elements as using learning resources from the Internet. In addition, the sources of the book are generally seen by the students as more reliable than sources from the Internet.

In this survey, the students were asked to assess their own digital skills. Generally speaking the student's assessment of their own skills shows that they generally have pretty good faith in themselves, but that there are differences between different activities.

91.5% of Norwegian Upper Secondary school Students use Facebook daily

Only 10% of these students used Facebook in conjunction with schoolwork

Interesting fact
The ITU Monitor 2013 survey showed that 96.8% of Norwegian Upper Secondary school students and 95.4% of 9th grade students have a Facebook account.

In 2013 the Monitor survey indicates that 95.4% of students in the 9th grade and 96.8% of pupils in VG2 have a Facebook account. The survey also indicates that 91.5% of VG2 students use Facebook daily.

Of these users there are only 10.7% of students who use Facebook daily in conjunction with schoolwork.

However it is not necessarily the large users of social media or gaming for that matter that automatically master the school-oriented ICT use as described in the competency goals of the curriculum.
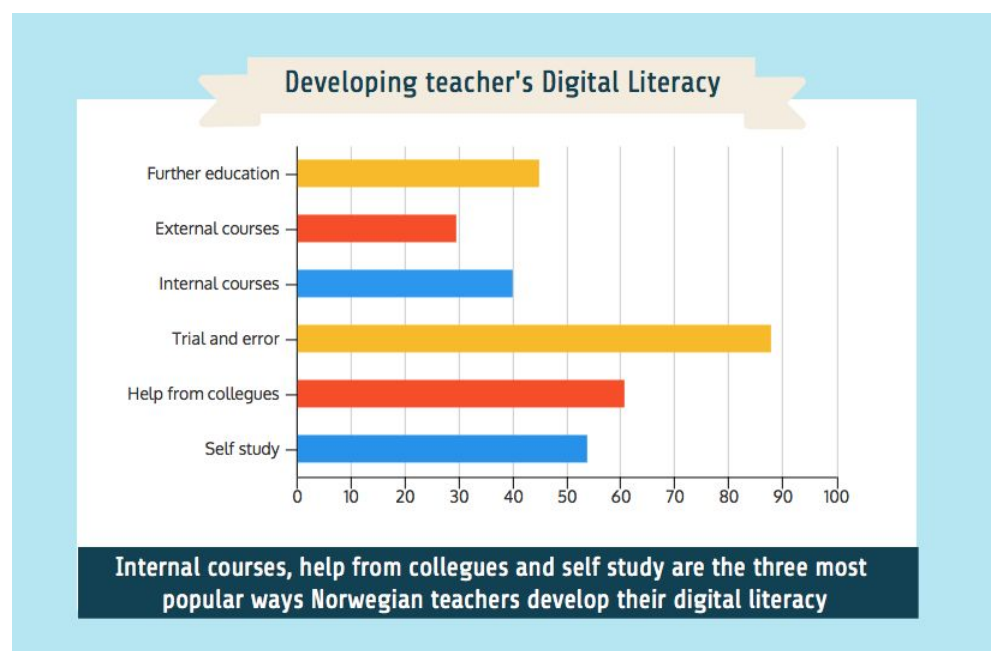
Digital literacy amongst teachers:

In the 2013 ITU Monitor survey 312 teachers from 141 schools participated. Even though this number can be considered relatively low, the results are still comparable to many larger European surveys undertaken around the same time (eg The European Survey of Schools; ICT in education from the European Schoolnet 2013a).
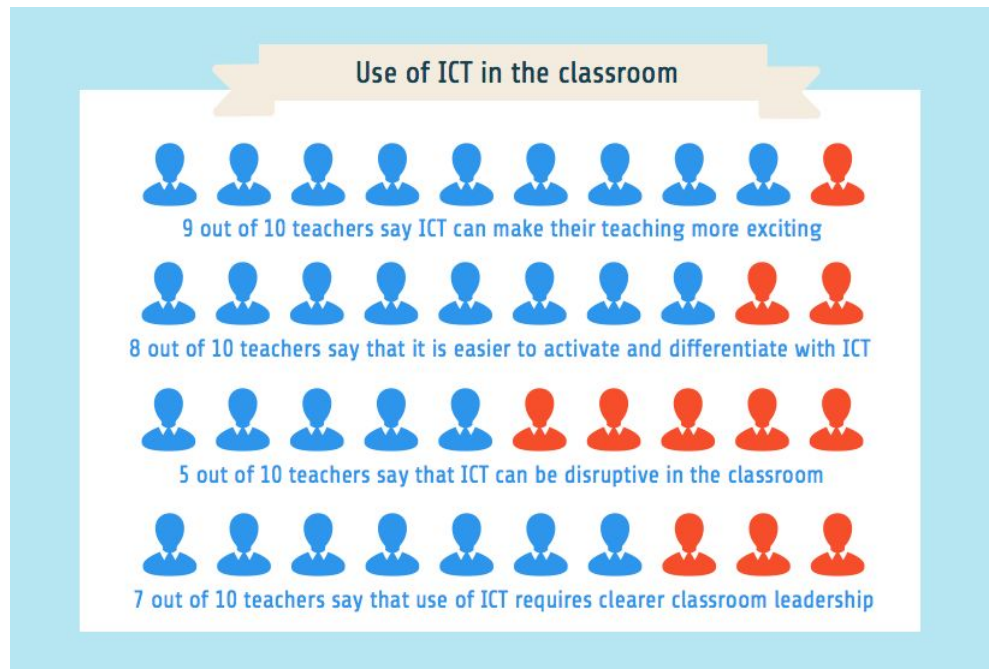
A teacher's "faith" in their own digital literacy plays an important role in how they use ICT in the classroom. Also their attitude to ICT affects the level of how they incorporate the use of computers in their teaching. As part of the Monitor survey the teachers were asked to answer 17 multiple choice questions based upon the the competency goals of the Norwegian curriculum. 70% of these teachers had a good score and answered many of the questions correctly. There seemed to be no noticeable difference between the levels/grades, however there were differences regarding the teacher's age and sex. Male teachers seemed to do better than their female colleagues and the younger teachers did better than many of the older teachers. When asked how they would rate their own pedagogical use of ICT the teachers had a high level of self-confidence regarding searching for information for their own teaching materials. Also the majority of the teachers felt that they could use social media to collaborate with their students, however fewer teachers were confident in the use of collaborative writing tools (such as wikis, blogs etc) with their students.

When asked about their own "operational digital literacy" (ie use of word processing, spreadsheets and presentation tools) the results showed that many teachers (91.6%) managed to make presentations with text and pictures, while only half (55.7%) answered that they could create multimedia presentations without assistance or use a spreadsheet to create graphs. Many teachers (79.4%) stated that they were able to download and install computer programs without help.

The teachers were also asked to comment on how they developed their own digital literacy and what they regarded as the best methods of increasing their use of ICT in the classroom. The results in figure 1.4 show that internal courses, assistance from colleagues and trial and error are the three most popular methods. Nearly nine out of ten teachers that have used the trial and error approach state that this method has a large impact

Developing teacher's Digital Literacy

Internal courses, help from collegues and self study are the three most popular ways Norwegian teachers develop their digital literacy

on their own digital literacy. Also six out of ten teachers believe that advice from colleagues has a lot to say for the development of their computer skills.
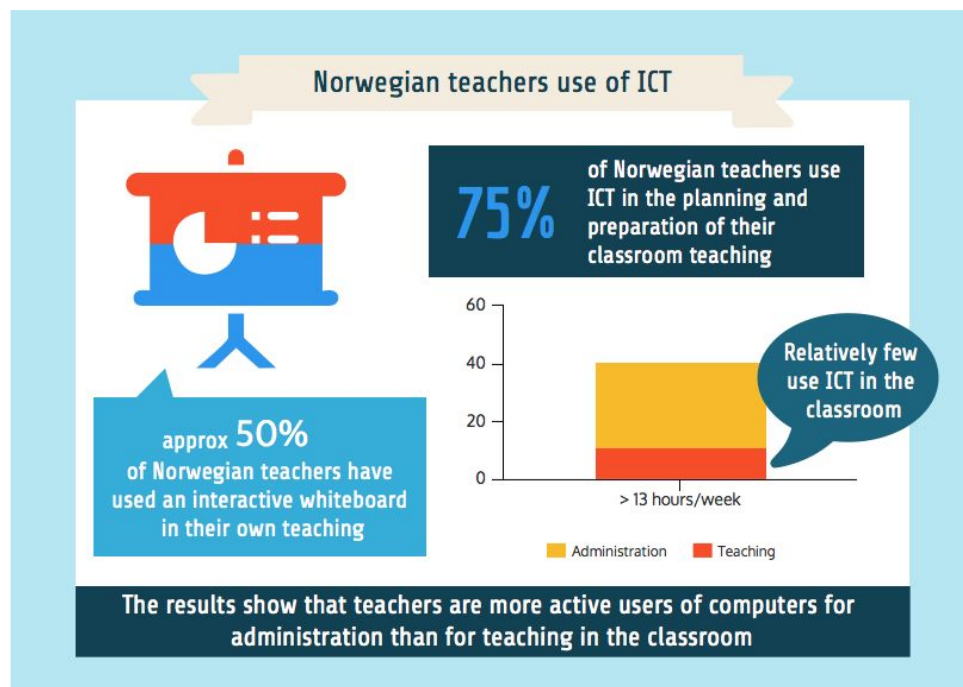
In the Monitor survey teachers were asked how the use of ICT can be useful in education. Nine out of ten teachers said that they use ICT to make students more interested in the subject and to have a more diverse teaching. About eight out of ten teachers said that using ICT is easier to engage the students and differentiate between pupils. On the other hand nearly half of the teachers in the survey stated that ICT can disrupt and/create disturbance in the

Use of ICT in the classroom

9 out of 10 teachers say ICT can make their teaching more exciting

8 out of 10 teachers say that it is easier to activate and differentiate with ICT

5 out of 10 teachers say that ICT can be disruptive in the classroom

7 out of 10 teachers say that use of ICT requires clearer classroom leadership

classroom. Nearly all of the teachers stated that there needs to be clearer rules regarding the use of ICT in the classroom and a clearer classroom leadership then when ICT isn't used. Approximately eight out of ten students fully or partially agree that their use of a computer / tablet in school is useful for learning school subjects, makes it easier to learn school subjects and gives more desire to learn.

Teachers use of ICT

The team behind the Monitor survey were also interested (amongst other things) in finding out how teachers use ICT with regard to administration contra teaching. The survey showed that 69.6% of teachers who used a computer 6 hours or less used the computer for teaching, while 33.1% used a computer for administration purposes. When used for more than thirteen hours per week the numbers changed and 11% of teachers reported that they used computers in their teaching, while 29.6% used them for administration purposes.

Norwegian teachers use of ICT

75% of Norwegian teachers use ICT in the planning and preparation of their classroom teaching

approx 50% of Norwegian teachers have used an interactive whiteboard in their own teaching

Relatively few use ICT in the classroom

Administration   Teaching

The results show that teachers are more active users of computers for administration than for teaching in the classroom

These results are similar to the results from the European monitoring survey (European Schoolnet,

2013a) which indicate that relatively few teachers use ICT in their classroom teaching while nearly 75% of teachers use computers in their planning and preparation. The same survey found that 40-45% of students in European schools were taught by teachers that on a weekly basis prepared their lessons using a computer.

When asked about their use of interactive whiteboards (IWB) and tablets only 10% of teachers reported that they used tablets in their teaching while 50% had used an IWB in the classroom.

It is important that teachers have good academic and pedagogical skills, and that they have confidence in their expertise. The results of the teacher section of the survey show that there are variations between teachers in terms of what they master regarding ICT. Some teachers have reportedly good digital skills, while there are other teachers who do not have good insight and understanding of digital issues. This can affect pupils' learning and it can result in the students receiving varying teaching within the school because of the teachers having different starting points.

School management must also arrange for teachers to develop professional educational ICT skills in their preparation, implementation and assessment of their teaching. The survey shows that a larger proportion of teachers use computers for the preparation and following up of their teaching compared with the proportion who actively use ICT in their teaching itself.

2.3 Conclusions

Analysis of figures from the survey suggests that the overall use of ICT in Norwegian schools is fairly stable in 2013, as it was in 2011. Previously there have been differences between the different grades/stages, and this is also found in the results from 2013. Clearly the number of hours spent with computer increases with age and grade/stage.

Computers have become a common tool among pupils in Upper Secondary schools. There are around 45% of VG2 pupils using computers at school more than 10 hours per week. Of students in the 9th grade 43.5% are using computers between one and three hours per week, while the 7th grade has an average of 45% of students who use computers less than one hour per week. Over the past years there has been a large increase in the use of technology in secondary schools compared to primary and middle school. This is largely due to the fact that many counties have arrangements regarding portable devices (laptops or tablets) for pupils in Upper Secondary schools, and for some students, it may be a transition to have to use ICT in the various subjects.
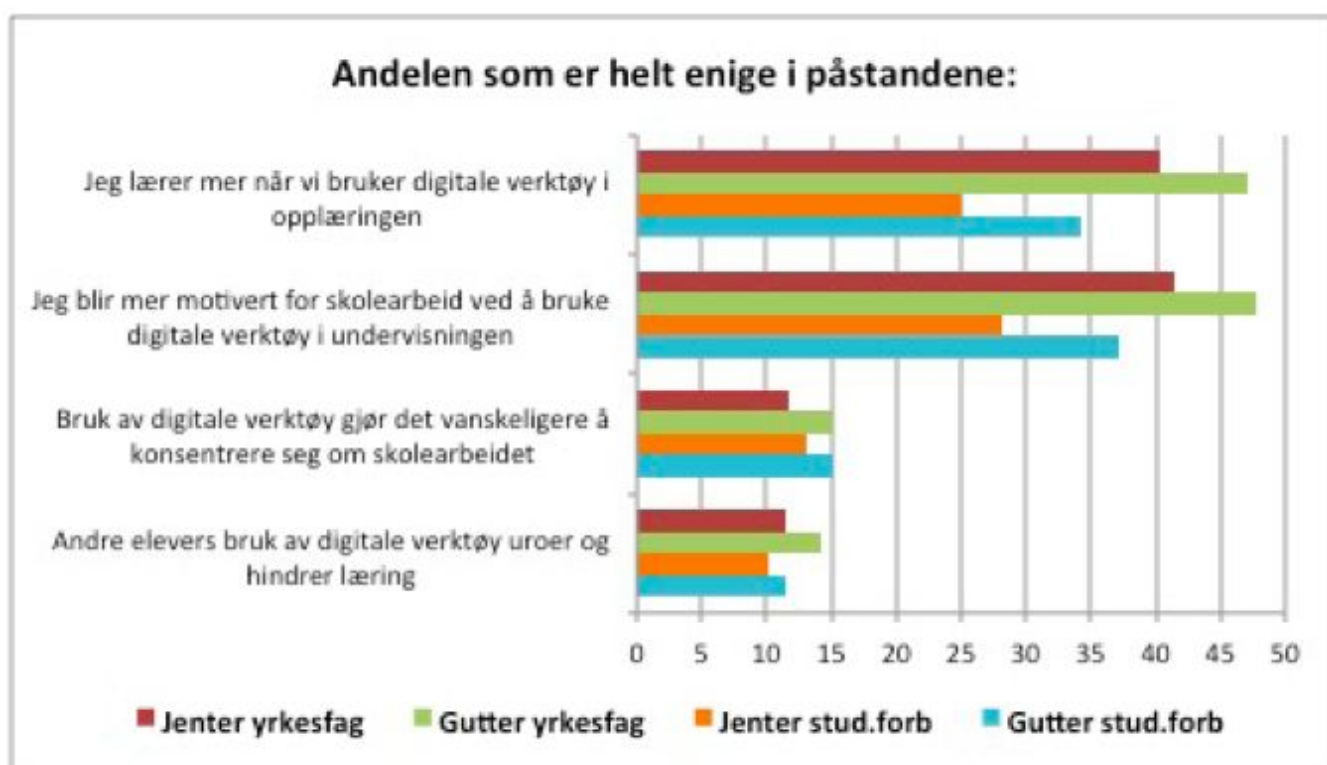
When it comes to using computers in different subjects, the survey found that in the humanity subjects taught in Norwegian schools (such as Norwegian, English and social studies) a more frequent use of computers in teaching was reported compared to mathematics and science. Mathematics seems to be the subject that has the least use of computers in teaching. This pattern seems to apply to all three grades the survey focused on. Also here it is generally the older students who have frequent computer use in all subjects. This difference is also related to where there are differences between the grades when it comes to subjects' size and content.

3.0 Current situasjon - Regional

The regional education committee of Rogaland County decided in 2015 the priority areas for secondary schools in the region. The following objectives were formulated in the area of educational use of ICT:

- The learning outcomes of Upper Secondary students in Rogaland county will be increased when their teachers use digital teaching aids and tools in an active and innovative way.
- All teachers should be competent to guide and assess students in digital learning processes and digital education.
- All teachers should have relevant expertise in the use of digital tools in their own subjects. School owners and schools should ensure that they work actively with ICT as a basic skill in all subjects.
- Schools should ensure that they work actively with the increased use of digital learning resources, such as the National Digital Learning Arena (NDLA), in all subjects.
- Schools should have established good practices for knowledge sharing

In the figure below are some results of the students evaluation of educational use of ICT in the county

The goals above express the county's expectations of school management and teaching staff to make good use of ICT as a teaching tool. This has been the long-term objectives of the county which require strengthening the staff competencies and development of good educational tools. Rogaland county has participated actively in national efforts in this area, and a significant increase of the expertise of the staff have been the result.

From 2009 to 2015 the county, in collaboration with Nyweb.no and University of Stavanger (UiS), offered seven different modules (á 15 credits) within the educational use of ICT for teachers and two different "continuing education" modules for school administrators. This has been a massive effort to provide teachers with relevant digital skills. It is now up to schools themselves to put this in their system, ie to raise the digital competence of teachers.

In 2015/16 the county offers, in collaboration with Hordaland County Council, webinars (courses via the Internet) presenting the educational use of various digital tools either in real time or pre-recorded so that

schools receive an additional aid in their efforts. The County Council's own teaching staff share their knowledge with all the teachers.

The National Digital Learning Arena (NDLA) was established in autumn 2007. This is a county partnership to provide free digital educational materials for all students. The number of subjects delivered through NDLA is growing. Schools use NDLA increasingly, but its use varies differently from school to school and still has a way to go.

Students in vocational studies report more use of NDLA than pupils in general studies. Top usage reports girls in vocational courses, which probably reflects the education program. An analysis of the use of NDLA according to vocational programs (not shown in table) shows that students report the highest use of NDLA in Health and youth development and Restaurant and food processing.

The indicator relating to work and digital tools includes questions about whether students have been trained to find relevant information online, source criticism and netiquette. Again pupils on vocational courses report that that these are important elements in their training. The indicator also includes questions about how students perceive the use of digital teaching aids in their education. Students in vocational studies are more positive about digital tools than students in general studies. The proportion of pupils who completely or somewhat agree that they learn more when digital tools are used in training is 66 percent in general studies and 79 percent of vocational courses.

The table above also shows the percentage of boys and girls on vocational courses and general studies that completely agree with the statements contained in the question battery. Boys on vocational courses are the most positive, followed by girls on vocational courses, while girls in general studies are least positive.

Between ten and fifteen percent of students report that the use of digital tools make it harder to concentrate on school work, and that other pupils use of digital tools and mobiles hinder their learning.

The use of digital tools is a fundamental skill in the Norwegian education act. The students' feedback shows that there still is a way to go in order to increase the educational use of ICT.

In the National student survey the same questions relating to educational use of ICT have been used over the past four years. This allows the county to assess the impact of efforts to make ICT a useful tool in schools. The long-term trend that has been registered is that a greater percentage of students respond that they learn more and that motivation increases through the use of digital tools. The trend is the same for boys and girls and in both programs.

The proportion of pupils who believe that the use of digital tools makes it harder to concentrate themselves, and that they are distracted by other students' use, has been stable over the past four years. It is desirable that also in this area the county could receive a positive trend.

Many schools in the County are reporting a lack of digital skills among the students. It is therefore important that these schools define the necessary digital skills in order to use computers as a tool in the learning process, They must also identify what skills the students lack and provide relevant and necessary training in these digital skills. Through the systematic dialogue with the schools, the County executive monitors the schools' efforts to strengthen staff's pedagogical expertise in the use of ICT.

4.0 Current situation - Haugaland Upper Secondary School

This chapter gives a description of the current situation regarding the infrastructure and pedagogical use of ICT in Haugaland Upper Secondary School as per December 2015.

4.1 Infrastructure

Desktop computers

Given that most students use their own portable PCs in school, ICT section decided to remove desktops from classrooms. A few classrooms have PCs that teachers dispose.
- Computer lab has 16 desktop computers with specialised software installed
- ICT service has 30 desktop computers and their own server used by 2 classes
- Classrooms and auditorium with interactive whiteboards have a desktop computer
- Operation and cleaning staff also have 3 new desktop computers at their disposal
- Administration (mercantile and management) are using "thin clients" connected to the county directly

Laptop computers - Students

Students in the 1st-3rd years of Upper Secondary education are covered by the county's (and national) system and own their laptop. This is subsidised by the Government.

Computers that can be borrowed by students

Students have the opportunity to borrow a laptop from the library if their own computer is being repaired (proof must be documented). These computers are previously staff machines which have been replaced. The laptops have MS Office and Solid Edge applications already installed. Students can not save their work on the laptop (they must use a separate memory stick) and the laptop becomes "set up" automatically at startup.

Laptop computers - Staff

Since autumn 2004, all the administrative and teaching staff (incl. teacher aids) have been allocated a laptop each. In spring 2010 a program for continuous replacement of the oldest computers was launched (at least 30 PCs each year). The replaced computers are then considered as equipment the students can borrow or else discarded.

As of December 2015 the school currently owns 170 laptops running Windows 8 and 10 portable Macs.

Classrooms

All classrooms have speakers and a video projector (many with interactive capabilities - see below).

Interactive whiteboards

In 2010 Haugaland vgs purchased 6 Smart Boards that are located in different classrooms around the campus (eg. science labs). In spring 2011 the school tried out a newer technology (eBeam). These interactive whiteboards are removable and can be easily mounted on an ordinary whiteboard using suction cups. Coupling between tablet and pc happens either by USB cable or Bluetooth.

During summer 2012 all classrooms and smaller seminar rooms in the new building were equipped with "short throw" Epson projectors with IWB capabilities. One wall of the classroom was painted with whiteboard paint from Idea Paint (USA) and the projector was attached to this wall. Here, both traditional whiteboard markers and interactive pens from Epson can be used offering the teacher both possibilities.

Videoconference equipment

The school has purchased and frequently uses 2 video conference systems from Polycom in connection with various meetings and courses.

Other equipment:
The ICT department has made a register of miscellaneous equipment (digital cameras, video cameras, sound equipment etc.) that the school owns and that can be borrowed by the teaching staff (or students). This equipment is placed on the library and can be borrowed similarly to the school's books. In addition the school has purchased a booking program that allows the staff to see what equipment is available at a given time. Many departments have also purchased their own equipment for students to borrow.

4.2 ICT staff

In 2009 a department head of ICT was appointed and is (amongst other things) responsible for defining the competency requirements and overseeing the implementation of development initiatives within the educational use of ICT in the school (both for students and teachers).

The school has a well-organized ICT department with a full-time ICT technician and an apprentice. The ICT department ensures that the ICT equipment and software the school uses (both educational and administrative) is functioning satisfactorily.

The school also has an ICT strategy group that work systematically through the various challenges related to ICT in the school (both infrastructure and educational issues). The group is comprised of the Principal, ICT department head and ICT technician. They are also joined by a team of teachers who actively use ICT in their teaching.

4.3 Software

LMS
Both students and teachers/staff use a Norwegian produced Internet program called "*itslearning"* as their information and communication platform (LMS). Most teachers use the LMS in their teaching, but the educational gain varies. The school has developed a common structure regarding the use of itslearning. Guidelines for this are included in the school handbook for employees.
Another Norwegian software program called "Skolearena" is used to record the student's absence and half-year assessment grades. All other grades are recorded in itslearning.

In autumn 2013 the county council introduced "QM+" as the school's quality control system and in January 2014 the council introduced the program "Agresso" for the electronic registration of travel expenses.

E-post and word processing
Microsoft Outlook is used as the official E-post platform for both teaching and administrative staff. O365 was introduced in summer 2013 for all students and staff. Prior to this the students and staff had access to Office 2011.

Subject-specific software
In addition to software which is offered to the students free of charge through the county council (including o365, Ordnett plus, Lingdys and Ling Right - for students with dyslexia), students have access to various subject-specific software within the different program areas the school offers. Many of these also are provided by the county council and are often used by other schools in the region - eg. Solid Edge (mechanical students)

Other software has been purchased by the school after being requested by the teachers. The ICT team has chosen so-called "industry standard" software to ensure that training is as relevant as possible - eg. AutoCAD (Construction students) and Mamut (Business studies). The Building abd construction students also have access to the online edition of Building Research.

In spring 2011 the school purchased a site license of Adobe CS6 (including Photoshop and Illustrator) that students can install on their own laptops (removed by school year's end).

Screen capture software
In 2005 Haugaland vgs purchased screen capture software programvare from TechSmith (Camtasia & Snagit) in order to make screencasts of various programs. I recent years the trend has been more towards free web-based software such as Screenr, Jing and Screencast-o-matic.

"Incident management" software
In spring 2011 the school invested in an "incident management" program (ITIL) from Richmond support desk in the UK to handle the recording and reporting of technical problems with the schools and the students ICT equipment. The system is used by both the schools ICT service center and ICT team (1st and 2nd line of service).

Skolens website
Since summer 2011 the school has used www.weebly.com as its website platform. The Head of the ICT department is primarily responsible for its updating, but recently several other employees have been given editing capabilities.

Web 2.0 services
Recently, the school has purchased licenses to several Web 2.0 services for example Goanimate, Animoto, Issuu, Skype, Room Booking, Vimeo, Screencast-o-matic, Prezi, Info display, etc. These services are available for the teachers after contacting the Head of Department for ICT for the username and password.

4.4 Development of competency

Survey of teachers' skills and training needs:
In spring 2009, all of the teachers at Haugaland vgs were asked to consider their expertise in a number of ICT related areas. The teachers chose between Red, Yellow and Green depending on their (subjective) opinion on how confident they were in these areas. The survey results were incorporated into their performance appraisal with their respective heads of department.

In autumn 2011 a minimum requirement regarding the use of itslearning was established.

Staff training (formal):
Since 2010, several of the school's teachers have attended the postgraduate course "Pedagogical use of ICT" that the Rogaland county council has organized in collaboration with the University of Stavanger and NyWeb (4 modules of 15 credits).

In addition there are three employees who have completed a master's degree in "ICT in Education" at HSH.

In February 2014 five employees began an eLearning course (with credits) under the auspices of HSH. This was a joint venture in collaboration with a number of Upper Secondary schools in the area. Rogaland County Council sponsored the course. The idea is that these teachers can be used later to run online learning (RKK).

Staff training (informal):
Team meetings and departmental meetings are also used for staff training. In consultation with the team different courses are offered internally eg. certain computer programs, itslearning or Web 2.0 services.

The teams are also required to have "pilot projects" or smaller areas of focus within the educational use of ICT eg. use of Storybook in Norwegian art, the use of wiki in English section, the use of Smartboard in mathematics and science. In addition to the common core subjects, teachers who teach in the program subjects are challenged to prioritise the use of ICT in teaching eg. VG2 ICT service and VG2 Interior and design classes user blogs for documenting students learning development. Depending on the size of the projects, these can go over either a semester or school year. In connection with these projects small introductory courses have been set up as a "kick off".

Colleague guidance is also an important priority at Haugaland Upper Secondary school and used daily. Sometimes the dept. head of ICT is summoned, but often the teachers themselves manage to help each other. This is good because it forces both to solve a problem together (and then learning happens for both). As mentioned earlier an ICT team has been established consisting of the principal, the head of the ICT department, the schools' ICT technician and several teachers from different departments. The ICT team's mandate is to help the teachers at the various departments with guidance and training in the educational use of ICT. It is also planned that students in VG2 ICT service department will hold courses for teachers and students. This will happen either for a whole class or by setting up individual courses that students (or teachers) can enroll in.

Several teachers from the school have attended a course that the county council arranged in the use of video and video conferencing equipment which contributed to increased demand for more courses in video and simple video editing. The school's ICT apprentice is currently developing short "mini" courses in the use of such equipment as well as "mini" manuals supplied with the various equipment and how the equipment should / could be used.

Digital learning resources:
The school aims to ensure that all teachers and students use NDLA (National Digital Learning Arena) actively as part of their PLN (personal learning network). They are encouraged to familiarize themselves with the various subjects which NDLA covers and actively use it in teaching situations.

As a supplement to NDLA the teachers can download and use freely various learning resources from for example LOKUS and Cappellen Damm (history and Norwegian). The school pays for teacher licenses for these products.

In recent times, some teachers started using "My Way" published by "Fagbokforlaget" with students from minority backgrounds. One of the teachers has been designated as superuser and assists the other teachers with eventuell coursing and questions.

Since 2013/14 the schools' mathematics teachers have had access to a Norwegian produced web-based mathematics program called "Kikora". They and the designated students access the program via itslearning. Kikora's a whole new way of working with mathematics on the computer and gives students access to a set of task collections adapted curricula for Lower Secondary and 1st year Upper Secondary school. The task collections are divided into topics based on the curriculum, without attachment to a specific textbook.

Recently the school's collection of art related slides have also been scanned and posted on a closed network so that, amongst others, the school's art teachers and students can easily use them digitally.

4.5 Summary

A. Teachers and students at Haugaland vgs have different competencies regarding the use of ICT.
B. All 1st year students receive 10 hours ICT training (DigSert) as part of the school kick-off program.
C. There is a need for a new thorough survey of staff expertise in the use of ICT
D. There needs to be developed an updated ICT skills development plan.
E. Use of ICT in teaching varies somewhat, from very active and skilled users to those that are reluctant to use ICT in their teaching at all.
   Between these two extremes are colleagues which are well schooled and who are trying to implement ICT in an educational context.
F. There is still too little pressure on the educational use of ICT.
G. To the extent that there is exchange of expertise and staff certification, this happens mostly informally in groups/teams.

Strengths	Weaknesses
- Some teachers are well qualified - Good and stable infrastructure and equipment - Modern and contemporary software - All teachers / students have their own laptop - LMS (and other software) provided by the county council	- Lack of mapping and comprehensive skills development - Some staff are reluctant to the use of ICT in the classroom - not loyal to decisions - Unclear objectives - Some teachers uncertain / unsure in their ICT competency - The organization of teaching mostly traditional, not optimal for the use of ICT - The opportunities are not exploited - Some students are not able to distinguish personal use from school use (eg. social networking, gaming, etc.)
Possibilities	Obstacles
- Greater access to free digital teaching materials (eg. NDLA, Lokus) - Much expertise in staff - Cooperation with other schools - Focus on competence	- Use of ICT can become a time thief - Limited digital resources in some subjects - Itslearning (LMS) has some deficiencies - Increasingly other products on the market that compete with Itslearning (eg. web 2.0)