

# The Education Mirror

2006

Analysis of primary and  
lower and upper secondary education in Norway



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# Development and reform in primary and secondary education

The Norwegian Directorate for Education and Training is now publishing its third edition of *Utdanningsspeilet* (the Education Mirror), an annual publication which presents statistics, research and analyses of primary and secondary education. Key development trends in this sector are illuminated by looking at resources, results of learning, the learning environment, implementation in secondary education and quality development.

Each year *Utdanningsspeilet* has the same basic set-up using the same chapters to facilitate its use as a reference work that reveals trends and developments over time. The three editions of *Utdanningsspeilet*<sup>1</sup> depict a stable situation in primary and secondary education when it comes to resources, results of learning, the learning environment and implementation.

The education level in Norway lies approximately on the OECD average when it comes to the proportion of the population with upper secondary education as the highest completed education, and well above the OECD average when it comes to the proportion of the population with higher education. We are also



*Petter Skarheim*

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spending more money on education per pupil than the OECD average. However, we have large differences in resource allocation from one municipality to the next. Most of this can be explained by differences in the number of pupils and settlement patterns. Chapters 1 and 2 provide more details on these factors. Grade statistics for primary and secondary education are presented in Chapter 3. This shows that girls achieve higher grades than boys in most subjects in primary school, while gender differences are not as pronounced in upper secondary education.

Analyses of upper secondary education show that more boys than girls drop out of school, an issue that has gained much attention in recent years. Performance and school completion can also be related to whether or not the pupils have minority backgrounds, and the educational background of the parents also impacts the choice of education and completion. This is examined in more detail in Chapter 5, which also describes a number of the measures that have been initiated to bring the dropout rate down. One of the positive aspects of Norwegian primary and secondary education is that pupils are pleased with their teachers and their co-pupils. This is dealt with in Chapter 4. The roles of school administrators and teachers have been much discussed in connection with quality development in schools. Chapter 6 examines this in more detail and looks at two new surveys of teacher competence in primary school and in upper secondary education.

The 2006-2007 school year has been dominated by the introduction of the reform *Kunnskapsløftet* (Knowledge Promotion), which covers the entire schooling of pupils, from year 1 to the end of upper secondary education. The reform has introduced a number of changes to the content, structure and organisation of school. The objective of the reform is that all pupils shall develop basic skills and competence to take active part in the knowledge society.

The statistics and research in this edition of *Utdanningsspeilet* are generally based on data that dates prior to the introduction of the reform. For this reason *Utdanningsspeilet* 2006 will not be able to describe much of the situation after the reform. Some chapters and paragraphs do, however, touch on *Kunnskapsløftet*. This particularly applies to Chapter 5, which deals with application to and completion of upper secondary education.

The Norwegian Directorate for Education and Training hopes that *Utdanningsspeilet* will serve as a source of inspiration, discussion and greater knowledge about Norwegian primary and secondary education.

1) *Utdanningsspeilet* 2004 and *Utdanningsspeilet* 2005 can be obtained from the Directorate's website at <http://www.utedningsdirektoratet.no>

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# 1 Looking into the Education Mirror (Utdanningsspeilet)



# Competence and quality

**The Knowledge Promotion Reform focuses our attention on developing competence and quality. A key element in this is teacher competence.**

A number of measures have been implemented to give us the foundation for quality development in school. Teachers are the most important resource in school, which is why developing the pedagogical and academic competence of teachers is such a vital part of this process. Until now we have had a rather incomplete national picture of teacher competence, but new studies are providing new knowledge about the academic and pedagogical competence of teachers in primary and lower secondary school and upper secondary education.

## **Academic and pedagogical competence in primary and lower secondary school**

The studies show a clear connection between the academic and pedagogical competence of teachers and the learning dividends of pupils. A Statistics Norway survey shows that the large majority of teachers in primary and lower secondary schools in Norway have formal pedagogical competence. The survey shows that there are differences when it comes to the scope of in-depth studies in individual subjects. Three of four who teach Norwegian have taken in-depth studies, a fact which reflects the strong position the subject has in general teacher education. The lowest proportion is found among those who teach home economics and English, where less than half have taken in-depth studies. Generally the proportion of in-depth studies is greatest in lower secondary school, where around three of four teachers have in-depth studies in the subject they teach.

## **New survey**

While the competence level among teachers in primary and lower secondary school has been studied in recent years, there has been little knowledge about the situation in upper secondary school. Therefore, on assignment from the Norwegian Directorate for Education and Training, the NIFU STEP research institute has carried out a comprehensive survey of the formal and subject-specific teacher competence in upper secondary school. Based on responses from around 4500 teachers in schools across Norway, the project researchers have provided a unique data basis for analysis. They conclude that the competence among teachers in upper secondary school is generally high.

“The competence level among teachers in upper secondary school is high. The vast majority of teachers, whether in programmes for general studies or vocational studies, have

formal pedagogical competence. Overall, the competence level is also higher than we might have expected,” says Per Olaf Aamodt, a researcher with NIFU STEP, who together with his colleague Are Turmo is in charge of the survey.

**“Technology challenges the role of school in society.”**

## **Some differences**

Even if Aamodt and Turmo draw a picture of a highly qualified group of teachers, the study has also uncovered one area of concern.

Teachers teaching common general subjects in vocational education programme generally have a lower level of education than those who teach corresponding subjects in programmes for general studies. “We do not know why this is the case, but we find the difference significant enough to warrant closer study,” says Are Turmo.

However, pupils in vocational programmes will also find teachers with higher education. “The proportion of teachers with higher education in vocational subjects is greater than expected. For example, there are quite a few with engineering degrees teaching building and construction,” says Aamodt.



The Norwegian subject for Vg1 (Year 1 in upper secondary education) has the largest proportion of teachers with the highest level of education in the subject (Master's degree). Among teachers teaching Norwegian in programmes for general studies, four of ten have stated that they have a Master's degree in the subject. Among teachers teaching natural science in Vg1, we find the highest number stating that they have a Master's degree in biology, while far fewer state that they have a Master's degree in mathematics.

The researchers find, nonetheless, that the teacher competence in natural science is high. “If we have a so-called crisis in science studies in Norway, this is not due to a low level of competence among science teachers in upper secondary school. Science teachers also have a very high level of competence, even if those who teach mathematics often have a Master's degree in another science subject. This might be because mathematics is a “narrow” subject on the Master's degree level. These teachers nevertheless often have subject-specific competence in another science subject such as physics or chemistry. Thus they have studied a fair amount of mathematics,” Aamodt points out. On the other hand, the number of teachers with a Master's degree in political science or sociology in VG1 social studies is low. “We see that teachers in social studies in Vg1 have a relatively low subject-specific competence. This group of teachers is dominated by historians rather than social scientists,” says Turmo.



Ola Erstad



Per Olaf Aamodt and Are Turmo

### Digital competence

The focus on digital competence in school is a key element in the Knowledge Promotion Reform. The long-term ambition is high, aiming to make Norway a leading country when it comes to using ICT in school. The reform defines using digital tools as a basic skill, which tells us that that school is now entering a new epoch. The technological infrastructure in school will be strengthened with better access to tools such as PCs and broadband networks. Digital competence is the competence that builds bridges between such skills as reading, writing and doing mathematics, and the competence required to use new digital tools and media in a creative and critical manner. Using digital tools in, for example, the Norwegian subject involves what we may call general user competence, but also involves giving pupils the necessary background to critically assess and use sources. Using digital tools is thus not only practical instrumental handling of ICT, but also what may be called digital judgment or intelligence.

*The Program for digital kompetanse i skolen 2004 – 2008* (Programme for digital competence in school 2004-2008) focuses on how ICT influences the quality of the education,

**“The focus on digital competence in school is a key element in the Knowledge Promotion Reform.”**

motivation for learning, forms of learning and learning dividends. The programme includes the entire education sector from primary and lower secondary education to higher education and adult education.

“The programme is ambitious and has strong ties to the Knowledge Promotion Reform. ICT shall be a part of all subjects in school and must be an integral part of a comprehensive understanding of the concept of digital communication. In addition to being part of the teaching in classrooms, ICT must also be integrated in the school administration and in the cooperation between teachers,” says Ola Erstad, who has evaluated the programme so far.

### New learning

An evaluation of the programme at the half-way point shows positive results and outlines the challenges ahead. The report points to the need to shift the focus from infrastructure and access to equipment to integration in the teaching activities. “Most schools have an opinion on infrastructure. But ICT also has to be part of all subjects, and the challenge now is the strategic integration of ICT in the learning activities,” Erstad says.

He points out that teachers generally need to consider ICT as an innovative element in the teaching, where the technology gives us opportunities to provide more visual orientation and alternatives to written presentations. “The schools that have gained most success have integrated ICT in the teaching programmes in a comprehensive manner across subjects. They take active roles in relation to the ICT activities, and work in teacher teams and networks with other schools to share competence. You can’t just expect something positive to happen on its own once you get a computer in a classroom,” says Erstad.

He finds that teachers must become more confident in the use of technology in their teaching, and that such a development will put them on equal footing with their pupils who are quite familiar with modern technology.

“Technology challenges the role of school in society. It makes learning available also in other arenas, such as TV and the internet. The evaluation system is also challenged, as teachers are struggling with traditional evaluation methods to measure knowledge development within ICT,” Erstad believes.

Technology also makes it possible to solve traditional challenges in school. “We have a fundamental problem with motivation in natural science subjects. Modern technology gives us new ways of acquiring knowledge in these subjects, such as simulation programmes for chemical processes. This will increase the interest in learning,” says Erstad.

# Equal rights and social levelling

The educational choices, grades and completion rates of pupils are related to social background. Today there is high awareness of the role school plays in the endeavours to counteract social differences.

The statistics in Education Mirror tell us a great deal about Norwegian primary and lower secondary education and upper secondary education, where much work is done to create the best possible programmes for all pupils and apprentices. Virtually all pupils who left lower secondary school in 2005 – 2006 applied for upper secondary education for the next school year. The distribution of boys and girls among applicants was approximately equal. The fundamental principle of Norwegian education policy has been to provide equal opportunities to attend school and obtain an education and that school shall contribute to social levelling. However, national statistics of grades and completion rates do not draw a picture of a Norwegian school dominated by social equality. Learning dividends actually follow traditional social dividing lines: If parents have higher education and a high income level, there are higher chances that their child will perform better in school. Pupil achievement levels in school strongly reflect factors such as the parents' level of education, ethnic background and gender.

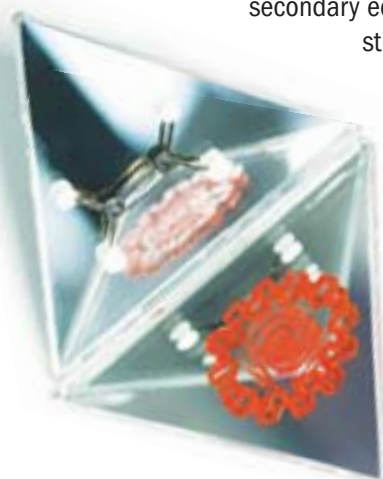
Boys and girls choose and perform differently. We also see differences in a number of areas between pupils with minority backgrounds, particularly non-Western backgrounds, and the majority-language pupils. Even if the principles of equality have a central place in education policy, international studies show that Norway belongs in the group of countries with the largest differences between pupils in school. It has therefore been claimed that school reproduces and reinforces social inequality. Measures are now being introduced to address this situation and the Knowledge Promotion Reform aims to make education function better as a social-levelling tool.

## Choosing differently

The distribution between the genders also follows traditional lines when it comes to applications to the first year of upper secondary education. Girls dominate both health and social studies and arts, design and crafts, but are virtually absent from building and construction. Applications are most equal between girls and boys in the service and transport, media and building and construction trades. Among apprentices with new contracts in 2006, less than three of ten were girls, and in building and construction only 1.3 per cent girls had new apprenticeship contracts.

## Grade differences

Pupils with highly educated parents generally get better grades than pupils with parents with



*Hans Petter Rasmussen*





lower educations. If we compare pupil grades to the education levels of their parents, the average difference is quite big, 1.7 grade points in mathematics. As with grade levels and performance, completion rates are also characterised by social background.

## ”Boys and girls choose and perform differently”

According to the statistics, pupils with immigrant backgrounds have a lower completion rate and poorer grades than pupils with Norwegian backgrounds. However, this is developing in a positive direction, as progression among today’s year set has improved compared to the year set of 1994. This development applies to programmes for general studies and vocational programmes.

### Completion rates

Among the significant issues that can be read from the national statistics for upper secondary education is the substantial difference in completion rates between vocational programmes and programmes for general studies. While 74.6 per cent of pupils in general studies programmes complete in the normal time, the corresponding figure for vocational programmes is only 39.5 per cent, as the average figures for the 1997 – 2000 year sets show. Correspondingly, 14.1 per cent drop out of general studies programmes, and 36.3 per cent drop out of vocational programmes. Why do pupils drop out of vocational programmes? The analyses that have been undertaken (NIFU-STEP) show a complex picture, where poor grades in primary and lower secondary school and upper secondary education have great importance for the progression of pupils and apprentices. Offers of apprenticeship contracts also play a role for completion. Again the grade level is an important factor, and the choice of trade is also decisive for the availability of an apprenticeship for the pupil. The education levels of parents and whether a pupil’s parents live together also influence the completion rate. It has also been shown that boys who have chosen vocational programmes drop out to a greater degree than girls. Among the area of study with the lowest proportion of pupils who have completed with optimal progression we find woodworking and metalworking.

### Efforts to turn around the drop-out trend

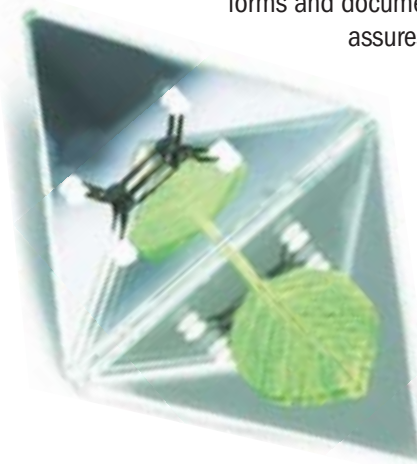
Nortura Rudshøgda (formerly Gilde Hed Opp), a Norwegian meat processing company, is one of the companies offering vocational training that over time has succeeded in maintaining a very high rate of completion and a low failure rate, indeed they are approaching a zero failure rate on the craftsman’s/journeyman’s examinations. This company has more than 500 employees and apprentices in many trades, including butchering and meat-cutting.

“We strive to create strong social togetherness between the apprentices and to have the best possible individual follow-up plan for each apprentice. It is vital that no apprentice feels that he or she is left to his or her own devices,” says Hans Petter Rasmussen, trade training coordinator at Nortura Rudshøgda. Through recruitment programmes on all levels in schools the company introduces pupils to the various trades at an early stage. Using presentations in school, often using a full day’s programme with practical participation by pupils, and placement periods for pupils in lower secondary school, the company establishes contact with potential apprentice candidates. The aim is to find those who will be adequately motivated and committed to staying the course and who thus have made the right choice. This is accomplished in combination with other actors in the food and beverage industry. When the apprentices are in place, they become part of a system that combines a sense of the common group and individual follow-up.

## ”We need to ensure that we have competence for tomorrow, and therefore we depend on high-quality training in the trade.”

“The company has developed a strong culture for following up apprentices so that as many as possible stay the course. We have attached importance to giving the apprentices a sense of belonging both to the trade and the social group, which supports each apprentice when he or she encounters challenges.” says Rasmussen.

After Rasmussen took over the responsibility for apprentices in 1994, all of the company’s apprentices who have sat for craftsman’s or journeyman’s examinations have passed. The drop-out rate has been minimal. “We need to ensure that we have competence for tomorrow, and therefore we depend on high-quality training in the trade. To satisfy the goal of training a competent skilled worker we need high quality in our follow-up, which we ensure through developing special interview forms and documentation. This quality assures each individual receiving the training they need, and gives each apprentice better chances of completing their course,” says Rasmussen.



# The learning environment

**A comprehensive project is looking into nutrition and physical activity in school as a way to achieving a better learning environment. A combination of daily activity sessions and a healthy meal at the start of the day in school has given positive experiences at Lutvann school in Oslo.**

A good physical and psychosocial environment is defined as a basic right for Norwegian pupils. School must actively ensure that this right is satisfied using, for example, special school environment committees. A good learning environment comes out of good well-being, social learning and good physical and mental health. *Elevundersøkelsen* (the Pupil Survey) is one of the measuring tools documenting how the physical and social environments impact pupil well-being. Since the internet-based survey was made mandatory in 2004 it has documented a stable high level of well-being in Norwegian schools. The large majority of pupils enjoy being at school, and well-being and motivation also increase among pupils who state that they receive teaching adapted to their level. Around five per cent respond, however, that they are bullied one or more times a week. The survey also shows that pupils complain about noise and unrest during classes, and that much time is lost during a school period.

## **A good start to the day in school**

Greater emphasis on physical activity and healthy eating habits is the background for the project *Fysisk aktivitet og måltider i skolen* (Physical activities and meals in school) under the auspices of the Ministry of Health and Social Care and the Ministry of Education and Research. The project calls for a comprehensive and planned approach to physical activities and meals in school. The aim is that participant schools shall provide pupils with a daily hour of physical activity and good frameworks for the school meal.

One of the participating schools is Lutvann school in Oslo. Each morning at eight o'clock the tables are laid for breakfast in the home economics room after the school introduced a programme for free school breakfast in the autumn of 2006. The breakfast is part of a three-part programme that also includes a daily activity session for all the pupils, and the serving of soup in connection with homework assistance. "We see that the school breakfast is good for learning. Children who have breakfast here are in better shape and better equipped to keep their energy throughout the school day. The pupils come quietly to their classroom with a full stomach and are ready to learn," says Stein Arne Andersen, the headmaster at Lutvann school.

The mood and atmosphere around the breakfast tables at Lutvann is good, while the pupils help themselves to brown bread with cheese, carrot slices and a glass of milk or juice. On a day-to-day basis around 20 per cent of the pupils eat the school breakfast. In addition to creating a good physiological basis for the day in school, Andersen and his colleagues have also found other positive aspects of the breakfast programme. Pupils who used to be late for school in the morning are now on time because they have breakfast in school. The teachers have also discovered that the meal is a good start to the day for pupils with a high conflict level in the morning. The headmaster feels that it is natural that school should assume greater responsibility for meals and physical activity: "Many believe this is only a parental responsibility, with no place in school. I strongly disagree. We have pupils who are left to themselves in the morning, and others who have no tradition of having breakfast or bringing lunch. As long as we can help them get a better start to their day we should," says Andersen.



## **Activity session**

In addition to nutrition, Lutvann school is highlighting physical activity with a daily hour of physical activities for the whole school. Andersen has focused on teacher involvement, organizing the activity session so that as many of the staff as possible are involved. "We have divided the staff into activity teams, where each team is in charge of activity support one day a week. This is important because we also involve the highest possible number of adults. If the adults participate and offer a programme in contrast to just checking on the pupils, the kids get more involved," says Andersen. Dancing exercises develop motor abilities and coordination in an exciting way. This is arranged by Year 7 pupils for the youngest pupils.

**"One of many popular activities is electronic dance mats."**

## **Participating pupils**

The analysis of the Pupil Survey shows a complex picture of how the pupils see their own influence on their school day. One third of the pupils feel that it is impossible to participate in the assessment of their own

work in any subject, and almost half of the pupils feel they have no influence on work plans in all subjects. Bjørkelangen upper secondary school has a tradition of being a trend-setter when it comes to pupil cooperation. In 1971 this school introduced the idea of the general assembly (involving all the pupils) being the highest decision-making school body, even responsible for passing the school budget. Today direct democracy does not



*In back from left: Lene Bredesen, Per Bernhard Jacobsen, Victoria Fjeld In front from left: Randi Asak, Sylvia Hoff*

govern the school, but the culture for pupil cooperation continues to live on through a strong focus on cooperation between teachers and pupils. As a pilot school and a demonstration school Bjørkelangen started pupil cooperation very early. The possibility of pupils influencing their day in school is an important principle reflecting the society school is part of," says Per Bernhard Jacobsen, headmaster.

Every third week the headmaster meets with the pupil council to discuss and decide on important matters. The headmaster receives written minutes with items for follow-up, a list he takes quite seriously. "We also invite pupils to participate in projects in fields beyond those where pupil cooperation is mandatory. Now, for example, we have a rebuilding project where pupils' advice is encouraged," Jacobsen says.

### **Important influence**

He believes that pupil cooperation is an important factor that effects the learning environment and is also important learning in itself. Both well-being and motivation increase when pupils have the opportunity to influence their working day. "But the decisive factor is that school is actively working with this process. If we do not have a continuous focus on pupil empowerment, this will quickly erode democracy in school and thus our social environment," Jacobsen feels. Pupils praise the school's efforts to have them participate in the decisions that affect them: "We feel we are heard and taken seriously by the headmaster of school and the school administration, and that we have influence," says Victoria Fjeld. She is attending her third year in this school and has experience as a secretary on the pupil council.

"The pupil council is actively working to make pupils aware of their opportunities to make a difference. It is important that

democracy also applies in school. Through their class representative and the pupil council each pupil can raise issues about what is going on in the classroom," says Fjeld. Lene Bredesen, deputy chairperson of the pupil council, says that the pupil council spends much time discussing the class representatives' role. "For example, members of the pupil council are assigned as contact persons for the class representatives. When the class representatives have a permanent contact person on the pupil council, we believe that each class will find it easier to get their cases heard," Bredesen says.

Bjørkelangen pupils are actively included in school assessment, including work on the Pupil Survey, the county quality survey and the school's in-house survey. The pupils are responsible for presenting results and analyses of the Pupil Survey at the school on planning days at the end of the school year. Bjørkelangen has also succeeded in using pupils as mediators in conflicts. "Pupil cooperation places new demands on the role of the teacher. The change in our role from controlling teacher to teaching guide means that we have to build a good dialogue with the pupil," says Sylvia

Hoff who is in charge of developments. She is seconded by Randi Asak, a contact teacher: "When we conduct pupil-teacher interviews they must not feel that they are coming before the judge, but rather that this is an arena that creates openness and good communication between the teacher and the pupil," Asak says.



# The framework for the education

Annually a large amount of resources is used on the inclusive school to promote equal education for all. Resources and funding for primary and lower secondary education and upper secondary education in Norway is high compared to other countries both when it comes to the proportion of the GNP allocated to education and teacher density.

## Resources

Compared to other countries the resources put into for primary and lower secondary education and upper secondary education in Norway is high. Operating and developing schools are among the most essential tasks of the local and county authorities. Net operating expenditures for primary and lower secondary education constitute around 31 per cent of the total operating expenditures for the local authorities, while the corresponding figure for upper secondary education is around 64 per cent of the county authorities' operating expenditures. The Knowledge Promotion Reform is also pushing the expenditure level higher to pay for new teaching aids in primary and lower secondary school and upper secondary education. The Government has therefore raised transfers to the school sector by around NOK 400 million to compensate for this

## Reflecting society's priorities

The proportion of the GNP (gross national product) and the total public expenditures spent on education indicate that society gives priority to the education field compared to other sectors. In 2006, 7.2 per cent of the GNP for mainland Norway was spent on education. If we consider expenditures per pupil, developments over time have been stable in the municipalities and counties. On average, last year the local authorities spent NOK 68 122 per pupil in primary and lower secondary school (adjusted gross operating expenditures), based on figures from 382 municipalities that had submitted accounting figures for 2006. A comparison of 2005 and preliminary figures from 2006 shows an increase in adjusted gross operating expenditures per pupil of NOK 3088 in 2006. Some of the increase may be due to increased wage expenditures per pupil, but there has also been an increase in the operating expenditures for fixtures, equipment and teaching aids. These expenditures are in part due to new efforts under the Knowledge Promotion Reform.

## More pupils in larger schools

The tendency in recent years has been fewer and larger schools. Today approximately one third of Norwegian schools have less than 100 pupils, while 26 per cent of the schools have more than 300 pupils. In recent years there has been a tendency that more schools have more than 300 pupils, while these schools now house more than half of the total number of pupils. Only 8 per cent of pupils attend schools with less than 100 pupils.

## Teacher density

The number of pupils per teacher is another interesting indicator of resources used on school. If we compare the relation between

pupil hours and teacher hours for all primary and lower secondary schools, there were on average 14.1 pupils per teacher in 2005 – 2006. In 2006 – 2007 there are on average 13.7 pupils per teacher. The number of teacher hours and pupil hours has varied from one year to the next, but generally fluctuations in these two measurements have been linked to each other. There are large municipal variations in teacher density.

**”In the autumn of 2006 there were 4368 adults taking regular primary and secondary education. Another 6352 were taking primary and secondary education as special teaching.”**

## Adults in primary and lower secondary school and upper secondary education

Education in primary and lower secondary school and upper secondary education for adults is given as regular education and special education. In total the number of adults in primary and lower secondary school has been relatively stable over the last five years. In the autumn of 2006 more than 4300 adults participated in regular education in primary and lower secondary school, while more than 6300 received primary and lower

secondary education as special education. *Oslo Voksenopplæring Sinsen* is the largest adult education centre offering primary and lower secondary education ending with examinations for adults in addition to general studies programmes and vocational programmes on the upper secondary level. The school has around 400 pupils in primary and lower secondary education and 1400 in upper secondary education. The school stands out not only because the pupils are adults, but also because around 98 per cent of the pupils receiving primary and lower secondary education at Sinsen have minority language backgrounds. This reflects a general trend in adult education, and the proportion of women participating has shown a stable increase in recent years. More women than men generally complete their education with a full diploma.

“In the upper secondary education at Sinsen around six of ten have minority language backgrounds. We believe that this proportion will increase in the future. Among the majority of pupils we find those who for different reasons have dropped out of upper secondary school or who wish to take another education,” says Kari Jørgensen from Oslo VO Sinsen.



The proportion of pupils attending in the evening fluctuates according to trends in the labour market, as very many combine their education with employment in the daytime. The school also has adult apprentices and youth apprentices. Many companies are pleased to see youth apprentices taking their education in an adult environment. Jørgensen sees increasing importance in focusing on education programme for adults.

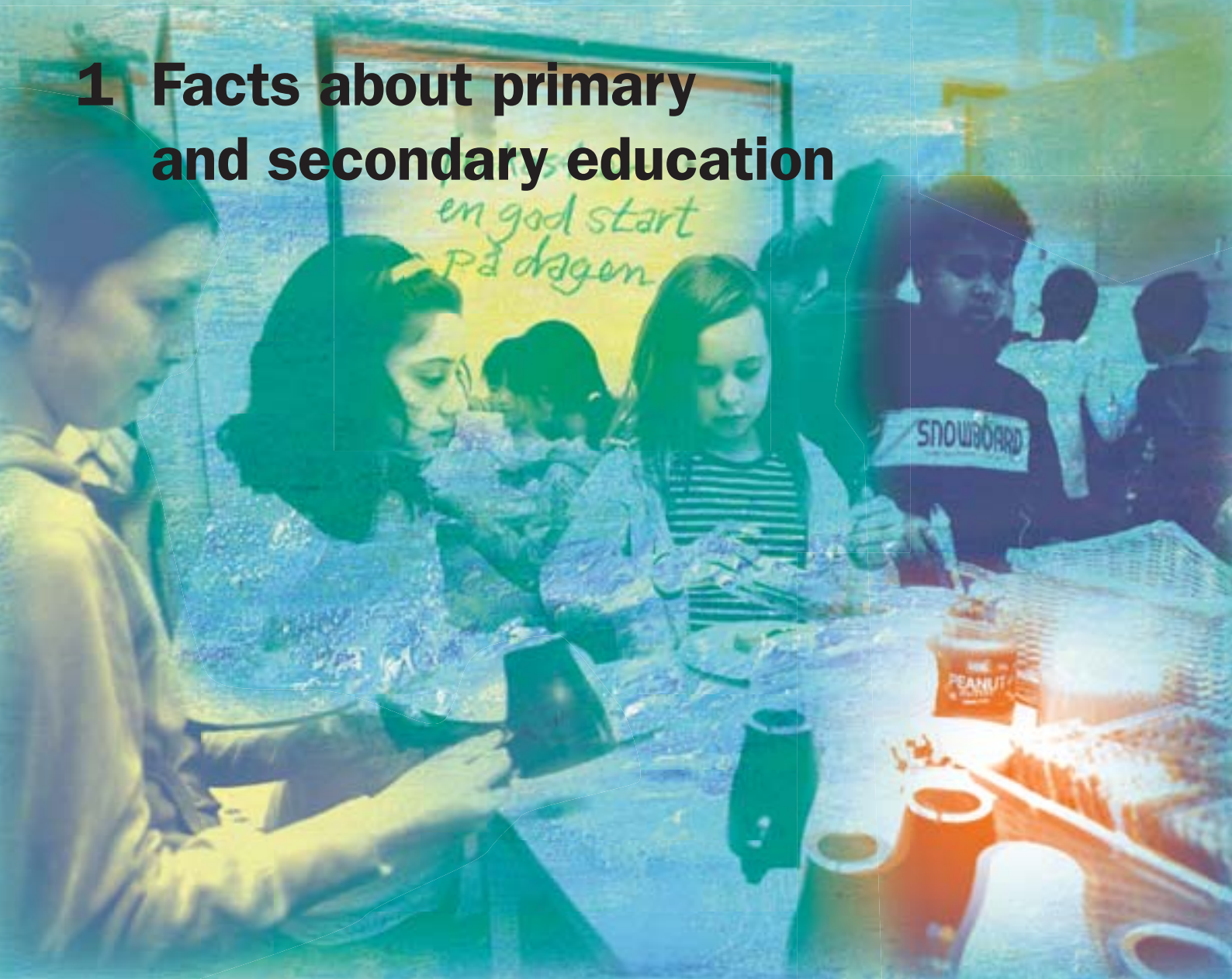
“More and more people are also being encouraged to spend more time on their education, for example by taking traditional one-year subjects such as mathematics and Norwegian in general studies programmes over two years. We see that many need adapted education. The time factor and the reduction of

the number of subjects taken each year will hopefully help them pass with a better result,” Jørgensen says.

Thus it is a good thing that the doors at Sinsen stay open from eight thirty in the morning until nine thirty in the evening.



# 1 Facts about primary and secondary education



**During the last ten years the number of pupils in Norwegian primary and secondary education has risen by about ten per cent, where the increase has been particularly pronounced in lower secondary school. During the same period the number of primary and secondary schools has decreased, and the trend is that an increasing number of pupils are attending large schools.**

The number of pupils and apprentices in upper secondary education is also increasing. After a period of decline, the number of apprenticeship contracts has risen dramatically in recent years.

Of the 62 000 teachers in primary and secondary education, women outnumber men almost three to one, while the gender distribution among the 4000 administrators in primary and secondary school is even. The gender distribution is more even in upper secondary education, where slightly more than half of the 23 000 teachers are men.

Almost one third of the teachers in upper secondary school are 56 years of age or older, while the largest proportion of teach-

1) By regular primary school is meant all primary schools apart from special schools.

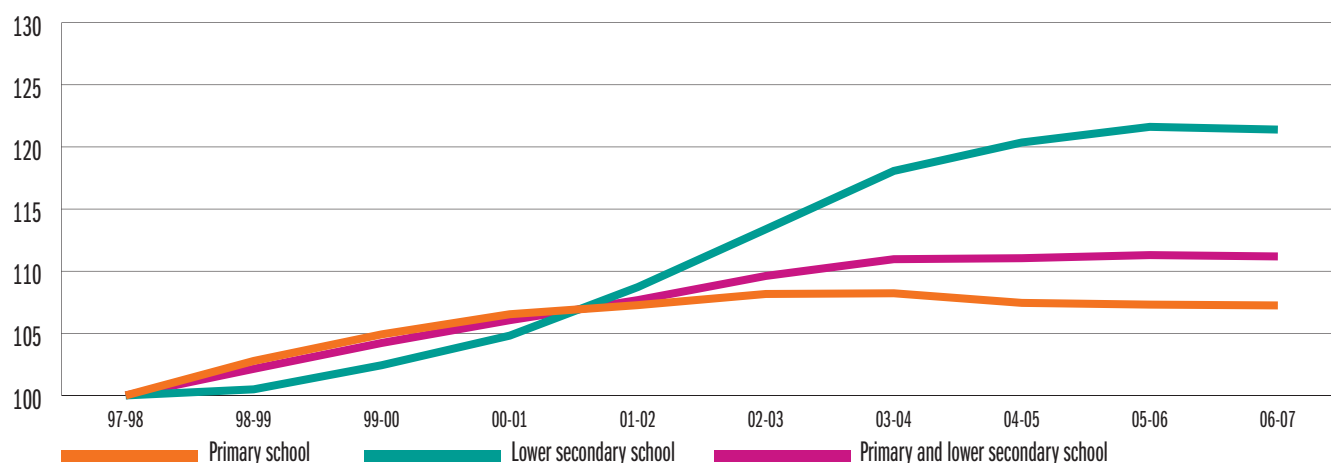
ers is found in the 46 to 55 age bracket. In primary and lower secondary schools the 25 to 35 age bracket is largest, but here the age distribution is more even.

## **1.1 Pupils in primary and lower secondary school**

In the autumn of 2006 there were 619 728 pupils in regular primary and lower secondary school.<sup>1</sup> Of these, 690 attended Norwegian independent schools abroad. The number of pupils is virtually the same as 2005, when there were just 625 more pupils. Another 1955 pupils attended special schools. This is a drop of 99 pupils from 2005, and the number of pupils in special schools in 2006 is the lowest since 2000 when almost 1800 pupils attended this type of school. In relation to the total number of pupils in primary and lower secondary schools, the proportion of pupils attending special schools has remained relatively constant during the last ten years – between 0.3 and 0.4 per cent of the pupils.

Seventy per cent of the pupils attend primary school and 30 per cent lower secondary school. Figure 1.1 shows the relative distribution for primary and lower secondary school over the last ten years. The distribution has been calculated as an index

**Figure 1.1: Developments in the relative distribution of pupils in primary school and lower secondary school from 1997–1998 to 2006–2007.**



Source: GSI (the information system for primary and lower secondary school)

where the first year, 1997–1998, has been given the value 100. In 2006–2007 there were around 11 per cent more pupils in primary school than in 1997–1998. The largest increase has been in lower secondary school, with approximately 21 per cent more pupils. The strong increase in the number of pupils in lower secondary school that occurred at the turn of the century has now levelled out. In recent years the number of pupils has remained stable in primary school.

## 1.2 Adults in primary school

Primary and secondary education for adults<sup>2</sup> is distributed between teaching in the regular school and special teaching. Overall, the number of adults in primary and secondary education has remained relatively stable the last five years at between 10 700 and 11 200.

In the autumn of 2006 there were 4368 adults taking regular primary and secondary education. Another 6352 were taking primary and secondary education as special teaching.

Adults with linguistic minority backgrounds constitute more than 71 per cent of the participants in regular primary and secondary education, while this group only constitutes 5.6 per cent of the adults receiving primary and secondary education as special education. Around the same number of women as men have taken

primary and secondary education over the last five years. However, the proportion of women is larger in regular teaching, and has been around 56–57 per cent from 2002–2003 to 2006–2007. Around 53 per cent of adults in special education are men.

## Classes in Norwegian language and social studies for adult immigrants

Participation in classes in the Norwegian language and social studies is a right and/or an obligation for newly arrived immigrants. Those who have the right and obligation to 300 teaching hours of free teaching are persons who have been granted asylum, resettlement refugees, persons who are granted residence on humanitarian grounds after applying for asylum, who are reunited with family members as mentioned above or reunited with a family member who is a Norwegian national (the Ministry of Education and Research 2007).

The right to free teaching is valid for up to three years and amounts to 300 teaching hours, where 250 hours are Norwegian language learning and 50 teaching hours are in social studies. Completing these classes is a requirement for being granted a settlement permit (permanent residence permit) and Norwegian citizenship. Those people who have the right and obligation to such classes, and who need it, may receive instruction for up to another 2700 teaching hours.

**Table 1.1: Distribution of adults over different types of primary and secondary education, with percentages for linguistic minorities and for women 2002–2003 to 2006–2007.**

Year	Regular teaching			Special education *			Total		
	Percentage linguistic			Percentage linguistic			Percentage linguistic		
	Pupils	minorities	Percentage women	Pupils	minorities	Percentage women	Eupils	minorities	Percentage women
2002–2003	3 686	58.0	56.8	7 037	4.3	46.2	10 723	22.7	49.8
2003–2004	4 208	55.9	56.1	6 967	4.4	47.0	11 175	23.8	50.4
2004–2005	4 471	62.4	57.4	6 486	4.5	45.9	10 957	28.2	50.6
2005–2006	4 363	71.9	57.0	6 575	5.5	47.1	10 938	32.0	51.0
2006–2007	4 368	71.2	56.6	6 352	5.6	47.1	10 720	32.3	51.0

\*Included in the figure for special education are persons attending regular classes and special education. For the five years covered by the table, this constitutes, respectively 182, 163, 105, 115 and 127 persons.

Source: GSI

2) Pursuant to the Norwegian Education Act, adults are defined as "Persons above compulsory school age who require primary and lower secondary education". The compulsory school age is six to 16 years of age.

**Table 1.2: Developments of the number of persons attending classes in the Norwegian language and social studies, with the proportion of women in percentages, 2002–2003 to 2006–2007**

Year	Persons	Percentage women
2002–2003	30 433	52.1
2003–2004	29 317	59.0
2004–2005	25 733	60.8
2005–2006	24 106	61.6
2006–2007	21 928	63.9

Source: GSI

The number of persons studying the Norwegian language and social studies has dropped over the last five years for many reasons. Previously asylum seekers and EEA nationals were offered free teaching in the Norwegian language. As this is no longer the case there are fewer participants. All in all, there are now fewer immigrants offered free teaching in the Norwegian language than previously. Based on the rules in force, only around 20 per cent of today's immigrants entering Norway have the right to free Norwegian language teaching (Kavli 2006). While labour immigrants granted a permit pursuant to the EEA regulations have neither the right nor the obligation to attend classes in Norwegian, labour immigrants from countries outside the EEA/EFTA area (with a journeyman's or tradesman's certificate<sup>3</sup>) are obliged to take 300 teaching hours if they later apply for a permanent residence permit.

The proportion of women taking an education has increased steadily during the period. While the reasons are somewhat unclear, this rise may be linked to the labour market. Another factor might be that the majority of asylum seekers are men, and when asylum seekers were no longer offered Norwegian language classes, there were fewer men in education. In general, more women than men complete their education with

an examination, and more women than men also pass this examination.

There is some uncertainty as to the data on adults who are attending classes in the Norwegian language and social studies, as persons who have the right and obligation to education after 2005 must be registered in NIR (the Norwegian Introductory Programme Register). There is reason to believe that there is some doubling up of registrations (persons registered in both the GSI and NIR), while others are only registered in one.

### 1.3 Primary and lower secondary schools

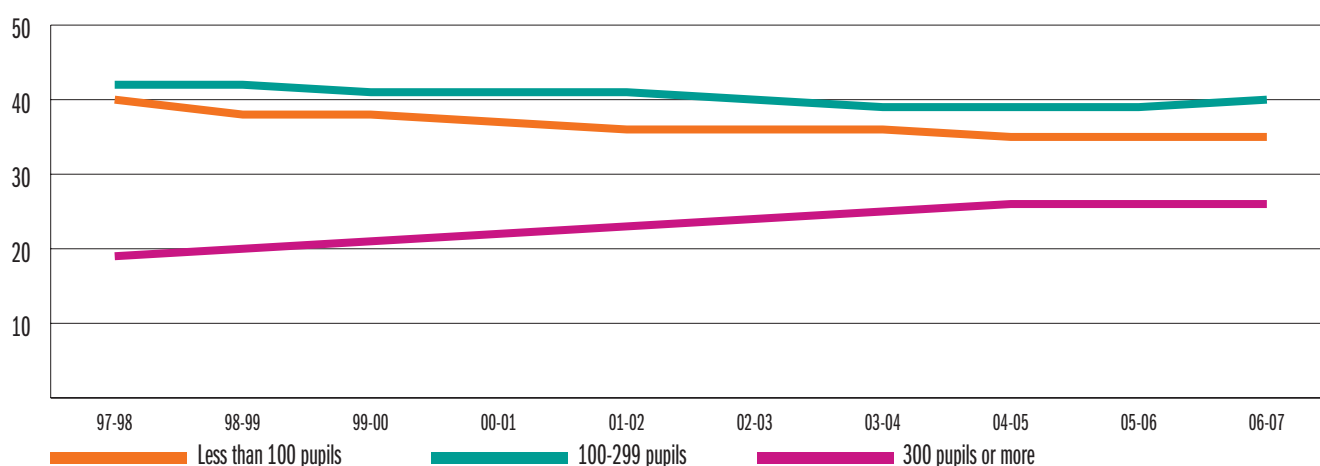
In the 2006–2007 school year there were 2974 municipally operated primary and lower secondary schools. There were also three inter-municipal and two state primary and lower secondary schools. There were 170 independent or private schools. Sixteen of the independent schools are located abroad.

In the same school year there were 98 special-needs schools. Of these 57 were municipal, nine were inter-municipal and 17 were county schools. Nine special-needs schools were state-run schools, and six of the special schools were independent or private.

Figure 1.2 shows that around one third of schools in Norway have less than 100 pupils, while 26 per cent have more than 300 pupils. In recent years the trend is that the number of primary and lower secondary schools with less than 100 pupils is diminishing and the number with more than 300 pupils is increasing.

Even if Figure 1.2 shows that the percentage of schools with less than 100 pupils is relatively high (35 per cent of the schools), the percentage of pupils attending such schools is low. Figure 1.3 shows that only eight per cent of pupils attend schools with less than 100 pupils, while 53 per cent of the pupils attend schools with more than 300 pupils. The propor-

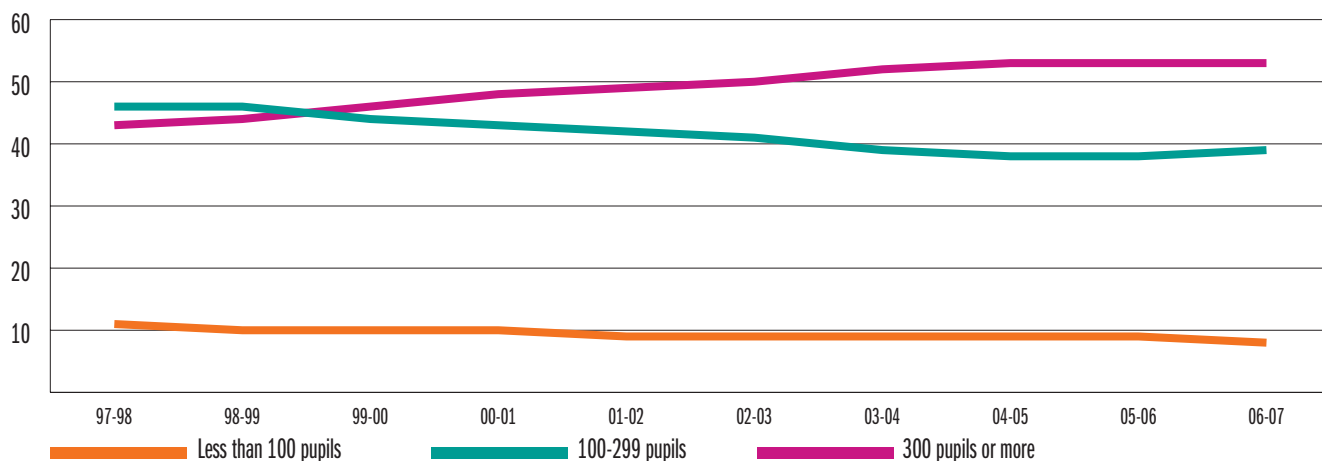
**Figure 1.2: The distribution of small, medium-sized and large regular primary and lower secondary schools by percent, 1997–1998 to 2006–2007.**



3) "Trained/specialist" means a person who has a vocational training or who has special qualifications needed in the Norwegian labour market. "Vocational training" means training in a trade corresponding to at least three years of upper secondary education or a university or college degree. "Special qualifications" means competence acquired through practical work experience or work experience in combination with some training. (Source: www.udi.no)



**Figure 1.3: The distribution of pupils over small, medium-sized and large regular primary and lower secondary schools by percent, 1997–1998 to 2006–2007.**



tion of pupils attending large schools has increased by ten percentage points from 1997 to 2006.

### Newly established and closed schools

From 2005–2006 to 2006–2007, 50 schools were closed down – 45 regular primary and lower secondary schools and five special-needs schools. Three of the schools closed down were independent schools.

Eleven of the 50 schools were closed down solely due to organisational restructuring, such as the merging of several schools. The 39 other schools that were closed had a total of 1784 pupils, i.e. an average of less than 46 pupils per school. Three of the public schools that were closed down were directly replaced by independent schools.

During the same period 13 regular primary and lower secondary schools were established in addition to four special-needs schools. Six of these were solely organisational restructurings. Hence, 11 new schools were established during the 2006–

2007 school year, and five of these were independent schools. There were 1069 pupils at these eleven schools during the 2006–2007 school year, an average of 97.2 pupils per school.

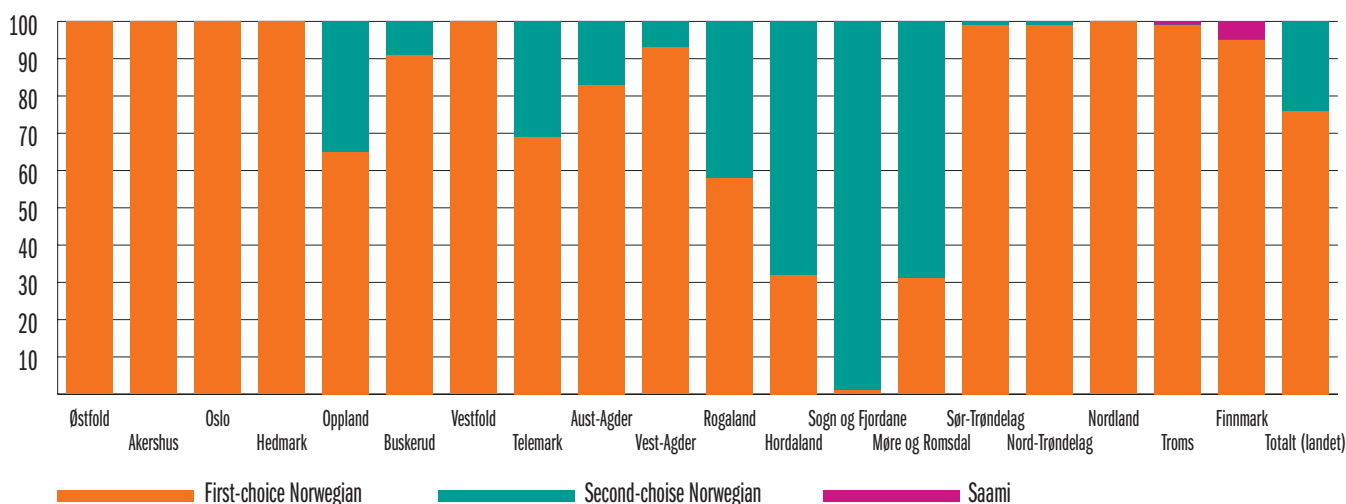
The decline in the number of schools from 2005–2006 to 2006–2007 follows a trend that has been prevalent in recent years.

### First- or second-choice Norwegian

A majority of the pupils in primary and lower secondary schools, around 86 per cent, are taught in *bokmål*, one of the two official forms of the Norwegian language. The proportion of pupils receiving their teaching in *bokmål* has increased by around one per cent since 2000. Around 14 per cent of the pupils have *nynorsk*, the other official form of the Norwegian language, as their language of instruction. Close to 1000 pupils have a Sami language as their main language, i.e. 0.16 per cent of the pupils in primary and lower secondary school.

Figure 1.4 shows that around three of four primary and lower secondary schools have *bokmål* as the main lan-

**Figure 1.4: Regular primary and lower secondary schools with bokmål, nynorsk and Sami as the main language, by county, 2006–2007. Percentage.**



Source: GSI

guage. The county with the largest proportion of *nynorsk* as the main language is *Sogn og Fjordane* with 99 per cent. Six counties have only one main form of the Norwegian language/language variant: Østfold, Akershus, Oslo, Hedmark, Vestfold and Nordland, where *Bokmål* is the main language in all of them.

In Troms and Finnmark counties there are no schools with *nynorsk* as the main form of the Norwegian language/language variant but here, one and five schools have Sami as the main language, respectively.

#### 1.4 Teachers and administrators in primary and lower secondary school

Table 1.3 shows the education backgrounds of teachers in primary and lower secondary school. Chapter 6 explains teacher competences in more detail, and refers, for example, to the findings in a survey of teacher competence in most primary and lower secondary school subjects in the 2005–2006 school year (Lagerstrøm 2007).

The designation teaching staff includes persons without teacher training teaching in schools. The designation administrator includes heads and directors of studies.

**Table 1.3: Teachers and administrators in municipal and county primary and lower secondary schools according to qualifications and gender, 2005. Percentage.**

	Total	Men	Women
Teachers with university degrees	2.9	4.7	2.3
General teachers	65.5	64.9	65.7
Subject teachers with pedagogical training, pre-school teachers, special-needs teachers or with other pedagogical training	15.4	17.8	10.5
Teachers with other college degrees	7.6	3.7	3.5
Teaching staff with university degrees	0.8	0.6	0.5
Teaching staff with college degrees	3.7		
Teaching staff with further education	3.5		
Teaching staff without education	0.5		
Number of teachers	62 234	16 811	45 423
Administrators with higher university and college degrees and pedagogical education	3.4	3.9	2.9
Administrators with lower university and college degrees and pedagogical education	89.2	87.6	90.7
Administrators without pedagogical education	7.4	8.5	6.3
Number of administrators	3 865	1 911	1 954

Source: SSB

**Table 1.4: Teachers and administrators in municipal and county primary and lower secondary schools, by age. Percentage. 2005.**

	Under 25	25-35	36-45	46-55	56-65	66 and older	Total
Teachers*	1.2	28.1	22.9	26.5	20.5	0.8	64 146
Administrators	--	5.4	17.4	39.3	36.8	1.0	3 865

\* Teaching staff is included in the figures.  
Source: SSB

Table 1.4 shows that there are more than 64 000 teachers in primary and lower secondary schools and almost 4000 administrators. There are almost three times as many female as male teachers in primary and lower secondary schools. The gender distribution among administrators is balanced, with approximately the same number of female and male administrators.

The majority of teachers in primary and lower secondary schools have general teacher training, and there are only minor differences between women and men when it comes to who has such training. A slightly higher proportion of male than female teachers have university degrees. Almost twice as many women than men are subject teachers with pedagogical education, pre-school teachers, special-needs teachers or teachers with other pedagogical education. The overview of teacher competence (Lagerstrøm 2007) shows that the three northernmost counties, and the counties of Vest-Agder and Sogn og Fjordane have the largest proportion of teachers with general teacher training. Nordland has the most, with almost nine of ten having general teacher training. Oslo has the lowest proportion, where less than six of ten teachers have such training. The percentage of primary and lower secondary school teachers with university degrees is higher in Oslo than in the rest of the country.

Teaching personnel with a university college degree constitute a small portion of the primary and lower secondary school staff. Of those working on the teaching staff, an equal number have a university college education as have upper secondary education. A slightly higher percentage of men than women have university college degrees.

No formal pedagogical education is required to be a school administrator in primary and lower secondary schools or in upper secondary school. However, Table 1.4 shows that almost nine of ten school administrators have lower university or university-college degrees and pedagogical education. The proportion with such an education is slightly higher for women than for men. On the other hand, a slightly higher proportion of men than women have higher university or university-college degrees and pedagogical education. A larger proportion of men are administrators without having pedagogical education.

Table 1.4 shows that a relatively large percentage of teachers are in the 25–35 years age bracket in primary and lower secondary schools. The percentage in the 36–45 age bracket is

**Table 1.5: Distribution of pupils on studies/education programmes and levels in upper secondary school, 2001–2002 to 2006–2007. Preliminary figures for all the years.\***

År	Foundation course /Year 1 (Vg1)		Advanced studies 1		Advanced studies 2		Total
	General studies	Vocational	General studies	Vocational	General studies	Vocational	
2001–2002	29 191	34 733	27 678	26 111	34 285	8 041	160 039
2002–2003	28 782	37 520	25 559	31 103	36 213	8 769	167 946
2003–2004**	28 454	38 948	25 149	31 420	37 763	14 795	176 529
2004–2005**	30 213	40 978	25 167	32 855	34 669	10 067	173 949
2005–2006**	32 442	41 996	26 792	35 055	36 532	10 109	182 926
2006–2007	34 347	42 136	29 194	35 966	39 790	11 624	193 057

\* Adults who generally are integrated in regular courses or special groups in an upper secondary school are included. For 2004–2005 and 2005–2006 pupils with vocational instruction in school are also included.

\*\* Elevantala for 1. oktober 2006 er henta inn frå fylka i fleire omgangar. På grunn av ulike tidspunkt for innhenting av data avvik elevantala for Vg1 til VK2 i skule og lære frå dei førebels elevantala frå SSB

Kjelde: SSB/Utdanningsdirektoratet

lower, while a slightly higher percentage is found in the 46–55 age bracket. Few teachers are over 60 years of age. The largest proportion of administrators is over 46 years of age. Around 38 per cent of administrators are more than 56 years of age.

### 1.5 Pupils and apprentices in upper secondary education

Young people who have completed primary and lower secondary school or similar education have the statutory right to three years of upper secondary education (youth right). In some apprentice subjects the education/training time exceeds three years, and the right to an education/training in these subjects covers the full time stipulated for the subject or trade in question. Young people must avail themselves of this right within a period of five consecutive years when the education is in school, and within six years when all or part of the training is on the job. The entire right must have been used by the end of the year during which the person in question turns 24. Those who left primary and lower secondary school prior to the spring of 2005 must avail themselves of this right within five years after completing primary and lower secondary education.

After the introduction of Knowledge Promotion, upper secondary education has three education programmes for general studies and nine vocational programmes. The distribution between vocational subjects and general and business/administrative studies subjects (now: programmes for general studies) has changed slightly after the introduction of the Knowledge Promotion reform. The new structure is dealt with in more detail in Chapter 5.

In 2005 there were 454 upper secondary schools in Norway (SSB 2007).<sup>4</sup> Of these, four were state schools, 376 were county schools and 74 were independent. Since 2000 the number of upper secondary schools has been cut by 40 in Norway. The number of independent schools has increased by 13 during the same period.

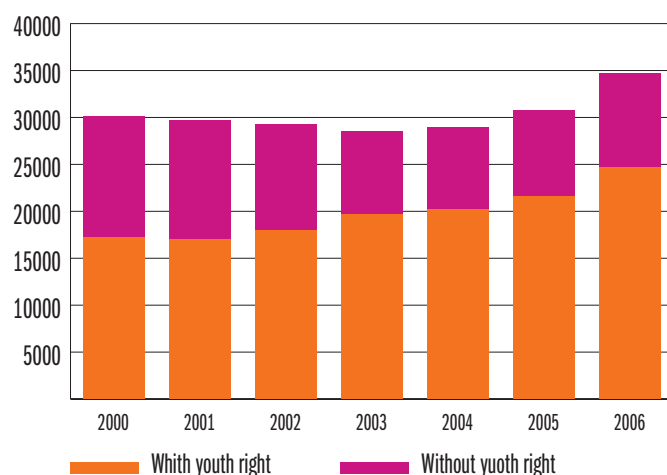
Table 1.5 shows that the number of pupils in upper secondary school has risen by more than 10 000 from 2005–2006 to

2006–2007. There is reason to believe that only parts of this represent a real increase in the number of pupils, and that the rest is due to reporting changes compared to previous years.

After several years with a steady reduction in the number of apprenticeship contracts, Figure 1.5 shows that the number of apprenticeship contracts has increased since 2003. From 2005 to 2006 the number of apprenticeship contracts as of 1 October increased by almost 13 per cent. The largest increase has been for apprentices with the youth right (14 per cent increase), but there has also been an increase for those without this right (9 per cent).

Both the apprenticeship companies and the vocational training offices are registered as apprenticeship companies in the statistics. Many of the large contract partners in Table 1.6 are vocational training offices. But as reporting is incomplete on the apprentices' actual apprenticeship company when the apprenticeship is performed under the auspices of a vocational training office, it is impossible to know the exact number of apprentices in each apprenticeship company.

**Figure 1.5: Apprenticeship contracts as of 1 October 2000–2006. Preliminary figures.**



Source: SSB

4) Schools offering general, technical and vocational studies, with more than ten pupils (under the Education Act).

**Table 1.6: The number of contract partners and the number of apprentices as of 1 October 2006. Preliminary figures.**

	Contract partner	Apprentices
Total	4 573	34 613
1 apprentice	2 619	2 619
2-4 apprentices	1 273	3 146
5-19 apprentices	363	2 949
20-99 apprentices	243	11 930
100 apprentices or more	75	13 969

Source: VIGO Fag

## 1.6 Adults in upper secondary education

Adults born before 1978 and who have not completed upper secondary school have the right to free upper secondary education. An increasing number of adults no longer come under this adult right. This primarily applies to persons born after 1978 who have not started upper secondary education, or who have dropped out during their school career. This particularly applies to immigrants who were born after 1978 but arrived in Norway too late to use the youth right to upper secondary education. Report to Parliament no. 16 (2006-2007) ... *og ingen sto igjen. Tidlig innsats for livslang læring* (... and nobody was left behind. Early efforts for lifelong learning) serves notice that the Government will be proposing changes to the regulations under the Education Act so that the right to education will apply to all adults over 25 years of age.

There are three options open to adults wishing to take upper secondary education (Vox 2006:14). First, they may apply for regular admission competing on equal terms with young people. Second, they may apply for an individually adapted programme based on assessed non-formal competence, the so-called adult learning way. The third option is to turn to private course providers. Studies undertaken by Vox show that most county authorities organize the assessment of non-formal competence and education for adults through special centres, and in most counties the centres are associated with upper secondary schools.

Most of the education is given at the upper secondary schools. Study associations are only asked to arrange education courses for adults in exceptional cases. Vox (2006) has found that the county authorities have a large degree of flexibility in their course programmes, and informs that most arrange their programmes so that adults can combine a job and education. However, there are large differences when it comes to adapting courses to approved non-formal competence. Much of the education is given as compressed subject curriculum-related studies.

Table 1.7 shows that there are large variations from one county to the next with respect to the number of reported adult applicants and participants. This suggests that the proportion of applicants who have an offer of studies varies much from one county to the

next. Most counties have waiting lists for such studies but registration is different. When there are no adults on the waiting list in Nord-Trøndelag county, the reason might be that they are only registered as applicants when they are offered a course of studies.

All in all, these figures deviate from previous reports on adults in upper secondary education. Figures taken directly from the county authorities in the studies undertaken by Vox show that at any point in time more than 21 000 adults are taking upper secondary education. Feedback from the county authorities indicates that the figures reported by Statistics Norway are too high. This may be because the county authorities process non-formal competence and education differently, and have poor registration and reporting procedures. The most important reason for the unreliability of the figures is that persons who need some subjects to obtain final competence or who have dropped out of their education have not been removed from the register of participants. The figures for 2006 will be published in corrected form on 1 July 2007.

It is necessary to clarify the need for correct reporting and data collection to be able to assess follow-up and impact of the adult right to upper secondary education. Efforts to improve the statistical basis for adults has been given high priority at Vox, the Norwegian Directorate for Education and Training, Statistics Norway and the VIGO steering group, and from 2007 Vox has received a special assignment to find a better knowledge base on adults in basic education. As a stage in these efforts, in the spring of 2007 Vox arranged a seminar with all the county authorities and involved parties, and Statistics Norway has convened a

**Table 1.7: Adults who apply for and adults who have joined studies adapted to adults, by county of residence and in total. 2006.**

	Applicants	Programmes	Percentage in studies
Østfold	3 081	2 278	73.9
Akershus	5 969	3 651	61.2
Oslo	3 690	2 982	80.8
Hedmark	2 342	1 448	61.8
Oppland	1 894	1 604	84.7
Buskerud	1 936	1 492	77.1
Vestfold	2 620	1 462	55.8
Telemark	2 363	1 822	77.1
Aust-Agder	780	630	80.8
Vest-Agder	3 325	2 465	74.1
Rogaland	5 371	4 004	74.5
Hordaland	4 466	2 587	57.9
Sogn og Fjordane	1 321	1 101	83.3
Møre og Romsdal	2 614	1 545	59.1
Sør-Trøndelag	2 278	1 373	60.3
Nord-Trøndelag	1 111	1 115	100.4
Nordland	5 529	2 385	43.1
Troms	2 037	1 489	73.1
Finnmark	754	596	79.0
The whole country	53 481	36 029	67.4

Source: SSB

**Table 1.8: Teachers and administrators in upper secondary school, by qualifications and gender, 2005. Percentage.**

	Total	Men	Women
Teachers with higher university and university-college degrees	18.3	18.8	17.8
Teachers with lower university and university-college degrees	31.6	36.1	26.6
General teachers	10.6	9.0	12.4
Special-needs teachers or teachers with other pedagogical training with higher university or university-college degrees	0.9	0.6	1.1
Subject teacher with pedagogical training, pre-school teachers, special-needs teachers or teachers with other pedagogical training with lower university or university-college degree	15.0	8.5	22.3
Teaching staff, by profession with higher university or university-college degrees	3.3	3.3	3.3
Teaching staff, by profession with lower university or university-college degrees	7.5	9.1	5.7
Teaching staff, by profession with upper secondary education or lower	7.6	7.2	8.0
Teaching staff with no training or not stated	4.9	7.1	2.5
Teaching staff, by profession with higher university or university-college degrees	0.3	0.3	0.4
<b>Number of teachers</b>	<b>23 136</b>	<b>12 209</b>	<b>10 927</b>
Administrators with higher university or university-college degrees and pedagogical training	18.6	19.6	17.3
Administrators with lower university or university-college degrees and pedagogical training	52.7	53.4	51.8
Administrators without pedagogical training	28.7	27.0	30.8
<b>Number of administrators</b>	<b>2 347</b>	<b>1 319</b>	<b>1 028</b>

Source: SSB

working group under county-KOSTRA with the same parties. These activities are scheduled for completion in the autumn of 2007, so that reports for 2007 will have a better data base.

### 1.7 Teachers and administrators in upper secondary school

On assignment for the Norwegian Directorate for Education and Training NIFU STEP has catalogued the competence of teachers in upper secondary school in the subjects they taught in the 2006–2007 school year. Chapter 6 gives a brief preliminary report on the study, which will be released on 1 June 2007.

There is no overview of qualifications of instructors in upper secondary education. In 2003 the Fafo research institute carried out a study of further and continuing education for teachers and instructors in basic education (Hagen, Nyen and Folkenborg 2004). The study showed that only three per cent of instructors had formal vocational pedagogical training. On the other hand, 56 per cent had attended courses, seminars and other training for the role of instructor.

Table 1.8 shows that there are around 23 100 teachers and almost 2350 administrators in upper secondary education.

5) A detailed overview of the changes can be found on the Statistics Norway website: [http://www.ssb.no/vis/magasinet/slik\\_lever\\_vi/art-2006-09-14-01.html](http://www.ssb.no/vis/magasinet/slik_lever_vi/art-2006-09-14-01.html).

Fifty-three per cent of the teachers are men, while 56 per cent of the administrators are men.

The majority of teachers in upper secondary school have university or university-college degrees. More have lower degrees than higher degrees. A slightly larger proportion of men than women have higher university or university-college degrees. There is a small proportion of general teachers in upper secondary school, with a slightly larger percentage of women than men with such training. Almost one quarter of the teachers in upper secondary school come under the designation of teaching staff. This includes many vocational subject teachers without formal teacher qualifications.

Most administrators in upper secondary school have lower university or university-college degrees and pedagogical training. A slightly larger proportion of men than women have higher university or university-college degrees and pedagogical training. Comparatively many administrators in upper secondary school are registered as administrators without pedagogical training. However, there is some uncertainty attached to this figure because it is difficult to consider combinations of education when registering the education backgrounds of administrators.

**Table 1.9 Teachers and administrators in upper secondary school, by age group. 2005. Percentage.**

	Under 25	25-35	36-45	46-55	56-65	66 and older	Total
Teachers*	0.3	12.9	22.3	33.2	29.8	1.5	23 136
Administrators	--	3.0	15.3	39.5	40.6	1.6	2 347

\* See note 1.4  
Source: SSB

Table 1.9 shows that compared to the situation in primary and lower secondary schools (Table 1.4) the percentage of teachers in the 25–35 age bracket is significantly lower in upper secondary school. The majority of teachers in upper secondary school are in the 46–55 age bracket. Almost a third of the teachers are more than 56 years of age. An even lower number of administrators can be found in the youngest age groups. Forty-two per cent of administrators are older than 56 years of age.

### 1.8 The education level in Norway

In international comparisons the population in Norway has always had a high education level. Norwegian definitions of completed education have, however, not complied with international guidelines for how much education is required on the primary/lower secondary school level, upper secondary education level and university and university-college levels to satisfy the requirement for completed education on each of these levels. Starting in 2005, Statistics Norway has revised the Norwegian definitions of education levels so they comply with the current international guidelines.<sup>5</sup>

Table 1.10 shows that the proportion of the population that has primary and lower secondary education as their highest level of education increases from 19 to 33 per cent with the new defini-

**Table 1.10: Highest education level in the population, according to the old and the new definition. Persons 16 years of age and above, by education level and age. 2005. Percentage.**

Age	Primary and lower secondary school level		Upper secondary school level		University and university college level		University and university-college level	
	Old	New	Old	New	Lower degree		Higher degree	
					Old	New	Old	New
Total	19.0	32.8	56.7	42.4	18.8	19.3	5.5	5.5
16-19 years	37.6	88.4	62.4	11.6	0.0	0.0	0.0	0.0
20-24 years	5.7	30.0	82.8	54.3	11.3	15.5	0.2	0.2
25-29 years	4.5	20.2	58.5	40.4	30.4	32.8	6.6	6.6
30-39 years	5.9	19.1	56.5	43.2	28.3	28.5	9.2	9.2
40-49 years	9.8	27.2	59.9	42.5	23.5	23.5	6.9	6.9
50-59 years	17.4	25.0	55.6	48.1	20.5	20.4	6.5	6.5
60-66 years	26.0	31.4	52.4	47.0	15.9	15.9	5.7	5.7
67 år og over	45.5	47.3	42.7	40.8	8.9	8.9	3.0	3.0

Source: GSI

tion, while the proportion with education on the upper secondary level is reduced from 57 to 42 per cent. The main reason for these changes is the fact that the new definition has higher demands as to what may be categorized as completed upper secondary education. Previously, everyone who had completed an upper secondary education regardless length or level was placed on the upper secondary level. Hence, far more persons were registered as having completed secondary education, including those who had completed only parts of their education and those who had taken labour-market courses through the employment authorities, which today are not included in the definition of completed upper secondary education. Changes on the university and university-college levels are marginal with the new definition.

In Norway, 31 per cent of the population has education on the university and university-college level. This is substantially higher than the OECD average of 24 per cent. Only six OECD countries have a larger proportion of the population with education on the university and university-college level than Norway.

### Regional differences in education levels in Norway

There are variations between the education levels in the counties in Norway. Oslo's inhabitants have the highest education level (Statistics Norway 2006). Around 40 per cent of the population there has university or university-college degrees.<sup>6</sup> In Hedmark and Oppland counties this applies to less than 19 per cent. The largest proportion with upper secondary education as the highest completed education is found in Sogn og Fjordane county, with a little under 48 per cent. In Vest-Agder county the figure is almost 47 per cent. The county with the largest proportion of the population with primary school as the highest completed education is Finnmark, just under 42 per cent. Nordland and Hedmark counties also have a high proportion with primary school as the highest completed education, around 40 per cent.

All in all, a slightly higher proportion of women than men have education on the university and university-college level, 25.6 per cent for women and 23.7 per cent for men.

6) In Oslo there is a fairly large percentage whose education is not known. This applies almost exclusively to immigrants.

**Table 1.11: Highest education level in the population in OECD countries in the 25-64 age bracket, ranked by the percentage with upper secondary education as the highest education level. 2004. Percentage.**

Country	Primary and lower secondary school level	Upper secondary school level *	University and university-college level
TCzech Republic	11	76	12
Slovakia	16	72	13
Poland	16	69	16
Austria	20	62	18
Hungary	25	59	16
Germany	16	58	25
Norway old	11	56	32
Great Britain	15	56	29
Switzerland	15	56	28
Luxemburg	22	54	22
New Zealand	22	53	26
Denmark	17	51	32
USA	13	49	38
Sweden	17	48	34
Japan <sup>2</sup>	16	47	38
Norway, new	24	45	31
South Korea	26	44	30
Finland	23	43	34
France	35	42	24
Netherlands	29	42	28
Iceland	32	40	26
Canada	16	39	44
Greece	42	37	20
Italy	51	37	11
Belgium	35	34	30
Ireland	37	34	27
Australia	36	34	31
Spain	55	18	26
Turkey	74	17	9
Portugal	75	13	13
Mexico	77	6	16
Average	30	46	24

\* Includes the level supplementary course for general studies. \*\* 2003 figures  
Source: Education at a Glance 2006, OECD

## 2 Resources



**One of the overriding objectives for the Norwegian school is to provide equal education to all. Underlying this is the principle that all children, young people and adults have equal rights to adapted education regardless of their social background or where they come from. Resource allocation in primary and lower secondary education is one of the factors that impacts how this objective is met. Access to resources is an important part of creating a good school, but research shows that there are complex relations between access to resources and the requirements that must be met to give equal education to all.**

This chapter focuses on developments and differences in resource allocation to primary and lower secondary education and upper secondary education by the local authorities and county authorities, and we attempt to highlight the conditions that can explain the changes and differences.

Compared to other countries, Norway allocates a high amount of resources to primary and lower secondary educa-

tion and upper secondary education. Resource allocation has been relatively stable over time when it comes to the proportion of available funding that goes to education and resources per pupil. The changes that have taken place in recent years are primarily due to the increase in the number of pupils, particularly in lower secondary school and upper secondary education.

The local authority is responsible for primary and lower secondary schools, while the county authority is responsible for upper secondary education. Primary and lower secondary school and upper secondary education are large and key sectors in the municipalities and counties. Primary and lower secondary education accounts for around 31 per cent of the total net operating expenditures in the municipalities, while upper secondary education accounts for approximately 64 per cent of the total net operating expenditures in the counties. (Proposal to Parliament no. 1 (2006 – 2007)).

In 2007, an extra NOK 400 million was pumped into primary and lower secondary education to compensate for expenses incurred from the need for new teaching aids due to the reform “Kunnskapsløftet” (Knowledge Promotion), cf. Budgetary Proposal to Parliament no. 12 (2006 – 2007).

## 2.1 Measurements for resource allocation in primary and lower secondary education

Resource allocation in primary and lower secondary education and upper secondary education is measured by showing what the education costs per pupil (productivity) and how much of the available resources is spent on education of the total public expenditures (priorities). In this chapter we use the indicators cost per pupil, teacher hours per pupil and teacher hours per pupil hour to measure productivity. For priorities, in this chapter we refer to the proportion of Norway's GNP (gross national product) and the total public expenditures allocated for primary and lower secondary education and upper secondary education.

Adjusted gross operating expenditures are used to calculate costs per pupil. The measurement is given in current prices and is not adjusted for increases in wages and prices. Adjusted gross operating expenditures show the productivity of the local authority and the county authority in their production of services, and comprise operating expenditures on education, including operating school premises and transportation. Included in the adjustments is the exclusion of payments for own pupils attending schools outside the municipal or county borders, and the exclusion of reimbursements from the national insurance scheme.

Adjusted gross operating expenditures do not yet take organisational differences into consideration, such as differences in the size of inter-municipal and municipal enterprises. Adjusted gross operating expenditures are thus not a good measurement for comparing resource allocation, as the local authorities and county authorities organise their services differently, particularly when it comes to operating the premises used for primary and lower secondary education and upper secondary education, cf. Proposal to Parliament no. 39 (2006 – 2007) *Om ressurs-situasjonen i grunnopplæringen m.m* (On the resource situation in primary and lower secondary education and upper secondary education etc.). This means that those who purchase services from inter-municipal and municipal enterprises set up their accounts so that expenditures are not included in adjusted gross operating expenditures, and these local and county authorities thus appear to have far lower operating expenditures than others when using adjusted gross operating expenditures as a measurement. Oslo changed its practice when it comes to the set-up and accounting of services bought in 2004 and 2005, and Drammen did the same in 2005, so that large parts of the expenditures are no longer included in the adjusted gross operating expenditures.

In KOSTRA, therefore, from 2006 two measurements have been introduced for the adjusted operating expenditures for the county authorities, where the county authority's expenditures for the

purchase of services from own enterprises and inter-municipal enterprises have been included in one of the measurements. This gives a more correct picture of each county authority's productivity.

Each year preliminary KOSTRA figures are published in March and final figures in June. Where we refer to KOSTRA figures for 2006 in this chapter, we are referring to the preliminary figures. All the 19 counties and 382 municipalities have reported their preliminary accounts.

Teacher hours per pupil and teacher hours per pupil hour are used here to describe the teacher allocation in primary and lower secondary schools. Teacher hours per pupil indicate the teacher allocation for the school in question, while teacher hours per pupil hour indicate teacher density in the teaching.

The term "teacher hours" means the sum of the hours a teacher is obliged to teach, the teaching obligation.<sup>1</sup> The term "pupil hours" is the sum of the number of classes the pupils receive. The number of classes is regulated by the Education Act and its regulations, and a minimum number of pupil hours is stipulated for regular teaching. Alternatively, pupils may have the number of hours stipulated to enable them to complete an individual progression plan. The average teacher density is calculated by dividing the number of teacher hours by the sum of pupil hours, with deductions of teacher hours for teaching in the native language and teaching in Finnish. The number of teacher hours includes teacher hours allocated for and spent on the basis of individual pupil rights.

Generally there are large differences from one municipality to the next and from one county to the next when it comes to resource allocation in various fields measured as expenditures per pupil and as average teacher density. Therefore we use distribution measures to indicate something about the range of distribution between municipalities and counties. In this chapter we use the distribution measures coefficient of variation and quartile width.<sup>2</sup>

## 2.2 Municipal and county expenditures for primary and lower secondary education and upper secondary education

The national accounts provide information about Norway's GNP and the total public expenditures. Considering how much of the GNP and of the total public expenditures is spent on education thus indicates something about how society prioritises education compared to other sectors.

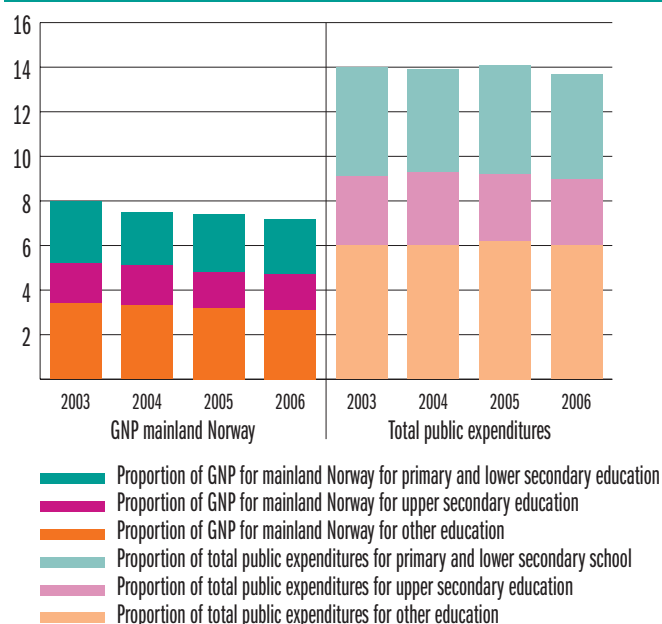
Figure 2.1 shows that in 2006, 7.2 per cent of the GNP for mainland Norway was spent on education in total. Of this, 3.1 per cent was spent on primary and lower secondary schools

1) The number of obligatory teaching hours is regulated in the collective bargaining agreement between the state authorities and teacher unions. The number of hours teachers must teach is lower in lower secondary school than primary school, and therefore more teacher full-time equivalents are needed to cover a given number of teacher hours in lower secondary school than in primary school.

2) The distribution coefficient measures standard deviation compared to the average (Falch and Tovmo 2007). If we start with a municipality with average resource use and let this municipality increase the resources by half a standard deviation, around 70 per cent of municipalities will have lower resource consumption after the increase. When the distribution is symmetrical, a similar decline of half a standard deviation will cause around 30 per cent of municipalities to have lower resource consumption. The quartile width is used to look at the distribution among the 50 per cent of municipalities that lie around the average. Thus 25 per cent of the municipalities have lower expenses and 25 per cent of the municipalities have higher expenses than the municipalities the quartile width refers to.



**Figure 2.1: The proportion of expenses for education in general and primary and lower secondary education and upper secondary education in particular of the GNP for mainland Norway and of total public expenditures, 2003–2006.**



\*Any changes from figures presented in previous editions of *Utdanningsspillet* are due to the adjustment of these figures. Note that the figure considers what is spent on education in total, not only what is spent on primary and lower secondary education and upper secondary education.

Source: SSB, the national accounts

and 1.6 per cent on upper secondary schools. The proportion of GNP spent on education has declined from 8 per cent in 2003 to 7.2 per cent in 2006. During the same period of time the proportion spent on primary and lower secondary education has declined from 3.4 per cent to 3.1 per cent, while the proportion spent on upper secondary education has declined from 1.8 per cent to 1.6 per cent. The GNP for mainland Norway has nevertheless increased by 22.6 per cent from 2003 to 2006, and just in 2005 to 2006 alone, there was a growth of 8.1 per cent (not shown in the figure). Thus in spite of a proportional decline in how much of the GNP was spent on education, the priority given to education in total has increased.

The proportion of total public expenditures that has been used on education has remained relatively stable from 2003 to 2006, with some minor fluctuations from one year to the next. A total of 13.7 per cent of the total public expenditures went to education in 2006. Six per cent of this went to primary and lower secondary school and three per cent to upper secondary education. In spite of this stability, the total public expenditures have increased, and just in the period 2005 to 2006 there was a growth of six per cent (not shown in the graph). The total growth of what was spent on primary and lower secondary education was 7.5 per cent and the growth of expenditures on secondary education was 8.2 per cent.

3) Here price hikes and higher wages have been considered in the same way that TBU (the technical calculation committee) does for the municipal sector.

## Expenditures per pupil

The amount of resources spent on primary and lower secondary education and upper secondary education measured as adjusted gross operating expenditures per pupil has proven to be relatively stable over time. Table 2.1 shows that preliminary adjusted gross operating expenditures per pupil in primary and lower secondary school in 2006 amount to NOK 68 122 per pupil when including all the 382 municipalities that have submitted accounting figures for 2006. The difference between municipalities that submitted in 2005 and 2006 shows an increase in gross operating expenditures per pupil of NOK 3088 in 2006. If we only compare municipalities submitting in both 2005 and 2006, the increase in adjusted gross operating expenditures is NOK 3613 per pupil. This constitutes a nominal growth of 5.6 per cent. If price hikes and wage increases are included, there has been a real growth of 2.1 per cent<sup>3</sup>, representing a positive development from previous years,

**Table 2.1: Adjusted gross operating expenditures per pupil in primary and lower secondary schools, according to type of expenditure, 2003-2006. Continuous prices.**

	2003	2004	2005	2005*	2006
Corrected gross operating expenditures per pupil (expenditure type 202 and 222)	63469	64949	65034	64509	68122
Of this:					
Payroll costs per pupil	49119	49901	51991	51558	53922
Operating expenditures for fixtures per pupil	588	623	654	654	817
Operating expenditures for teaching aids per pupil	1279	1158	1101	1092	1351
Miscellaneous expenditures per pupil	12483	13267	11288	11205	12032
Maintenance**	-	-	430611	406313	453554

\*Figures for 2005 for municipalities that also reported in 2006.

\*\*Total expenditures in NOK million. Not given as total per pupil.

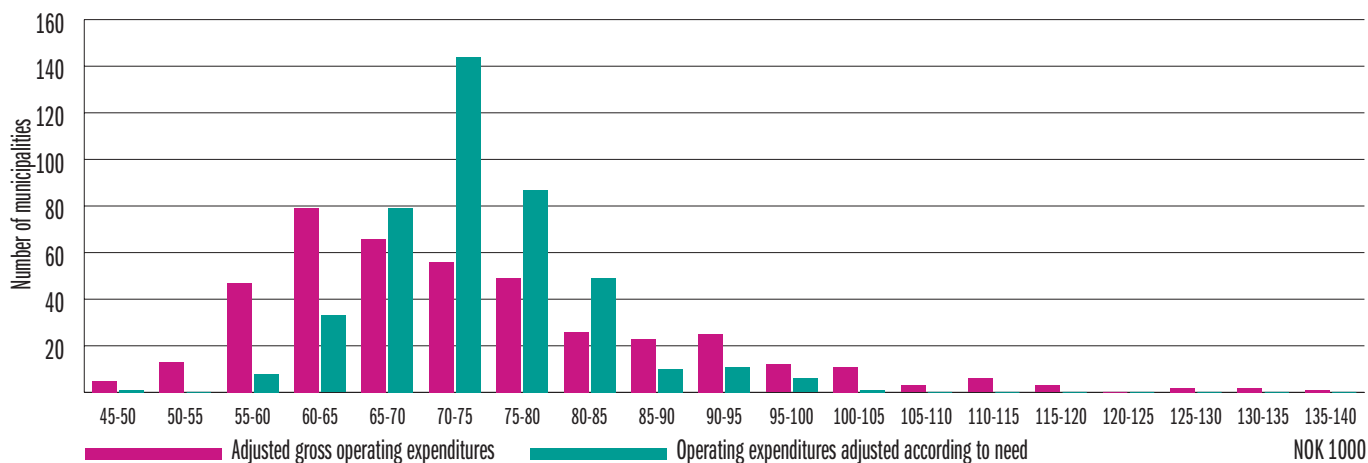
Source: KOSTRA

**Table 2.2: Adjusted gross operating expenditures for upper secondary education for general studies and vocational areas of study per pupil, 2003-2006. Current prices.**

	2003	2004	2005	2006
Adjusted gross operating expenditures per pupil in general areas of study (specialization in general studies)	86288	85808	85282	91572
Of this:				
Payroll costs (excluding pay for building maintenance)	52941	52271	52271	54105
Operating expenditures	33347	33537	33011	37467
Adjusted gross operating expenditures per pupil in vocational areas of study/ programme subjects	106465	106334	107554	113627
Of this:				
Payroll costs (excluding pay for building maintenance)	68530	68258	70364	71486
Operating expenditures	37935	38076	37190	42141

Source: KOSTRA

**Figure 2.2: Distribution of municipalities according to adjusted gross operating expenditures per pupil and operating expenditures per pupil adjusted according to need, 2005**



Source: Falch and Tovmo (2007)

when there was a real decline from 2003 to 2004 and from 2004 to 2005 (not shown in the graph).<sup>4</sup>

Some of the increase in adjusted gross operating expenditures per pupil may be explained by higher wage expenditures per pupil, but there has also been an increase in operating expenditures per pupil, and this means that money has been allocated to the sector in addition to wages, cf. Table 2.1. This may be considered together with the previously mentioned strengthening of primary and lower secondary education and upper secondary education in connection with the Knowledge Promotion Reform (Proposal to Parliament no. 1 (2006 – 2007)). Operating expenditures on fixtures and equipment and expenditures on teaching aids constitute a total of 15 per cent of the operating costs, which also includes cleaning, building maintenance and heating (shown as “Miscellaneous expenses per pupil” in Table 2.1).

As some county authorities have shifted to greater use of services supplied by their own enterprises and inter-municipal enterprises, adjusted gross operating expenditures for 2004 and earlier are not directly comparable with adjusted gross operating expenditures for 2005 and the old scheme for 2006, cf. Chapter 2.1. Table 2.2 uses the new definitions for 2006<sup>5</sup>, and the figures for 2004 and 2006 are therefore comparable. A new definition has not been applied for the 2005 figures. The table shows that adjusted gross operating expenditures have increased from 2004 to 2006 for both general and vocational areas of study/education programmes. The table also shows that some of the differences between general and vocational areas of study/education programmes may be explained by the fact

that the payroll costs per pupil are higher in vocational areas of study/education programmes than in general areas of study/education programmes because the number of pupils per teacher is lower in vocational areas of study/education programmes than in general areas of study/education programmes.

There was a 3.7 per cent real decline in the county authorities’ adjusted gross operating expenditures per pupil in general studies education programmes from 2003 to 2004, while there was a 3.2 per cent increase from 2004 to 2006 (not shown in the graph).<sup>6</sup> Similarly, adjusted gross operating expenditures per pupil in vocational education programmes saw a real drop of 3.3 per cent from 2003 to 2004 and a real increase of 3.3 per cent from 2004 to 2006.

For the 2007 budget year Parliament has allocated NOK 373.3 million for the introduction of free teaching aids in upper secondary education (Budgetary Proposal to Parliament no. 12 (2006 – 2007)). The scheme will initially cover Vg2 (the second year in upper secondary school) from the autumn of 2007, followed by Vg3 (the third year) in the autumn of 2008 and Vg1 (the first year) in the autumn of 2009. Therefore the county authorities’ expenditures for teaching aids are expected to rise from 2007 and to continue in this way (see Chapter 2.8).

### Resources for vocational education

The county authorities’ expenditures on vocational education are generally subsidies paid to the apprentice training companies, administrative costs and costs incurred from teaching theory<sup>7</sup> to apprentices and trainees. Company subsidies are paid in accordance with regulated rates.<sup>8</sup>

4) Here price hikes and higher wages have been considered in the same way that TBU (the technical calculation committee) does for the municipal sector.

5) The expenditures of the county authorities are inclusive purchase of services from own enterprises and inter-municipal enterprises.

6) Here price hikes and higher wages have been considered in the same way that TBU (the technical calculation committee) does for the municipal sector.

7) These are expenses for instruction in theory for those who have tests as trainees (been employed for at least five years) and apprentices.

8) Subsidy rates in 2007: Basic subsidy I is NOK 91 448 per apprentice or trainee for one year of full-time instruction. No subsidy is paid for the value creation period, but the subsidy is distributed evenly across the entire training period with a company, including the value creation time. For apprentices and trainees who sign apprenticeship contracts in trades deemed important to preserve for national reasons, an addition to the basic subsidy is paid amounting to NOK 41 568 per apprentice or trainee. Basic subsidy II is paid to companies that have apprentices who are 21 years of age and have full training with a company, and for apprenticeship contracts signed by apprentices that have previously filled their right to upper secondary education. For apprenticeship contracts signed after 1 January 2002, the subsidy in total is NOK 26 136 annually, and no distinction is made between training time and value creation time. Here, too, additional subsidies are paid for apprentices signing contracts for minor and protected trades (NOK 71 256 per year for contracts entered after 1 January 2002).

In 2006, 7.3 per cent of the county authorities' net operating expenditures went to vocational education in working life (KOSTRA). The corresponding proportion in 2005 and 2004 was, respectively, 7.1 per cent and 7.0 per cent. This means the net operating expenditures have remained relatively stable over time.

### 2.3 Municipal differences in resource use

In the following paragraphs we will examine in more detail the differences in municipal resource use according to various resource goals. There are substantial differences between the resource use from one municipality to the next. The Norwegian Directorate for Education and Training has commissioned SØF (the Centre for Economic Research at NTNU) to look more closely into resource use in the municipalities and counties (Falch and Tovmo 2007). The report is based on final KOSTRA figures through 2005, and GSI figures through 2006 – 2007.<sup>9</sup>

#### Municipal differences in resource use based on expenditures

In 2005 the average adjusted gross operating expenditures per pupil in primary and lower secondary school amounted to NOK 63 400, and operating expenditures per pupil varied from NOK 48 000 to almost NOK 140 000 (Falch and Tovmo 2007).<sup>10</sup> The quartile width shows that half of the municipalities lying around the average figure vary within an interval of NOK 18 500. If we look at all the municipalities, few have very low adjusted gross operating expenditures per pupil compared to the average, while some have very high expenditures per pupil. Most municipalities nevertheless have an expenditure level close to the average, and in both 2004 and 2005, 69 per cent of the municipalities had operating expenditures per pupil of between NOK 55 000 and NOK 80 000. The figures also show that the number of municipalities with lower expenditures per pupil than this dropped from eight to four per cent from 2004 to 2005.

Most of the variation in expenditures is due to matters beyond direct municipal control, such as scattered settlement and the number of pupils in a catchment area. Therefore, a needs-adjusted operating expenditure has been calculated on the basis of the cost key<sup>11</sup> in the revenues system. When comparing municipal adjusted gross operating expenditures with operating expenditures corrected according to need for 2005, the variance between municipal needs-adjusted operating expenditures is 75 per cent lower than the variance between municipal adjusted gross operating expenditures (Borge and Naper 2006, Falch and Tovmo 2007). This means that the variation between the municipalities in general may be explained by differences that are due to such circumstances as the number of pupils and settlement patterns.

Figure 2.2 shows the importance that differences in expense requirements have for the spread in operating expenditures per pupil in 2005. When resource use is measured by means

of operating expenditures adjusted for need, 83 per cent of the municipalities have operating expenditures per pupil of between NOK 55 000 and NOK 80 000 (Falch and Tovmo 2007).<sup>12</sup> Seventeen per cent of the variation in resource use between the municipalities cannot be explained with the measures for expenditure requirements and municipal revenues. This is a reduction from last year. This means that there is less variation in municipal priorities for primary and lower secondary schools than adjusted gross operating expenditures indicate, and the variation in municipal priorities is also reduced.

#### Municipal differences in the use of resources based on teacher hours in total and teacher hours for teaching pupils who have another native language than Norwegian

Table 2.3 shows the average number of teacher hours per pupil in primary and lower secondary schools from 2003 – 2004 to 2006 – 2007. Overall, for primary and lower secondary schools the number of teacher hours per pupil has remained stable over time in spite of a minor increase during the entire period. In primary school (Year 1 to Year 7) there is an increase in teacher hours per pupil during the first four years, but the number of teacher hours per pupil is lower here than for Year 5 to Year 7, which may be explained by the fact that the number of classes for pupils are higher during the three last years (not shown in the table). Compared to primary school, there is on average more teacher hours per pupil in lower secondary school (Year 8 to Year 10), but here the number of teacher hours gradually declines over time.

**Table 2.3: Teacher hours per pupil per school year**

Year	Number of municipalities	Average per pupil for primary and lower secondary school	Average primary school	Average lower secondary school
2003-04	421	71.18	68.91	76.59
2004-05	421	71.86	69.97	76.32
2005-06	426	71.94	70.39	75.51
2006-07	423	72.54	71.19	75.24

Source: Falch and Tovmo (2007)

The spread of teacher hours per pupil between municipalities is clearly lowest for years 1 to 4, but there is also an increase in the spread over time for these years. For all the years there is an increased spread of teacher hours per pupil among the 50 per cent of the municipalities that are closest to the average, while the spread between municipalities with the highest and lowest number of teacher hours has dropped. Changes in spread thus show that there are very few municipalities that have very high or very low numbers of teacher hours per pupil.

Table 2.4 shows the average proportion of teacher hours used for teaching pupils with another native language than Norwegian in primary and lower secondary school from 2003 – 2004

9) KOSTRA figures for 2006 were unavailable when the report was prepared. GSI is the information system for primary and lower secondary schools.

10) Note that Oslo and Drammen are not included in the calculations, cf. Chapter 2.1.

11) The cost key of the revenues system calculates how the expenditures component of the revenues system should be distributed between municipalities. Publication from the Ministry of Local Government and Regional Development, H-2193 (<http://www.regjeringen.no/upload/kilde/krd/rap/2006/0024/ddd/pdfv/292467-grontheft1.pdf>).

12) By adjusting expenditures for needs, municipalities with low expenditures per pupil have "increased" expenditures, while the opposite occurs for municipalities with high expenditures per pupil.

to 2006 – 2007. There is a small increase from 2003 – 2004 to 2006 – 2007, which is explained by the increase in the number of non-native-language-speaking pupils. There is a tendency that the spread between municipalities with respect to the proportion of teacher hours allocated to teaching foreign-language pupils is reduced over time (not shown in the table).

**Table 2.4: Hours for teaching foreign-language pupils as a proportion of teacher hours**

Year	Number of municipalities	Average number of teacher hours used for teaching foreign-language pupils
2003-04	421	6.5
2004-05	421	6.5
2005-06	426	6.6
2006-07	423	6.8

Source: Falch and Tovmo (2007)

### Municipal differences in resource use based on assistant hours and special teaching

Table 2.5 shows the number of hours spent on special-needs teaching as a proportion of teacher hours. The scope of special teaching in primary and lower secondary school is fairly stable over time. When it comes to variation between municipalities there is a clear increase of the quartile width, which means that the spread between the 50 per cent of municipalities closest to the average has increased (not shown in the table).

**Table 2.5: Hours for special teaching as a proportion of teacher hours**

Year	Number of municipalities	Average per pupil for primary and lower secondary schools
2003-04	421	13.7
2004-05	421	13.4
2005-06	426	13.7
2006-07	423	14.0

Source: Falch and Tovmo (2007)

Table 2.6 shows that the proportion of full-time equivalents carried out by assistants has increased from 9.8 per cent in 2003 – 2004 to 11.7 per cent in 2006 – 2007.<sup>13</sup> Many of the assistant full-time equivalents are in connection with special teaching, and this may suggest that the resources used on special teaching have increased more than what is indicated in Table 2.5 (Falch and Tovmo 2007). There is a large spread in the use of assistants between municipalities, ranging from municipalities that do not use assistants at all to municipalities with more than 25 per cent assistant hours in the number of teaching full-time equivalents.

**Table 2.6: The proportion of full-time equivalents carried out by assistants**

Year	Number of municipalities	Average proportion of full-time equivalents carried out by assistants
2003-04	421	9.8
2004-05	421	10.1
2005-06	426	10.9
2006-07	422	11.7

Source: Falch and Tovmo (2007)

### Municipalities with particularly low resource allocation

Table 2.7 shows the characteristics of the 25 municipalities with the lowest operating expenditures per pupil in 2006. Both absolute and relative figures in relation to the national average are presented (Falch and Tovmo 2007). The operating expenditures per pupil of these municipalities amount to 72 per cent of the national average. Thus teacher hours per pupil, operating expenditures on fixtures, equipment and teaching aids and the number of computers are between 73 and 76 per cent of the national average. An important reason for this appears to be low expenditure requirements. The cost key for these 25 municipalities is on average 82 per cent of the national average. These municipalities also have a low proportion of special teacher hours, which contributes to low resource use, but a high proportion of teacher hours for foreign-language pupils, which has the opposite effect.

### 2.4 Differences in resource use by the county authorities

As for the municipalities, the counties also have a fairly large spread when it comes to resource use.

In 2005, gross operating expenditures per pupil in upper secondary education came to NOK 56 234 on average (Falch and Tovmo 2007).<sup>14</sup> The expenditures do not include common expenditures<sup>15</sup> for operating upper secondary schools. The operating expenditures per pupil for the county authorities varied from NOK 49 086 to NOK 64 550, i.e. within an interval of NOK 15 464. The quartile width shows that half of the counties were within an interval of NOK 7500.

In 2005, operating expenditures per pupil on average came to NOK 44 663 in general areas of study and NOK 66 808 in vocational programmes (exclusive common expenditures) (Falch and Tovmo 2007). Thus the operating expenditures for general studies programmes and vocational programmes varied within an interval of respectively NOK 8856 and NOK 26 199. The variation between counties measured by the quartile width is larger for vocational programmes than for general studies programmes, but not less than for the expenditures in total.

Figures 2.3 and 2.4 indicate that the county authorities have major differences between the gross operating expenditures per

13) The proportion of assistants of the number of teacher full-time equivalents spent on teaching.

14) The number of pupils in the counties has been weighted so that small and large counties count equally, and this is a national average exclusive of Oslo, cf. Chapter 2.1.

15) Common expenditures" is function 510 and 520 in County KOSTRA, cf. the guide for reports, the 2007 accounting year.

**Table 2.7: Characteristics of the 25 municipalities with the lowest operating expenditures per pupil in 2006\***

	Average for 25 municipalities with the lowest resource allocation, unweighted	Average for all municipalities, unweighted	Relation between municipalities with lowest resources in relation to national average. Per cent.
Operating expenditures per pupil	53236	73473	72
Teacher hours per pupil	47.54	64.08	74
Operating expenditures on fixtures etc. per pupil	1562	2043	76
Number of computers per pupil	0.19	0.26	73
Expenditure requirements	0.95	1.16	82
Number of teacher hours for special teaching	0.12	0.15	80
Number of teacher hours for foreign-language pupils	0.06	0.05	120
Number of inhabitants	25151	9631	261
Travel time per inhabitant	0.79	1.16	68
Distance (zone) per inhabitant	0.59	1.88	31
Distance (district) per inhabitant	0.76	1.90	40
Needs-adjusted operating expenditures per pupil	56175	63442	89
Adjusted revenues	95.72	106.12	90

\* Data for adjusted gross expenditures, adjusted revenues and variables in the cost key are for 2005. Source: Falch and Tovmo (2007)

pupil in upper secondary education, including common expenditures, both for general studies programmes and vocational programmes. Note that Oslo has been included in the calculations and two different measures have been used for 2006, cf. Chapter 2.1. In the column to the far right for each county the expenditures on external services have been included, and this has particular importance for Oslo, as explained in Chapter 2.1. If two measures had also been used for 2005, where one measure included the purchase of services from own enterprises and inter-municipal companies, Oslo would have had a column between the 2004 column and the 2006 column on the far right. Thus Oslo has had an even rise in expenditures from 2004 to 2006.

Figure 2.3 shows that in 2006 Rogaland, Telemark and Vest-Agder counties had the lowest expenditures per pupil in general studies programmes within an interval of around NOK 77 600 to NOK 81 800. Both Rogaland and Vest-Agder counties had rising costs from 2004 to 2006, according to both the old and the new definitions, cf. Chapter 2.1. Oppland, Troms

and Finnmark counties had the highest expenditures per pupil in 2006, also regardless of how the expenditures are defined in 2006. Both Oppland and Troms counties increased their expenditures from 2004 to 2006, while Finnmark had the highest expenditures in 2004 compared to the subsequent years.

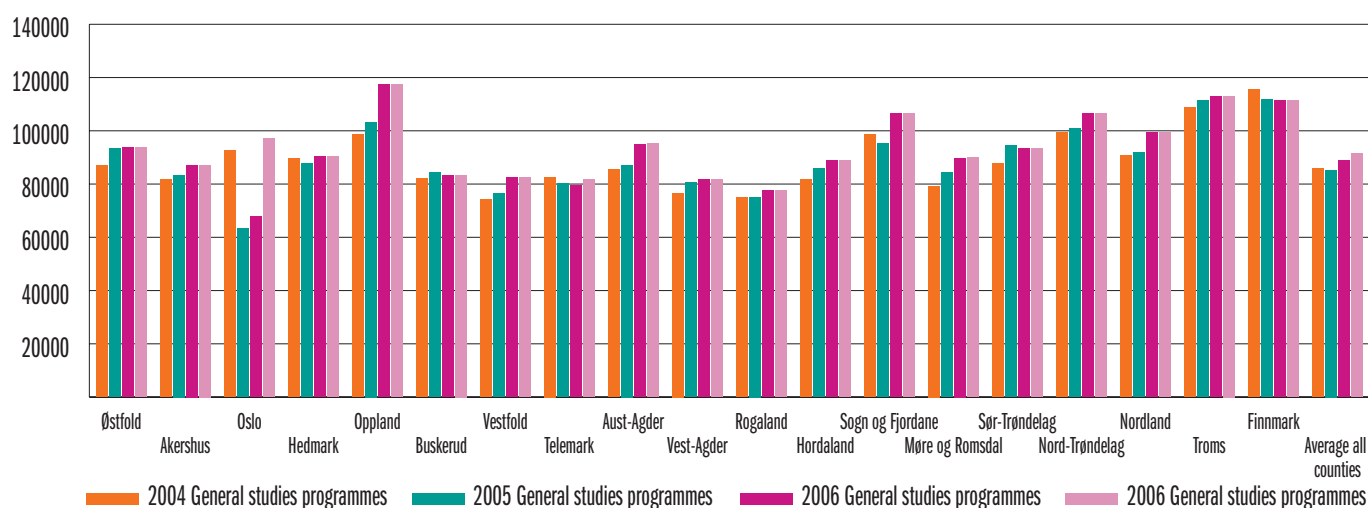
Figure 2.4 shows that Buskerud and Vest-Agder counties have the lowest expenditures per pupil in vocational programmes with around NOK 98 500 in 2006, while Troms, Nord-Trøndelag and Nordland counties have the highest expenditures per pupil. The range of expenditures goes from Troms with NOK 138 500 to Nordland with NOK 125 500.

### Counties with particularly low and high resource use

Table 2.8 shows characteristics of the five counties with, respectively, the highest and lowest operating expenditures per pupil in 2005.<sup>16</sup> The figures in the table measure the average

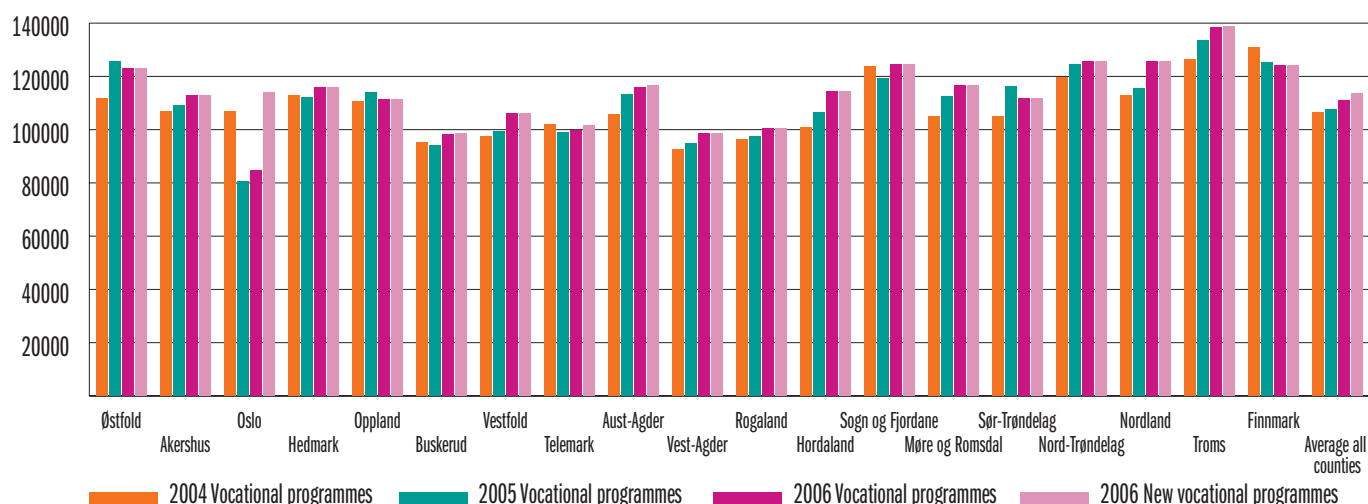
16) Note that Oslo is not included in the calculations, cf. Chapter 2.1.

**Figure 2.3: Expenditures per pupil in general studies programmes per county and year. 2004 to 2006**



Source: KOSTRA/Norwegian Directorate for Education and Training

**Figure 2.4: Expenditures per pupil in vocational programmes per county and year. 2004 to 2006**



Source: KOSTRA/Norwegian Directorate for Education and Training

(unweighted) for the counties in relation to the national average (unweighted), which is set at 100. The expenditures per pupil are on average NOK 10 000 higher per pupil in the five counties with the highest resource use in relation to the five with the lowest resource use (exclusive of common expenditures). Counties with low resource use have revenues including revenue levelling schemes that are four per cent below the national average, while those with high resource use are precisely on the national average. It is also shown that the counties with the lowest resource use have 23 per cent higher population figures than the average, while a lower proportion of the population live in scattered settlements. For counties with high resource use this is the opposite. The counties with low expenditures also have a smaller proportion of pupils in vocational programmes than the counties with high expenditures.

In Table 2.8, the areas of study are divided into three groups. Group 1 consists of the general, business/administration area of study, Group 2 covers sales and service and the vocational programmes least demanding of resources, while Group 3 consists of media and communication and the vocational programmes

most demanding of resources. In the five counties with the lowest resource use the proportion of pupils in the least resource demanding areas of study (Group 1) is seven per cent higher than the national average, while the proportion of pupils in the more expensive areas of study in Group 3 is nine per cent lower than the average. The composition of pupil groups nevertheless appears to be less important for the resource use in municipalities with high resource use, as the proportion of pupils lies around the average in all three groups.

## 2.5 Teacher density in primary and lower secondary schools

Section 8-2 of the Education Act opens for dividing pupils into groups as needed, but that groups must not be larger than what is pedagogically sound. The following paragraphs examine in more detail teacher hours, pupil hours and teacher density in primary and lower secondary schools, cf. definitions in Chapter 2.1.

### Primary school

If we look at the relation between pupil hours and teacher hours for the entire primary school seen as a whole, there was an average of 14.1 pupils per teacher in 2005 - 2006. In 2006 - 2007 the average was 14.0 pupils per teacher (GSI).

Figure 2.5 shows that the number of teacher hours and pupil hours in Year 1 to Year 4 has varied from one year to the next, but generally the fluctuations have been parallel to each other. Nevertheless, the number of pupil hours has increased slightly more than the teacher hours, and thus teacher density has declined through 2005 - 2006. However, in 2006 - 2007, the figures indicate that the number of pupil hours has dropped and the number of teacher hours has increased, and thus teacher density also increases.

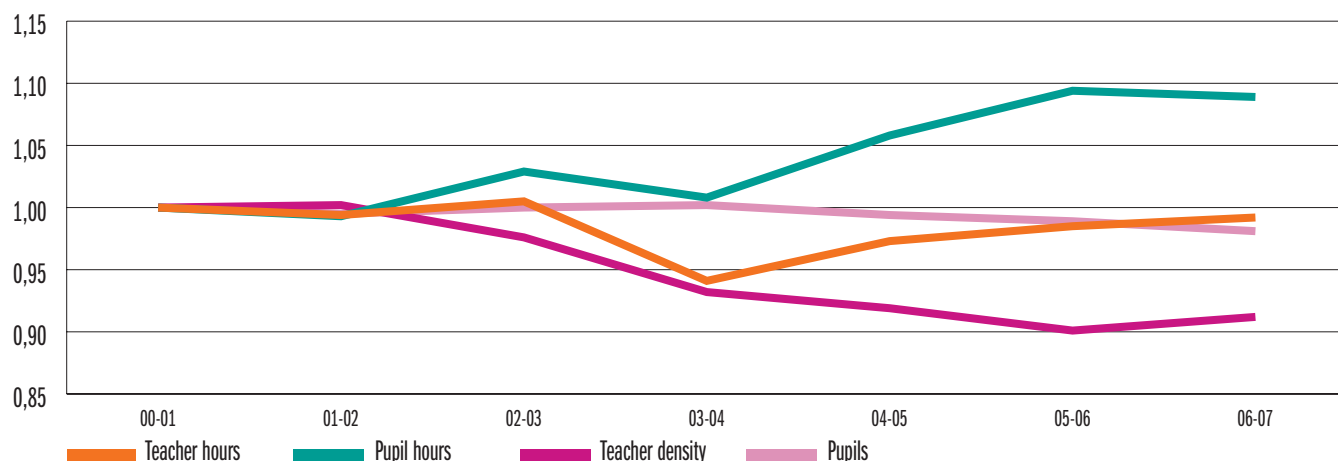
Figure 2.6 shows that teacher density in Year 5 to Year 7 rose relatively steeply from 2002 - 2003 to 2003 - 2004. This is because teacher hours were transferred from the first years of primary school to the intermediate stage between these two school years. From 2003 - 2004 to 2006 - 2007 teacher

**Table 2.8: Characteristics of counties with the lowest and highest resource use in 2005**

	Relation between counties with lowest resource use. Proportion of the national average.	Relation between counties with highest resource use. Proportion of the national average.
Expenditures per pupil	51 381	61 823
Adjusted revenues	96	100
Population	123	84
Proportion in scattered settlements	67	122
Proportion of pupils in vocational programmes	94	100
Group 1	107	99
Group 2	97	101
Group 3	91	100

Source: Falch and Tovmo (2007)

**Figure 2.5: Development in the number of pupils, pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 1 to Year 4.**



Source: GSI

density has dropped slightly. This is due to the fact that the number of teacher hours and pupil hours both dropped, but teacher hours have dropped more than pupil hours.

Figure 2.7 shows that pupil hours in lower secondary school increased up until 2005 – 2006, followed by a slight drop in 2006 – 2007. Teacher hours increased until 2004 – 2005 and have later remained relatively stable. Pupil hours have increased more than teacher hours, causing teacher density to drop throughout this period, with the exception of a small increase in the current school year. This may be explained by the small drop in pupil hours.

### School structure and teacher density in primary and lower secondary school

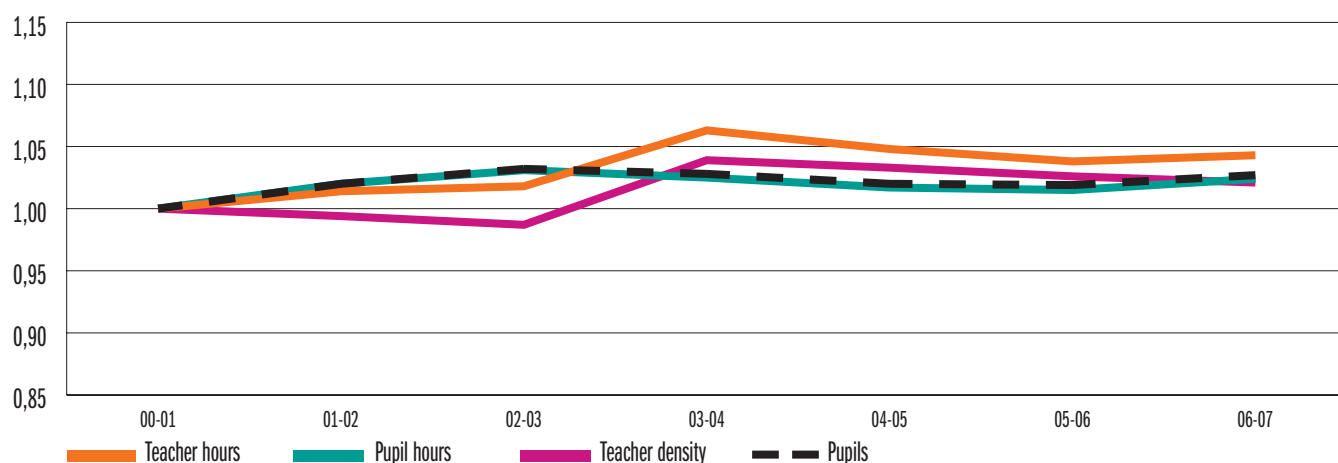
There are large variations from one municipality to the next in teacher density and the number of pupils in each year. In Table 2.9, the municipalities are divided into seven groups. This is a simplification and merging of the 16 municipal groups KOSTRA

operates with.<sup>17</sup> The groups have been put together according to the size of the municipality and revenue levels. The table shows that there are large differences between the groups when considering the average number of pupils per year and the average teacher density (teacher per 100 pupils). The average number of pupils increases the larger a municipality is, while the average teacher density drops the larger a municipality is. A smaller proportion of the total number of pupils in primary and lower secondary school attends a year with a low average number of pupils and a higher teacher density on average, while a larger proportion of the pupils attends schools with a relatively high average number of pupils per year and a lower teacher density (see also Chapter 1.3).

### Pupils per contact teacher in primary school

Section 8-2 of the Education Act states that each pupil shall have one teacher (contact teacher) who is responsible for the pupil's practical, administrative and social-pedagogy concerns. The act also states that pupils may be divided into groups as needed, but

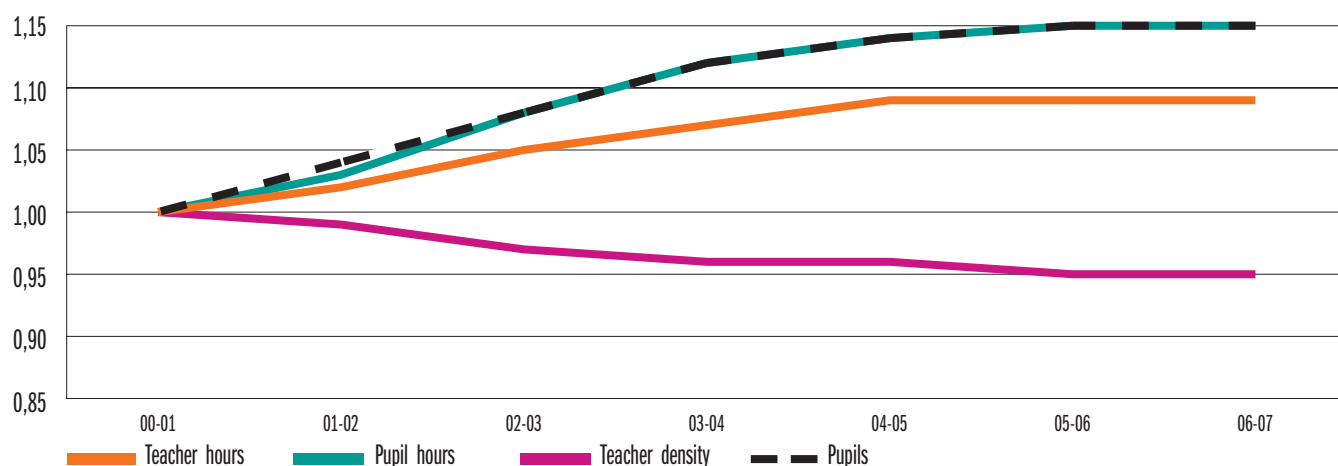
**Figure 2.6: Development in the number of pupils, pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 5 to Year 7.**



Source: GSI

17) For a definition of the 16 groups of municipalities see: <http://www.ssb.no/emner/00/00/20/kostra/veiledning/veiledning2006-03.html>

**Figure 2.7: Development in the number of pupils, pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 8 to Year 10.**



Source: GSI

that these must not be larger than what is pedagogically sound practice. The objective of the current Government is that no contact teacher should have responsibility for more than 15 pupils.

In Table 2.10, the figure for pupils per contact teacher has been calculated by dividing the number of pupils by the number of contact teachers in municipal and inter-municipal schools. In 2006 – 2007 the national average was 15.4 pupils per contact teacher. This is a reduction from 2004 – 2005 of 0.2 pupils per contact teacher. The reduction has been 0.1 pupils per contact teacher for each school year. The table also shows that in 2006 – 2007, 67.5 per cent of the municipalities had less than 15 pupils per contact teacher. This is a reduction from previous school years. A total of 41.8 per cent of the total number of pupils in primary school attend schools with less than 15 pupils per contact teacher (not shown in the figure).

**Table 2.9: Variation in the number of pupils per year and average group size for the groups of municipalities.**

	Average group size	Average teacher density	Proportion of pupils
Total	30.2	7.1	100
Small municipalities with high expenditures and high revenues	8.7	10.6	1.9
Small municipalities with medium to high expenditures	12.2	9.5	4.0
Small and medium municipalities with medium to high revenues	18.0	8.5	7.5
Medium-sized municipalities with low to medium expenditures	23.7	7.6	16.9
Medium-sized municipalities with low to medium revenues	34.0	6.9	18.0
Large municipalities	42.8	6.7	32.8
The four largest cities	56.0	6.4	18.9

Source: GSI / Norwegian Directorate for Education and Training

## 2.6 Resources for special education

Section 5-1 of the Education Act states that all pupils have the right to special education if they do not benefit satisfactorily from the regular tuition. An individual decision must be made to grant special education. There has been an overriding goal for several years now that pupils should be taught within the ordinary teaching programme to as great extent as possible, cf. the objective that all pupils shall receive adapted teaching (section 1-2 of the Education Act).

Statistics of resources for special education are measured by the number of registered individual decisions and the number of pupils with another native language than Norwegian and Saami, cf. special provisions in the Education Act. Of the total teacher hours for teaching, 15 per cent are given as special education and around seven per cent to specially adapted teaching for pupils with another native language than Norwegian and Saami (GSI). Table 2.11 shows that the proportion of pupils with special teaching in primary school has remained fairly stable over time, while increasing slightly during the last year. The proportion of pupils with special teaching in the Norwegian language has increased slightly during the same period. This is due to a greater number of minority-language pupils.

Figure 2.8 shows that in 1997 – 1998, around 1.4 per cent of primary school pupils received up to 75 hours of special teach-

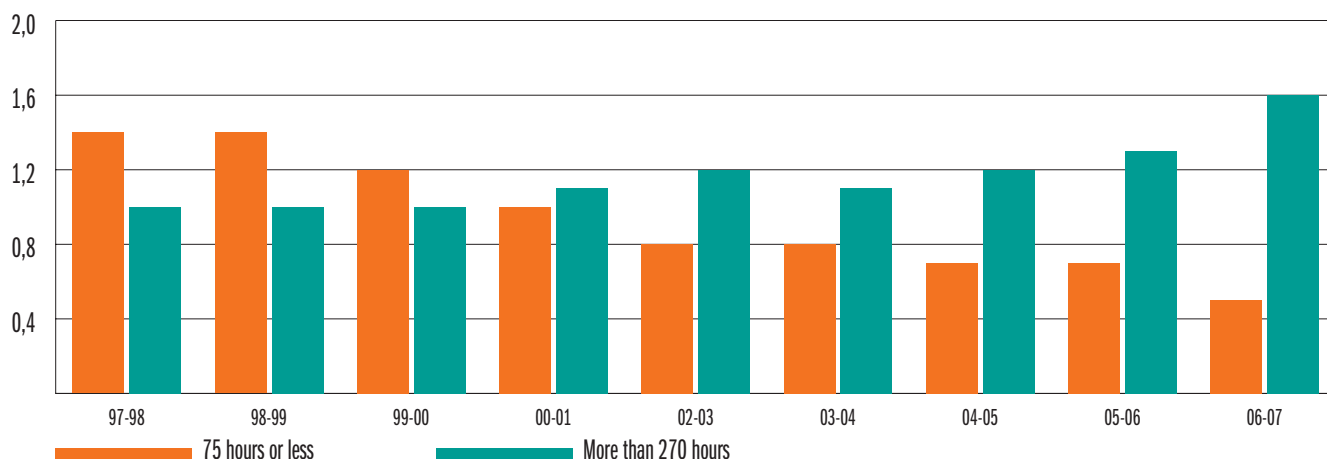
**Table 2.10: Pupils per contact teacher and percentage in municipalities in primary school.**

School year	Pupils per contact teacher	Proportion of municipalities with less than 15 pupils per contact teacher
2004/05	15.6	71.1
2005/06	15.5	70.0
2006/07	15.4	67.5

Source: GSI



**Figure 2.8: Proportion in all pupils who have 75 or less hours of special teaching, and the proportion with more than 270 hours\*.**



\*All hours are measured as 60 minutes in class. Source: GSI

ing. The proportion has dropped to 0.5 per cent of pupils in 2006 – 2007. On the other hand, the figure shows that an increasingly large proportion of pupils receive more than 270 hours of special teaching, and the proportion has increased from 1 per cent in 1997 – 1998 to 1.6 per cent in 2006 – 2007. This suggests that the special teaching has been concentrated on a lower number of pupils needing more hours.

There are large variations between municipalities when it comes to the proportion of pupils receiving special education, and one of the reasons is differing practices when it comes to individual decisions. Table 2.12 shows that pupils in municipalities where a small proportion of pupils receive special teaching on average receive more hours of special teaching than pupils in municipalities where the proportion receiving special teaching is high. The variation between the municipalities may be explained by the fact that municipalities with many individual decisions are less restrictive in granting individual decisions, while municipalities with few individual decisions generally give special teaching only to those with the greatest needs, and give this as more hours per pupil with such special teaching.

Report to Parliament no. 16 (2006 – 2007) ... *og ingen sto igjen* (... and none was left behind) emphasises the principle of early efforts and early intervention in pupil development and learning. In 2006 – 2007, 37 063 individual decisions were

made for special teaching (GSI). Of these, 4.9 per cent were pupils in Year 1, while 14.5 per cent were pupils in Year 10. The proportion of pupils granted individual decisions increases evenly from Year 1 to Year 10. If we consider the total number of hours given as special teaching in primary and lower secondary schools, 59.9 per cent of the hours are given to the first four years and 40.1 per cent to those in lower secondary school. This shows that more hours are given to special teaching per pupil in lower secondary school than in primary school. Of those receiving individual decisions, 69.3 per cent were boys and 30.7 per cent were girls. Thus more than twice the number of boys compared to girls receive individual decisions.

## 2.7 Resources for ICT in primary and lower secondary schools

With the introduction of the Knowledge Promotion Reform the term “basic skills” has been promoted as an important prerequisite for adapting to the competence society, cf. Report to Parliament no. 30 (2003 – 2004) *Kultur for læring* [Culture for Learning]. The new subject curricula that came into force in the autumn of 2006 integrate the pupils’ basic skills in the use of digital tools in the competence aims in all the subjects. Being able to give a picture of the availability of ICT equipment in primary and lower secondary schools and upper secondary schools is thus more relevant than ever (see also Chapter 6.4).

**Table 2.11: The proportion of pupils with special education and with special Norwegian-language teaching.**

School year	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Proportion of pupils with special teaching	5.5	5.5	5.4	5.5	5.9
Proportion of pupils with special Norwegian-language teaching	5.5	5.7	5.8	6.1	6.4

Source: GSI

**Table 2.12: Special teaching. Scope and resource use in the municipalities.**

Proportion of pupils with special education	Average number of teacher hours for special teaching per pupil with special education
0-4	170
4-8	140
8-12	127
12->	104

Source: GSI

**Table 2.13: The number of pupils per PC and the number of pupils per PC with internet connection. Proportion of pupils and schools, 2006 – 2007.**

Number of pupils per PC	Proportion of pupils	Proportion of schools	Number of pupils per PC with internet connection	Proportion of pupils	Proportion of schools
No PC	0.3	0.5	No PC	0.7	1.3
0.1-2	2.4	9.2	0.1-2	1.9	6.9
2.1-3	8.7	15.5	2.1-3	6.8	12.1
3.1-4	16.2	18.2	3.1-4	13.8	15.8
4.1-5	19.5	17.6	4.1-5	15.7	14.9
5.1-6	15.3	11.7	5.1-6	15.1	12.6
6.1-7	11.9	8.7	6.1-7	10.4	8.5
7.1-8	7.7	5.6	7.1-8	7.9	6.3
8.1-9	4.9	3.5	8.1-9	6.2	4.4
9.1-10	4.5	3.1	9.1-10	5.1	3.8
Over 10	8.5	6	Over 10	16.1	13
NA	0.2	0.3	NA	0.2	0.3

Source: Østerby 2007

### Primary and lower secondary schools

Table 2.13 shows that virtually all primary and lower secondary schools had computers available for their pupils in 2006 – 2007 (Østerby 2007). Only 0.5 per cent of primary and lower secondary schools state that they do not have computers for their pupils, and this concerns 0.3 per cent of the total number of pupils.

Table 2.13 shows that around 43 per cent of primary and lower secondary schools have four pupils or fewer per computer. This amounts to 27.3 per cent of the total number of pupils. A total of 9.1 per cent of primary and lower secondary schools have more than nine pupils per computer, amounting to 13 per cent of the total number of pupils.

PC density has increased during the last three school years in all primary and lower secondary schools. In 2006 – 2007 there were 5.3 pupils per computer in primary schools (Østerby 2007). This is an improvement from 2004 – 2005 when the average was 7.1 pupils per computer. In 2006 – 2007 there were 4.2 pupils per computer in combined primary schools and lower secondary schools and 4.1 pupils per computer in lower secondary schools. This is an improvement from 2004 – 2005 when there were, respectively, 6.0 and 5.9 pupils per computer.

A total of 91 per cent of pupil computers are connected to the internet (Østerby 2007). This is an increase of 11 percentage points from the study in 2004 – 2005. Table 2.13 shows that 34.8 per cent of all primary and lower secondary schools have four or less pupils per computer with internet connection, and this amounts to 22.5 per cent of the total number of pupils. A total of 16.8 per cent of all primary and lower secondary schools have more than nine pupils per PC with internet connection. This is 21.2 per cent of the total number of pupils in primary and lower secondary schools.

In 2006 – 2007, there were 6.1 pupils per computer with internet connection in primary schools. In combined schools there were 4.6 pupils per computer with the internet, and in lower secondary schools there were 5.2 pupils per computer with the internet. In 2004 – 2005 the corresponding figures were, respectively, 9.5, 7.3 and 8.1 pupils per computer.

Table 2.14 shows that in primary and lower secondary schools in 2006 – 2007 there were 5.2 pupils per PC with an internet connection and 4.7 pupils per PC in total for all of Norway. This is an improvement from the previous school year, when there were 1.1 more pupils per PC with an internet connection and 0.7 more pupils per PC in total. There are large differences from one county to the next when it comes to PC density, and we see that Sogn og Fjordane county has the highest PC density while Østfold and Vestfold counties have the lowest.

Table 2.15 shows that in 2006 – 2007 the smallest municipalities have higher PC densities per pupil than the large and medium-sized municipalities. The medium-sized municipalities with low to medium expenditures and revenues have the highest number of pupils per PC, both with and without internet connection. High PC densities cover a small proportion of the total number of pupils in primary and lower secondary schools, while the largest proportion of the total number of pupils has the lowest PC density.

In 2006 – 2007, 626 full-time equivalents had been allocated for ICT managers in primary and lower secondary schools

**Table 2.14: Pupils per PC with an internet connection and pupils per PC in total by county in primary and lower secondary schools.**

	Pupils per PC with an internet connection 2005/2006	Pupils per PC with an internet connection 2006/2007	Pupils per PC in total 2005/2006	Pupils per PC in total 2006/2007
Norway	6.3	5.2	5.4	4.7
Østfold	7.0	6.0	6.4	5.7
Akershus	6.6	5.5	5.7	5.1
Oslo	5.0	4.3	4.6	4.1
Hedmark	6.2	5.0	5.4	4.7
Oppland	6.4	5.4	5.2	4.7
Buskerud	5.9	5.2	5.1	4.6
Vestfold	8.3	6.3	6.2	5.7
Telemark	6.1	5.0	5.3	4.5
Aust-Agder	7.6	5.6	6	4.9
Vest-Agder	6.9	5.2	5.9	4.7
Rogaland	6.0	5.0	5.4	4.7
Hordaland	7.3	5.9	5.8	5.1
Sogn og Fjordane	4.8	3.9	4.1	3.5
Møre og Romsdal	6.1	5.3	5.1	4.7
Sør-Trøndelag	7.0	5.9	5.8	5.2
Nord-Trøndelag	6.7	5.5	5.6	5.0
Nordland	6.5	5.3	5.2	4.6
Troms	5.5	4.1	4.4	3.7
Finnmark	5.6	4.8	4.7	4.4

Source: GSI

**Table 2.15: Pupils per PC in 16 different groups of municipalities, 2006 – 2007.**

	Pupils per PC with an internet connection	Pupils per PC in total	Proportion of pupils
All	5.2	4.7	100
Small municipalities with high expenditures and a high revenues	3.1	2.8	1.9
Small municipalities with medium to high expenditures	4.0	3.6	4.0
Small and medium-sized municipalities with medium to high revenues	4.6	4.1	7.5
Medium-sized municipalities with low to medium expenditures	5.4	4.7	16.9
Medium-sized municipalities with low to medium revenues	5.5	5.0	18.0
Large municipalities	5.5	5.1	32.8
The four largest cities	5.3	4.9	18.9

Source: GSI / Norwegian Directorate for Education and Training

(Østerby 2007).<sup>18</sup> This is an increase of 25 per cent from 2004 – 2005, and corresponds to an increase from 0.16 to 0.20 full-time equivalents on average per primary and lower secondary school, and from 0.08 to 0.1 full-time equivalents per 100 pupils. Central municipal resources may come in addition to this, depending on how municipalities arrange this. In primary schools, around 0.08 full-time equivalents have been allocated per 100 pupils, in lower secondary school this figure is 0.13 full-time equivalents, while in combined primary and lower secondary schools 0.13 full-time equivalents have been allocated per 100 pupils. The total increase is around 20 per cent.

### Upper secondary education

The Government has proposed that NOK 373 million be spent on free teaching aids in upper secondary education for the 2007 budget year, and in this way wants to facilitate for increased use of digital teaching aids (Proposition to Parliament no. 1 (2006–2007)). Of this NOK 373.3 million, NOK 287.4 million has been added to the framework subsidies of the county authorities as compensation for the additional expenses that will be incurred from introducing this scheme.<sup>19</sup> Due to this the Government has proposed a law that would lay down that the school owners are responsible for providing pupils in upper secondary education with the necessary printed teaching aids and digital equipment.<sup>20</sup> Moreover, pupils shall also receive an annual grant that is not means-tested from the Norwegian State Educational Loan Fund (Proposition to Parliament no. 16 ... *og ingen sto igjen* (... and none was left behind)). The grant has three levels amounting to between NOK 800 and NOK 2600 per year depending on the education programme. Apprentices and trainees are not included in this scheme. The plan calls for phasing in this scheme over a period of three years starting in the autumn of 2007.

18) The figure comprises time allocated to operation managers, for follow-up of school educational ICT activities, for service and miscellaneous.

19) <http://www.regjeringen.no/nb/dep/kd/pressemelder/pressemeldinger/2007/Regjeringen-sikker-elevene-gratis-laremi.html?id=461978> and <http://www.regjeringen.no/nb/dep/kd/Rydemappe/kd/norsk/tema/utdanning/grunnopplaering/Laremidler.html?id=414384>

20) In connection with the scheme calling for free teaching aids, the Norwegian State Educational Loan Fund shall help fund the expenses by giving pupils a non means-tested grant to help pay for pupil expenses for other teaching aids and necessary individual equipment. NOK 70.3 million has thus been allocated to the Norwegian State Educational Loan Fund (Proposition to Parliament no. 1 2006 – 2007).

21) Only includes publicly owned upper secondary schools, including technical schools and two folk high schools owned by the county authorities.

22) Data for primary and lower secondary schools are taken from GSI and KOSTRA (Østerby 2007).

**Table 2.16: The number per PC and the number of pupils per PC with internet connection in upper secondary education. Proportion of pupils and of schools in 2006 – 2007.**

Number of pupils per PC	Proportion of pupils	Proportion of schools	Number of pupils per PC with internet connection	Proportion of schools
0-1	8	12	0-1	12
1-2	41	43	1-2	43
2-3	28	26	2-3	26
3-4	13	11	3-4	11
4-5	7	5	4-5	5
5-6	2	2	5-6	2
6-7	0	0	6-7	0
7-8	0	0	7-8	0
8-9	2	1	8-9	1
Total	100	100	Total	100

Source: Østby 2007

A study carried out by the Steinar Østerby consultancy company compiled information about PC density in upper secondary schools in the 2006 – 2007 school year.<sup>21</sup> This was a follow-up of a similar study undertaken in 2004 – 2005. A total of 294 schools, or around 73 per cent of the schools in question, responded. Even if the data basis is slightly more uncertain than for primary and lower secondary schools<sup>22</sup>, the results are deemed adequate to give a picture of the situation in Norwegian public upper secondary schools.

In the 2006 – 2007 school year there were on average 1.83 pupils per PC in upper secondary education. Similar figures in 2004 – 2005 were 2.49 pupils per PC (Østerby 2007). Compared with primary and lower secondary schools the spread of PC density is far lower in upper secondary education, as around 92 per cent of the upper secondary schools, constituting around 90 per cent of the total number of pupils, have four or less pupils per PC (Table 2.16).

When it comes to connections to the internet and LANs, there is some uncertainty about the response rate and the quality of the responses. A total of 68 per cent of schools state that they are connected to a LAN, but there is reason to believe that this is too low, as 87 per cent of the schools state that their PCs are connected to the internet. In 2004 – 2005, 56 per cent of the schools stated that PCs were connected to the internet. In spite of the uncertainty concerning the figures, the results indicate that internet access is very common. If we combine the figures stating they are connected to a LAN with those connected to the internet, 90 per cent state either that all their

computers are connected to a LAN or that all their computers are connected to the internet. If we look at internet connections it is stated that a total of 96 per cent of the PCs are connected to the internet. In total for all upper secondary schools there are 1.92 pupils per PC with the internet. In 2004 – 2005 there were 2.56 pupils per PC.

The fourth and fifth columns in Table 2.16 show that 12 per cent of schools state that they have more PCs with the internet than pupils, so that the figure for pupils per PC is less than 1. Two years ago this only applied to 1 per cent of the schools (not shown here). Fifty-five per cent of schools have two or fewer pupils per PC with the internet, while about 3 per cent of schools have five to nine pupils per PC with the internet. In 2004 – 2005, only 25 per cent of schools had two or fewer pupils per PC with the internet and 8 per cent had five to nine pupils per PC (not shown in the table).

### 2.8 Norway's resource use in an international perspective

For several years running statistics from the OECD (Education at a Glance 2006) have shown that Norway is among the countries in the world spending the most money per pupil in primary and lower secondary schools and upper secondary schools. Adjusted for differences in purchasing power Norway spends 46 per cent more per pupil in primary school than the OECD average; 40 per cent more per pupil in lower secondary school and 63 per cent more per pupil in upper secondary education.

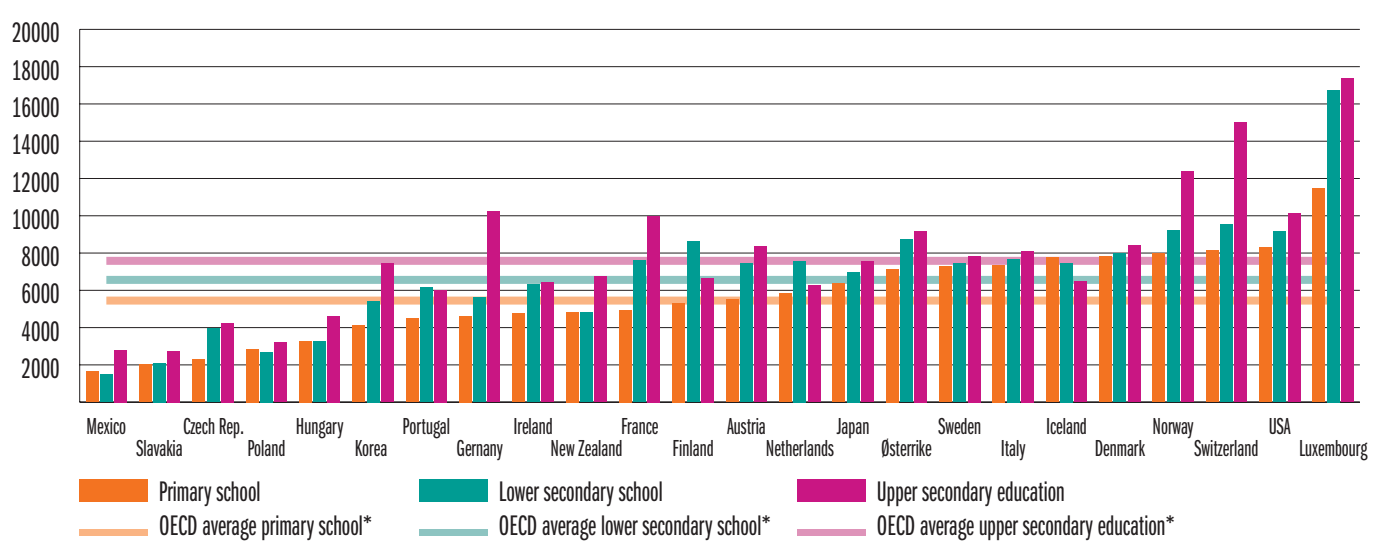
Figure 2.9 shows that Luxembourg, the USA, Switzerland and Norway are the countries spending most on primary, lower secondary and upper secondary schools in total. Luxembourg, the USA and Switzerland spend more money on primary school than what Norway does. On the lower secondary school level, Luxembourg and Switzerland spend slightly more per pupil than Norway and the USA, and this also applies to upper secondary education. If we consider Norway in relation to the other Nordic countries,

Denmark, Iceland and Sweden have relatively higher expenditures on primary, lower secondary and upper secondary schools compared to other countries, while Finland places in the middle in the OECD context. Iceland, Denmark and Sweden also have fairly similar average expenditure levels for primary, lower secondary and upper secondary education in total.

In almost all the OECD countries expenditures rise when moving from primary school to upper secondary education. This also applies to Norway, while the trend is the opposite in Iceland. In Denmark and Sweden the expenditure level is relatively the same in primary/lower secondary school and upper secondary school. Finland stands out clearly by having the by far largest expenditures in lower secondary school compared to primary school and upper secondary school.

Finding Norway, Denmark, Iceland and Sweden to the right in Figure 2.5 is generally explained by their having high teacher densities in an OECD context (Education at a Glance 2006). The OECD figures also show that Norwegian pupils have fewer teacher hours than all the countries with the exception of Finland. This may be because the proportion of a teacher's working day spent teaching is only at a medium level compared to other countries. Secondly, there is a tendency that countries with high national products, such as Norway, have higher expenditures on education measures in NOK per pupil compared to other countries. A supplemental measure expressing priority for education purposes compares expenditures per pupil in relation to GNP per inhabitant. For Norway, expenditures per pupil in primary school expressed as a percentage of GNP per inhabitant are at 21 per cent. The OECD average is 20 per cent. In comparison, Italy spends 28 per cent per pupil in relation to the GNP per inhabitant, Portugal 26 per cent and Denmark, Iceland, Poland and Sweden 25 per cent. This shows that even if Norway has high expenditures on schools, the OECD figures reveal that in comparison to other rich countries we do not spend that much per pupil in relation to the GNP per inhabitant.

**Figure 2.9: Expenditures per pupil in the OECD countries.**



\* The OECD average for primary and lower secondary schools and upper secondary schools comprises a total of six more countries than the 24 presented here. Source: Education at a Glance 2006

# 3 Learning dividends



**The aim of primary and lower secondary education is that pupils and apprentices shall acquire competence in a number of fields. Only a small part of pupil competence is documented in a way that enables it to be statistically reported on and researched as to what pupils learn from their education.**

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Increased learning dividends are a central goal for the Knowledge Promotion Reform. Developing skills in expressing oneself verbally and in writing, being able to read, do mathematics and use digital tools are special areas of focus in the reform (UFD 2004). Furthermore, importance is also attached to helping pupils develop social competence and good learning strategies.<sup>1</sup>

This chapter describes pupil learning dividends up to the last

year before the introduction of Knowledge Promotion. The chapter is generally based on grades from Year 10 in primary and lower secondary school and from the first, second and third year of upper secondary school and vocational training in upper secondary education. Results from the placement test in reading in Year 2 in primary school are also given. The chapter shows that there are minor changes in the level of grades achieved from one year to the next in primary and lower secondary school when it comes to overall achievement grades and final examination grades. The grade level is lowest in mathematics and highest in home economics. In subjects with no type of external assessment, the grade level is higher than in subjects with a written or oral final examination. The grade level is lower on the written final examination than on the overall achievement grade assessment.

Girls receive better overall achievement grades than boys in all subjects except physical education, but the differences appear to be less in written final examinations than for overall achievement grades. Pupils with parents with high education get better grades than others. The level of the parents' education is also an important background factor when considering the grade

1) Cf. Principles for the education in the Knowledge Promotion reform [http://www.udir.no/templates/udir/TM\\_Artikkel.aspx?id=2112](http://www.udir.no/templates/udir/TM_Artikkel.aspx?id=2112)

level for immigrant pupils. Many pupils with immigrant backgrounds have parents with little education.

However, the picture of immigrant pupils as having lower grades than others is not clear. There are major differences within the group, and it turns out that second-generation immigrants with Western backgrounds do better than pupils with Norwegian backgrounds in a number of subjects.

There are significantly smaller gender differences in grades in upper secondary school than in primary and lower secondary school, but gender differences are present here too. The difference is largest in health and social care. Far more boys than girls sit for craftsman's or journeyman's examinations, but there are small differences between boys and girls when it comes to the passing rate. In recent years the proportion that has passed has increased slightly.

### 3.1 Knowledge on pupil assessment

Pupil and apprentice assessment is based on the subject curricula, the regulations for the Education Act, guidelines for the craftsman's or journeyman's examinations, examinations, craftsman's or journeyman's examinations and placement tests and guidance material.

Pursuant to the regulations for the Education Act, pupils in primary and lower secondary school shall have continuous assessment and final assessment. The continuous assessment shall be given on an on-going basis to the pupil as guidance for his or her learning. The assessment shall promote learning, develop pupil competence and form the basis for adapted education. Continuous assessment may be given with and without a grade. The final assessment will provide information about the pupil's achievement level on completing primary and lower secondary education. The grades are to reflect the competence the pupil has achieved in the subject, and the assessment must be based on the competence aims in the subject curriculum.

#### Continuous assessment

In an analysis of the Norwegian education system, the OECD (2006) finds that there is a general absence of feedback to pupils. They find that the Norwegian school lacks assessment that is based on the subject requirements, related to the subject curriculum and that can be documented and furnished with grounds. The OECD points out that a school culture based on low expectations with respect to academic progress for pupils is most likely an important explanation for the relatively low skill level and the social reproduction of inequality in the Norwegian education system. In the evaluation of Reform 97, it was revealed that a culture has developed where teachers are reluctant to give realistic feedback on subject achievements to their pupils, particularly in primary school (Klette 2003, Haug 2003). A study of primary school nevertheless suggests that in recent years there has been growing interest among teachers in pupil assessment as an important element in the pupils' learning processes (Haugtveit et al. 2006).

A study of experiences with the early launch of a new curriculum (Bergem et al. 2006) shows that competence in individual assessment is the field where most teachers (65%) stated that they needed more training in connection with Knowledge Promotion, but they were not offered this. More than half of the school administrators expressed the same need for competence raising. Reports from the local and county authorities on the use of funds for competence raising in 2006 show, however, that almost half of the schools have initiated competence-raising measures focusing on individual assessment (see also Chapter 6.3). In the curriculum for Knowledge Promotion, greater attention is paid to learning dividends through the competence aims. This requires assessment of the degree of satisfaction of the aims for pupils. Many teachers believe that the reform leads to a greater focus on assessment (Bergem et al. 2006). This has therefore been picked as a national priority area for competence raising in 2007.

#### Final assessment

Overall achievement grades and grades from final examinations in primary and lower secondary schools and examinations and craftsman's or journeyman's examinations in upper secondary education constitute the final assessment. Equal and fair final assessment therefore requires the same perception of which competence is the basis for the various grades and for the passed grade in the craftsman's or journeyman's examination.

A study by the Swedish school administration authority *Skolverket* (2005) on grades in upper secondary school shows that many teachers are lagging behind when it comes to setting grades based on norms. Thus pupils receive grades that are relative to each other and not based on the learning objectives/competence aims as the system calls for in both Norway and Sweden. In an analysis of grade statistics for 2002 and 2003, Hægeland (2005) finds indications that teachers in Norway also give overall achievement grades in a relative manner, based on the composition of the pupil group. If a pupil has many co-pupils who perform well, she or he will be awarded a lower overall achievement grade compared to the final examination grade. Conversely, pupils are awarded a relatively high overall achievement grade if they have few co-pupils with a high final examination grade level. However, we have relatively limited knowledge on grade setting in Norway (Lauvås 2007). Lauvås designates the overall achievement grade as a privatised form of final assessment with very restricted insight from others.

#### Measures linked to individual assessment in schools and in trade and vocational education

The Ministry of Education and Research intends to introduce a comprehensive system of pupil assessment from the start of school in the autumn of 2009, and in this connection it has assigned the Norwegian Directorate for Education and Training the task of providing a better system for individual assessment. From 2007 to 2009 a number of measures will be implemented on the national level that should make the rules clearer, increase assessment competence on all levels, and initiate a more academically relevant and fair assessment practice, and a better

system for documentation of continuous assessment and final assessment of pupils. The Norwegian Directorate for Education and Training shall assess and propose changes if appropriate in the regulation for individual assessment, and shall introduce models showing how central provisions relating to individual assessment may be made more accessible for users. Broad pilot testing of different models will be initiated to ascertain what is characteristic of the attainment of aims in the various subjects. Pilot testing and development of new assessment tools and new guidance material will be carried out on the basis of assessment schemes already in use, and the schools shall have access to materials and experiences from the pilot testing. The Norwegian Directorate for Education and Training will also ensure that schemes and practices relating to final assessment are categorised and assessed, including the use of digital tools for continuous assessment and final assessment. The need for a common framework for examinations and craftsman's or journeyman's examinations shall be examined.

### 3.2 Grades in primary and lower secondary schools<sup>2</sup>

In primary and lower secondary school subjects, assessment of pupils starts in Year 8 using a grade scale ranging from one to six, where six is the best grade. Assessment of orderliness and conduct is not to be included in the assessment of the subjects.<sup>3</sup>

On completion of the ten years of primary and lower secondary school, overall achievement grades are given in eleven compulsory subjects, and all pupils in primary and lower secondary school must sit for two final examinations, one written and one oral. Overall achievement grades shall describe the broad competence of pupils based on the competence aims in the subject curriculum. The written final examination represents an assessment of a single written product by the pupil prepared in a limited period of time with restricted aids. During the oral final examination the pupil shall document his/her competence in a dialogue with an external examiner and his/her subject teacher, and the pupil may supplement and correct what is presented. Pupils may sit for oral examinations in pairs or in groups. Overall achievement grades and the results of written and oral final examinations are not necessarily the same for the individual pupil. What is assessed and the assessment situation differ. It is nevertheless important to monitor whether there appear to be systematic differences in setting grades between groups of pupils and schools.

Table 3.1 shows small changes in the overall achievement grade level from 2002 to 2006. There has been a minor increase of 0.1 grade points in most subjects. Such small changes will most often express random variations from one year to the next. However, major changes in the overall achievement grade cannot be interpreted as changes in the pupil's level of competence from one year to the next, as descriptions of the development of pupil competence levels over time require other types of studies. The table shows that the overall

**Table 3.1: Average overall achievement grades in primary and lower secondary school 2002–2006 by subject**

Subject	2002	2003	2004	2005	2006
Norwegian first-choice language and first language, written	3.8	3.8	3.8	3.9	3.9
Norwegian first-choice/second-choice language and first/second language, oral	4.0	4.0	4.0	4.1	4.1
Norwegian second-choice and second language, written	3.6	3.6	3.7	3.7	3.7
English oral	4.0	4.0	4.0	4.0	4.0
English written	3.7	3.7	3.7	3.8	3.8
Mathematics	3.4	3.5	3.4	3.5	3.4
Christianity, religion and ethics	3.9	4.0	4.0	3.9	4.0
Natural science and the environment	3.9	3.9	3.9	3.9	3.9
Social science	4.0	4.0	4.0	4.1	4.0
Physical education	4.3	4.3	4.4	4.4	4.4
Music	4.1	4.2	4.2	4.3	4.2
Home economics	4.3	4.3	4.3	4.4	4.4
Arts and crafts	4.2	4.2	4.2	4.2	4.2

Source: Norwegian Directorate for Education and Training

achievement grades are lowest in mathematics with an average of 3.4. In physical education and home economics the grade is on average one full grade higher. There is a general tendency that the overall achievement grade level is lowest in subjects where written final examinations are also given, as in Norwegian first-choice and second-choice language, English and mathematics. In subjects with oral final examinations the grade level is slightly higher, while the grade average is highest in subjects with no form of external assessment, such as physical education, music, home economics and arts and crafts. Variations in the grade level between different subjects thus cannot be interpreted as expressions of genuine variations in pupil competence in different subjects.

All pupils must sit for two final examinations, one written and one oral. Around 20 per cent are selected for written final examinations in the first-choice language/first language (generally Norwegian (there are two official Norwegian languages) but also Saami) and second-choice language/second language (generally Norwegian but also Saami, Finnish or sign language), around 40 per cent in English and around 40 per cent in mathematics. Final examination papers are prepared by the Norwegian Directorate for Education and Training and examined by examiners appointed by the county governors.

There have been small changes in the grade level in both oral and written final examinations from 2002 to 2006. A comparison of Table 3.1 and Table 3.2 shows that the grade level is lower on the written final examination than on the overall achievement. In 2006, pupil grades on average dropped the most in written second-choice language, by 0.4 grade points, and the least in English, by 0.2 grade points.

2) Some of the grades for previous years deviate from the figures shown in Utdanningsspillet 2005. This was caused by errors in last year's data.

3) Education Act Regulations <http://lovdata.no/for/sf/kd/td-20060623-0724-004.html>

**Table 3.2: Average grade on written final examinations in primary and lower secondary schools 2002–2006, by subject.**

Subject	2002	2003	2004	2005	2006
First-choice language and first language, written	3.6	3.6	3.7	3.6	3.6
Second-choice and second language, written	3.3	3.3	3.3	3.3	3.3
English written	3.5	3.5	3.6	3.6	3.6
Mathematics written	3.4	3.3	3.2	3.1	3.1

Source: Norwegian Directorate for Education and Training

The oral final examination is set locally. Pupils are selected for an oral examination in Norwegian first-choice/second-choice and first/second languages (generally Norwegian but also Saami or Finnish), English, mathematics, Christianity, religion and ethics (Norwegian acronym KRL), social studies and natural science and the environment. There is no final examination in the remaining subjects: arts and crafts, music, home economics, physical education and elective subjects.

**Table 3.3: Average grades on oral final examinations in primary and lower secondary school 2002–2006, by subject.**

Subject	2002	2003	2004	2005	2006
First-choice language and first/second language, oral	4.2	4.3	4.3	4.4	4.4
English oral	4.3	4.3	4.4	4.4	4.3
Mathematics oral	-	3.9	4.0	4.1	4.0
Christianity, religion and ethics	4.2	4.2	4.3	4.4	4.3
Social studies	4.2	4.2	4.3	4.3	4.3
Natural science and the environment	4.1	4.1	4.2	4.3	4.3

Source: Norwegian Directorate for Education and Training

Pupils on average receive better grades on their oral examinations than their overall achievement grade (Table 3.3). In 2006,

the difference was greatest in natural science and the environment, with an average increase on the oral final examination from the overall achievement grade of 0.4 grade points. The difference was 0.3 grade points in oral second-choice language and second language, Christianity, religion and ethics, and social studies.

### The grades awarded to boys and girls

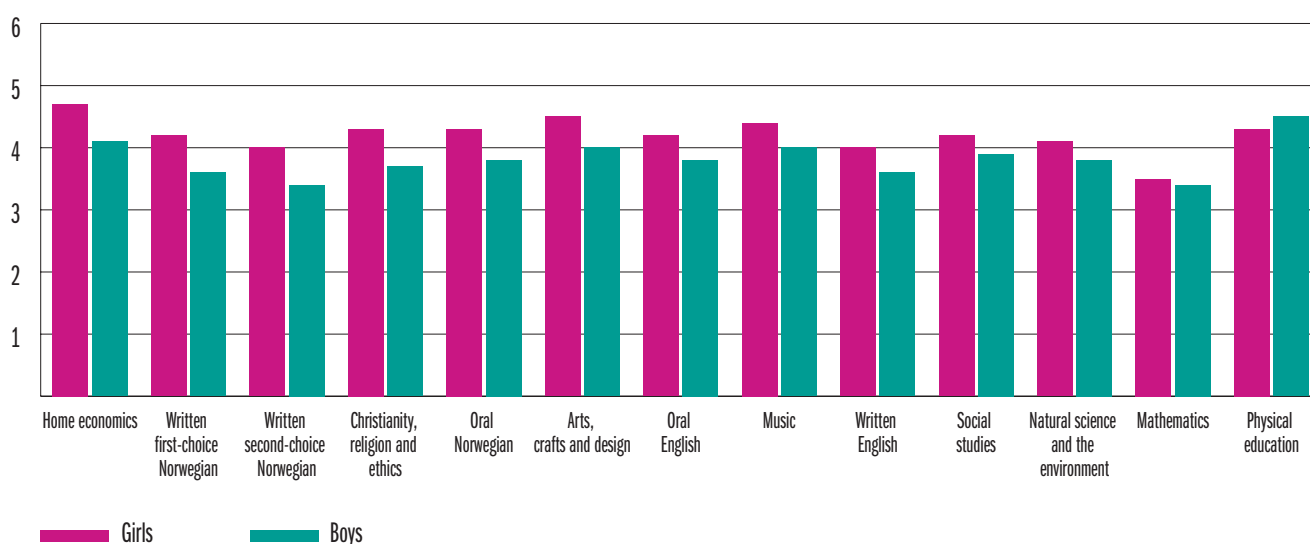
There are clear differences between the grades boys and girls are awarded when it comes to overall achievement grades and final examination grades. Girls on average are awarded better overall achievement grades than boys in all subjects except physical education. The overall achievement grade for boys in physical education is on average 0.2 grade points higher than for girls. The differences between girls and boys are greatest in home economics, Christianity, religion and ethics and written Norwegian first-choice and second-choice language. In these subjects girls are on average 0.6 grade points higher than boys. The differences are smallest in mathematics where girls on average are 0.1 grade points higher than boys.

The differences between girls and boys appear to be slightly less on the written final examination than the overall achievement grade. Boys and girls achieve the same grade on average on the written final examination in mathematics. In the other subjects girls receive slightly higher grades. The differences are greatest in the Norwegian subjects and Christianity, religion and ethics, where girls on average are 0.5 grade points higher than boys. The statistics do not provide the basis for offering an explanation as to why this is the case.

### Grades according to social background

Pupils with parents who have a high education are on average awarded better grades than pupils with parents who have less education. Such differences occur in most countries. Interna-

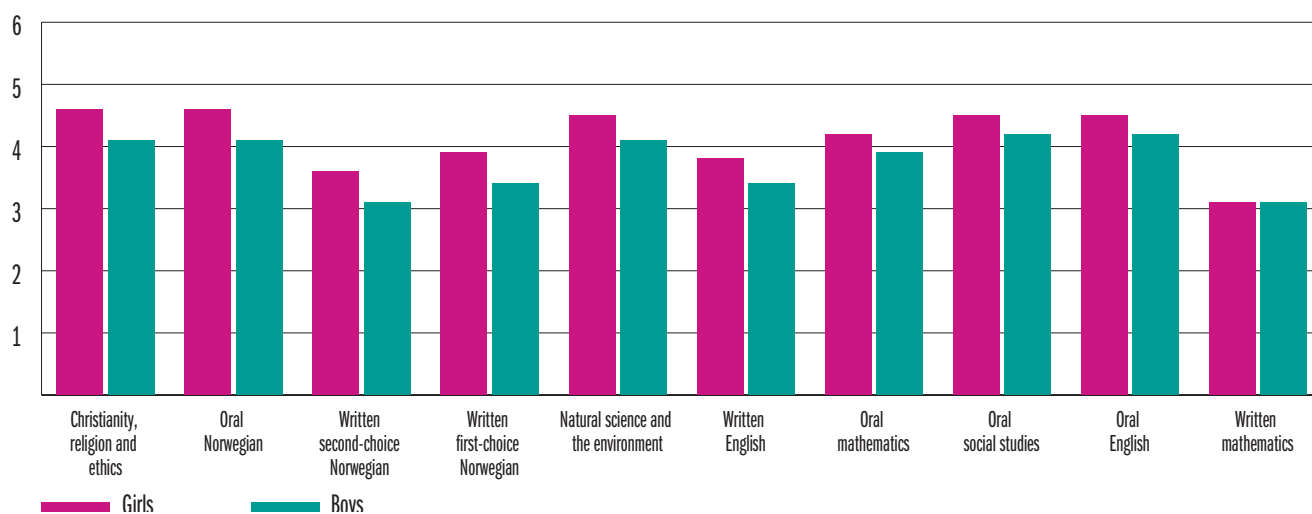
**Figure 3.1: The average grade girls and boys are awarded as overall achievement grades in primary and lower secondary schools in 2006, by subject.**



Source: Norwegian Directorate for Education and Training



**Figure 3.2 Average of grades awarded to girls and boys on the final examinations in primary and lower secondary schools in 2006, by subject.**



Source: Norwegian Directorate for Education and Training

tional comparisons nevertheless show that a number of countries have greater success than Norway in social levelling within the education system (Ministry of Education and Research 2006). Therefore Report to Parliament 16 (2006-2007) “... og ingen sto igjen”, proposes a number of measures that will enable the education system to contribute more to social levelling. The report emphasises that measures should be implemented as soon as possible when problems and challenges have been discovered.

Table 3.4 shows differences in average grades according to the education level of parents. The table shows that the greatest differences are in the average grades for mathematics. The average difference in the overall achievement grade between pupils with parents whose highest education level is primary and lower secondary school and pupils with parents with more than four years of higher education is quite large – 1.7 grade points. The difference is less on the final examination in mathematics, on average 1.5 grade points. The smallest difference relating to the education level of the parents is Norwegian first-choice language, where the difference on average is 1.2 grade points for both the overall achievement grade and the final examination grade.

### Grades according to immigrant background

Both Norwegian and international studies show that immigrant pupils as a group on average score lower than pupils with a Norwegian background. However, the differences are reduced dramatically if we include the fact that minority-language pupils, both first and second-generation immigrants, on average have parents with less education and come from families with less financial resources than the majority of pupils. The absence of competence and low expectations on the part of teachers may also contribute to slow progression for some minority-language pupils (Ministry of Knowledge and Research 2007).

Table 3.5 shows the average grades according to the immigrant backgrounds of pupils. A first-generation immigrant is a person born abroad of two parents born abroad. Second-generation immigrants are born in Norway of two parents born abroad. The table also distinguishes between immigrants with Western and non-Western backgrounds. The table shows that in the group of pupils with immigrant backgrounds there are large differences based on the immigrant backgrounds the pupils have. Pupils who are second-generation immigrants with Western backgrounds achieve better grades than pupils with Norwegian

**Table 3.4: Average grades: overall achievement grade and the final examination for pupils leaving primary and lower secondary school in 2006 in Norwegian first-choice language, English and mathematics, according to the education level of parents.**

Highest education level of the parents:	Norwegian first-choice language		English		Mathematics	
	Overall achievement grade	Final examination	Overall achievement grade	Final examination	Overall achievement grade	Final examination
Primary and lower secondary school	3.3	3.0	3.1	3.0	2.6	2.4
1-2 years of upper secondary education	3.5	3.3	3.3	3.2	2.9	2.6
Completed upper secondary education (3-4 years)	3.7	3.5	3.6	3.5	3.3	2.9
Intermediate education	3.9	3.6	3.8	3.6	3.5	3.1
Higher education (1-4 years)	4.2	3.9	4.1	3.9	3.8	3.4
Higher education, more than 4 years	4.5	4.2	4.5	4.3	4.3	3.9

Source: Hægeland et al. 2007

**Table 3.5 Average overall achievement grade and final examination grade in written subjects according to immigrant background for pupils leaving primary and lower secondary school. 2006.**

Immigrant background	Norwegian first-choice language		English		Mathematics	
	Overall achievement grade	Final examination	Overall achievement grade	Final examination	Overall achievement grade	Final examination
Norwegian background	3.9	3.7	3.8	3.7	3.5	3.1
First-generation immigrant, Western background	3.8	3.4	3.8	3.7	3.5	3.2
Second-generation immigrant, Western background	4.0	3.8	4.2	4.4	3.6	3.3
First-generation immigrant, non-Western background	3.3	3.0	3.1	3.0	2.8	2.5
Second-generation immigrant, non-Western background	3.6	3.4	3.5	3.4	3.1	2.7

Source: Hægeland et al. 2007

backgrounds in all the subjects studied. The difference is particularly large in the English final examination, where second-generation immigrant pupils with Western backgrounds achieve 0.7 grade points more than pupils with Norwegian backgrounds. Pupils with non-Western immigrant backgrounds get significantly lower grades than pupils with Norwegian backgrounds, but pupils who are second-generation immigrants with non-Western backgrounds get better grades than pupils who are first-generation immigrants.

### Pupil grades in independent primary and lower secondary schools

Table 3.6 shows average overall achievement grades and final examination grades in Norwegian first-choice language, English and mathematics for pupils in public and independent schools. The grade level is generally higher in independent schools. A study of pupil results in public and independent schools (Bonesrønning et al. 2005) discusses various reasons for this in the light of other differences between public and independent schools. The study refers to how independent schools have greater teacher density than public schools, but that teacher density explains very little of the achievement differences. One might be tempted to find the reason in teacher quality. However, independent schools have far more teachers without approved pedagogical education, but a larger proportion of their teachers have university degrees. The achievement differences vary substantially according to differences in the home backgrounds of the pupils. Pupils in independent schools more often have parents with a high education, and as we have seen in the preceding sections, pupils with parents who have high education

on average get better grades than other pupils in both public and independent schools. Nevertheless, an independent school effect remains even if results are controlled for family background, and this is more difficult to explain.

When it comes to the relation between overall achievement grades and final examination grades, we see that the differences are greatest in public schools in the subjects of Norwegian first-choice language and English. Pupils in independent schools on average achieve the same grade for their overall achievement grade as for the final examination in Norwegian, while the grades for pupils in public schools on average drop 0.3 grade points. In English, pupils in public schools on average drop 0.2 grade points on their final examination, while pupils in independent schools on average drop 0.1 grade points. In mathematics, the difference is greatest in independent schools. Pupils in independent schools in 2006 on average dropped as much as 0.5 grade points from the overall achievement grade to the final examination, while pupils in public schools dropped 0.3 grade points.

Table 3.7 shows that the overall achievement grades on average are higher in independent schools than in public schools, also in subjects such as social studies, natural science and the environment, Christianity, religion and ethics, physical education, arts and crafts and music.

### Orderliness grades

The grade scale for orderliness and conduct is different to the subject grade scale. Section 3-9 of the Education Act regulations states that:

**Table 3.6: Average overall achievement grades and final examination grades for pupils leaving primary and lower secondary school in 2006 in independent and public schools in Norwegian first-choice language, English and mathematics.**

	Norwegian first-choice language		English		Mathematics	
	Overall achievement grade	Final examination	Overall achievement grade	Final examination	Overall achievement grade	Final examination
Public schools	3.9	3.6	3.8	3.6	3.4	3.1
Independent schools*	4.2	4.2	4.3	4.2	4.0	3.5

\* The figures are based on figures from the Norwegian Directorate for Education and Training, where only the schools with a sufficiently high number of pupils are included. The figures may therefore deviate slightly from figures based on results from all the independent schools. Source: Norwegian Directorate for Education and Training

**Table 3.7: Average overall achievement grades in selected subjects for pupils leaving primary and lower secondary public and independent schools in 2006.**

	Social studies	Natural science and the environment	Christianity, religion and ethics	Physical education	Arts and crafts	Music
Public schools	4.0	3.9	4.0	4.4	4.2	4.2
Independent schools*	4.5	4.3	4.5	4.7	4.6	4.5

The figures are based on figures from the Norwegian Directorate for Education and Training, where only the schools with a sufficiently high number of pupils are included. The figures may therefore deviate slightly from figures based on results from all the independent schools. Source: Norwegian Directorate for Education and Training

One of the following grades must be used for orderliness and conduct:

- Good (G) Normal good orderliness and normal good conduct
- Fair (Ng) Clear deviations from normal good orderliness and from normal conduct
- Poor (Lg) In extraordinary cases, major deviations from normal orderliness and normal conduct

When setting orderliness grades the regulations state that consideration must be given to whether the pupil exhibits normal good work efforts and to how the pupil complies with the rules for orderliness that are stipulated at each individual school. There are no publishable data for conduct grades, but the following shows orderliness grades by county.

Table 3.8 shows that the large majority of pupils receive the grade "Good" in orderliness in all the counties. Sogn og Fjordane stands out with the highest proportion of pupils with Good in orderliness. Finnmark is the county where the highest number of pupils has a lower grade than good in orderliness. Around 23 per cent of pupils in Finnmark have a lower grade than good. Vestfold, Aust-Agder, Troms, Telemark and Oslo also have a high proportion of pupils

**Table 3.8 Orderliness grades for pupils leaving primary and lower secondary schools in 2006, by county.**

	Good	Fair	Poor
Østfold	9.9	6.2	1.8
Akershus	87.3	10.7	1.9
Oslo	84.0	12.2	3.8
Hedmark	86.0	11.9	2.2
Oppland	90.6	8.3	1.1
Buskerud	86.9	11.3	1.8
Vestfold	80.2	14.2	5.6
Telemark	84.0	12.4	3.6
Aust-Agder	81.0	15.7	3.3
Vest-Agder	85.8	11.6	2.6
Rogaland	87.3	9.8	2.9
Hordaland	88.2	10.5	1.3
Sogn og Fjordane	93.7	5.8	0.4
Møre og Romsdal	87.7	10.3	1.9
Sør-Trøndelag	90.8	7.7	1.4
Nord-Trøndelag	87.3	10.9	1.8
Nordland	85.3	12.0	2.7
Troms	81.4	14.4	4.2
Finnmark	77.3	17.3	5.3

Source: Norwegian Directorate for Education and Training

with a lower grade than good, the proportion being above 15 per cent in all these counties. The proportion of pupils with the grade poor is highest in Vestfold and lowest in Sogn og Fjordane.

### Primary and lower secondary school points

Primary and lower secondary school points are calculated as the sum of pupil grades in eleven subjects. When a pupil has both an overall achievement grade and a final examination grade the subject grade is the average of these two grades. If a pupil lacks a grade in some subjects, points are calculated for up to two subjects based on the average grade in the subjects the pupil has grades in.

**Table 3.9 Primary and lower secondary school points for all pupils, by gender in 2002–2006 \***

Year	All pupils	Girls	Boys
2002	43.4	45.7	41.2
2003	43.8	46.1	41.6
2004	44.1	46.2	42.0
2005	44.3**	46.3	42.3
2006	44.2	46.4	42.2

\*Applies to pupils in schools that have reported their grades. The number of pupils is slightly low in the grade statistics for 2003 in relation to the number of pupils. This is due to changes in statistics methodology in VIGO. Nothing indicates that this would influence the results on the national level.

\*\*The figure for 2005 deviates from the figure given in *Utdanningsspeilet* 2005 because of a calculation error in last year's calculations

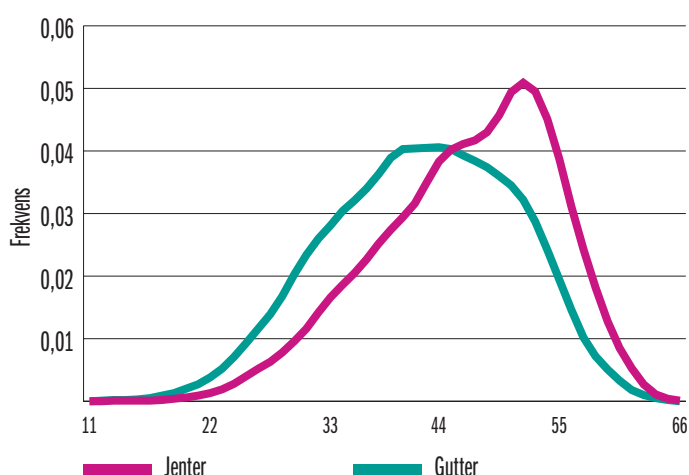
Source: Hægeland et al. 2007

Table 3.9: shows that the average of primary and lower secondary school points attained has increased slightly from 2002 to 2006. From 2005 to 2006 the average total of primary and lower secondary school points has declined by 0.1 points. Girls on average achieve 4.2 more points than boys. The total of primary and lower secondary school points for boys has, however, increased most during the 2002 to 2006 period. This means that the differences between girls and boys have decreased slightly.

Figure 3.3 shows the distribution of primary and lower secondary school points among girls and boys. Among girls there is a far higher proportion receiving a high points score (more than 50 points). The distribution among boys is more equal. The majority of boys has point scores around 40.

A multivariate regression analysis enables us to examine the effect of individual factors (for example gender) in relation to the other factors in the analysis. A multivariate regression

**Figure 3.3 Distribution of girls and boys' primary and lower secondary school points, 2006**



Source: Hægeland et al. 2007

analysis of primary and lower secondary school points for pupils, considered together with background characteristics such as gender, the highest education level of the parents, immigrant background, whether the parents live together and whether the pupil attends an independent school or not, shows that girls on average are awarded 4.4 more primary and lower secondary school points than boys, given that the other factors included in the analysis are constant. Similarly pupils who have parents with higher education are awarded almost eight more points than pupils whose parents have upper secondary education as their highest education level. Pupils whose parents live together on average receive three primary and lower secondary school points more than pupils whose parents are separated, while pupils in independent schools on average receive two points more than pupils in public schools.

When it comes to immigrant background, the analysis shows that pupils who are first generation non-Western immigrants on average receive almost six primary and lower secondary school points less than pupils with ethnic Norwegian backgrounds. Pupils who are second generation non-Western immigrants on average receive almost two points less. In Table 3.5 we saw that pupils who are second-generation Western immigrants get the best results in the selected subjects. The regression analysis shows that both first- and second-generation Western immigrants receive more primary and lower secondary school points than ethnic Norwegian pupils. The best results are, however, received by pupils who are first-generation immigrants. The reason that the effect of immigrant backgrounds is different in Table 3.5 and in the regression analysis is that pupils who are second-generation Western immigrants have a more favourable family background in relation to the other characteristics included in the analysis. The group of pupils who are second-generation Western immigrants is nevertheless small, so the estimates are uncertain.

### 3.3 Results of cataloguing reading skills in Year 2

The Strategy to Stimulate Reading Skills and Reading Pleasure (2003-2007) is continuing the cataloguing of basic skills for good reading development in Year 2. Starting in the 2006-2007 school year, schools are obliged to carry out this test.

The test to determine reading skills in Year 2 was developed on the basis of the objective that it should function as an educational tool. In addition to identifying pupils with poor reading skills it should also point out some key requirements for developing reading skills, and give teachers and schools advice and ideas on how to facilitate adapted reading instruction (Engen 1999; 2001; Solheim 1995). To pinpoint pupils needing extra attention, a boundary was set to distinguish the fifth of the pupils whose reading skills were poorest compared to the rest of the pupils. Pupils scoring on or below this boundary have skill levels that give cause for concern. Results for individual pupils must nevertheless be interpreted in the light of several other factors than only the test score. These tests were thus not developed to grade the reading performance of pupils who have good reading development.

Since 2000 there has been a clear reduction in the number of pupils who achieve results on or below the above-mentioned boundary, and the percentage with only correct test answers is now higher than in 2000. From 2005 to 2006 there are minor changes in the results of the test. Table 3.10 shows the results in 2006 for boys and girls.

**Table 3.10 Results from the reading skills test in Year 2, 2006. Boys and girls.**

	Percentage on/below boundary			Percentage with only correct answers		
	Boys	Girls	Sign.	Boys	Girls	Sign.
Count sounds in words	11	5	*	60	74	*
Recognise letters	13	8	*	61	70	*
From sound to letter	14	8	*	65	77	*
Word dictation	10	5	*	30	46	*
From word to picture	12	3	*	43	54	*
From picture to word	15	9	*	23	27	*
Reading sentences	15	8	*	28	36	*
Instructions	25	13	*	26	37	*

\* indicates significant differences of  $p < 0.5$ .  
Source: Engen et al. (2007)

Girls on average score higher than boys in all the sub-areas in the test. The percentage of boys scoring on or below the boundary for concern is higher than among girls on all the tests. All the differences are significant. The difference between girls and boys is in accordance with results from previous years.

The results show that the test no longer adequately captures pupils in the risk zone, and that there is too little differentiation to adapt the teaching to all the pupils. The reading test for Year 2 is therefore being reviewed and changed. It will become a test that is better adapted to the new subject curricula and to the develop-

ment in the reading-skills level of the pupils. The new version of the test will be ready for the 2007-2008 school year.

No national tests were held in 2006. New tests will be given in the autumn of 2007. Chapter 6 deals with the new national tests in more detail.

### 3.4 Grades in upper secondary school

Pupils in upper secondary education receive overall achievement grades on completion of each school year, and receive examination grades if selected for an examination. The grades shall express the achievement of the competence aims in relation to the subject-specific curricula. Starting in the autumn of 2006 the grade scale uses 1 as the lowest grade and six is the highest grade. However, the grades presented in this chapter are based on the previous scale which ranged from 0 to 6. The grade 2 or better is a passing grade. Some subjects have a centrally prepared examination. In other subjects the county authorities or individual schools prepare the examination papers and have them assessed locally.

An analysis from Statistics Norway (Hægeland et al. 2005b) shows that there is a strong relationship between grades from primary and lower secondary school and grades in corresponding subjects in upper secondary school. There are, however, differences between general studies areas of study and vocational areas of study. Among pupils taking general studies areas of study a substantial number drop one or two grades in comparable subjects, and far fewer receive better grades. Among pupils in vocational areas of study, approximately the same number or more pupils receive better grades in upper secondary school than they received in primary and lower secondary school.

#### Foundation course overall achievement grade and examination assessment

Table 3.11 shows that the examination grade in English has remained relatively stable in recent years. There is, however, a relatively large difference between overall achievement grades and the examination grade in English. In 2006, pupils dropped on average 0.6 grade points from their overall achievement grade on the examination grade.

**Table 3.11: Average grade in mathematics and English on examination with central assessment for foundation courses in general studies preparing for higher education, 2002- 2006, and overall achievement grade 2006.**

Foundation course subject:	Central assessment:					Overall achievement grade: 2006
	2002	2003	2004	2005	2006	
English	3.5	3.3	3.2	3.2	3.3	3.9
Mathematics 1MX	3.4	3.6	3.6	3.8	4.0	4.0
Mathematics 1MY	2.2	2.6	2.6	2.4	2.6	2.8

Source: Norwegian Directorate for Education and Training /VIGO

In mathematics there are smaller differences between the overall achievement grade and the examination grade. There is, however, a clear difference in the levels of overall achievement grades in the two subjects 1MX and 1MY. While the grade level on average is 4.0 in 1MX, it is only 2.6 in 1MY. The 1MX and 1MY subjects no longer exist after the introduction of the Knowledge Promotion Reform. However, it was common to teach pupils together during the first term in the foundation course, thereafter choosing whether to continue with 1MX or 1MY. Pupils taking 1MY often did not intend to go further in the subject. Pupils taking 1MX conversely often chose to continue with mathematics and other subjects requiring mathematical skills. This difference in the interest in mathematics most likely explains much of the differences in the grade level. An analysis from Statistics Norway (Hægeland et al. 2007b) also shows that the pupils who chose 1MX had a significantly higher mathematics grade from primary and lower secondary school than those who chose 1MY.

**Table 3.12: Average overall achievement and central assessment grades in mathematics and English in the foundation course in general studies preparing for higher education, 2005 – 2006, girls and boys.**

Foundation course subject	Overall achievement grade				Central assessment			
	Girls		Boys		Girls		Boys	
	2005	2006	2005	2006	2005	2006	2005	2006
English	4.0	4.0	3.8	3.8	3.1	3.2	3.2	3.3
Mathematics 1MX	3.9	4.0	3.8	3.9	3.7	4.0	3.8	4.0
Mathematics 1MY	2.9	2.9	2.7	2.6	2.5	2.6	2.3	2.4

Source: Norwegian Directorate for Education and Training /VIGO

Table 3.12 and Table 3.13 show the results for boys and girls in selected subjects in the foundation course qualifying for higher education and the foundation course for vocational programmes. The tables show that after completing the foundation course there are relatively minor grade differences between girls and boys in the common subjects. Hægeland et al. (2006) find that gender differences generally are smaller in upper secondary school than in primary and lower secondary school. This applies to most subjects that may be compared to subjects from primary and lower secondary school. The reason for this is most likely related to the fact that there is some degree of selection when it comes to the various areas of study, and that the admission requirements are the same for both genders. If pupils with the same grade levels from primary and lower secondary schools tend to attend the same area of study in upper secondary school, boys and girls in the same area of study will be more “equal” with regard to grade level than what was the case in primary and lower secondary school, even if no levelling between the groups has been undertaken (Hægeland et al. 2006).

Even if gender differences are smaller in upper secondary school than in primary and lower secondary school, there are still differences between the results of boys and girls in upper secondary school. Table 3.12 shows that girls have better

**Table 3.13 Average overall achievement grades in selected subjects in the foundation course of vocational programmes, 2005 and 2006. Girls and boys.**

Foundation course subjects:	Total		Girls		Boys	
	2005	2006	2005	2006	2005	2006
Overall achievement grade						
English	3.4	3.4	3.5	3.5	3.3	3.3
Mathematics 1M	3.1	3.1	3.2	3.2	3.1	3.1
Written Norwegian	3.4	3.4	3.7	3.7	3.2	3.3
Electricity	3.3	3.4	3.4	3.3	3.3	3.4
Electronics	3.2	3.2	3.2	3.3	3.2	3.2
Health subjects	3.6	3.6	3.7	3.7	3.1	3.1
Social subjects	3.6	3.6	3.7	3.7	3.1	3.1
Food processing and preservation	3.6	3.6	3.8	3.7	3.4	3.3
Food and nutrition	3.3	3.2	3.6	3.4	3.1	3.0
Media design	4.2	4.2	4.4	4.4	4.0	4.1
Media production	4.3	4.3	4.4	4.4	4.2	4.2
Wooden structures	3.7	3.7	3.5	3.7	3.7	3.7
Bricklaying, stone and concrete	3.7	3.7	3.6	3.9	3.7	3.7
Assembly and repair	3.4	3.4	3.3	3.5	3.4	3.4

Source: Norwegian Directorate for Education and Training /VIGO

overall achievement grades in 2006 in all subjects except electricity. The gender differences are greatest in the subjects of health and social care, where girls on average are 0.6 grade points higher than boys.

The grade level in the selected subjects in various foundation courses varied little from 2005 to 2006. Table 3.13 shows that the grade level in the selected subjects is highest in the subjects of media design and media production, and lowest in mathematics 1M.

That the grade level varies between subjects in different foundation courses may relate to some degree to pupils' grades from primary and lower secondary school. An analysis from the Centre for Economic Research (Byhagen et al. 2006) showed that the average grade from primary and lower secondary school varied from 4.7 among pupils attending the music, dance and drama foundation course to 3.0 in the foundation course for woodworking and metalworking in the autumn of 2002. The study showed that pupils in areas of study preparing for higher education, in addition to pupils in media and communication, had the highest average grades from primary and lower secondary school, while pupils in vocational areas of study such as Technical building and construction, metalworking and wood processing had the lowest grades. Bearing in mind what might be expected, we see in Table 3.12 that the grade level is highest in the media subjects. Technical building and construction, metalworking and wood processing do not appear, however, to stand out with a particularly low grade level. The lowest subject grades appear to occur in electricity and electronics and food and nutrition. It is, however, important to bear in mind that the table only shows results for individual subjects in the various areas of study. It does not say anything about the total achievement level.

The results from local assessments after a completed foundation course (Table 3.14) show that the grade level on examinations is lower than the overall achievement grades (Table 3.12). The difference is particularly noticeable in health, where the difference between the average overall achievement grade and the examination grade is as much as 0.8 grade points. This is a trend that has been with us for quite some time. In 2004 and 2005 the difference between the average overall achievement grade and examination grade in health was 0.7 grade points (*Utdanningsspeilet* 2005). In health, gender differences are just as large with the local and overall achievement grades. However, in social care, the difference in examination grades between girls and boys is only 0.2 grade points, compared to 0.6 for the overall achievement grade.

**Table 3.14: Average grades locally assessed/ examinations for selected subjects in the foundation course vocational programmes, 2005 and 2006, girls and boys.**

Foundation course subject:	Local assessment					
	Total		Girls		Boys	
	2005	2006	2005	2006	2005	2006
Mathematics 1M	2.9	2.8	2.9	2.8	2.9	2.9
Electricity	3.0	2.9	3.1	2.7	3.0	2.9
Electronics	2.8	2.6	2.8	2.5	2.8	2.6
Health	2.7	2.8	2.8	2.9	2.3	2.3
Social care	2.8	3.0	2.9	3.0	2.3	2.8

Source: Norwegian Directorate for Education and Training /VIGO

### Advanced course II (VK II), the third year in upper secondary school, overall achievement grades and examination grades

Table 3.15 shows the average grades in overall achievement and for central assessment/examinations in selected subjects on the VK II level (Year 3 in upper secondary school, formerly referred to as Advanced Course II) from areas of study preparing for higher education in 2005 and 2006. The table shows that there have been minor changes in the grade level from 2005 to 2006.

After completing VK II the grade level is also lower on the written examination (Table 3.15) than for the overall achievement grade (Table 3.14). The largest difference between the overall achievement grade and central assessment is in the English II subject. In this subject pupils received on average 0.7 grade points lower on their examination than what they had for their overall achievement grades.

### Orderliness grades

The grade scale for orderliness is the same in upper secondary school as in primary and lower secondary school. Compared to Table 3.8, showing orderliness grades for pupils leaving primary and lower secondary school, Table 3.17 shows that a larger proportion of pupils in upper secondary education achieve the grade "Good" in orderliness. The proportion with the grade

**Table 3.15: Average overall achievement grades and central assessment/examinations in selected subjects in advanced course II areas of study preparing for higher education, 2005 and 2006.**

Subject Year 3	Overall achievement grade		Central assessment	
	2005	2006	2005	2006
	Written Norwegian first choice	3.7	3.7	3.3
Written Norwegian second choice language	3.4	3.5	3.1	3.1
Written English II (alt. A)	3.9	3.9	3.3	3.2
Written physics 3FY	4.0	4.0	3.6	3.6
Written chemistry 3KJ	4.1	4.0	3.6	3.4
Written biology 3BI	3.9	3.9	3.3	3.4
Written social studies (3SK-A)	3.8	3.8	3.5	3.3
Written social studies (3SK-B)	3.8	3.8	3.4	3.3
Written mathematics 3MX	4.0	3.9	3.5	3.4
Written mathematics 3MY	3.6	3.5	3.2	3.1

Source: Norwegian Directorate for Education and Training /VIGO

**Table 3.16 Average grades with central assessment/examinations in selected subjects in advanced course II areas of study preparing for higher education, 2005 and 2006, girls and boys.**

Subject Year 3	Girls		Boys	
	2005	2006	2005	2006
	Written Norwegian first choice	3.4	3.4	3.2
Written Norwegian second choice language	3.2	3.3	3.0	3.0
Written English II (alt. A)	3.3	3.2	3.3	3.1
Written physics 3FY	3.6	3.8	3.5	3.5
Chemistry 3KJ	3.7	3.4	3.6	3.4
Biology 3BI	3.3	3.4	3.2	3.2
Social studies (3SK-A)	3.5	3.4	3.4	3.1
Social studies (3SK-B)	3.5	3.4	3.1	3.1
Mathematics 3MX	3.7	3.5	3.2	3.3
Mathematics 3MY	3.3	3.3	3.0	2.8

Source: Norwegian Directorate for Education and Training /VIGO

“Good” is largest in Møre og Romsdal county. Nordland county has the largest proportion of pupils with orderliness grades lower than “Good”. More than 10 per cent of the pupils in such counties as Oslo, Troms, Finnmark, Østfold, Nord-Trøndelag, Sør-Trøndelag and Vestfold also have a lower grade than “Good”. The proportion of pupils with the grade “Poor” in orderliness is largest in Troms county and lowest in Hedmark county.

### 3.5 Results from vocational education

Vocational education is completed when the apprentice/trainee sits for a craftsman’s or journeyman’s examination/competence examination in his or her subject.<sup>4</sup> This sub-chapter presents results from the craftsman’s/journeyman’s examinations for apprentices as indicators of learning dividends, as there are no grades for apprentices. Chapter 5 explains completion of upper secondary education in more detail.

4) In the vocational education referred to here the two last years normally are taken with a company. Other vocational education which is taken completely in a school has not been included.

**Table 3.17 Orderliness grades in upper secondary school, all three years.**

	Good	Fair	Poor
Østfold	89.0	8.6	2.4
Akershus	91.9	6.3	1.8
Oslo	84.9	12.7	2.3
Hedmark	93.1	6.2	0.6
Oppland	91.3	6.8	1.9
Buskerud	93.6	5.5	0.9
Vestfold	89.7	8.6	1.7
Telemark	93.2	6.0	0.8
Aust-Agder	92.7	5.9	1.4
Vest-Agder	92.6	5.6	1.8
Rogaland	91.4	6.5	2.1
Hordaland	93.9	5.2	0.9
Sogn og Fjordane	93.2	5.8	1.0
Møre og Romsdal	94.5	4.5	1.1
Sør-Trøndelag	89.5	7.9	2.5
Nord-Trøndelag	89.1	9.0	1.9
Nordland	84.3	13.2	2.5
Troms	87.3	9.8	2.9
Finnmark	88.9	9.6	1.5

Source: Norwegian Directorate for Education and Training /VIGO

For their craftsman’s or journeyman’s examinations apprentices may receive the results “passed with excellence”, “passed” or “failed”. The reports to VIGO do not provide the basis for distinguishing between those who have received “passed with excellence” and those who have “passed” for all counties. For this reason only the proportion is presented that has passed in total.

Table 3.18 shows that the number who sit for craftsman’s or journeyman’s examinations has remained approximately unchanged over the last three years, but with a minor decline from 2005 to 2006 in the number sitting for examinations. The proportion passing has increased slightly. From 2001 to 2006 a lower number of candidates have sat for the examinations. This is generally due to the fact that there are fewer candidates than previously.

**Table 3.18: The number who have passed craftsman’s or journeyman’s examinations 2001-2006, and the proportion in per cent of those who sat for the examinations and passed.**

Year	Number who sat for examinations	Number passed	Percentage passed
2001	20 817	19 340	92,9
2002	20 029	18 584	92,7
2003	19 165	17 736	92,5
2004	18 301	16 917	92,4
2005	18 597	17 185	92,4
2006	18 415	17 146	93,1

Source: Norwegian Directorate for Education and Training /VIGO FAG

**Table 3.19: The number of boys and girls that have passed the craftsman's or journeyman's examinations and the percentage of those who passed in 2006**

	Number sitting for examinations	Number passed	Percentage passed
Boys	12 559	11 704	93.2
Girls	5 856	5 442	92.9

Source: Norwegian Directorate for Education and Training /VIGO Fag

Far more boys than girls sit for the craftsman's or journeyman's examinations (Table 3.19). There are minor differences between girls and boys when it comes to the proportion passing the examination.

**Table 3.20: County differences in the number who passed craftsman's or journeyman's examinations in 2006**

	Proportion passed	Number who sat for the examination
Østfold	93.2	886
Akershus	94.0	1 269
Oslo	89.0	1 256
Hedmark	93.2	651
Oppland	94.3	704
Buskerud	92.4	710
Vestfold	92.5	890
Telemark	95.4	781
Aust-Agder	92.5	453
Vest-Agder	96.5	922
Rogaland	93.5	2 280
Hordaland	91.2	2 106
Sogn og Fjordane	96.4	496
Møre og Romsdal	92.7	970
Sør-Trøndelag	95.3	1 398
Nord-Trøndelag	92.5	680
Nordland	91.3	1 003
Troms	94.5	743
Finnmark	90.8	217

Source: Norwegian Directorate for Education and Training /VIGO Fag

Table 3.20 shows that the highest proportion passing the craftsman's or journeyman's examinations is in Vest-Agder and Sogn og Fjordane counties. The proportion is lowest in Oslo. The highest number of craftsman's or journeyman's examinations is held in Rogaland and the lowest in Finnmark. A study from NIFU STEP (Helland 2006) also shows that the proportion sitting for their examinations within the stipulated time is highest in Rogaland and lowest in Finnmark.

Table 3.21: shows that there are large differences when it comes to the number of craftsman's or journeyman's examinations in the different subjects. The lowest number of craftsman's or journeyman's examinations is in media and communication, chemistry and processing, and wood processing. The

**Table 3.21: Proportion passing craftsman's or journeyman's examinations, according to area of study and gender.**

	Number sitting for examinations	Proportion that passed	Proportion of girls who passed	Proportion of boys who passed
General, business/administration	335	94.0	95.2	93.8
Health and social care	2790	93.0	93.3	90.6
Natural science and the environment	318	92.8	90.9	93.3
Art, crafts and design	1 174	87.5	87.1	87.5
Hotel and catering	1 628	90.8	92.7	88.7
Building and construction	2 953	94.1	100.0	93.8
Technical building and construction	881	87.6	84.6	87.6
Electricity and electronics	2 602	92.9	97.6	92.6
Metalworking	4 172	95.0	95.4	94.5
Chemistry and processing	178	97.2	98.4	97.0
Wood processing	190	95.8	100.0	94.8
Media and communication	151	93.4	89.8	97.5
Sales and service	1 043	96.8	98.0	94.1

Source: Norwegian Directorate for Education and Training/VIGO FAG

highest number is in metalworking, with 22 per cent of all the examinations sat for.

The proportion of apprentices passing the craftsman's or journeyman's examination is high in most trades. Chemistry and processing has a proportion of passing grades of more than 97 per cent, while the sales and service subject has almost 97 per cent passed. The lowest proportion passing the craftsman's or journeyman's examination is design and technical building and construction with respectively 87.5 and 87.6 per cent.

The table also shows differences between girls and boys in the proportion of those passed in the same area of study, showing for example that all the girls who sat for examinations in building and construction and wood processing passed. However, the number of girls sitting for examinations in these areas of study was not high. Girls also constitute a clearly higher proportion of those passing electricity/electronics, hotel and catering and sales and service examinations. Boys have a significantly higher proportion of passing grades than girls in media and communication, natural science and the environment, and technical building and construction. In the other areas of study there are minor gender differences. No study has been made as to whether there are differences in the subjects or trades boys and girls sit for examinations in within the same area of study

There are different learning paths to a craftsman's or journeyman's examination. Those who are apprentices complete their training pursuant to the principal model of two years in upper secondary school (with the accompanying examinations) and two years in a company for practical training. After completing their apprenticeship they sit for a practical examination. The



trainee candidate scheme allows adults with long and versatile practice to sit for a craftsman's or journeyman's examination without an apprenticeship period. The craftsman's or journeyman's examination for trainees consists of an interdisciplinary theory part and a practical part. Those who sit for a craftsman's or journeyman's examination after having been pupils throughout their education have received all their training in school because they were unable to find an apprenticeship place.<sup>5</sup>

**Table 3.22: The proportion of pupils, apprentices and trainees passing the craftsman's or journeyman's examinations. Total and girls and boys. 2006.**

	Apprentices	Pupils	Trainees
Girls	93.0	80.1	94.7
Boys	93.5	68.6	95.5
Total	93.3	73.3	95.1
Total number	11 962	733	5725

Source: Norwegian Directorate for Education and Training /VIGO FAG

Table 3.22 shows results from craftsman's or journeyman's examinations according to the learning path. The table shows that trainees have the highest proportion of passed grades on the craftsman's or journeyman's examination. Trainees have worked in the trade for at least five years, and thus have substantial experience in the trade they are sitting an examination for. Apprentices nevertheless have almost the same high proportion of passing candidates as trainees. The proportion is lowest among pupils taking their whole training in school. There are relatively large differences between girls and boys who have trained in school. Girls have a far higher proportion of passed candidates.

**Table 3.23: The number and proportion passing the craftsman's or journeyman's examinations, according to their parent's educational background, 2006.**

Parents' education	Number that sat for examinations	Number passed	Proportion passed
Primary and lower secondary schools	8 637	8 062	93.3
Completed upper secondary education	5 675	5 254	92.6
Higher education	3 333	3 125	93.8
No education/~information not available	770	705	91.6

Source: Hægeland et al. (2007)

According to Table 3.23 there are very small differences in the proportion of passed grades according to the educational background of the parents among those who sat for craftsman's or journeyman's examinations.

An analysis from NIFU STEP (Markussen and Sandberg 2005) showed, however, that the probability of finding an apprenticeship place for applicants depended on their area of study, the county in which they took their upper secondary education and their father's educational background. Those who had fathers with upper secondary education as their highest completed education generally managed to find apprenticeship places more than others.

5) There are also some occupations that normally have their vocational training in school, for example assistant nursing. They are not included in this table because they complete their training with examinations and not a craftsman's or journeyman's examination.

# 4 The learning environment



**“All pupils in primary and lower secondary schools and upper secondary schools have the right to a good physical and psycho-social environment that promotes health, enjoyment and learning.” There is more about this in what is often referred to as the Working Environment Act for Pupils, Chapter 9a in the Education Act, which came into force on 1 April 2003<sup>1</sup>.**

If pupils feel that their rights are not fulfilled, they or their parents can request that the school rectify any violations of the provisions in the Act. Sections 11-1a and 11-5a in the Education Act stipulate that all schools must have a coordinating committee. The coordinating committee shall contribute to making the school, employees, pupils and parents active in the effort to create a good school environment. Schools must work systematically to supervise the pupils' school environment and must have implemented measures to satisfy the requirements in the Education Act. To help each school create a good

learning environment, the Norwegian Directorate for Education and Training has prepared *Strategi for læringsmiljøet i grunnskoleplæringen 2005-08: Læringsmiljø i skole og lærebedrift* (Strategy for the learning environment in primary and lower secondary education 2005-2008: The learning environment in schools and apprenticeship companies). The strategy is based on the general curriculum and the Learning Poster, and shall assist the school owner and when they prepare their objectives and aims, preparing plans and implementing measures to develop good learning environments.

This chapter is generally based on analyses of results from *Elevundersøkinga* (the Pupil Survey)<sup>2</sup>. This is a web-based survey of the learning environment. Since the spring of 2004 this survey is compulsory as school owners must undertake the survey in Year 7 and Year 10 in primary and lower secondary school and the foundation course<sup>3</sup> in upper secondary education. This applies to both public and independent schools (cf. section 2-3 in the Regulations for the Education Act and section

1) Apprentices and trainees are employed by the company. Section 9a thus does not apply to them, but the Working Environment Act does.

2) *Elevundersøkinga* was previously called *Elevinspektørane* (the Pupil Inspectors).

3) From the 2006-2007 school year the first year of upper secondary education (formerly called the foundation course) is called Vg1 (Year 1 in upper secondary education), but the designation foundation course is used here as the survey was carried out in the 2005-2006 school year. When upper secondary education is mentioned in connection with *Elevundersøkinga*, only education in school is being referred to. There is a separate survey of the learning environment for upper secondary education with a company (*Lærlingundersøkinga* - the Apprentice survey), but we do not have new analyses of this.

2-3 in the Regulations for the Independent Schools Act). The Pupil Survey must be undertaken each year, and can also be held in other year sets than the compulsory Year 7 and Year 10.

Oxford Research has analysed the results from *Elevundersøkinga* in the spring of 2006 for pupils from Year 5 in primary and lower secondary school through Year 2 in upper secondary school (VK II)<sup>4</sup> (Furre et al. 2006). Only the results of the compulsory years have been included in the tables in this section. The researchers who prepared the analysis report generally based their presentation on percentage distributions, but in the tables in this chapter responses to the different questions have been recalculated as an index from 1 to 4, the same way the results are presented on *Skoleporten* (the school portal website). In general, the higher the index the more positive the result is. The tables also include results from the 2003-2004 and 2004-2005 school years. There is no division of results for girls and boys for Year 10 in primary and lower secondary school and the foundation course in upper secondary school for the 2003-2004 school year.

The analyses under *Elevundersøkinga* in general show the same picture every time it is undertaken. Pupils who respond that they receive instruction adapted to their level are more motivated and enjoy their subjects more. These pupils also feel more included in the social community at school. Most enjoy school but around five per cent state that they are bullied once or more every week. The analyses show a drop in pupil cooperation for the three years presented here. Pupils report in *Elevundersøkinga* that there is a great deal of noise and disorder in classes. A study by Haug et al. (2007) shows that this also applies to Years 1 to 4; much time is lost during a class at school. The evaluation made under the *Fysisk aktivitet og måltider i skolen* (Physical activities and meals in school) study (Samdal et al. 2006) shows that it is difficult for schools to satisfy the requirements for school meals and an hour of physical activity each day within the existing time and resource framework.

## 4.1 Well-being and motivation

### Well-being

The study *Strategy for the learning environment in primary and lower secondary education 2005-2008* finds that a good learning environment in schools and apprenticeship companies

looks after each pupil and apprentice, and that there is less loneliness, unhappiness and anxiety. Good learning environments clearly relate to well-being, social learning and good mental and physical health.

In their analysis of *Elevundersøkinga* 2006 the researchers distinguish between social and academic well-being. Social well-being means enjoying being with co-pupils in class and during breaks, and this is what is presented as well-being on *Skoleporten*. Most pupils continue to enjoy school, as shown by the results from previous years. Only 5-8 per cent enjoy school less. This is also confirmed by the study *Ung i Norge* (Young in Norway), where 80 per cent of pupils in lower secondary school and almost 90 per cent of 16-17 year olds agree wholly or in part that they enjoy school (Bakken 2007, Øia 2007). The analyses of *Elevundersøkinga* show that pupils who enjoy themselves during breaks also often enjoy being with their co-pupils, and pupils who feel that they have friends at school express greater well-being during the breaks and with their co-pupils than pupils who feel they do not have friends at school.

Academic well-being means enjoying schoolwork and the teachers, and the findings here are slightly lower than for social well-being. Around 20 per cent of the pupils respond that they are not happy with schoolwork at all or only to some extent, and 15 per cent respond the same about their teachers. *Ung i Norge* shows that 60-70 per cent of pupils in lower secondary school and in upper secondary education agree fully or partly that the teachers are good at teaching them (Bakken 2007, Øia 2007). The *Elevundersøkinga* analysis shows that high academic well-being is related to great effort and good grades, and with the perception that the teaching is adapted to the background and skills of the pupils.

### Motivation

Report to Parliament no. 16 (2006-2007) ... *og ingen sto igjen* (... and none was left behind) points out that children by nature are curious and motivated for learning, and that these positive features must be supported and developed throughout one's schooling. Several studies have shown a strong relation between motivation, particularly pupil interest and attitudes, on the one hand, and learning on the other (Lie et al. 2001, Imsen 2003, Birkemo 2002). Motivated pupils want to learn, they have stamina and are curious and able to focus on their

**Table 4.1: How pupils enjoy being with co-pupils in class and during breaks.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	3.5	..	..	3.6	3.7	3.7	3.6	3.7	3.7
Boys	3.5	..	..	3.6	3.6	3.6	3.6	3.7	3.7
Total	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents a low level of well-being and 4 represents a high level of well-being

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

4) The questionnaire for Years 5-7 is slightly different than the questionnaire for lower secondary school and upper secondary education. More information about the questions that form the basis for the analysis of *Elevundersøkinga* can be found at [www.udir.no/undersokelser](http://www.udir.no/undersokelser) and in Furre et al. 2006..

**Table 4.2: Pupil motivation.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	3.1	..	..	3.1	3.1	3.1	3.1	3.1	3.1
Boys	3.0	..	..	3.0	2.9	3.0	2.9	2.9	3.1
Total	3.1	3.0	3.1	3.1	3.0	3.1	3.0	3.0	3.1
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents very little motivation in the subjects and 4 represents very high motivation.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

work (*Prinsipper for opplæringen i Kunnskapsløftet (Principles for the Teaching in the Knowledge Promotion Reform)*). The teacher is responsible for making the encounter between the pupil and school positive, so that it raises academic interest, gives motivation and leads to learning (Report to Parliament no. 16 (2006-2007)).

Almost 80 per cent of pupils in lower secondary school and in upper secondary education state that they are interested in learning in most subjects or in many subjects. This finding is almost identical with the results from *Elevundersøkinga* in 2005, and gives the impression that pupils in general have high motivation for learning in school. The majority of pupils also respond that their work effort is good in school in many or most subjects.

However, researchers are quick to add that any question about how many subjects pupils are interested in learning states nothing about the strength of their motivation. While most pupils state that they are interested in learning, 20 per cent respond that they do not enjoy schoolwork at all or only to a little degree, and 60 per cent respond that they experience well-being in school only to a certain degree. This may be difficult to interpret one way or the other. Moreover, 25 per cent of the pupils state that they often do not pay attention and listen when the teacher speaks, while 50 per cent respond that this occurs occasionally. Based on *Elevundersøkinga* it is therefore difficult to state how motivated Norwegian pupils are. The analysis shows that pupils in the foundation course have greater satisfaction with schoolwork and are slightly more interested in learning in school than pupils in Year 10. *Ung i Norge* points to a similar tendency, as more than 60 per cent of the 16-17 year olds and almost 75 per cent of the pupils in lower secondary school respond that they agree fully or to

some degree that school is boring (Bakken 2007, Øia 2007). Furthermore, almost 70 per cent of the 16-17 year olds state that they learn many exciting things in school. Almost half of the 16-17 year olds nevertheless feel it is more important for them to meet friends than learn everything and do well in school. This applies to boys slightly more often than girls.

When it comes to how motivating pupils feel teachers are, responses vary according to age but in the opposite direction. In Years 5 to 7 more than 60 per cent of pupils state that the teachers inspire them to learn in many or all subjects, while only 40 per cent in lower secondary school and upper secondary education say the same. Around half of pupils in lower secondary school and upper secondary education respond that teachers in many or most subjects give them challenges that make them do their best in school. Overall, the pupils give positive assessment of teachers, and they generally enjoy being with their teachers.

## 4.2 Pupil cooperation and pupil councils

### Pupil cooperation

"Pupil cooperation means participation in decisions that concern one's own learning and that of the group. In an inclusive learning environment pupil cooperation is positive for development of social relations and motivation for learning on all stages of the education. When working in the subjects, cooperation between pupils makes them more aware of their own learning processes, and this gives greater influence on their own learning. Pupils should participate in planning, implementing and assessing the teaching within the framework of the legislation and regulations including the curriculum. How comprehensive the cooperation should be and how it is practised will vary according to age and

**Table 4.3: Motivating teachers.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	3.0	..	..	3.0	2.9	2.9	2.9	2.9	2.9
Boys	2.9	..	..	2.9	2.8	2.9	2.8	2.8	3.0
Total	3.0	2.9	2.9	3.0	2.8	2.9	2.9	2.8	2.9
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents very little motivation in the subjects and 4 represents very high motivation.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

development level” (*Prinsipper for opplæringen i Kunnskapsløftet (Principles for the Teaching in the Knowledge Promotion Reform)*).

The analysis of *Elevundersøkinga 2006* (Furre et al. 2006) shows that the pupils feel that they are not much involved in planning and assessing the academic activities in school. This applies to such things as being allowed to join in assessing their own work, choosing ways to work with a subject, choosing among different types of tasks in a subject and preparing work plans in their subjects. One third of the pupils feel that it is not possible to take part in assessing their own work in any subject, and almost half feel they have no influence on work plans in any subject. Forty per cent of the pupils say that they have not received training in academic cooperation in any subject, and the proportion feeling they have received such training is less in 2006 than in 2005.

### Pupil council

Sections 11-2 and 11-6 of the Education Act state that all primary and lower secondary schools (starting in Year 5) and all upper secondary school shall have a pupil council. The pupil council shall promote common interests for all the pupils in a school and work to create a good learning environment. *Principles for the Teaching in the Knowledge Promotion Reform* draw attention to the fact that school must prepare pupils to take part in democratic decision processes and stimulate social involvement, and facilitate so that pupils gain experience with different forms of participation in democratic processes, both in their day-to-day activities and when sitting on representative councils/boards.

The analysis under *Elevundersøkinga 2006* (Furre et al. 2006) shows that more than 60 per cent of pupils in lower secondary

school and in upper secondary education state that the head of school and the teachers listen to the pupil council, that the pupil council does good work in school and that pupils take the election of their class representatives seriously. More than half of the pupils state, nonetheless, that they do not at all or only to a small extent have impact on decisions on the rules governing the school. This impression is confirmed in *Ung i Norge*, where around half of the 16-17 year olds agree fully or in part that pupils have no influence on important decisions in school (Øia 2007). Between 70 and 80 per cent of pupils in Year 5 to Year 7 state in *Elevundersøkinga* that the pupil council is doing good work, and that the teachers listen to what the pupil council says. The results might indicate that the younger pupils perceive the role of the pupil council as stronger than the pupils in lower secondary school and in upper secondary education. Girls are slightly more positive than the boys in their general assessment of the role of the pupil council in school.

### 4.3 The psycho-social environment

Section 9a-3 of the Education Act states that school shall actively and systematically work to promote a good psycho-social environment where each pupil may feel safe and feel social belonging: “If any person who is employed by the school gains knowledge of or is suspicious that a pupil is being subjected to insulting words or deeds such as bullying, violence or racism, this person must without undue delay look into the matter and notify the school administrators, and if necessary and possible, intervene directly themselves.”

Many schools have introduced measures to counteract bullying and difficult behaviour, and *Elevundersøkinga* provides them with information about whether bullying and discrimination take place at their school.

**Table 4.4: Pupil cooperation.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	2.1	..	..	2.0	2.0	2.0	1.9	1.9	1.9
Boys	2.0	..	..	1.9	2.0	2.0	1.9	1.9	1.9
Total	2.0	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents very little pupil cooperation and 4 represents very high pupil cooperation.

\* Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

**Table 4.5: Pupil council .**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	3.0	..	..	2.9	2.7	2.8	2.9	2.7	2.8
Boys	2.8	..	..	2.8	2.5	2.5	2.8	2.5	2.5
Total	2.9	2.7	2.8	2.9	2.6	2.7	2.9	2.6	2.6
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents very little pupil cooperation and 4 represents very high pupil cooperation.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

## Presence of bullying

*Elevundersøkinga* defines bullying as “repeated negative or ‘ill-natured’ behaviour by one or more against a pupil who finds it difficult to defend himself/herself. Repeated teasing in uncomfortable and hurtful ways is also bullying.” The analysis under *Elevundersøkinga* 2006 (Furre et al. 2006) shows no drop in bullying compared to the preceding year. A total of 4.7 per cent of the pupils respond that they are bullied once or more per week, and 3.5 per cent state that they are bullied two or three times each month. A slightly lower number state that they join in bullying others. A total of 2.6 per cent state that they do this once or more per week, while 2.5 per cent do this two or three times a month. Boys bully others slightly more frequently than girls, and there is more bullying in primary and lower secondary schools than in upper secondary education.

The majority of pupils respond positively to questions on whether teachers help defend pupils from bullying, and also that pupils commonly report to teachers or the school administration if a pupil is being bullied. However, 40 per cent respond that this is rarely or never done. Of the pupils stating that they are bullied, 73 per cent state that teachers rarely or never prevent the bullying. This indicates that bullying continues to occur in school without co-pupils reacting and without teachers knowing about the bullying or doing anything about it.

Different studies of bullying yield partly different figures when it comes to how much bullying goes on in schools. Solberg and Olweus (2003) show that much of the reason for this is differences in the way questions are asked. Some studies are based on self-reporting (how often the interviewee is bullied or bullies), while others ask pupils to state how many pupils are bullied or bully, at school or in class. Some studies give respondents a definition of what is meant by bullying, while others do not. The period of time asked about also varies, from a full school year, down to the last two or three months or to nothing being stated about time at all. Moreover, the response categories vary between “yes/no”, and “generally true/slightly true” and so on, and frequencies such as “once a week, several times a week” and so on. Some studies base their figures on single questions, while others have composite scales with several questions. Finally, but no less important, some studies use different thresholds or criteria for what is defined as bullying.

Solberg and Olweus find that pupils who are bullied or who bully at least twice or three times a month have characteristics that

separate them clearly from other pupils, and consequently find that this must constitute the threshold for what should be defined as bullying. Pupils who are victims of bullying based on this definition generally have a higher level of social disintegration (they feel they are not liked by other pupils), and have negative self-assessment and more depressive thoughts than those who are not bullying victims. Pupils who bully others according to the definition are generally more aggressive and more involved in antisocial behaviour than those who do not bully. The researchers also claim that reporting bullying against oneself yields more reliable and interpretable figures for the incidence of bullying in a school, particularly if based on single questions with specific response alternatives than if one asks pupils to state how many pupils are bullied or bully.

## Manifesto against bullying

The Stoltenberg Government, FUG (Norwegian acronym for National Parents’ Committee for Primary and Lower Secondary Education), KS and the Union of Education Norway undertook in August 2006 to continue the efforts to create a good physical and psycho-social environment for all children and young people in day-care centres, school, school day-care and other organised recreation activities by signing the *Manifest mot mobbing* (Manifesto against bullying) 2006–2008.

The first manifesto against bullying was signed in September 2002 by KS, the Union of Education Norway, the National Parents’ Committee for Primary and Lower Secondary Education, the Ombud for Children and the Bondevik Government. The parties to the manifesto had one common goal: zero tolerance of bullying. The parties particularly focused attention on the responsibility of adults in day-care centres, schools, homes and recreation environments. The Manifesto against harassment 2002–2004 was evaluated by Rogalandsforskning (Tikkanen and Junge 2004), concluding that the manifesto activities appeared to have had a positive effect. Researchers nevertheless believed that a period of two years was too short to realise the common goal of the parties to the manifesto and the vision of a world for children without bullying. The activities were therefore continued in a new manifesto that was first signed in June 2005, and then again in August 2006.

## Preventive efforts

There is a relation between the behaviour problems of some pupils in school and their academic learning dividends (Nordahl 2005). Pupils with good social competence have a

**Table 4.6: Bullying.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	3.9	..	..	3.9	3.9	3.9	3.9	3.9	3.9
Boys	3.8	..	..	3.9	3.8	3.8	3.9	3.8	3.8
Total	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents a high degree of bullying and 4 represents a little degree of bullying.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

clear tendency to have better academic achievement than pupils with poor social competence. Hence, according to Nordahl, preventive activities to strengthen the social and personal development of pupils are not only an end in themselves, they are also important for pupils if they are to have the greatest possible academic learning dividends.

Norwegian schools employ a number of measures and programmes to reduce and prevent problem behaviour and develop the learning environment. The quality of many of these measures varies widely (Nordahl et al. 2006). Four groups of researchers, appointed by the Directorate of Health and Social Affairs and the Norwegian Directorate for Education and Training, have assessed 29 programmes relating to problem behaviour, social competence and activities to prevent substance abuse in school, and they have found large variations in quality. Their review shows which measures and programmes are knowledge-based and yield results. The intention is that the report from the researcher groups shall form an important basis from which schools and the public authorities can develop more effective preventive efforts in schools.

The programmes have been assessed according to criteria previously used in international and national contexts. Emphasis is given to programmes referring to and applying theoretical and empirical knowledge in the field in question, they should have implementation strategies that ensure that they are conducted well and they must have evaluations showing results in their target area. The evaluation must have a design that makes it possible to document results. Results in this activity are primarily connected to behavioural changes in children and young people in the relevant target areas.

The report divides programmes into three categories. Eleven of the programmes have a documented effect, seven have probable effects, and eleven most likely have little effect. The best programmes (those with a documented effect) are based on research-based knowledge that supports hypotheses on positive results of the programmes. They are based on fundamental theoretical approaches and/or empirical knowledge in the field. These programmes have been thoroughly tested in relevant institutions, and at least one evaluation has documented positive results of the programme. The design of the evaluations facilitates documentation, and the programmes have clearly defined implementation strategies that anchor the measure over time. Emphasis is often given to providing training to employees in the day-care centre or school, to making the staff responsible for implementing the programmes and to ensuring that the programmes include all members of the staff.

What characterises several of the programmes in Norwegian schools is that they are often initiated after problems have arisen. Furthermore, much of the work done and the measures implemented continue to be evaluated in an unsatisfactory manner<sup>5</sup>.

### Small group measures

On assignment from the Norwegian Directorate for Education and Training, the Lillegården competence centre has determined the incidence and organisation of programmes involving small groups of pupils in lower secondary school showing problem behaviour and little school motivation (Jahnsen et al. 2006). Parts of the report were presented in the *Utdanningsspeilet 2005*.

The small group programme involves groups of five to eight pupils outside regular school, often combining practical work with school subjects. The authors find that there were 271 such small group programmes in Norway in 2005. They included 122 internal programmes (programmes located in a lower secondary school), 69 external programmes (programmes administered by a lower secondary school but not located in the school) and 80 independent programmes. These latter mentioned programmes are not administratively under a lower secondary school, but are separate units, which may often be alternative schools or some municipal special schools. Around 2200 pupils took their education fully or partly in small group programmes in 2005.

The study shows that the number of pupils exhibiting problem behaviour and little motivation for school and who are taken out of regular instruction has increased substantially in the last 15 years, and the number of such external and independent programmes has increased. The increase in the number of small group programmes comes in contrast to recommendations that such programmes should be used with care before it has been determined with certainty that they have a positive effect for pupils (Nordahl et al. 2003a and b). The study suggests that more knowledge is needed about the reasons for this increase and also about the quality of these programmes. Many claim that small group programmes are run by competent educators with long experience and much competence when it comes to pupils with behaviour problems (Ogden and Sørli 1991). Small group programmes, moreover, represent a different and exciting learning arena that regular schools could make use of. However, there is general agreement that the quality of small group programmes varies (Sørli 1999), and such "exclusion" of difficult pupils to alternative programmes may mean that schools as an organisation are not trying hard enough to work on necessary and comprehensive changes to adapt to their pupils.

While the number of small group programmes has increased, fewer pupils than previously are attending these programmes full-time. More than half of the pupils in small group programmes do so part-time. In 1991 almost all the pupil places in external and independent programmes were full-time places.

Previously, shortcomings have been uncovered concerning the legal circumstances of the placement of pupils in small group programmes (Nordahl et al. 2003a and b). The new study shows that this is improving, and that pupil rights have been

5) Read more about evaluation of the programmes on the Norwegian Directorate for Education and Training website: [http://www.udir.no/templates/udir/TM\\_Artikkel.aspx?id=2204](http://www.udir.no/templates/udir/TM_Artikkel.aspx?id=2204).

reasonably well maintained. Most pupils now have individual decisions pursuant to section 5.1 of the Education Act and/or an individual education plan.

#### 4.4 The physical learning environment

Section 9a-2 in the Education Act states that all pupils have the right to a workplace that is adapted to their needs: “Schools must be planned, constructed, adapted and operated so that consideration is made of pupil safety, health, well-being and learning.”

The analysis under *Elevundersøkinga 2006* (Furre et al. 2006) shows, as in previous years, that what pupils are most satisfied with are the school yard, the cleaning of the school, the school library and textbooks, teaching materials and equipment. Between two thirds and three fourths of the pupils stated that they were well pleased with these elements. They are least pleased with toilets and showers and the quality of the air. More than half are not pleased with these. Pupils in upper secondary education are more satisfied with the physical conditions than pupils in primary and lower secondary school.

A study of school libraries carried out in the autumn of 2006 (Barstad et al. 2007) shows that virtually all schools have their own school library. This applies to 95 per cent of upper secondary schools and 87 per cent of primary and lower secondary schools. The proportion with its own library is approximately the same as the proportion found by a similar study in 1997. Pupils have probably gained better access to the library since 1997, as only 16 per cent of primary and lower secondary schools in 2006 have libraries in a room that is also used as a classroom, compared to 40 per cent in 1997. Librarian resources are better in upper secondary schools than in primary and lower secondary schools. This applies to the hours per week the librarian is present in the library and whether operating the library is the librarian’s only duty. A majority of the pupils, 72 per cent in primary and lower secondary schools and 65 per cent in upper secondary school, use the library once per week or more frequently. In primary and lower secondary schools the library is most often used to find something interesting to read, while in upper secondary school it is used more often as a tool for school work.

Those who never or only rarely use the library most frequently respond that this is because they find the information they need at home or elsewhere.

#### Physical activities and school meals

In recent years much focus has been given to physical activities and nutrition. The Ministry of Health and Social Affairs and the Ministry of Education and Research are cooperating closely through the Directorate of Health and Social Affairs and the Norwegian Directorate for Education and Training on promoting physical activities and healthy food for children and young people. They launched the joint project *Physical activities and meals in school*, where the aim is to have participant schools make their own models to ensure 60 minutes of daily activities at school and provide a good framework for the school meal. From a learning perspective, physical activities and meals are both considered to be important framework factors for promoting concentration and learning. The principal challenge is in lower secondary school. Pupils are becoming increasingly less physically active the older they get, and there is a dramatic drop in activity on admission to lower secondary school (Torsheim et al. 2004). More than 95 per cent of the pupils in primary school bring their lunch to school every day, while one in four in lower secondary school do not bring a lunch (Ministry of Education and Research 2006a).

A total of 350 schools have now joined the project. It demands that physical activities and meals must always be based on a comprehensive plan for the school environment and learning, that all pupils must have at least one hour of physical activity each day, that the school complies with the recommended guidelines for school meals from the Directorate of Health and Social Affairs, that pupils are actively involved, that parents or caregivers are involved, and that school joins assessment activities for the programme and is represented at network meetings.

The HEMIL centre has taken on the responsibility of evaluating the project and identifying criteria for good and effective work models. An initial follow-up study (Samdal et al. 2006) shows in part good results, but it appears that it is difficult for schools to satisfy the requirements relating to school meals and one hour of physical activities daily within the existing time and resource framework.

**Table 4.7: The physical learning environment.**

	2003-2004			2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	2.6	..	..	2.6	2.5	2.8	2.5	2.5	2.8
Boys	2.6	..	..	2.6	2.4	2.7	2.5	2.4	2.7
Total	2.6	2.4	2.8	2.6	2.5	2.8	2.5	2.4	2.7
N*	56 747	50 694	50 483	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents a very poor physical learning environment and 4 represents a very good physical learning environment.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no



For the school meal, the evaluation shows that the guidelines from the Directorate of Health and Social Affairs relating to time, supervision and products that should be offered and banned are generally satisfied in primary schools and lower secondary schools that have joined the project. A significant exception is found in programmes for pupils who have not brought their own lunch. The majority of project schools have found ways of organising the day in school so that the requirement for a lunch break of at least 20 minutes is satisfied. There has been a positive development in adult supervision during the school meal. All project schools satisfy the requirement for all pupils in Years 1 to 4, and 90 per cent of all primary school pupils (Years 1 to 7) have full supervision while the pupils are eating their meal. From 2004 to 2006 the number of project schools offering fruit and vegetables on a day-to-day basis through subscription or other schemes has doubled. Schools report that lack of time is a problem that gets in the way of satisfying the guidelines for the school meal. In lower secondary school, project schools must have a cafeteria, and this may be a decisive factor both in terms of time and budgets that undermines school meals. Moreover, the time spent on a meal competes with the time for an hour of daily physical activities that schools are also expected to satisfy. Schools also report other physical barriers, particularly the lack of premises for storing or preparing food. Schools are thus poorly equipped to satisfy the necessary requirements as to functional and hygienic cafeteria operations. This is demonstrated by the fact that relatively few have established cafeteria operations.

Schools have generally managed to find ways of organising the school day to allow for more physical activities, but few schools satisfy the requirement for one hour of daily physical activities. As a rule they set aside 20-45 minutes for daily physical activities, but this time often includes the lunch break. At the majority of schools the time spent on more physical activities is taken from teaching time. They also use the time allotted for teacher supervision and presence. Few schools extend the school day to increase the time for physical activities. In this context it is pointed out that primary schools have a far greater choice of facilities that can be used to increase physical activity levels than lower secondary schools have. How much the activity level of pupils has increased is so far uncertain. It will only be possible to state something more specific about

this after the second follow-up study of pupil activity levels is undertaken in the spring of 2007.

#### 4.5 The working environment

The general curriculum emphasises that classrooms must be adequately quiet and orderly to function as a serious workplace. The working environment functions well when each and everyone understands that what they do impacts each other's working conditions; they need to take their co-pupils into consideration.

In *Elevundersøkinga* (Furre et al. 2006), approximately one fourth of the pupils respond that pupils (other pupils) often do not pay attention and listen when the teacher is talking to them, while more than 50 per cent respond that this occurs once in a while. A total of 80 per cent respond that they often or always pay attention and listen when the teacher is talking, and 70 per cent state that they never or rarely disturb other pupils when working. The results may indicate that only a few pupils disrupt the teaching, researchers believe. In *Ung i Norge* around 40 per cent of the 16-17 year olds respond that they agree fully or to some degree that there is far too much noise and unrest in classes, and around 65 per cent think that teachers should be stricter with unruly pupils (Øia 2007).

In their analysis of *Elevundersøkinga* the authors find no relation between the working environment on the one hand and well-being and effort on the other.

A researcher group at Volda University College has observed practices in 27 classrooms in Years 1 to 4 over a three-year period (Haug et al. 2007). The researchers find that subject-related activities and theme work constitute only around 50 or 60 per cent of the teaching time. Much of the remaining time is spent on prevention, "making children into pupils" and creating a community that functions well. Noise and unrest are particularly a problem when classes start, when changing from one activity to another and when pupils are packing up and leaving. It is not uncommon that the class is disturbed when pupils are to fetch their things (which they often do not find or have left at home). Those who finish first are usually allowed to do something else while the others finish, and this causes some disturbances for the latter. In some cases the

**Table 4.8: The working environment.**

	2004-2005			2005-2006		
	Year 7	Year 10	Foundation course	Year 7	Year 10	Foundation course
Girls	2.8	2.6	2.7	2.8	2.7	2.8
Boys	2.7	2.6	2.7	2.7	2.6	2.7
Total	2.8	2.6	2.7	2.8	2.6	2.8
N*	46 191	43 216	50 631	55 655	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents a very poor working environment and 4 represents a very good working environment. The indicator for working environment cannot be compared to 2003-2004, as several new questions were added in 2004-2005.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

teacher spends more time on those who have finished their assignments than those who are struggling with them. Pupils also spend a lot of time waiting during their day at school. There is great variation from one classroom to the next. In some classrooms it is barely noticeable when a new activity commences or is finished, and in other classrooms the class may spend 20 minutes just putting paper and books in a cupboard and packing their schoolbags to go home.

#### 4.6 Adapted teaching

Adapted teaching in the community of pupils is a pervasive principle in all of primary and lower secondary education and upper secondary education, and is embedded in section 1–2 of the Education Act: “The education shall be adapted to the abilities and aptitudes of each individual pupil, apprentice and trainee.” “School shall have a place for all, and the teachers must therefore be able to see each and everybody,” it says in the general section of the syllabus. The instruction must be adapted to the subject and the field, but also to the age and development level, each individual pupil and the whole class. When working with a subject all the pupils must be allowed to face challenges they may reach for, and which they may master either alone or together with others. The teacher must use the variation among the pupils and the range of the school as a resource for each and everybody to develop in a versatile manner. The education must be facilitated so that the pupils with their different abilities and talents shall be able to play a part to strengthen learning and development for the community and each individual (*Principles for the Teaching in the Knowledge Promotion Reform*). The national inspection authority shall in 2007 check whether school owners satisfy the legal requirement for adapted instruction and special instruction and whether the school owner has an appropriate system for this.

The analysis of *Elevundersøkinga* 2006 (Furre et al. 2006) shows that pupil perceptions that the education is adapted to their abilities is a key variable for understanding academic well-being and efforts. Adaptation is strongly and positively related to academic well-being and effort. This shows that it is possible to promote academic well-being and the positive consequences of well-being by giving the pupils realistic challenges and by emphasis on empowering the pupils, the researchers believe. Academic adaptation is also positively related to social inclusion. This means that adaptation of the education in various ways contribute to a positive learning environment.

Adapted teaching is not a goal but a means for learning. Characteristics of adapted teaching for each and every pupil is variation in the use of subject fields, ways of working and teaching aids and variation in the organisation and intensity of the instruction. The pupils have different points of departure, use different learning strategies and varying progression in relation to nationally stipulated competence aims. There are no simple solutions for how to adapt the teaching. It depends on the situation and must be considered in view of the context in which the learning is to take place (*Principles for the Teaching in the Knowledge Promotion Reform*).

Haug et al. (2007) have examined whether the ideal of adapted teaching has been realised in Years 1 to 4. The researchers find that the scope of adapted teaching may appear to be quite small on the surface. There is little formal differentiation of subject content and assignment types. All the pupils are generally occupied with the same thing, and they all receive the same instructions from the teacher. The teachers are also at least as much focused on having their pupils participate in a social community as they are in adapting their teaching. The latter does not, however, need to be in conflict with the requirement for adapted teaching. Report to Parliament no. 16 (2006–2007) emphasises that it is precisely the social community that raises the quality of individual learning activities.

Many teachers state that adapted teaching is not feasible if adapted teaching means that all the pupils must have their personal and special programme in each subject. Haug et al. (2007) find that this misconception of the construct appears to be widespread. On the other hand, researchers find adapted teaching in the sense that teachers take into consideration the fact that their pupils are different and that different academic demands and expectations must be set for different pupils. This mostly takes place unobserved, and is the result of a long process between the teacher and the pupil (and occasionally parents), where they eventually determine what is an acceptable standard for the pupils’ work. There is, however, a danger of becoming too lenient and requiring too little of the pupil in such processes.

The researchers conclude that teachers have an admirable ideal of equality. They are very careful about demonstrating that they treat pupils differently. This does not apply to how they deal with their pupils socially, where individualisation is open and available to all. It may appear paradoxical that teachers are very careful about open differentiation in the school subjects, while they are clear and open in the social and personal area.

On assignment from the Norwegian Directorate for Education and Training Nordlands-forskning has carried out follow-up research on *Modellprosjekt om tilpasset opplæring og spesialundervisning* (Model project on adapted teaching and special-needs teaching), a development project in ten municipalities and three counties from 2003 to 2006 (Fylling and Rønning 2007). The aim of the project is to test new models for resource allocation and resource distribution to reduce the scope of special education while ensuring that the education programmes still have good quality.

Project participants have introduced various measures to facilitate adaptation of the teaching. The activities may be grouped into three types or approaches: individually oriented activities, where the focus is on individual pupils or groups of pupils considered to have special challenges, method oriented activities, where the basis for the activity often is the introduction of particular educational models and/or ways of working focusing on the whole school or parts of it, and organisation

**Table 4.9: Work plans and syllabus objectives.**

	2003-2004		2004-2005		2005-2006	
	Year 10	Foundation course	Year 10	Foundation course	Year 10	Foundation course
Girls	..	..	2.6	2.4	2.7	2.4
Boys	..	..	2.5	2.3	2.6	2.3
Total	2.6	2.5	2.6	2.4	2.7	2.4
N*	50 694	50 483	43 216	50 631	51 341	54 619

The figures represent the average score using an index from 4 to 1, where 1 represents very poor familiarity with the aims and 4 represents very high familiarity with the aims. The questions are only found on the questionnaire for lower secondary school and upper secondary education.

\*Number of responses for the whole study. The number of responses varies from one question to the next in the indicator.

Source: www.skoleporten.no

and system-oriented activities, focusing on developing holistic models for the school organisation, focusing in particular on organisation models and resource distribution models.

Analyses of data from GSI (the information system for primary and lower secondary school) from 2002–2003 to 2006–2007 show that five of the municipalities have reduced the scope of special education during this period. Four municipalities have increased the scope of special education and one municipality is at the same level as in 2003. The researchers conclude that the model project has generated a lot of activity and enthusiasm with respect to finding new and better ways of adapting the teaching to satisfy the needs of more pupils. The projects that have focused on developing new resource distribution models either in advance of or as a part of the model project have generally succeeded in reducing the scope of special education. Many of the activities that have been introduced, however, had a vague connection to the principal aims of the Model Project. The fact that the scope of special education so far has not been reduced to any great extent may be explained by the fact that there has not been enough time to change institutional practices, and the aim of the project indicates an inversely proportional relation between adapted teaching and special-needs teaching than what the Model Project gives grounds to question. The assumption that better adaptation of the regular teaching will reduce the amount of special-needs teaching has been the primary motivation for researchers, the state and politicians for many years, and it has been repeated in various contexts and documents. Nonetheless, the researchers find reason to ask whether this assumption is indeed true.

### Work plans and curriculum/subject curriculum objectives and aims

The teaching shall help pupils to understand what they have learnt and what they need to learn to satisfy the objectives and aims (*Principles for the Teaching in the Knowledge Promotion Reform*). Familiarity with the objectives and aims is important to the development of personal motivation, where the aim is to work on understanding the tasks and assessing oneself without resorting to social comparison (Furre et al. 2006).

*Elevundersøkinga* 2006 shows that between 50 and 60 per cent of pupils in lower secondary school and in upper secondary education state that they are unaware of the objectives and aims in all their subjects or only aware of them in some subjects, and the written plans are not used in the academic work with the subjects. It is more common to be familiar with the objectives and aims and to use written plans in primary and lower secondary school than in upper secondary education.

Preliminary results from the research project PISA+<sup>6</sup> confirm the findings from *Elevundersøkinga* (Klette and Lie 2006). Even if the classrooms in this study are dominated by much activity and the solving of assignments, the purpose of the activity is often unclear to the group of pupils. Much of the teacher's instructions are about what they are to do there and then and appear to lack focus and direction and are not based on what happens before or after the assignment. Pupil assignments and activities thus are often individual and isolated events and are not placed in a larger context of knowledge, academic subject skills and/or a theoretical framework. Thus there is little relation between learning activity and learning objectives/aims.

Work plans, i.e. written documents that direct pupil work at home and in school, are key elements in the observed classroom. The work plans refer to the objectives/aims in question and to the requirements for homework in each subject and subject area, and open for varied and in part adapted work assignments. However, individually oriented work plans, comprehensive use of individual task solution, little systematic use of co-pupils as a learning resource and no summary of the purpose and objective of the activities mean that each pupil ends up dealing with his or her own learning. In classes where work plans are used a lot, this becomes particularly clear. The overriding aspects of learning ("What have I learnt now?" "What is it I don't understand now?" "What does it mean to understand this and what must I do to be able to do so?"), are generally fairly unclear, the researchers conclude.

### Work methods

The *Principles for the Teaching in the Knowledge Promotion Reform* state that school must promote adapted learning and varied ways of working.

6) PISA+ (*Pluss – Project on Learning and Teaching Strategies in School*) aims to follow up problematic Norwegian findings in the international PISA study through in-depth studies of classroom processes. It is an interdisciplinary cooperation project between PFI (Institute for Educational Research) and ILS (Department of Teacher Education and School Development) at the University of Oslo, and is funded by the Research Council of Norway as part of the research programme KUL (Norwegian acronym for knowledge, education and learning). Read more on <http://www.pfi.uio.no/forskning/forskningsprosjekter/pisa+/>.

The PISA+ classroom study shows that all classrooms are dominated by a relatively broad repertoire of work methods (Klette og Lie 2006). Different forms of teacher-guided whole-class teaching combined with individual, and also group-based task solution appear to be the most common teaching and learning forms in all subjects and classrooms. There is, however, a great deal of variation between the observed subjects. The Norwegian subject has a relatively broad and varied use of learning activities, with good balance between collective and more individual and/or group-based work forms. In natural science classes, on the other hand, teacher-guided instruction of the whole class is the clearly dominating activity. Mathematics classes are generally focused on teacher-guided instruction and review and individual task solution. The researchers state that there is strikingly more individual task solution than in previous studies. The Swedish Skolverket (the Swedish Education Authority) (2004) finds the same tendency in their evaluation of Swedish primary and lower secondary school in 2003, based on a representative sample of pupils from Year 9. In 2003, half of the pupils state that they worked alone several times per day, while only around a fourth of the pupils in Year 9 stated this in 1995. An analysis from PISA (Turmo and Lie 2004) shows that learning through cooperation promotes the pupils' learning results.

Even if many and different activities take place in classrooms in PISA+ (Klette and Lie 2006), it appears that systematic and well thought out use of learning activities is not optimal on the part of teachers. Systematic use of co-pupils as a learning resource and co-players in learning situations is for example rarely observed. Mobilising previous pupil knowledge using techniques such as summarising, looking back and pinpointing the pupil's knowledge are used to some degree in the subjects observed.

Teacher-guided instruction of the whole class is thus the dominant work method found by the analysis of the findings of *Elevundersøkinga* 2006 (Furre et al. 2006). More than half of the pupils in primary and lower secondary school and in upper secondary education respond that the blackboard is used very often, and in Years 5 to 7, 35 per cent respond that the way they work is very often listening to teacher explanations. The second most used method in lower secondary school and upper secondary education appears to be individual work, and one fourth of the pupils state that they do this quite often. This was not the theme of any of the questions covering Years 5 to 7. More than 70 per cent of pupils in lower secondary school and in upper secondary education are satisfied with the work methods to some degree or to a large degree.

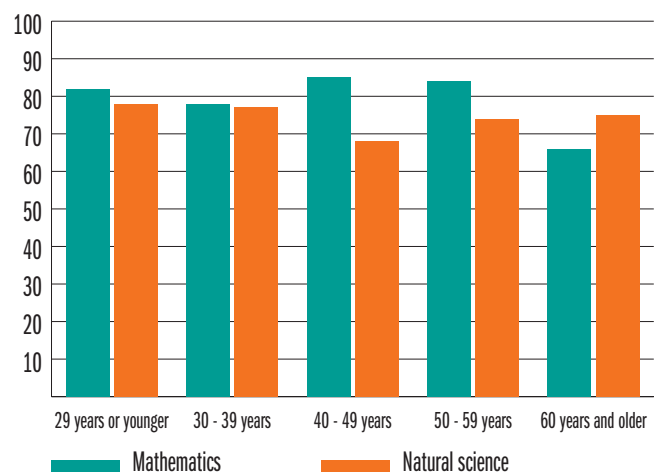
The results of *Elevundersøkinga* 2006 show that the use of ICT and PCs is still not dominant in school. More than 60 per cent of pupils in lower secondary school and in upper secondary education and more than 80 per cent of pupils in Years 5 to 7 state that ICT is only used in some subjects or not at all.

SITES 2006<sup>7</sup> is an international study undertaken in 22 countries. The study focuses on the use of ICT in education and learning practice. The Network for IT-Research and Competence in Education (Norwegian acronym ITU) at the University of Oslo is responsible for carrying out the Norwegian part of the study. The target group for the study in Norway is a representative sample of primary and lower secondary schools represented by the head of school, the ICT manager at the school and two teachers teaching mathematics and/or natural science in Year 8. Only some preliminary results from the Norwegian part of the study are available for publication today.

Mathematics and natural science teachers in Year 8 state that the use of ICT in the teaching is very common in 2006. ICT is used slightly more by mathematics teachers and natural science teachers. A total of 81 per cent of Norwegian mathematics teachers in Year 8, and 74 per cent of the natural science teachers use ICT when teaching.

Teachers of all ages use ICT a great deal in their teaching, as it appears from Figure 4.1. Mathematics teachers aged 40 to 49 are the group that use ICT most in their teaching, with a rate of 85 per cent.

**Figure 4.1: Teachers stating that they use ICT when teaching natural science and mathematics in Year 8 in lower secondary school, by age of teachers. Percentages.**



Source: Ottestad 2007 (unpublished)

However, ICT can be used in varying ways in education, and the results from SITES show similar findings as in *Elevundersøkinga*, that there is no comprehensive active use of ICT by the pupils themselves in Norwegian schools. If teachers are to be able to teach skilfully and enable their pupils to explore and work innovatively using ICT, they need to know much more about ICT themselves. Read more about this in Chapter 6.

<sup>7</sup> Second Information Technology in Education Studies (SITES), under the auspices of the International Association for the Evaluation of Educational Achievement (IEA)..

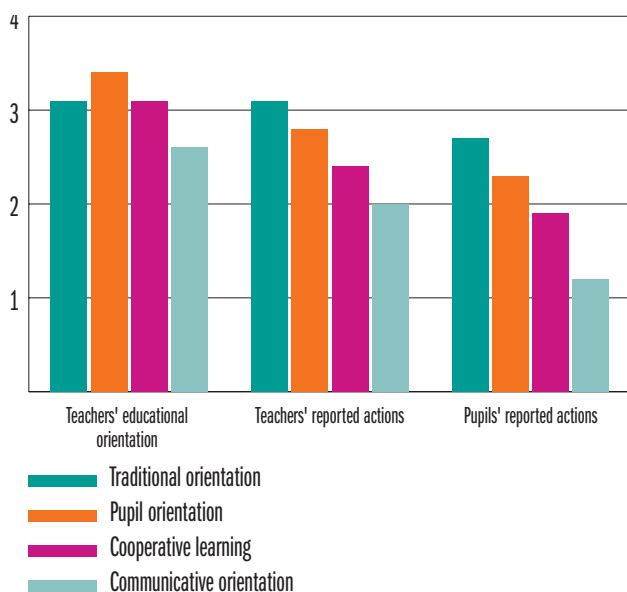
In SITES M2 2001–2002<sup>8</sup> and the pre-test for SITES 2006 the researchers used four main forms of educational orientation. This division will be revised in relation to the results for 2006, so that what is presented here is only the preliminary analysis of the Norwegian data from SITES 2006. The four forms of education orientation are:

1. Traditionally oriented teachers, focusing on their subject and performance
2. Pupil-oriented teachers, focusing on individual learning processes, appreciating differentiated teaching
3. Teachers whose attitudes are oriented toward cooperative learning, emphasising group work, meta learning and contextualising
4. Communicatively oriented teachers, who emphasise using ICT as a means to learn through responsible communication with environments and persons outside the regular classroom context, such as pupils at other schools, external experts and other guides

This division is based on a number of questions about educational goals. The majority of teachers must be said to be a mix of these four attitude types when it comes to:

- teachers' educational orientation, i.e. their emphasis on learning objectives/aims
- teachers' reported actions, their practices
- pupils' reported actions, what teachers have responded to with respect to questions about what pupils do when working to learn

**Figure 4.2: Mathematics teachers in Year 8 in 2006, according to education orientation, actions and pupil actions.**



Source: Ottestad 2007 (unpublished)

In Figure 4.2, the average of teacher responses is grouped on a four-part scale. The extremes of teacher education orientation range from unimportant to very important, while the scale for teacher and pupil reported actions goes from never to almost always.

Figure 4.2 shows that mathematics teachers have good intentions when it comes to attaching importance to pupil-oriented learning and cooperation-oriented learning when teaching mathematics, but when it comes to their own actions and adaptation, and how they feel pupils work, the traditional learning and teaching forms dominate. The greatest gap is between the goals of cooperative learning and the ability to complete this, and the goals of communicative orientation and their implementation. This indicates several systematic barriers for more outreaching and exploratory educational ways of working. The results of the education orientation and the reported actions for natural science teachers are very similar to what mathematics teachers report. In Norway very many teachers have classes in both subjects.

When Norwegian heads of school explain the educational practices at their own school in SITES 2006, they state that there are fewer teaching forms that attach importance to active pupil learning, pupil cooperation, reflection upon own learning, clarifying learning objectives and pupil-guided evaluation forms in 2006 than what they stated in SITES 1999. The results of SITES 2006 nevertheless show that the school administrations encourage their teachers to attach importance to such ways of working. Thus the heads of school express that the educational practice at their schools is more conservative than what they encourage teachers to use (Ottestad 2007, unpublished).

### Learning strategies

In *Principles for Teaching in the Knowledge Promotion Reform* it is stated that school shall stimulate pupils to develop their own learning strategies and ability to think critically. Learning strategies are procedures pupils use to plan, carry out and assess their own work to satisfy the learning objectives and aims. Good learning strategies promote the pupils' motivation to learn and their ability to resolve difficult tasks, also in their future education, employment or recreation.

Learning strategies as a construct was initially used in the 1970s, and since then self-regulated learning has become one of the dominating fields in education research. Elstad and Turmo (2006) understand learning strategies as how pupils in active, flexible and efficient ways can enter different types of learning situations and different types of subject material. More than 100 learning strategies have been identified in research literature (Chamot 1999). The *Programme for International Student Assessment (PISA<sup>9</sup>)* 2003 focuses in particular on

8) SITES M2 (Module 2) is a qualitative study of how ICT is used in concrete projects and activities in schools, and it considers teacher and pupil education practices and how ICT influences the teacher's role, pupil learning processes and forms of cooperation.  
 9) PISA (*Programme for International Student Assessment*) is an international project under the aegis of the Organisation for Economic Cooperation and Development (OECD) measuring the competence of 15-year olds in reading, mathematics and natural science. ILS (Department of Teacher Education and School Development) at the University of Oslo has the principal responsibility for the project in Norway. Read more at <http://www.pisa.no/>.

three types of strategies: memory strategies (memorising techniques), such as exercise and repetition strategies, elaboration techniques, where pupils tie new information to previous knowledge, and control strategies (meta-cognitive strategies), where pupils monitor, plan and regulate their learning strategies. The results from PISA 2003 show that pupils in the Nordic countries report less use of learning strategies than the OECD average (Turmo and Hopfenbeck 2006). Interestingly, pupils in Finland, which has the highest mathematics score in PISA 2003, report little use of control strategies in mathematics. This might suggest that it is not how often pupils apply such strategies that identify pupils who are able to regulate their own learning, but rather that a pupil is flexibly able to adapt the strategy to the situation. Norway has the strongest correlation between memorising strategies and mathematics results of all the Nordic countries. Researchers see this in relation to the fact that in Norwegian schools little time is spent teaching basic mathematics skills, thus pupils attach more importance to exercise strategies. In all the Nordic countries boys use memorising strategies and elaboration strategies more often than girls do, while there is no difference in the use of control strategies.

In the classroom study PISA+ researchers have registered that only a small repertoire of learning strategies is used in classrooms (Klette and Lie 2006). There is, for example, little deliberate use of and training in elaboration techniques linking to the knowledge pupils already have ("How does this relate to what I know from before?"). Memorising strategies and techniques for this also play a negligible role. Situations where the teacher enables summarising strategies with focus on transferable values to the activity are rarely found. There are more organisation strategies, for example use of study techniques (keywords, mind maps and similar).

### **Assessment and guidance**

Assessment and guidance are important measures in implementing adapted learning for all the pupils. Assessment and guidance shall strengthen their motivation for further learning (*Principles for the Teaching in the Knowledge Promotion Reform*). Pupils shall receive continuous assessment (see Chapter 3.1) as guidance that will promote learning, develop their competence and provide the basis for adapted teaching. They should join in assessing their own work (sections 3-4, 3-5, 4-4 and 4-5 in the Regulations for the Education Act).

The analysis of *Elevundersøkinga* 2006 (Furre et al. 2006) shows that only a few pupils assess their own work together with their teachers. As in 2005, written tests and handing in written work are the assessment forms that are used most in school from as early as Year 5 and up. It is also found that asking questions about homework is common in Years 5 to 7. Oral tests and oral presentations are less used in all the years. In general, researchers interpret the results as signs of more vari-

ation in the earlier years than in lower secondary school and in upper secondary education.

Guidance, help and support are important requirements for optimal learning. In general the majority of pupils in *Elevundersøkinga* 2006 state that they receive the help and support they need in many subjects. Pupils in Years 5 to 7 are most positive in assessing help and support from their teacher. Almost 60 per cent respond that they get what they need in most subjects. A relatively large proportion of pupils, particularly in lower secondary school and in upper secondary education, nevertheless respond that they receive the required help and support only in some subjects or not at all (40 per cent). A larger proportion responded negatively to this question in 2006 than in 2005. One positive result is that as many as 75 per cent of the pupils state they always or often receive help with a subject and support from co-pupils if they need it. Approximately one of three pupils state that they never or rarely get what they need of help and support at home, while approximately just as many state that they always receive this.

The PISA+ classroom study shows great variation in the competence of teachers when it comes to giving feedback and guidance to individual pupils (Klette and Lie 2006). In some classrooms the guidance is generally connected to emotional support and motivation, in other classrooms the guidance is focused on advice and comments relating to the subject. Less common is guidance in meta-cognitive activities for problem resolution, i.e. being able to think and reflect upon how one wishes to act or has acted in dealing with a problem or a task. According to Klette and Lie, it is very important that teachers have competence in guiding pupils, bearing in mind that individualised work and learning forms are used so much in school today.

At more than half of the schools in primary, lower secondary and upper secondary education there are now programmes in place offering homework assistance to pupils (Dahl et al. 2007). There has been a constant increase in the number of homework assistance programmes in the last six years. Normally, the homework assistance programmes are organised by the school with a teacher as the homework assistant, and is intended for all the pupils. Many homework assistance programmes are connected to the after-school programme/school day-care. NGOs are also involved in many programmes. The school administration at most schools finds that the homework assistance programme works well, and many believe that they can see the result in pupil learning and general work. The challenge for schools is to involve those pupils that have the greatest need for extra follow-up. Only some of the programmes have endeavoured to strengthen parental competence. In cases where this happens, school administrations find this very positive.

# 5 Pupil levels and completion rates in upper secondary education



Spørsmål etter vennegrupper:

Hva har dere lekt?

Var alle med hele tiden? Hvorfor ikke?

Hva gikk bra i dag?

Hva gikk ikke bra i dag?

Hva kan vi gjøre annerledes neste gang?

**In the 2006–2007 school year the Knowledge Promotion Reform was introduced in Years 1 to 9 in primary and lower secondary school and the first year of upper secondary education. In the 2007 – 2008 school year the reform will be introduced in Year 10 in primary and lower secondary school and the second year of upper secondary education. The reform will finally be introduced in the final year of upper secondary education in the 2008 – 2009 school year. The reform is introducing changes to the content, structure and organisation of the education (Ministry of Education and Research, F-4209 B).**

New terms have been adopted on the introduction of the reform in upper secondary education. What were formerly the foundation course (Norwegian abbreviation: GK), advanced course 1 of upper secondary education (Norwegian abbreviation: VK1) and advanced course 2 of upper secondary education (Norwegian abbreviation: VK2) are now called Year 1, Year 2 and Year 3 (Norwegian abbreviation s Vg1, Vg2 and Vg3). The old scheme was divided into areas of study between general

studies and vocational studies. The new model has three education programmes for general studies (preparing for higher education) and nine vocational programmes (see Attachment Table 5.1). All the *education programmes*, with the exception of the *education programme* for sports, are divided into programme areas, which formerly were called areas of study. The programme areas may further be divided into programme subjects, where some are common and others are optional.

The education programmes for general studies cover three years in school, while the vocational programmes primarily last for four years, normally partly in a school and partly with a company.<sup>1</sup> Completing and passing one of the three education programmes for general studies will qualify the pupil for a diploma and admission to higher education. Completing and passing one of the nine vocational programmes will qualify the candidate for a craftsman's or journeyman's certificate or other vocational competence. Pupils starting a vocational education programme can also qualify for admission to higher education by completing and passing the supplemental year in upper secondary education in addition to completing Year 1 and Year 2 in the vocational programme in upper secondary school. A

1) See the paragraph: Applicants to Advanced course II in upper secondary school, Chapter 5.1.

few pupils use the scheme involving technical general studies.<sup>2</sup> This is a study programme taking four years, which on completion and passing qualifies the graduate for higher education<sup>3</sup> and complete vocational competence. The education is given in a school and with a company.

Education that cannot be documented by a diploma and/or a craftsman's or journeyman's certificate shall be documented by a competence certificate. This certificate documents all education from planned courses on lower levels, for example a competence objective in a programme subject, to a completed education that has not been passed.

This chapter presents statistics on applicants, pupils and apprentices, and analyses of general completion rates in upper secondary education. The number of applicants and pupils in upper secondary education has remained relatively stable over time. The increases that occur may generally be explained by population growth and larger numbers of young persons in a particular year, in addition to changes in reporting procedures from previous years. The proportion of pupils admitted to their first choice of upper secondary education is higher for those with a Norwegian background than for those with immigrant backgrounds.<sup>4</sup> More pupils with immigrant backgrounds than with Norwegian backgrounds have also applied for admission without starting upper secondary education. Some of these differences may explain why the completion rate in upper secondary education varies according to the background of pupils. The highest completed education of parents and connections to the labour market also have an effect on participation, education choices and completion rates of young people.

## 5.1 Applicants and pupils in the 2006 – 2007 school year

Section 3-1 of the Education Act states that youth who are 15 years of age and have completed primary and lower secondary school, or similar, have the right to three years of full-time upper secondary education, or an education corresponding to the teaching time stipulated in the curriculum (the youth right). The entire right must be used during a continuous period of five or six years, depending on the stipulated time for the education, and within the year the young person turns 24 years of age. The pupil does not lose the right if he or she breaks off or postpones an education that has been started within the period of five or six years.

### Applicants to the first year in upper secondary education (Vg1)

A total of 63 023 pupils left Year 10 in lower secondary school in the spring of 2006.<sup>5</sup> A total of 99.3 per cent of the applicants to upper secondary education as of 1 March 2006 were

**Table 5.1: Number of applicants for Vg1 as of 1 March 2006, according to education programme and proportion with the youth right.**

Education programme	Number of applicants	Proportion with the youth right
All education programmes	76 935	95.1
Alternative education *	2 139	88.1
Building and construction	5 836	93.8
Design/arts and crafts	3 880	94.5
Electricity and electronics	4 531	94.1
Health and social care	8 055	87.2
Sports	4 949	99.5
Media and communication	4 637	98.1
Music, dance and drama	3 433	98.8
Agriculture, fishing and forestry	1 600	94.4
Restaurant and food processing	2 990	92.3
Service and transport	3 458	94.1
Specialization in general studies	24 490	98.5
Technical general studies**	381	97.6
Technical and industrial production	6 556	91.5

\*Pupils in alternative education have special education plans and do not follow any of the 12 education programmes. This designation corresponds to what was previously called "special study programme" (Norwegian abbreviation US).

\*\* This is a four-year course qualifying for higher education and complete vocational qualifications on competing and passing the education. The education is given in turn, first in school and then with a company.

Source: Norwegian Directorate for Education and Training

16 years of age, indicating that virtually all those who left Year 10 of lower secondary school applied for upper secondary education the subsequent school year. Of the total number of applicants for VG1, 81.1 per cent came straight from lower secondary school, while 9.3 per cent of the applicants attended GK (the foundation course) of upper secondary education in 2005 – 2006.

If we compare the number of applicants for Vg1 in 2006 – 2007 with the number of applicants for the foundation course in 2004 – 2005, the number of applicants increased by around 2400 applicants in 2006 – 2007. The main explanation for this is that the number of youths born in each year set has increased in recent years. The number of applicants nevertheless dropped from 2005 – 2006 to 2006 – 2007 by around 300 applicants, which may be explained by the decline in the number of applicants making a new choice after re-deciding in connection with the introduction of the Knowledge Promotion Reform.

Table 5.1 shows the total number of applicants for Vg1 as of 1 March 2006 and the proportion of these with the youth right. A total of 32 per cent applied for education programmes for specialization in general studies. The number that applied for education programmes for health and social care, technical and industrial production and building and construction also increased. The lowest number applied for technical general

2) <http://www.taf.no/>

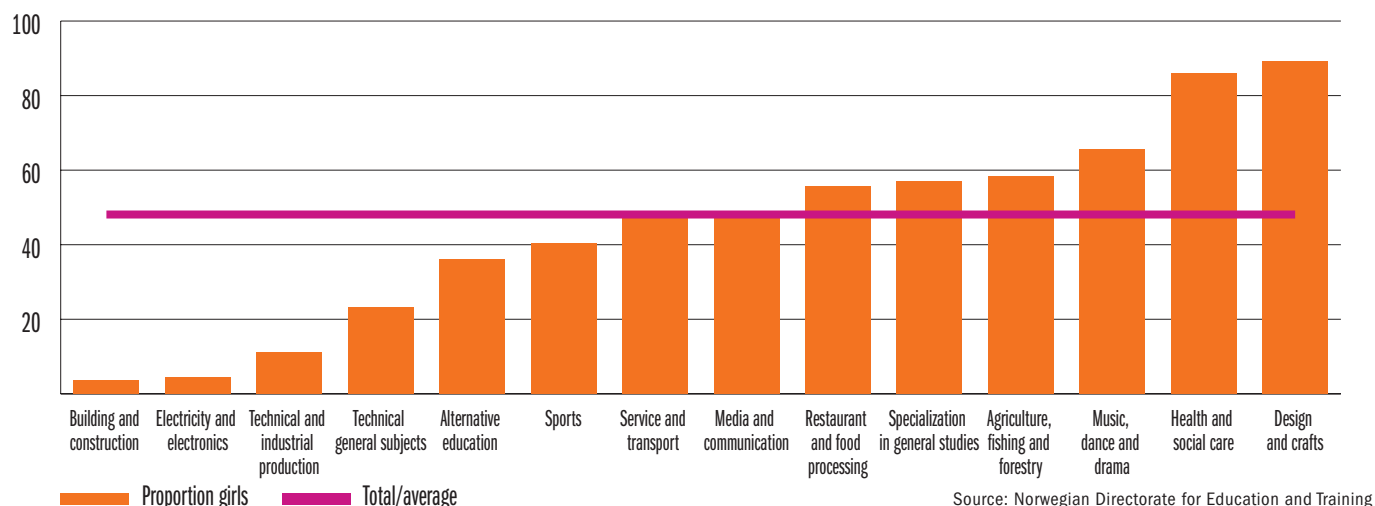
3) The education includes in-depth studies in mathematics and physics and is primarily designed for those who want to become engineers or civil engineers. Companies pay for all the school material and the apprentice is paid during the training

4) Immigrant background is here defined as the first- and second-generation Western and non-Western immigrant.

5) GIS (the information system for primary and lower secondary schools).



**Figure 5.1: Proportion of girls among applicants for Vg1 as of 1 March 2006, according to education programme.**



studies, agriculture, fishing and forestry, and alternative education.

The proportion without the youth right is low and has remained stable over time at around five per cent. As of 1 March 2006, the largest proportion without the right was among applicants to education programmes for health and social care and alternative education. The lowest proportion without the youth right is found among applicants to education programmes for sports, music, dance and drama and specialization in general studies.

The proportion of boys and girls applying for admission to upper secondary education in school was fairly equal for all the years in 2006 – 2007, even if the proportion of girls was slightly higher for VK2 (the third year in upper secondary education) than for Vg1 (the first year in the new programmes in upper secondary education). Among applicants for apprentice places, the proportion of boys was far larger than the proportion of girls. The gender differences also varied quite considerably for all the years of each education programme/area of study, and this applied to the number of applicants for schools and apprenticeships. This is illustrated in Figure 5.1 which shows the proportion of girls and boys among applicants for Vg1 as of 1 March 2006.<sup>6</sup>

Figure 5.1 shows that of the 76 935 applicants for Vg1 as of 1 March 2006, 48.1 per cent were girls (the average line). That the proportion of girls was larger than the proportion of boys may be explained by the fact that there generally are more boys than girls who re-apply for the same year they attended the previous year.

The proportion of girls among applicants for service and transport and media and communication was close to the average proportion of girls of 48.1 per cent, with respectively 47.3 per cent and 47.9 per cent girls. The sports subject was also close to the average with 40.5 per cent girls among

applicants, while restaurant and food processing had 55.6 per cent, specialization in general studies had 56.9 per cent and agriculture, and fishing and forestry had 58.3 per cent. Of a total of 37 031 girls who applied for Vg1, only 4.4 per cent applied for service and transport and 6.0 per cent applied for media and communication (not shown in the figure). The corresponding proportions for sports, restaurant and food processing, specialization in general studies and agriculture, fishing and forestry were respectively 5.4 per cent, 4.5 per cent, 37.6 per cent and 2.5 per cent. Thus around 60 per cent of the 37 031 girls who applied for Vg1, applied for education programmes where the proportion of boys and girls was relatively equal.

Figure 5.1 also shows that the largest proportion of girls was among applicants for design and crafts, with 89.1 per cent girls, and health and social care with 86 per cent girls. This amounted to, respectively, 18.7 per cent and 9.3 per cent of the total number of girls who applied for Vg1 (not shown in the figure). On the other hand, the proportion of boys came to 96.4 per cent among applicants to building and construction, 95.5 per cent for electricity and electronics and 89 per cent for industrial production. Of the total of 39 904 boys who applied for Vg1, this constituted respectively 14.1 per cent, 10.8 per cent and 14.6 per cent (not shown in the figure). A total of 76.9 per cent of applicants to technical general studies were boys. However this only came to 0.7 per cent of the total number of boys who applied for Vg1.

### **Pupils in Vg1 (the first year of upper secondary education)**

Of the pupils leaving lower secondary school in 2006, 96.6 per cent of the pupils went straight to upper secondary education in 2006 – 2007 (KOSTRA<sup>7</sup>). These constituted 87.1 per cent of all the pupils in Vg1 in 2006 – 2007. The remainder were generally pupils who had attended GK (the foundation course) the preceding year. These constituted around 11 per cent.

6) The distribution of boys and girls among applicants for VK I, VK II in school and apprenticeships is described in the next chapters. See Attachment Tables 5.4, 5.6 and 5.8.

7) KOSTRA is a Norwegian abbreviation for municipal and state authority reports. The figures for 2006 are preliminary.

**Figure 5.2: Proportion of girls among pupils in Vg1 as of 1 October 2006, according to education programme.**

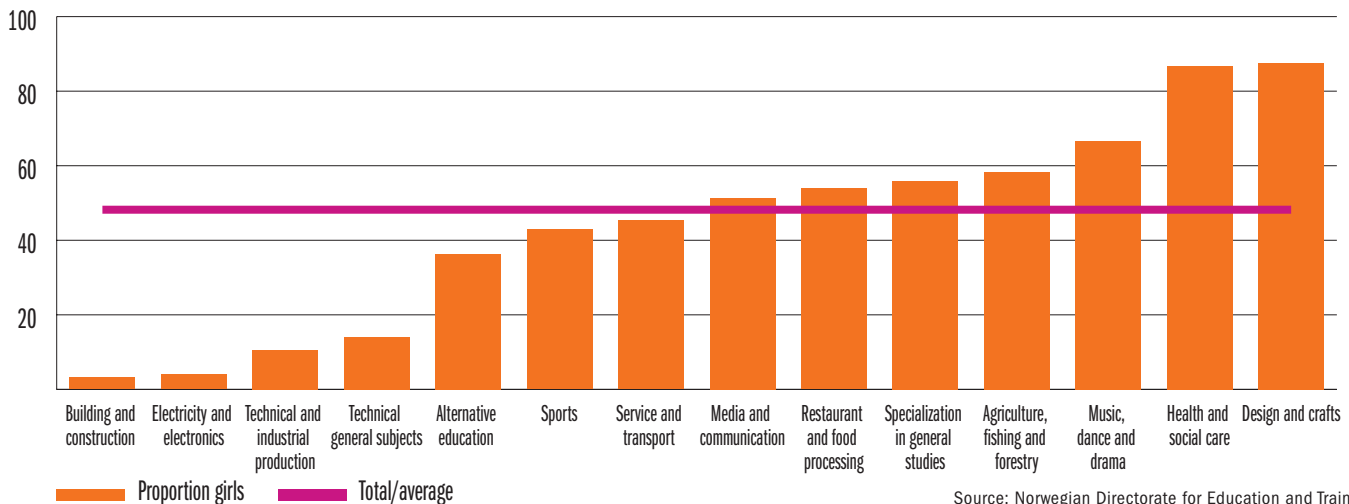


Table 5.2 shows that there were 76 483 pupils attending Vg1 in 2006 – 2007.<sup>8</sup> By far the highest number of these were in specialization in general studies, while the lowest number of pupils attended technical general studies (222), followed by agriculture, fishing and forestry with 1705 pupils. A total of 91.7 per cent of the pupils in Vg1 had the youth right. The proportion having the youth right was greatest in sports and media and communication, while it was lowest for agriculture, fishing and forestry.

**Table 5.2: The number of pupils in Vg1 as of 1 October 2006 by education programme and proportion with youth right.**

Education programme	Number of pupils	Proportion with the youth right
All education programmes	76 483	91.7
Alternative education	2 419	93.5
Building and construction	5 634	95.8
Design/arts and crafts	3 420	93.9
Electricity and electronics	4 302	95.0
Health and social care	8 174	87.9
Sports	3 950	96.1
Media and communication	3 099	96.1
Music, dance and drama	2 265	86.5
Agriculture, fishing and forestry	1 705	86.0
Restaurant and food processing	3 195	94.0
Service and transport	3 487	88.5
Specialization in general studies	28 132	90.2
Technical and industrial production	6 479	94.4
Technical general studies	222	95.9

Source: Norwegian Directorate for Education and Training

As for the figures for applicants, the distribution of boys and girls among pupils in upper secondary education is fairly even among

all the years, while the proportion of boys among those who are apprentices is much higher than for girls. There are also large differences in the proportion of boys and girls when it comes to figures for pupils and apprentices in each education programme/area of study. This is illustrated by showing the gender distribution among pupils in Vg1 in Figure 5.2.<sup>9</sup> Of the total of 76 483 pupils in Vg1, 48.2 per cent are girls (the average line). There were a total of 36 843 girls in Vg1 and 63.2 per cent of these attended an education programme where the proportion of girls and boys is fairly equal (not shown in the figure).

The proportion of girls in sports, service and transport, media and communication, restaurant and food processing, specialization in general studies and agriculture, fishing and forestry is close to the average of 48.2 per cent, and the proportion of girls ranges from 42.9 per cent in sports to 58.4 per cent in agriculture, fishing and forestry. Of the 36 843 girls in Vg1, 42.6 per cent attend specialization in general studies, while the proportion varies from 2.7 per cent in agriculture, fishing and forestry to 4.7 per cent in restaurant and food processing (not shown in the figure).

The lowest proportion of girls is in building and construction (3.2 per cent), electricity and electronics (4 per cent), technical and industrial production (10.6 per cent) and technical general studies (14 per cent). Only 0.5 per cent of the total number of girls in Vg1 attend building and construction and electricity and electronics, 1.9 per cent attend technical and industrial production and only 0.1 per cent attend technical general studies (a total of 33 girls) (not shown in the figure). In contrast, for design and crafts and health and social care the figures show that respectively 87.6 per cent and 86.8 per cent of the pupils are girls. For design and crafts this constitutes 8.1 per cent of the total number of girls in Vg1, while for health and social care the proportion is much higher at 19.3 per cent (not shown in the figure).

8) The figures for pupils as 1 October 2006 have been collected from county authorities several times due to adjustments. Due to different times for the collection of data the figures for pupils presented in the next paragraphs for Vg1 to VK2 in schools and in apprenticeships deviate from Statistics Norway's preliminary figures for pupils (not shown here).

9) The distribution of girls and boys among pupils in VK1 and VK2 in school (the second and third years of upper secondary education; old system) is described in the next chapters (see Attachment Table 5.5 and 5.7). For a figure for the proportion of girls among new apprentices as of 1 October 2006, see Table 5.3.

**Table 5.3: Number of applicants for VK1 as of 1 March 2004, 2005 and 2006, according to the area of study and proportion with the youth right.**

Area of study	2004		2005		2006	
	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right
All areas of study	61 847	93.7	65 826	94.0	68 828	94.0
General, and business/administration	20 627	98.3	22 068	98.4	23 698	98.4
Building and construction	3 779	95.7	4 233	95.4	4 450	94.3
Electricity and electronics	4 173	92.9	3 965	93.4	3 836	93.4
Arts, crafts and design	5 596	91.2	5 745	91.6	5 771	91.9
Hotel and catering	3 404	81.0	3 304	83.4	3 262	91.6
Health and social care	7 095	92.3	7 687	92.3	7 799	83.7
Sports	2 438	99.2	2 789	99.5	3 104	99.3
Chemistry and processing	411	84.9	414	82.1	462	85.9
Music, dance and drama	1 908	98.2	1 947	98.6	2 036	98.6
Metalworking	5 586	91.1	6 035	90.7	6 108	90.2
Media and communication	1 565	99.1	1 929	99.1	2 344	97.6
Agriculture, fishing and forestry	1 297	90.7	1 368	90.0	1 454	90.2
Sales and service	2 220	96.6	2 392	95.7	2 601	95.1
Technical general subjects *	154	97.4	263	98.1	265	93.2
Technical building and construction	1 103	90.0	1 167	90.0	1 175	88.9
Wood processing	254	78.3	233	79.0	225	83.6
Outside an area of study **	237	95.4	287	96.2	238	97.5

\* This is a four-year area of study which when completed and passed admits pupils to higher education and full vocational competence. The education is given in turn, first in school and then with a company.

\*\* Pupils taking subjects outside a study programme attend alternative education, have their own education plan and do not follow any of the regular areas of study. The term corresponds to what under the new scheme (Knowledge Promotion) is called alternative education.

Source: Norwegian Directorate for Education and Training

### Applicants for VK1 (advanced course I – the second year in upper secondary education)

As of 1 March 2006 there were a total of 68 828 applicants to VK1 in the 2006 – 2007 school year. Around 94.8 per cent of these attended GK (the foundation course) the preceding year and around 4.4 per cent also attended VK1 in 2005–2006.

Table 5.3 shows that there has been a stable increase in the number of applications for VK1 (the second year of upper secondary education) from March 2004 to March 2006. This must be considered in conjunction with the growth of the population and larger numbers of young persons.

During the period from March 2004 to March 2006 the number of applications has been greatest for the general and business/administration area of study (general studies), and this area of study has also had the largest increase in numbers and also in the proportion of the total number of applicants (not shown in the table). Health and social care has also had a steadily high and increasing number of applicants over time, but the proportion of applicants (of the total number of applicants) has remained stable during this period. In spite of larger numbers of young people in these year sets, electricity and electronics had the largest drop in the number of applicants over time, and this area of study has also had the largest

drop in the proportion of the total number of applicants. In March 2006 the lowest number of applicants was in wood processing, outside the area of study<sup>10</sup>, technical general studies and chemistry and processing. Wood processing has had a minor drop in the number of applicants over time, while the three remaining areas of study have had a stable or slightly increasing number of applicants over time. The proportion of applicants of the total number of applicants has been stable over time.

Table 5.3 also shows that the proportion of applicants with the youth right has been high and relatively stable from March 2004 to March 2006. This is the case both when the number of applicants is considered as a whole and when looking at each area of study separately. For all the three years of school the largest proportion of pupils with the youth right can be found among applicants to sports, and the lowest proportion among pupils taking wood processing.

As of 1 March 2006, 41.9 per cent of the applicants to VK1 applied for areas of study that qualify for higher education (general and business/administration area of study, sports and music, dance and drama).<sup>11</sup> This was a small increase from 2004 and 2005, when respectively 40.4 per cent and 40.7 per cent applied for the corresponding areas of study. A total of

10) Pupils taking subjects outside an area of study attend alternative education, have their own education plan and do not follow any of the regular areas of study. The term corresponds to what under the new scheme (Knowledge Promotion) is called alternative education.

11) Only one course within media and communication and one in agriculture, fishing and forestry qualify for higher education. Applicants for these courses are not included in the number of applicants for areas of study qualifying for higher education.

58.1 per cent of the applicants had applied for vocational courses of study as of March 2006. This is a small drop from 2004 and 2005.

As of 1 March 2006, of the 68 828 applicants for VK1 (the second year of upper secondary education) 48.5 per cent were girls (see Attachment Table 5.4). In media and communication and the general and business/administration area of study the proportion of girls was much the same, with respectively 51 per cent and 51.8 per cent. A total of 33 381 girls applied for VK1, and of these 3.6 per cent applied for media and communication, while the corresponding proportion for the general and business/administration area of study was high at 36.8 per cent (not shown in Attachment Table 5.4). This means that 40.4 per cent of the girls who applied for VK1 applied for courses of study where the proportion of boys and girls was fairly equal.

Among the applicants for VK1, gender differences were very large in some areas of study. Of the total number of applicants, 89.2 per cent of the applicants to health and social care were girls, and 88.1 per cent of the applicant to arts, crafts and design were girls. Of the total number of girls who applied for VK1, this amounted to, respectively, 20.8 per cent and 15.2 per cent.

In building and construction 97.5 per cent of the applicants were boys. The proportion of boys in electricity and electronics was 96.3 per cent, in metalworking 94.1 per cent, and technical building and construction 86.8 per cent. A total of 35 447 boys applied for VK1, and of these 12 per cent applied for building and construction, 10.5 per cent for electricity and electronics and 16.2 per cent for metalworking. For technical building and construction the large proportion of boys came to only 2.9 per cent of the total number of boys.

### **Pupils in VK1 (advanced course I – the second year of upper secondary education)**

Table 5.4 shows that the number of pupils increased from 61 847 pupils in VK1 in 2005 – 2006 to 65 160 in 2006 – 2007. Around 4.5 per cent of these also attended VK1 the previous year, while around 86.8 per cent came from GK (the foundation course). The increase in the number of pupils may be explained by the larger number of children of this age set and changes in reporting from preceding years. It should also be born in mind that the number of pupils for 2005 – 2006 does not include pupils outside an area of study.

Table 5.4 shows that the highest number of pupils is in the general and business/administration area of study in both years. In 2006 – 2007 the lowest number of pupils can be found in wood processing, outside an area of study, and in technical general studies. A total of 88.9 per cent of the pupils attending VK1 have the youth right. The highest proportion with the youth right is found in sports, music, dance and drama and media and communication, while the lowest proportion with the youth right is found among pupils in health and social care and agriculture, fishing and forestry.

**Table 5.4: The number of pupils in VK1 (the second year of upper secondary education) as of 1 October 2005 and 2006, according to area of study and proportion with youth right.**

Area of study	2005*	2006**	
	Number of pupils	Number of pupils	Proportion with the youth right
All areas of study	61 847	65 160	88.9
General and business/administration	22 129	24 031	93.2
Building and construction	3 706	3 879	86.7
Electricity and electronics	3 570	3 458	89.3
Arts, crafts and design	4 869	4 687	92.3
Health and social care	7 255	7 475	73.8
Hotel and catering	2 936	2 819	88.6
Sports	2 834	3 198	96.3
Chemistry and processing	385	386	86.5
Media and communication	1 788	2 237	95.1
Metalworking	5 369	5 189	85.2
Music, dance and drama	1 829	1 965	95.5
Agriculture, fishing and forestry	1 511	1 513	76.9
Sales and service	2 255	2 483	88.6
Technical general studies	120	298	87.2
Technical building and construction	1 063	1 054	85.1
Wood processing	228	238	68.9
Outside an area of study	-	250	94.4

\*Figures for pupils in 2005 are taken from Statistics Norway.

\*\* Figures for pupils in 2006 are taken from Norwegian Directorate for Education and Training.

Source: Norwegian Directorate for Education and Training / Statistics Norway

Of the total of 65 160 pupils attending VK1 in 2006 – 2007, the average percentage of girls is 49 per cent (see Attachment Table 5.5). The proportion of girls is close to this average in technical general subjects, media and communication, general and business/administration, hotel and catering, sales and service, and agriculture, fishing and forestry. For these subjects the proportion of girls ranges from 48.3 per cent in technical general studies to 56.8 per cent in agriculture, fishing and forestry. If we look at the proportion this constitutes of the total of 31 957 girls who attend VK1, the lowest proportion is in technical general studies with only 0.5 per cent and the highest proportion is in the general and business/administration area of study with 39 per cent, followed by 4.9 per cent in hotel and catering (not shown in Attachment Table 5.5). This means that 54.9 per cent of the 31 957 girls in VK1 attend areas of study where the proportion of girls and boys is fairly equal.

In health and social care, 90.4 per cent of the pupils are girls, and in arts, crafts and design the proportion is 87.8 per cent. Of the total number of girls this constitutes respectively 21.1 and 12.9 per cent. The lowest proportion of girls is in building and construction, electricity and electronics and metalworking with, respectively, 2.4 per cent, 3.8 per cent and 5.6 per cent girls. This constitutes just 0.3 per cent, 0.4 per cent and 0.9 per cent of the total number of girls.

**Table 5.5: The number of applicants for VK2 in school as of 1 March 2004, 2005 and 2006, according to area of study and proportion with the youth right.**

Area of study	2004		2005		2006	
	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right
All areas of study	35 298	84.2	37 198	84.4	40 171	85.7
General and business/administration	25 579	83.3	27 018	83.2	29 200	84.5
Building and construction	-	-	-	-	1	100
Electricity and electronics	153	97.4	157	95.5	151	90.1
Arts, crafts and design	2 392	89.3	2 290	90.3	2 361	89.6
Hotel and catering	-	-	-	-	5	100
Health and social care	2 126	67.4	2 122	67.1	2 265	73.6
Sports	1 707	97.9	1 978	97.1	2 309	98.2
Music, dance and drama	1 267	96.8	1 341	97.5	1 431	98.0
Metalworking	4	100	11	45.5	10	70.0
Media and communication	1 173	95.9	1 309	96.0	1 458	95.5
Agriculture, fishing and forestry	695	71.9	761	76.5	742	75.9
Technical building and construction *	139	85.6	139	83.5	171	83.6
Wood processing	4	-	4	-	5	20.0
Outside an area of study **	59	76.3	68	98.5	62	93.5

\* The education in technical general studies is given in turn, first in school and then with a company, but is here placed in Table 5.8. Applicants for an apprenticeship as of 1 March 2006 are distributed by area of study and the youth right.

\*\* Pupils taking subjects outside an area of study attend alternative education, have their own education plan and do not follow any of the regular areas of study. The term corresponds to what under the new scheme (Knowledge Promotion) is called alternative education.

Source: Norwegian Directorate for Education and Training

### Applicants for VK2 (advanced course II – the third year in upper secondary education) in school

There are several ways of completing trade or vocational education. In Reform 94 the public authorities and the employer and employee organisations agreed on a principal model for the completion of trade and vocational education which satisfied the right to upper secondary education. This model is referred to as the 2+2 model, and consists of two years of education in school and thereafter two years of apprenticeship with a company.<sup>12</sup> If the county authorities cannot find an apprenticeship place, the pupil must be offered the full education in a school over three years. In the following paragraphs, figures for applicants to and pupils in VK2 in school will be distinguished from applicants for apprenticeships and apprentices.

Of the 40 171 applicants for VK2 in school as of 1 March 2006, 94.3 per cent attended VK1 the preceding year, while 5.2 per cent were also attending VK2 in school in 2005–2006.

Table 5.5 shows that very few applied for a vocational education in school, however, more than the number of applicants shown opted to take their vocational training in school at a later date due to the lack of an apprenticeship place. Those who have become pupils in VK2 in school as of 1 October without having applied are registered after this date, and these are therefore not registered as applicants in Table 5.5.

Table 5.5 shows that the number of applicants to VK2 (the third year in upper secondary education) increased from March 2004 to March 2006. This corresponds to the increase in the number of applicants for VK1. The highest number applied for the general and business/administration area of study, while the lowest number applied for wood processing, hotel and catering and building and construction.

Of the 40 171 applicants for VK2 in school in 2006, 59.8 per cent were girls (see Attachment Table 5.6). Girls choose an education that is completed in school to a higher degree than boys, while boys become apprentices to a larger degree (see Figure 5.3). This is generally why the proportion of girls in VK2 is far higher than the proportion of boys. Moreover, the dropout rate is far higher for boys than for girls after VK1.

The proportion of girls who applied for the general and business/administration area of study and agriculture, fishing and forestry is close to the average of 59.8 per cent with respectively 57.1 and 59.7 per cent girls. A total of 24 011 girls applied for VK2 in school. Of these, 59.4 per cent applied for the general and business/administration area of study, while the corresponding proportion for agriculture, fishing and forestry was only 1.8 per cent (not shown in Attachment Table 5.6). Thus 61.2 per cent of the girls applied for areas of study where the gender distribution was relatively equal.

12) During the apprenticeship, the apprentice shall develop as an independent craftsman, and will increasingly take part in the company's value production. Both as a tool for setting the subsidy to the training company and as the basis for negotiation between the parties on apprenticeship pay, Reform 94 introduced a distinction between training time and value creation time for purposes of calculation. The value creation time was stipulated at one year, but is in practice integrated in the total apprenticeship time. Depending on the various general wage agreements, the pay for an apprentice rises from about 30 per cent to around 80 per cent of the pay a skilled worker receives.

Of the applicants for health and social care, 94.5 per cent were girls. This constituted around nine per cent of the total number of girls who applied for VK2 in school. Of the applicants for arts, crafts and design, 81.4 per cent were girls, and this constituted eight per cent of all the girls who applied for VK2 in school. No girls applied for building and construction or metalworking, and only 7.3 per cent of the applicants for electricity and electronics were girls (11 girls).

### Pupils in VK2 in school

Of the 51 414 pupils attending VK2 in school in 2006–2007, 72.8 per cent attended VK1 in 2005–2006, while 82 per cent also attended VK2 in school in 2005–2006.

If we compare the number of applicants for VK2 in school for 2006 – 2007 (Table 5.5) with the pupil figures in Table 5.6, we see that there are 11 243 more pupils than applicants. The explanation is that the figures for pupils include those who have started in upper secondary education in school as of 1 October 2006, but who were not necessarily included in the figures for the applicants for VK2 in school as of 1 March 2006. This applies, for example, to pupils who initially applied for admission to an independent school, but later started public upper secondary school. There are also those who have applied for admission after the deadline for applications, some have applied for an apprenticeship without getting one and then chosen training in school, and some have decided to take the same education in 2006 – 2007 as in 2005 – 2006.

Table 5.6 shows that the number of pupils in VK2 in school has increased from 2005 – 2006 to 2006 – 2007. It should be borne in mind that the figures for pupils for 2005 do not include pupils attending a course outside the regular areas of study, and that changes in the way figures are reported have occurred, and that the year sets increase over the years.

For both the years the figure for pupils is highest in the general and business/administration area of study, while the lowest numbers are for wood processing, technical general subjects, chemistry and processing and outside the regular areas of study. In 2006 – 2007, 72.9 per cent of the pupils in VK2 in school have the youth right. The highest proportion with the youth right is found in media and communication, while only 20 per cent of pupils in wood processing have this right.

Of the 51 414 pupils in VK2 in school, 59 per cent are girls (see Attachment Table 5.7). In the general and business/administration area of study the proportion of girls is close to this with 57.7 per cent. This also applies to agriculture, fishing and forestry, where 62.4 per cent of the pupils are girls, and in media and communication where 52.7 per cent are girls. There is a total of 30 340 girls in VK2 in school. As many as 66.5 per cent of these attend the general and business/administration area of study, while the corresponding proportion in agriculture, fishing and forestry and media and communication is respec-

**Table 5.6: The number of pupils in VK2 in school as of 1 October 2005 and 2006, according to area of study and proportion with the youth right.**

Area of study**	2005*	2006**	
	Number of pupils	Number of pupils	Proportion with the youth right
All areas of study	46 641	51 414	72.9
General and business/administration	32 213	34 971	74.2
Building and construction	30	88	35.2
Electricity and electronics	997	894	67.9
Arts, crafts and design	2 353	2 512	87.0
Health and social care	3 587	4 085	38.9
Hotel and catering	77	85	61.2
Sports	2 586	2 996	89.6
Chemistry and processing	15	28	71.4
Media and communication	1 275	1 378	94.4
Metalworking	444	863	43.7
Music, dance and drama	1 733	1 823	92.2
Agriculture, fishing and forestry	1 001	951	55.1
Sales and service	14	81	9.9
Technical general subjects	128	311	78.8
Technical construction	181	200	69.0
Wood processing	7	25	20.0
Outside an area of study **	-	123	88.6

\*\* Figures for pupils for 2006 are from the Norwegian Directorate for Education and Training.

Source: Norwegian Directorate for Education and Training / Statistics Norway

tively 2 per cent and 2.4 per cent (not shown in Attachment Table 5.7). This means that 70.9 per cent of the girls in VK2 in school attend areas of study where the distribution between girls and boys is relatively equal.

The largest proportion of girls is in health and social care, arts, crafts and design and sales and service, with respectively 92.9 per cent, 83.1 per cent and 79 per cent. However, of the total number of girls attending VK2 in school this does not constitute more than 12.5 per cent, 6.9 per cent and 0.2 per cent, respectively. In building and construction only 2.3 per cent of the pupils are girls, and in wood processing and electricity and electronics the proportion is 4 per cent.<sup>13</sup>

### Applicants for apprenticeship places

Table 5.7 shows the number of applicants for apprenticeship places from 1 March 2004 to 1 March 2006. Those who have arranged for an apprenticeship contract with a company on their own are not included in the statistics. Of the 17 316 applicants for apprenticeship places, 91.8 per cent attended VK1 the year before.

The highest number of applicants applied for metalworking, electricity and electronics and building and construction, while the lowest number of applicants applied for media and communication, wood processing and technical general subjects.

13) Of the pupils in VK2 in school, two girls attend construction, one girl attends wood processing and 36 girls attend electricity and electronics.

**Table 5.7: The number of applicants for apprenticeship places as of 1 March 2004, 2005 and 2006, according to area of study and proportion with the youth right.**

Area of study	2004		2005		2006	
	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right	Number of applicants	Proportion with the youth right
All areas of study	17 133	85.9	17 558	85.3	17 316	85.0
General and business/administration	449	86.6	487	81.1	483	83.9
Building and construction	2 464	93.1	2 582	93.1	2 647	92.6
Electricity and electronics	3 577	87.0	3 251	87.3	2 958	86.2
Arts, crafts and design	1 100	81.7	1 158	81.1	1 135	83.9
Hotel and catering	1 832	87.3	1 830	87.2	1 722	85.7
Health and social care	1 497	72.0	1 646	71.8	1 715	72.2
Chemistry and processing	334	82.6	304	84.9	272	79.4
Metalworking	3 506	87.1	3 751	85.5	3 868	85.4
Media and communication	98	81.6	104	77.9	113	80.5
Agriculture, fishing and forestry	365	73.7	316	75.0	347	72.3
Sales and service	989	89.3	1 122	88.5	1 064	85.3
Technical general subjects *	66	80.3	133	100.0	155	99.4
Technical building and construction	701	90.0	690	84.2	692	89.2
Wood processing	155	66.5	184	73.4	145	77.2

\* This is a four-year area of study which when completed and passed admits pupils to higher education and full vocational competence. The education is given in turn, first in school and then with a company.

Source: Norwegian Directorate for Education and Training

Table 5.7 shows that the proportion of applicants with the youth right increased from March 2004 to March 2006. For all the three years the number of applicants for technical general subjects has been low, while the proportion with the youth right has been high, and in 2005 and 2006 this area of study had the highest number of applicants with the youth right. The explanation may be that only a few adults wish to take this area of study, as this is a demanding education where in the course of four years the pupil attains qualifications both for admission to higher education and full vocational competence. The lowest proportion of applicants with the youth right has been in health and social care throughout all three years.

Of the 17 316 applicants for apprenticeship places as of 1 March 2006, 27.9 per cent were girls (Attachment Table 5.8). The largest proportion of girls was among applicants for arts, crafts and design, 96.4 per cent, followed by health and social care and sales and service with, respectively, 86.4 per cent and 63.3 per cent. A total of 4839 girls applied for apprenticeship places. Of these, 13.9 per cent applied for sales and service, 30.6 per cent health and social care and 22.6 per cent arts, crafts and design (not shown in Attachment Table 5.8).

Of the applicants for building and construction, only 1.2 per cent were girls, followed by electricity and electronics, the general and business/administration area of study, metalworking and technical construction with 4.3 per cent girls. Of the total number of girls who applied for apprenticeship places, this constituted respectively 0.7 per cent in building and construction, 1.9 per cent in electricity and electronics, 0.3 per cent in the general and business/administration area of study, 3.2 per cent in metalworking and 0.6 per cent in technical construction.

## Apprentices

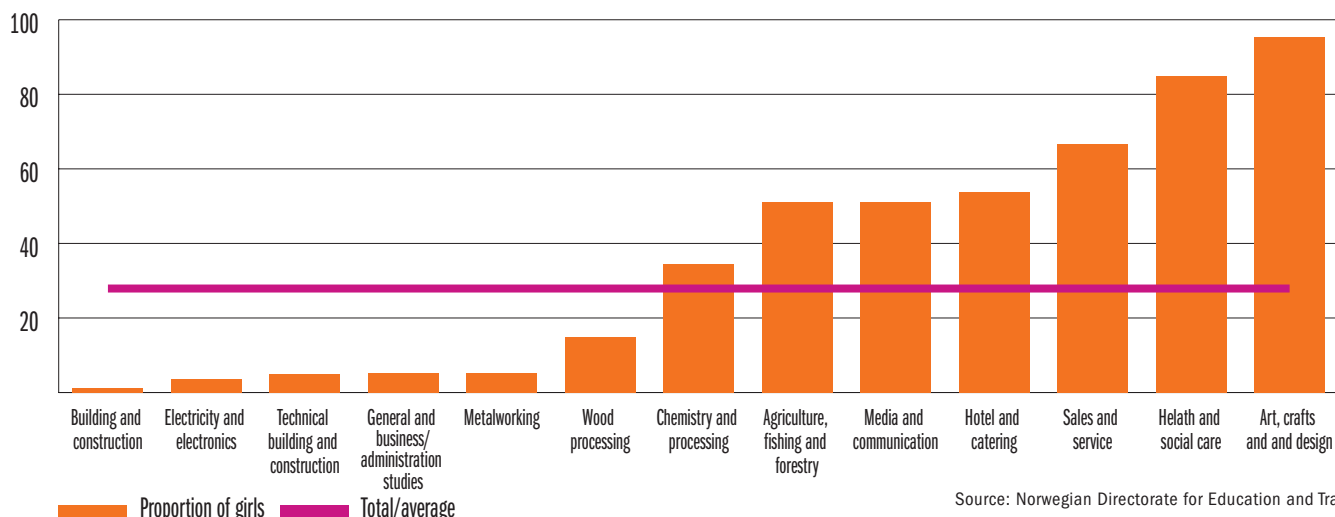
Table 5.8 shows how many current apprenticeship contracts were registered as of 1 October in 2005 and 2006. The table also shows new contracts for the education year 2006 – 2007. The contracts have been entered into during the 2005 – 2006

**Table 5.8: The number of running and new apprenticeship contracts, according to area of study and proportion with the youth right.**

Area of study	2005		2006	
	Running contracts as of 1 October 2005	Running contracts as of 1 October 2006	New contracts as of 1 October 2006	Proportion with the youth right
All areas of study/ education programmes	31 316	33 829	17 373	68.8
General and business/ administration	701	711	369	80.5
Building and construction	6 026	6 436	3 216	76.0
Electricity and electronics	5 355	6 127	2 877	69.0
Arts, crafts and design	2 617	2 684	1 391	52.7
Hotel and catering	2 645	2 613	1 424	74.8
Health and social care	2 990	3 121	1 632	59.6
Chemistry and processing	244	235	127	68.2
Metalworking	5 830	6 647	3 650	75.0
Media and communication	304	307	155	36.9
Agriculture, fishing and forestry	699	699	360	60.0
Sales and service	1 570	1 770	985	65.9
Technical construction	1 933	2 083	1 005	63.5
Wood processing	402	396	182	47.2

Source: Statistics Norway / Norwegian Directorate for Education and Training

**Figure 5.3: Proportion of girls among new apprentices as of 1 October 2006, according to area of study.**



school year, measured as of 1 October 2006. The table also shows the proportion of the new apprentices who have the youth right.

Of all the pupils who were in upper secondary education in 2006 – 2007, 15.3 per cent are apprentices (KOSTRA). Of the 17 373 new apprentices, 58.6 per cent attended VK1 in 2005 – 2006 (Norwegian Directorate for Education and Training). Of the apprentices with new contracts, 7419 were not among the applicants for apprenticeship places as of 1 March 2006. This means that they have obtained apprenticeship contracts on their own or applied after the deadline for applications expired.

Table 5.8 shows that a total of 31 316 running contracts were registered as of 1 October 2005. The corresponding figure in 2006 was 33 829. Of these, 17 373 are new contracts as of 1 October 2006. For both these years the highest number of contracts was registered in building and construction and metalworking, while the lowest number of contracts was in chemistry and processing, media and communication and wood processing (see also Figure 1.5 and Table 1.6).

The table shows that the highest number of new contracts is in metalworking and building and construction, while the lowest number of new contracts is in chemistry and processing, media and communication and wood processing. Of the apprentices with new contracts, 68.8 per cent have the youth right. The proportion is highest in the general and business/administration area of study and lowest in media and communication. The number of apprenticeship contracts is low in these areas of study.

There were a total of 17 373 new apprenticeship contracts as of 1 October 2006. Figure 5.3 shows that 27.9 per cent of the new apprentices were girls. Of the apprentices in chemistry and processing, 34.6 per cent were girls. However, this only constitutes 0.9 per cent of the total of 4846 girls who have new apprenticeship contracts (not shown in the figure).

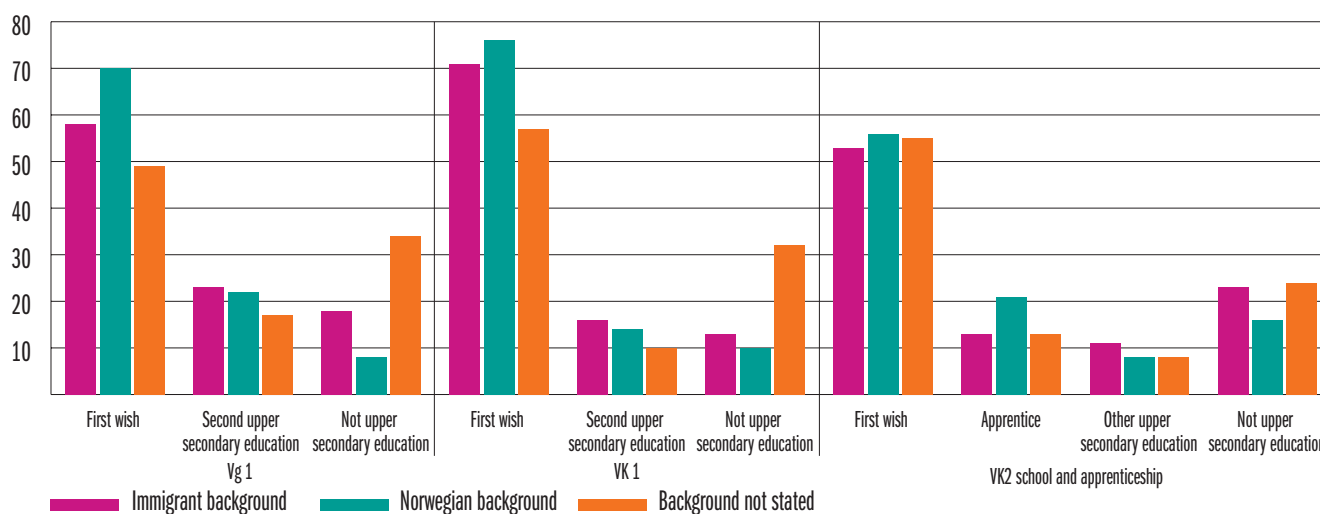
The proportion of girls with new contracts is highest in arts, crafts and design, health and social care and sales and service, with respectively 95.3 per cent, 85 per cent and 66.6 per cent. For arts, crafts and design and health and social care this constitutes, respectively, 27.4 per cent and 28.6 per cent of the total number of girls with new contracts, while the corresponding proportion for sales and service is 13.5 per cent (not shown in the figure). Almost all the girls in the arts, crafts and design area of study are in the ladies' hairdresser trade, while the majority of the girls in the health and social care area of study take the child and youth welfare worker subject (not shown in the figure). The lowest proportion of girls is in building and construction, electricity and electronics, technical building and construction, general and business/administration and metalworking, where the proportion of girls ranges from 1.3 per cent in building and construction to 5.3 per cent in metalworking. Only 0.8 per cent (41 girls) and 4 per cent of the total number of girls have new contracts in, respectively, building and construction and metalworking (not shown in the figure).

Figure 5.4 shows that of all the applicants for upper secondary education as of 1 March 2006, most are attending their first choice of education in 2006 – 2007. A larger proportion of those with Norwegian backgrounds than those with immigrant backgrounds have been admitted to their first choice, while a larger proportion of those with immigrant backgrounds than Norwegian backgrounds attend another education than their first choice or have not started in upper secondary education.<sup>14</sup> These trends apply to each year, but the differences between the two groups of pupils are smaller in VK2 than in Vg1. There is a fairly large group with unknown backgrounds. However, in all the three years this group is clearly most represented among applicants who did not start an education and it is reasonable to assume that these are pupils with poor grades and poor school motivation (see the paragraph on dropping out of school in Chapter 5.3).

14) Pupils with immigrant backgrounds are defined as Western and non-Western first- and second-generation immigrants.



**Figure 5.4: Proportion of applicants as of 1 March 2006 with Norwegian and immigrant backgrounds, according to status as of 1 October 2006 and level.**



Source: Statistics Norway / Norwegian Directorate for Education and Training

Figure 5.4 shows that 58 per cent of the applicants for Vg1 with immigrant backgrounds and 70 per cent of the applicants with Norwegian backgrounds had their first choice satisfied as of 1 October 2006. A total of 23 per cent of those with immigrant backgrounds were in another upper secondary education than their first choice, while the corresponding proportion for those with Norwegian backgrounds was 22 per cent. Of the applicants with immigrant backgrounds, 18 per cent were not in upper secondary education as of 1 October 2006, while this applied to 8 per cent of the applicants with Norwegian backgrounds. The differences between those with Norwegian backgrounds and immigrant backgrounds may be explained by the fact that pupils with immigrant backgrounds have poorer grades on average than pupils with Norwegian backgrounds (Helland et al. 2007). In VK1, 71 per cent of the pupils with immigrant backgrounds were admitted to their first choice, while this applied to 76 per cent of the applicants with Norwegian backgrounds. A total of 16 per cent of those with immigrant backgrounds did not attend their first choice, while this applied to 14 per cent of the applicants with Norwegian backgrounds. A total of 13 per cent of the applicants with immigrant backgrounds were not in upper secondary education in the autumn of 2006. The corresponding proportion for applicants with Norwegian backgrounds was 10 per cent.

Figure 5.4 shows that of the total number of applicants for VK2 in school and apprenticeships, 21 per cent of those with Norwegian backgrounds became apprentices (regardless of whether this was their first choice). The corresponding proportion for applicants with immigrant backgrounds was 13 per cent. Grade differences between pupils with immigrant backgrounds and pupils with Norwegian backgrounds may be one explanation why more pupils with Norwegian backgrounds become apprentices, as it has been found that companies prefer apprentices who have good grades and who have little

absenteeism from previous years in upper secondary education (Helland 2006, Markussen and Sandberg 2005). However, boys with immigrant backgrounds fare less well than others when it comes to getting an apprenticeship contract, even when comparing those with equal grades, and even though the applicants have fully competent native Norwegian language skills, familiarity with Norwegian culture and Norwegian friends (Helland and Støren 2004, Lødding 2001).

Of the total number of applicants for VK2 in school and apprenticeships, 56 per cent of applicants with Norwegian backgrounds were admitted to their first choice in VK2 in school. This applied to 53 per cent of the applicants with immigrant backgrounds. Of applicants with Norwegian backgrounds 8 per cent attended another area of study in school than they had applied for. This applied to 11 per cent of those with immigrant backgrounds. Of applicants with Norwegian backgrounds, 16 per cent were not a pupil or an apprentice as of 1 October 2006, while this applied to 23 per cent of the applicants with immigrant backgrounds.

Table 5.9 shows the proportion of applicants as of 1 March 2006 who had had their first choice satisfied as of 1 October 2006, according to level and county.<sup>15</sup> In general the national averages show that the proportion of applicants who have had their first choice satisfied increases from Vg1 (the first year of upper secondary education in the Knowledge Promotion Reform) to VK2 (the third year in upper secondary education according to the old system) in school. There are nevertheless large differences from one county to the next, and also a lower proportion of applicants for apprenticeship places have their first choice satisfied compared to applicants for VK2 in school.

In Vg1, the national average is that 68.1 per cent of applicants had their first choice satisfied. Finnmark and Hordaland have the

<sup>15</sup> The table does not show those who did not apply for an apprenticeship place as of 1 March 2006 but who nevertheless have signed an apprenticeship contract as of 1 October 2006.

**Table 5.9: Proportion of applicants as of 1 March 2006 who have had their first choice satisfied as of 1 October 2006, according to county and level.**

County	Vg1	VK1	VK2	Apprenticeship
Norway	68.1	75.0	77.4	48.7
Østfold	72.8	75.0	70.1	43.8
Akershus	64.8	80.8	86.0	36.9
Oslo	64.8	78.9	75.1	46.4
Hedmark	70.4	74.3	82.0	41.3
Oppland	75.9	81.1	71.0	49.4
Buskerud	67.2	69.4	81.1	54.5
Vestfold	67.4	72.0	70.9	52.0
Telemark	69.8	76.9	80.9	54.5
Aust-Agder	71.9	75.6	76.2	50.0
Vest-Agder	70.7	75.6	78.8	62.2
Rogaland	68.6	73.6	75.2	63.8
Hordaland	61.7	70.7	74.1	55.7
Sogn og Fjordane	72.6	76.9	80.6	41.1
Møre og Romsdal	72.0	74.1	77.6	50.0
Sør-Trøndelag	72.3	73.0	76.5	37.9
Nord-Trøndelag	69.0	76.8	81.0	41.2
Nordland	68.6	76.3	74.9	39.7
Troms	65.8	73.2	75.1	43.3
Finnmark	61.0	65.6	64.5	35.8

Source: Statistics Norway and Norwegian Directorate for Education and Training

lowest proportion of applicants who have had their first choice satisfied, while Oppland has the largest proportion of those who have had their first choice satisfied. In VK1 (the second year of upper secondary education) the national average is 75 per cent. The proportion whose first choice has been satisfied varies from 65.6 per cent in Finnmark to 81.1 per cent in Oppland. In VK2 in school, the national average is 77.4 per cent whose first choice has been granted, and again Finnmark has the lowest proportion with 64.5 per cent, while 86 per cent of applicants have had their first choice granted in Akershus. For those who have applied for an apprenticeship place, an average of 48.7 per cent has had their first choice satisfied. In Rogaland this applies to 63.8 per cent of the applicants, while only 35.8 per cent of those who applied for an apprenticeship place as their first choice in Finnmark had their wish fulfilled.

## 5.2 Applicants for Vg1 and Vg2 in the 2007-2008 school year

Table 5.10 shows that as of 1 March 2007 there were 75 474 applicants for Vg1 (first year in upper secondary education) in 2007 – 2008. A total of 93.5 per cent of the applicants have the youth right. Around 89.9 per cent of the applicants had not been in upper secondary education previously, and around 81.6 per cent of the applicants came straight from lower secondary school, measured as the number of 16 year olds among the applicants. A total of 8.4 per cent of the applicant also attended Vg1 in the 2006 – 2007 school year. This is a decline from the two preceding years, where as of 1 March

**Table 5.10: Number of applicants for Vg1 as of 1 March 2007, according to education programme, proportion of girls and proportion with the youth right.**

Education programme	Number of applicants	Proportion with the youth right	Proportion of girls
All education programmes	75 474	93.5	48.4
Alternative education	2 181	88.7	37.0
Building and construction	5 624	93.3	4.3
Design/crafts	3 686	90.7	89.3
Electricity and electronics	5 304	93.7	5.7
Health and social care	7 364	85.9	88.4
Sports	5 019	96.1	39.7
Media/communication	4 904	95.7	52.9
Music, dance, drama	3 263	95.9	64.8
Agriculture, fishing and forestry	1 569	89.3	58.3
Restaurant/food processing	2 375	91.1	56.9
Service/transport	2 844	91.3	53.5
Specialization in general studies	24 454	96.7	57.3
Technology/industrial production	6 272	90.8	11.8
Technical general subjects	615	98.0	18.7

Source: Norwegian Directorate for Education and Training

2006, 9.3 per cent of the applicants for Vg1 had also attended GK (the foundation course in the old system) in 2005 – 2006, and where among applicants for GK as of 1 March 2005, 9.7 per cent had attended GK also in 2004 – 2005 (Utdanningsdirektoratet 2006c).

The greatest number of applicants applied for specialization in general studies, with 24 454 applicants, and the lowest number applied for technical general studies, with 615 applicants. A total of 48.4 per cent of the applicants are girls. The highest proportion of girls is found among applicants for design and crafts and health and social care, while the lowest proportion of girls can be found among applicants for building and construction, electricity and electronics, technical and industrial production and technical general subjects.

For the first time, in the autumn of 2007, pupils in upper secondary education will be starting Vg2 (the second year in upper secondary education pursuant to the Knowledge Promotion Reform). Table 5.11 shows that there are a total of 67 948 applicants for Vg2 in 2007 – 2008. Of these, around 90.4 per cent attended Vg1 in 2006 – 2007, while around 3.3 per cent of the applicants attended VK1 in 2006 – 2007.

The highest number of applicants apply for specialization in general studies, while the lowest number of applicants are in technical general subjects, alternative education and agriculture, fishing and forestry. A total of 92.2 per cent of the applicants have the youth right, and the highest proportion with the youth right is among applicants for specialization in general studies, sports and music, dance and drama, while the lowest proportion with the youth right is among applicants for technical general subjects and health and social care. A total of 48.5 per cent of the applicants are girls, and

**Table 5.11: Number of applicants for Vg2 as of 1 March 2007, according to education programme, proportion of girls and proportion with the youth right.**

Education programme	Number of applicants	Proportion with the youth right	Proportion of girls
All education programmes	67 948	92.2	48.5
Alternative education	498	96.0	33.1
Building and construction	5 285	94.3	3.1
Design and crafts	2 840	86.7	91.5
Electricity and electronics	3 895	91.8	4.1
Health and social care	7 884	82.8	89.2
Sports	3 446	97.1	44.0
Media/communication	3 023	95.5	51.5
Music, dance, drama	2 068	97.0	67.3
Agriculture, fishing and forestry	1 423	85.2	54.8
Restaurant/food processing	2 788	88.3	55.1
Service/transport	4 723	86.3	36.7
Specialization in general studies	23 895	97.2	57.0
Technology/industrial production	6 043	87.8	10.1
Technical general subjects	137	75.9	51.1

Source: Norwegian Directorate for Education and Training

the proportion of girls is largest among applicants for design and crafts and health and social care, while the lowest proportion of girls can be found among applicants for building and construction, electricity and electronics and technical and industrial production.

### 5.3 Progression in upper secondary education

Applying for admission to upper secondary education is voluntary, however it is a political goal that as many as possible should start education after completing primary and lower secondary school. In their political platform the current Stoltenberg government states (in its so-called “Soria Moria declaration”) that they “consider primary and lower secondary school and upper secondary education as a holistic basic education that shall ensure that all children and young people have the optimal opportunities for the future when it comes to education and jobs”. Completing upper secondary education is considered an important part of achieving social levelling. Report to Parliament no. 16 (2006-2007) ... *og ingen sto igjen* (... and no one was left behind) states that: “Without completing upper secondary education the probability of poverty and marginalization increase drastically”. It is pointed out that having poor basic skills<sup>16</sup> from primary and lower secondary school is one of the primary reasons for dropping out of upper secondary education, which in turn prevents one from attaining vocational competence or qualifying for higher education.

#### Participation in upper secondary education

From the middle of the 1990s participation in upper secondary education has increased, and today most young persons start in upper secondary education after completing primary

and lower secondary school. Figure 5.5 shows the proportion of 16, 17 and 18 year olds in the entire population and in the population with immigrant backgrounds<sup>17</sup> who are in upper secondary education.<sup>1</sup>

The figure shows that the proportion of 16 year olds taking upper secondary education increased slightly in the 2002–2003 school year and has later remained stable and high. If we only look at participation by 16 year olds with immigrant backgrounds, participation here has also increased, and to a much larger extent than when looking at the same age group for the total population. There is much to suggest that the growing proportion of 16 year olds who take education may be explained by an increased participation of 16 year olds with immigrant backgrounds.

If we consider the population as a whole, participation has also increased proportionally for 17 and 18 year olds, but the increase for these age groups take place only a few years later than for the 16 year olds, as the growing proportion of 16 year olds must be able to move on in the education system. We do not find the same increase in the participation among 17 and 18 year olds with immigrant backgrounds as for the 16 year olds. This indicates that a larger proportion with immigrant backgrounds drop out at some point in their education, which might explain that the proportional participation declines from GK to VK2 when considering the whole population together.

Table 5.12 shows how pupils are distributed across education programmes according to the education levels of their parents. Among pupils with parents who have extensive higher education, a total of 66.9 per cent attend education programmes for specialization in general studies, while the corresponding proportion for pupils whose parents have primary and lower secondary school as their highest completed education is 19.7 per cent. For pupils whose parents have upper secondary education or primary and lower secondary school as the highest completed education, the spread is larger over several education programmes than what is the case for pupils whose parents have higher education. A relatively large proportion of pupils whose parents have upper secondary education or primary and lower secondary school as the highest education attend health and social care (29.8 per cent) and technical and industrial production (24.1 per cent). For pupils whose parents have extensive higher education or lower degrees in higher education, only a few attend these education programmes, 8.2 per cent and 7.3 per cent, respectively.

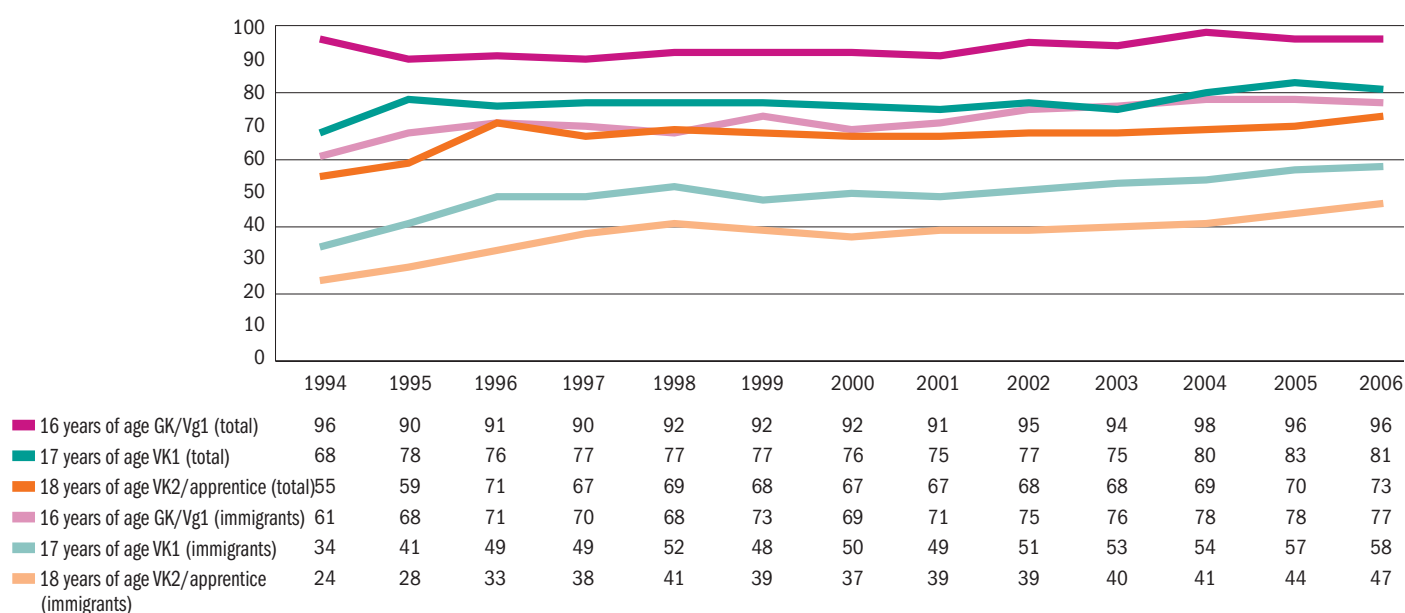
The figures in Table 5.12 are confirmed by findings made by NIFU STEP (Støren et al., 2007). They have found that parental education is very important for children’s choice of education in upper secondary education. For example, almost nine of ten aim for qualifying for higher education if their mother has extensive higher education or a doctoral degree, while this only apply to less than a third of those whose mother has primary and lower secondary school as the highest completed education. It is also found that

16) In the Knowledge Promotion reform basic skills are defined as being able to express oneself in writing and orally, being able to read, do mathematics and use digital tools.

17) Immigrant background is here defined as first-generation and second-generation Western and non-Western immigrants.

18) The figures include some adults taking subjects in accordance with the old R-94 syllabuses.

**Figure 5.5: Proportion of 16, 17 and 18 year olds in total and immigrants on expected education levels as of 1 October 2004-2006.**



Source: Norwegian Directorate for Education and Training / Statistics Norway

the higher the income parents have, measured pursuant to the father's relative income, the larger the proportion of children who choose the general and business/administration area of study.

### Completion

Of all the young people who started in upper secondary education in 2000, 56.2 per cent of them have completed their education in the normal time (Statistics Norway), another

11.5 per cent have completed in the course of five years, another 6.1 per cent continue to be in education after five years, and 26.2 per cent have dropped out of their the education.

**Table 5.12: Pupils according to education programme and highest level of their parents' education, Vg1 2006-2007.**

Education programme	Extensive higher education	Lower degree in higher education	Upper secondary education	Primary and lower secondary school	N/A
Alternative education *	1.8	1.9	3.1	5.3	4.0
Building and construction	2.1	5.3	9.5	9.8	6.0
Design/crafts	1.6	3.1	5.5	6.6	3.3
Electricity and electronics	2.9	5.4	6.9	5.4	4.4
Health and social care	2.4	5.8	12.2	17.6	22.1
Sports	6.0	6.9	5.1	2.6	1.7
Media/communication	4.6	5.4	4.0	2.3	1.4
Music, dance, drama	5.7	5.0	2.0	1.0	1.1
Agriculture, fishing and forestry	1.2	1.7	2.8	3.0	0.5
Restaurant/food processing	1.4	2.8	5.0	6.7	4.5
Service/transport	1.6	3.2	5.5	6.7	5.8
Specialization in general studies	66.9	48.1	27.9	19.7	34.0
Technical and industrial production	1.9	5.4	10.6	13.5	11.2
Total	100	100	100	100	100

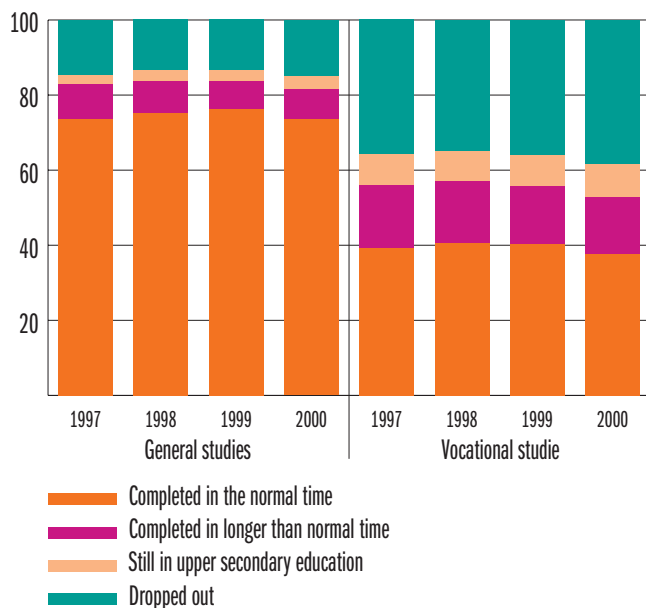
\* Pupils in alternative education have special education plans and do not follow any of the 12 education programmes. This designation corresponds to what was previously called "special study programme" (Norwegian acronym US).  
Source: Statistics Norway

Figure 5.6 shows that the completion rate is relatively stable for the pupils who started their upper secondary education in 1997, 1998, 1999 and 2000, and that there are large differences in the completion rate between vocational studies programmes and general studies areas. For these four year sets, an average of 74.6 per cent of pupils in general studies areas have completed their education within the normal time, and a further 8 per cent have completed within five years, while the corresponding average proportion for vocational study programmes is 39.5 and 15.9 per cent, respectively. In general studies areas an average of 14.1 per cent of the young people in these year sets have dropped out of the education, while the corresponding proportion in vocational study programmes is 36.3 per cent. The remainder continue in education after five years.

Of the 28 490 apprenticeship contracts registered as of 1 October 2003, 83.2 per cent of the apprentices have taken a craftsman's or journeyman's examination in at least one trade as of 1 October 2006, i.e. three years after the start (Norwegian Directorate for Education and Training). A total of 79.3 per cent of these passed. A total of 16.8 per cent of the apprentices with registered contracts as of 1 October 2003 had not sat for the examination as of 1 October 2006, and 14.5 per cent of these are out of education and only 2.3 per cent are still apprentices.

In addition to the large differences between vocational study programmes and general studies programmes, NIFU STEP (Støren et al., 2007) also find that there are large differences

**Figure 5.6: Status five years after starting school for pupils in general studies programmes and vocational studies programmes for all pupils starting school in 1997, 1998, 1999 and 2000.**



Source: Statistics Norway

in the proportion with optimal progression<sup>19</sup> between the different areas of study. The highest proportion with optimal progression can be found in sports, music, dance and drama and the general and business/administration areas of study. The lowest proportion is in wood processing, metalworking and hotel and catering.

There is a fairly similar pattern among pupils in general studies and vocational studies as to what things have an influence on the pupil to complete and pass his or her schooling over the four-year period (Støren et al., 2007). However, boys in vocational programmes complete to a lower degree than girls, also when controlled for grades. The explanation might be that many boys become apprentices and they are then only registered as having achieved vocational competence after five years. The increase in the completion rate after five years is clearly largest for boys with Norwegian backgrounds. The explanation might be that they have better contact networks and better opportunities to find an apprentice place than those with immigrant backgrounds.<sup>20</sup> Another possible explanation may be that boys with immigrant backgrounds have dropped out of their education to a higher degree due to weaker grades or similar factors.

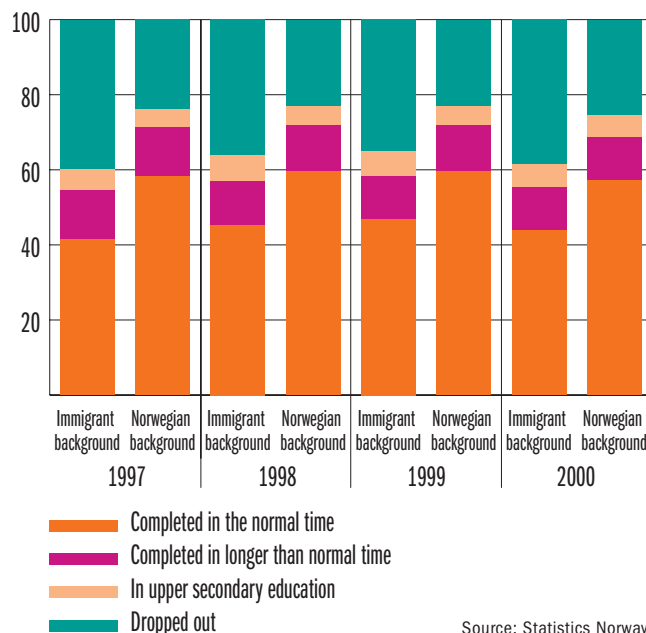
If we consider completion in the course of five years, pupils and apprentices in electricity and electronics have a relatively high proportion of completed candidates. NIFU STEP (Støren et

19) NIFU STEP (Støren et al., 2007) uses the construct optimal progression when describing pupil progression in upper secondary education. In contrast to the term normal time, which refers to pupils completing their education within the time frame stipulated by the subject curriculum for each subject, optimal progression refers to pupils who are in VK2 or in an apprenticeship three years after starting in upper secondary education. Thus these have not completed the education.

20) Immigrant background is here defined as first- and second-generation Western and non-Western immigrants. The term does not include pupils from Sweden and Denmark.

21) Immigrant background is here defined as Western and non-Western first- and second-generation immigrants.

**Figure 5.7: Status five years after start of school for pupils with Norwegian and immigrant backgrounds for the year sets 1997, 1998, 1999 and 2000.**



Source: Statistics Norway

al., 2007) explain this as being due to the fact that the education for many subjects in this area of study are not completed before the fifth year of the education, and it is also more difficult to obtain an apprenticeship place than in many other vocations. Chemistry and processing are an example of an area of study where it is easier to obtain an apprenticeship contract than electricity and electronics, and here the degree of completion within four years is also higher. We also find that the grade average is relatively high in chemistry and processing, which also may explain the higher degree of completion, as areas of study with a low average grade have relatively low proportions completing within four and five years.

Figure 5.7 shows completion rates for Norwegian pupils and pupils with immigrant backgrounds.<sup>21</sup> The proportion of both Norwegians and immigrants who passed the education within the normal time has declined by three percentage points for the class of 2000 compared to the class of 1999. The proportion of pupils who have passed within five years and the proportion still in education after five years are fairly stable for the classes of 1999 and 2000 for both these groups of pupils. The proportion of pupils with immigrant backgrounds who have dropped out of their education has increased by five percentage points from the class of 1999 to the class of 2000, while there is an increase of two percentage points for Norwegian pupils.

The probability of completing upper secondary education increases the better grades pupils achieve early in their

education, which may explain why pupils with immigrant backgrounds have a lower completion rate than Norwegian pupils, as immigrant pupils relatively have weaker grades than pupils from Norway (Støren et al., 2007).<sup>22</sup> Progression among pupils with immigrant backgrounds has nevertheless improved during the last 15 years, and if controlled for grades, non-Western pupils have the best progression and the highest rate of completion within each grade level. The total grade level among pupils with immigrant backgrounds has nevertheless not been improved, and the explanation may be that participation in upper secondary education has increased for pupils with immigrant backgrounds so that a higher number with poor grades continue in upper secondary education than previously. Chapter 3 explains grades according to immigrant status in more detail.

Støren (2006) has found that the picture for the performance of pupils with immigrant backgrounds has more nuances than has been presented earlier, and large performance differences have been found from one nationality group to another (see also Table 3.5). This is explained by cultural differences. Støren points out, however, that the education of the parents, labour market ties and wages influence the grades and progression of the young, and pupils with non-Western backgrounds to a larger degree have parents with poor education, poor labour market ties and poor incomes (Støren 2005a).

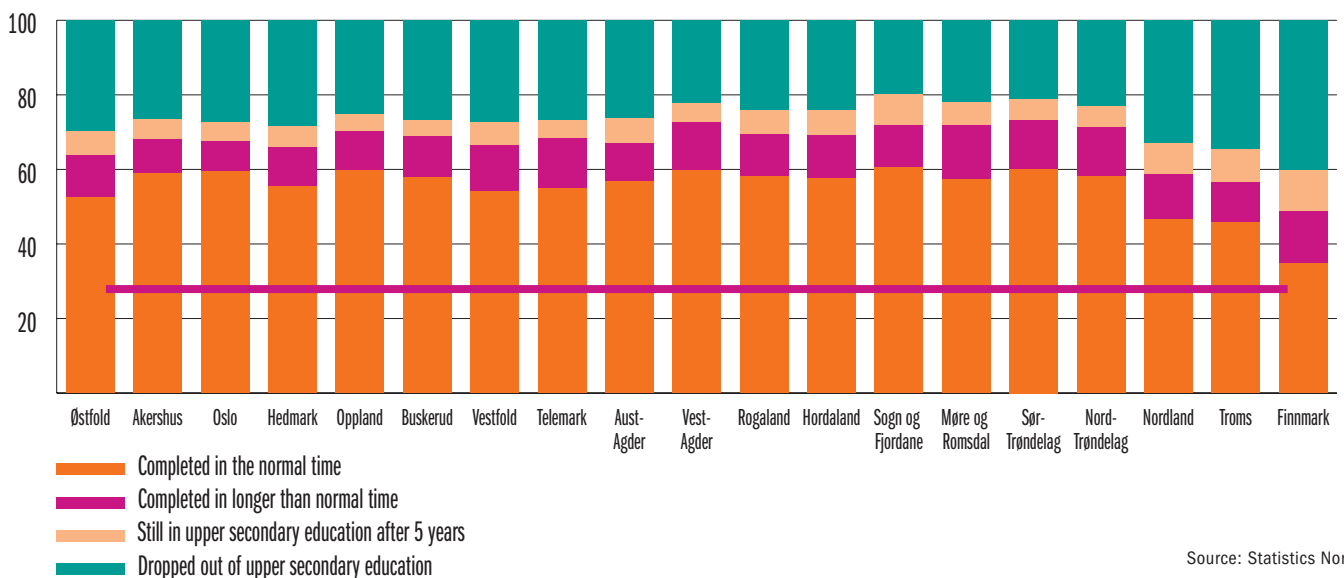
NIFU STEP (Støren et al., 2007) find that the education levels of parents have great impact on pupil completion rates, both for pupils with non-Western backgrounds and pupils with Scandinavian backgrounds. The mother's degree of education is particularly important for pupils or apprentices with non-Western backgrounds, while the father's education level has no significant effect. For Scandinavian pupils, the mother's level of

education also has great importance, but here the father's education level has approximately the same importance as the mother's.

Compared to all other groups of pupils, girls with non-Western backgrounds benefit on average most from having parents with higher education when it comes to completing the education, and even when their parents do not have higher education these girls cope best. The effect is highest when the mother has a higher education and somewhat weaker when the father has. This particularly applies to vocational programmes. In contrast, boys with a non-Western background do not benefit from having highly educated parents, particularly with respect to the father's education, whether in general studies programmes or vocational programmes. For Scandinavian pupils the effect is approximately the same whether the mother or father has higher education. The effects are also similar for boys and girls, and also apply to general studies programmes and vocational programmes. However, if controlled for parental education level, non-Western pupils achieve qualifications for higher education and vocational competence to the same degree as Scandinavian pupils within the course of four years.

Parental status in the labour market is important for the pupil completion rate and attainment of competence aims in upper secondary education, regardless of the parents' level of education, for both pupils with non-Western and Scandinavian backgrounds in general studies programmes and vocational programmes (Støren et al., 2007). The negative effect of having unemployed parents has more impact on Scandinavian pupils than non-Western pupils, and this fact is more important for pupils in general studies programmes than in vocational programmes. "The results give a picture suggesting that among those with Scandinavian backgrounds, where the normal

**Figure 5.8: Status five years after start of school for pupils who started upper secondary education in 2000, by county.**



Source: Statistics Norway

<sup>22</sup> Immigrant background is here defined as first and second generation western and non-western immigrants. The term does not include pupils from Sweden and Denmark.

situation is that the parents are employed, having parents who are not active in the labour market may have a certain “push-out” effect, while among parents with non-Western backgrounds it is primarily having parents who are active in the labour market that has a “pull-in” effect.” (Støren et al., 2007).

Figure 5.8 shows the completion rate by county for those who started in upper secondary education in 2000. The three northernmost counties have the lowest proportion of pupils who have completed their education within five years, and the highest proportion who have dropped out of their education during the same period of time. More than 69 per cent completed their education in the course of five years in central Norway and western Norway, and in Oppland and Vest-Agder counties. These are also the counties with the lowest drop-out rate. Given the large differences from one county to the next in completion rate, this can also be seen in the difference between counties in the proportion that achieve qualification for higher education and vocational competence (Støren et al., 2007).

### Drop-outs

An analysis conducted by NIFU STEP (Markussen et al. 2006) on the basis of data from seven counties in eastern Norway reveals many factors that in total indicate that the social background of pupils is important when it comes to whether they drop out or remain in upper secondary education. The probability that a pupil will not drop out of upper secondary education increases when parents have high education, are employed, have a positive attitude to education, consider education important and are oriented toward general studies. The housing situation appears to have an independent statistical effect, and if the pupil as a 15 year old lived together with both parents, the probability of dropping out declines. Pupil immigrant status also impacts the drop-out rate. Pupils with immigrant backgrounds have a greater probability of dropping out than others, which may be explained by the fact that many are in Norway for only a brief period in connection with their parents’ non-permanent work residence. Non-Western immigrants have a greater probability of dropping out than non-Western second-generation immigrants and Scandinavian pupils.

Pupil performances also impact the drop-out rate. The higher grades a pupil has, the higher probability the pupil will remain. Thus grades are the factor that in all corresponding analyses have proved to have the uncontested strongest statistical effect on the probability of a pupil staying in school or dropping out. This corresponds to other analyses which show that if a pupil gets his or her first choice, which is an indirect measure of pupil grades, the probability of remaining in education increases (Grøgaard 1997). Motivation and effort, measured in how much time is spent on homework, and adaptation to school indicated by the rate of absenteeism, impact whether a pupil will remain in education or not.

The county authorities are obliged to have a follow-up service (OT in Norwegian) for youth with the youth right who are not in upper secondary education. OT must maintain an overview over and contact with young persons who for various reasons are outside upper secondary education, and as far as possible offer a programme providing competence.

Report to Parliament no. 16 (2006-2007) ... *og ingen sto igjen* proposes that the role of OT should be extended so that an early dialogue can be initiated with pupils at risk of dropping out of their education. Closer cooperation between school and OT is therefore found to be a measure that can help prevent pupils from dropping out of school or put pupils who do not wish to have an upper secondary education into other competence-providing programmes as quickly as possible.

Table 5.13 shows that at the end of 2006 a total of 44 661 persons with the youth right were registered by OT. This represents a decline from 2005. The figure also includes those who are in programmes to prevent dropping out, have been registered by OT by mistake or whose status is unknown. If we disregard these, the number of registered persons is 28 791 compared to 28 992 in 2005 (not shown in the table). Of the total of 44 661 youths who were registered by OT at the end of 2006, a total of 16 345 were registered because they did not apply for admission to upper secondary education. A total of 10 586 were offered a place in upper secondary education but declined, while 2260 were registered because of dropping out of an education programme.

The table shows that there are large differences between counties when it comes to the proportion with the youth right registered by OT. Nord-Trøndelag and Sør-Trøndelag counties, for example, have a far lower proportion in OT than Finnmark, Aust-Agder and Nordland counties. There is reason to believe that the differences are not due to some counties having a larger proportion of youths that need follow-up by OT, or that some OT offices are better at finding those youths who are not in upper secondary education. A decisive factor is, however, the degree to which the OT offices have an overview of their true target group, and this appears to be a common problem due to varying and poor registration of drop outs (Buland et al. 2007). The current statistics are thus not found to be reliable. Buland et al. (2007) conclude that better statistics are needed to provide a more efficient follow-up and prevention service.

At the end of 2006, 58 per cent boys and 42 per cent girls were registered in OT, and it appears that the proportion of boys is rising over time (Norwegian Directorate for Education and Training).<sup>23</sup> It is difficult to ascertain whether this is due to real changes or erroneous reporting.

### Why do young persons drop out of education?

NIFU STEP (Markussen et al. 2006) has carried out qualitative interviews with 40 youths who dropped out of their upper

23) Does not include all those who are registered by OT, including those who have returned to upper secondary education, those who were erroneously registered by OT, or whose status code is unknown.

**Table 5.13: Youths with the youth right registered by OT as of 31 December 2004, 2005 and 2006, by county\*.**

	2004		2005		2006	
	Proportion	Number	Proportion	Number	Proportion	Number
Total	23.8	36 562	23.4	45 214	20.8	44 661
Østfold	23.5	2 290	22.8	2 355	24.8	2 670
Akershus	24.8	4 903	22.1	5 106	20.6	5 000
Oslo	23.5	3 603	29.3	4 922	24.0	4 209
Hedmark	25.5	1 827	21.6	1 766	20.0	1 690
Oppland	20.3	1 363	24.0	1 646	22.1	1 567
Buskerud	27.6	2 599	27.5	2 680	19.7	2 219
Vestfold	24.4	2 219	27.1	2 918	15.3	1 658
Telemark	21.5	1 451	21.3	1 685	22.5	1 841
Aust-Agder	25.8	1 092	24.1	1 168	25.2	1 294
Vest-Agder	12	800	18.1	1 363	20.6	1 655
Rogaland	25.7	4 387	23.1	4 428	23.4	4 679
Hordaland	-	-	20.8	4 435	22.2	4 869
Sogn og Fjordane	18.6	858	20.4	1 066	18.8	996
Møre og Romsdal	23.6	2 588	19.7	2 399	21.5	2 665
Sør-Trøndelag	-	-	-	-	8.9	1 147
Nord-Trøndelag	11.1	614	7.3	469	4.6	302
Nordland	30	3 126	27.5	3 223	25.1	3 042
Troms	25	1 648	28.2	2 023	24.7	1 854
Finnmark	36.6	1 194	42.1	1 562	34.1	1 304

\* Includes all who are registered by OT, including those who have returned to upper secondary education, who were erroneously registered by OT, or whose status is unknown. Source: Norwegian Directorate for Education and Training

secondary education in the period September 2005 to January 2006.<sup>24</sup> Based on recognisable circumstances in the same areas of study, Markussen et al. (2006) have made categories of drop-outs, such as “the lonesome ones”, “man of action”, and so on. One example of a reason for dropping out mentioned across the areas of study is the dilemma of having to move out of home and into a bed-sit to go to a school where the young person can complete his or her education. Another example is personal health, where such disorders as ADHD, depression and complications after an abortion are mentioned. Choosing the wrong area of study is also a recurring reason among the interviewees.

In health and social care Markussen et al. (2006) have distinguished between “the lonesome ones” and “the strugglers”. “The lonesome ones” describes a group of young people whose days in school consist of social isolation, being given the cold shoulder or being bullied by co-pupils, whether this concerns themselves or others. In general teachers are described as remote and not involved in the conflicts that are taking place, while some of the former pupils state that they doubt whether the teachers could have done anything if they had intervened. In the group called “the strugglers”, being tired of school is a common causal explanation for why they have

dropped out of school. Being tired of school in combination with a sense of having made a wrong choice, also pointed to as a reason by many, may appear to have created an academically intolerable situation.

The picture for those who drop out of building and construction is more complex than in health and social care. The one example that is emphasised is “the man of action”, who is not happy with theory studies, and who does not necessarily have adequate grades for admission to the school or area of study of choice. On the other hand, these young people find that they have received too little challenging practical tasks. This group also expresses frustration that the teachers have not taken the necessary steps in what is described as a destructive environment, and Markussen et al. (2006) describe this as the teachers’ sins of omission. The other group has been called “the undecided”. The “undecided” have had problems in choosing an area of study, and after school started they have discovered that they have made the wrong choice. These pupils often fall short of satisfying the demands placed on them by their teachers, and they do not quite understand how to acquire the skills needed to keep up with their classes. Many of the pupils in building and construction have also had negative experiences in connection with their placement in companies, which in turn has been a catalyst for their decision to drop out.

In the hotel and catering area of study the picture is also more complex than in health and social care. One reason for dropping out as stated by only those who have been pupils in hotel and catering is that the financial burden was too heavy when it came to the equipment and uniforms etc. required for the education. Here “the individualist” is described first. This group appears to have been attracted to cookery as a creative and aesthetic profession. This expectation has not been in accordance with the demands and conditions at the school, which many find to be far too rigid, and they have not been able to adapt. Another problem is that many have been surprised by the amount of theoretical studies and demands. Finally, the person called “the practical one” is presented. He or she chose hotel and catering because it was considered a safe road to a good job. This group has a different set of reasons for dropping out. Some have felt that they were bullied by co-pupils and teachers because of their ethnic background, and where no one intervened in their favour. Others have felt that they were unable to perform in the job or that the job was monotonous.

#### 5.4 Measures to improve the completion rate in upper secondary education

Based on the long-lasting relatively high proportion of pupils who do not complete upper secondary education, the Ministry of Education and Research wrote a report in 2006<sup>25</sup> that

24) The sample consists of five persons Østfold county, four from Oslo, seven from Hedmark county, and six from each of the counties Vestfold, Telemark, Buskerud and Akershus. Twenty-one of these youths are girls and 19 are boys. Sixteen were pupils in health and social care, thirteen were pupils in building and construction and eleven were pupils in hotel and catering. Twenty-two dropped out of GK and 18 dropped out of VK1. These pupils are not pupils admitted on special conditions or pupils with major behavioural difficulties, and they come from schools, not from companies.

25) The GIVO report: Tiltak for bedre gjennomføring i videregående opplæring (Measures for increasing completion rates in upper secondary education).



proposed measures to improve the completion rate in upper secondary education. Six areas are emphasised here: development and formalization of the trainee candidate scheme, additional and more varied apprentice places in schools and companies, focus on career guidance counselling, strengthening the competence of teachers and counsellors, more efforts in multicultural education, and measures for adults. These six fields are also mentioned in Report to Parliament no. 16 (2006-2007) ... *og ingen sto igjen. Tidlig innsats for livslang læring.*

With the introduction of the Knowledge Promotion Reform, the school owners may re-allocate 25 per cent of the hours stipulated for teaching in each subject (Report to Parliament no. 16 (2006-2007), Circular F-12/2006B). Such reallocation may occur if it is believed that it will ensure better overall attainment of competence aims in the subjects for each pupil, but must not come at the expense of the objectives/competence aims in the subject curricula. Reallocation may only be carried out in subjects with a national curriculum.

In connection with the introduction of the Knowledge Promotion Reform, elective programme subjects have been introduced for pupils in lower secondary school and in-depth projects have been introduced for pupils in vocational education programmes in upper secondary education (Circular F-12/2006 B, Report to Parliament no. 16 (2006-2007), Report to Parliament no. 30 (2003-2004)). The subjects shall offer pupils a sample of future trades or in-depth studies in a special academic field. Thus the subjects aim to provide pupils with a better background for their future choice. Having elective programme subjects is today a pilot project, but from 2008 – 2009 the scheme will be mandatory. In-depth projects have been introduced as part of the regular subject schedule and teaching hours in all vocational programmes from the 2006 – 2007 school year. Taking subjects on the upper-secondary-school level in lower secondary school is another scheme that has been introduced in connection with the Knowledge Promotion Reform. This scheme calls for pupils in lower secondary school to take subjects on the upper-secondary-school level in addition to the mandatory subjects. The idea behind this scheme is to give pupils challenging days in school, when they want the challenge, which will allow them to show what they can do. The scheme may also increase the pupil's motivation for further education and ensure greater adapted instruction. The subject is to be credited to the pupil in upper secondary education, but shall not restrict later choices or admission to upper secondary education. In the spring of 2007 the Norwegian Directorate for Education and Training carried out a study to determine which experiences schools have had with this pilot programme with an elective programme subject and/or subjects with an upper-secondary-school level in lower secondary school. The results will be used as the basis for further development of the regulations governing this scheme.

Based on Report to Parliament no. 6 (2002 – 2003) *Tiltaksplan mot fattigdom* (Agenda against poverty) the programme “*Satsing mot frafall*” (Efforts to counteract drop outs) was undertaken in the period from 2003 to 2006. This programme emphasised the importance of achieving qualifications for admission to higher education or vocational competence as a vital basis for good and lasting connections to working life, cf. Report to Parliament no. 6 (2002 – 2003). The programme was intended for all pupils in primary and lower secondary school and upper secondary education, but with special focus on pupils with immigrant backgrounds and functionally challenged pupils. One of the goals was to find measures that may prevent young people from dropping out of upper secondary education. Another goal was to find good ways of guiding youths who had dropped out of upper secondary education back into education or employment. SINTEF (Buland et al. 2007) has evaluated the programme and concludes that there are many and complex reasons why young persons drop out of upper secondary education. Long-term and focused efforts on many fronts at the same time is what yields results. It is still too early to see the large measurable effects of this focus on an aggregated national level, but measurable effects of the programme can be seen locally. In summing up the factors that are required for succeeding in the endeavour to counteract drop outs, it is found and pointed out that measures must be anchored on different levels, including the school administration level. Another important aspect is that school administrators must be active in the processes that are launched. The work to be done must be anchored among contact teachers, subject teachers and counsellors, but also among other school employees and other persons working closely with school. The work must also have a solid basis in planning to achieve a systematic approach and continuity. It is also important that the work is adapted to local needs and problems. This will give a correct focus and a local sense of ownership of the problem and the measures.

### 5.5 Transition to further education or working life

Those who take subjects qualifying for higher education are primarily focused on education after upper secondary education. This also applies to many of the pupils taking so-called soft trades, such as health and social care, where about 17 per cent continued in higher education (Støren et al., 2007).

Of those who started subjects that qualify for higher education in 1999, almost 70 per cent were in higher education after five years (Støren et al., 2007). Of those who had qualified for higher education, but who did not continue in higher education or a fourth year in upper secondary education, nine per cent were employed full-time six months after VK2, ten per cent had part-time employment and three per cent were either in labour market programmes, under rehabilitation, unemployed or recipients of social benefits. Almost fourteen per cent were completely unemployed (not under any of the above categories), indicating that having qualified for higher education is not

considered to be a final competence among Norwegian employers.

Of those who started in upper secondary education in 1999 and who achieved vocational competence in school, close to 22 per cent were employed full-time four years after starting in upper secondary school, around 24 per cent were in part-time employment and around eight per cent were unemployed. Corresponding proportions for the class of 2000 were respectively 23 per cent, 22.5 per cent and less than seven per cent. Compared with vocational education in school, taking vocational training with a company is far more efficient when it comes to finding regular employment after completing the education, and vocational competence from a company primarily gives full-time employment (Støren et al., 2007). For the class of 1999, 42 per cent were employed full-time four years after starting, nine per cent were employed part-time and seven per cent were unemployed. Of the class of 2000 all of 48 per cent were in full-time employment after four years and after five years 52 per cent were employed full-time.

If we look at the pupils who started upper secondary education in 1999 and 2000 together, almost 40 per cent of non-Western second-generation immigrants were registered in higher education four years after starting in upper secondary education (Støren et al., 2007). The corresponding proportions for non-Western first-generation immigrants and those with a Scandinavian background were respectively 31 per cent and 33 per cent.

Of those pupils who had qualified for higher education, there were very small differences according to immigrant background with respect to participation in higher education five years after starting upper secondary education, but right after upper secondary education, young people with a non-Western immigrant background (qualifying for higher education) were strongly over-represented in higher education. Scandinavian young people often delay the start of their studies, while young people with an immigrant background continue directly on to higher education.

Of those who started in upper secondary education in 1999 and 2000 and who completed a vocational competence in 2003 and 2004, the number of unemployed, persons in labour market programmes or similar among those with non-Western backgrounds was higher compared to those with Scandinavian backgrounds. The proportion of pupils with Scandinavian backgrounds in higher education was higher than among those with immigrant background of those who had qualified for higher education.

# 6 Quality development



**Quality development is a central concept in the education sector. Responsibility for quality development in primary and lower secondary school and upper secondary education rests with the local and county authorities. If the local authorities, county authorities and schools are to proactively use data in their own development activities to promote the competence of pupils and apprentices, the central authorities must also contribute so they have the best possible access to research-based knowledge on school.**

Quality development requires follow-up and assessment. Report to Parliament no. 30 (2003–2004) *Kultur for læring* (Culture for learning) states that if the institution of learning is to be able to offer adapted learning, a good learning environment and learning dividends, knowledge is required as to the strong and weak sides of one's own activities, and there must be a culture for learning and development. National, regional and local quality assessment must be coordinated and developed so that central authorities, county authorities, local authorities, each school and institution of learning, parents and caregivers, pupils,

apprentices and employees, as well as society in general, can gain more insight into the actual state of the learning situation. The national quality assessment system is a central tool in the endeavours to accomplish this. It aims to promote quality development on all levels in primary and lower secondary school. The system is based on a broad concept of quality, where information on the learning environment, learning results and resources shall form the basis for follow-up and improvement.

This chapter examines some of the quality activities taking place in Norwegian primary and lower secondary school. Here school owners and school administrators have important roles, particularly according to Report to Parliament no. 30 (2003–2004) *Kultur for læring* (Culture for learning), which made a great step in the direction of increased local freedom and responsibility. Many schools and school owners want to develop the quality of the learning they are offering, which is demonstrated by the number of applications for the programme *Kunnskapsløftet – fra ord til handling* (The Knowledge Promotion Reform – from word to deed). There is wide agreement that the most important school factor for pupils to have good learning dividends from the education is the teacher. Through Komp-

etanse for utvikling – Strategi for kompetanseutvikling i grun-  
 nopplæringen 2005–2008 (Competence for development -  
 Strategy for competence development in primary and lower  
 secondary school 2005-2008), school administrators, teachers  
 and instructors in apprenticeship companies will be better  
 equipped and stimulated to face the challenges resulting from  
 the changes in content and structure that the Knowledge  
 Promotion Reform is introducing. Studies show that not all  
 teachers have competence in the subjects they teach. An  
 analysis of Program for digital kompetanse (Programme for  
 digital competence) also shows that the use of ICT in education  
 practice is lagging behind in Norwegian schools, even if the  
 infrastructure is steadily improving. In vocational education  
 there is a need for more documented knowledge to serve as the  
 basis for quality development in the cooperation between the  
 education authorities and the employer and employee organisa-  
 tions on the national and regional level, where the responsibility  
 for the education programme lies, and in each school and  
 apprenticeship company.

### 6.1 National quality assessment system

Schools and school owners are obliged to act on the results  
 of local and national assessments, cf. section 13-10 of the  
 Education Act. A national system for quality assessment in  
 key areas is more efficient and may ensure higher quality of  
 the data basis than if each local authority were to design its  
 own system. Parliament therefore adopted the proposal to  
 establish a national quality assessment system in the spring  
 of 2003.

The overriding aim of the national system for quality assessment  
 (Norwegian abbreviation NKVS) is to contribute to quality  
 development on all levels in primary and lower secondary school  
 and upper secondary education, aiming to adapt the education  
 and enhance the learning dividends for each pupil. The quality  
 assessment system shall, moreover,

- promote an open attitude in the school and lead to insight  
 into and dialogue on its activities
- give the education sector information on which it can make  
 informed decisions using documented knowledge on the  
 situation, locally and nationally
- form the basis for local assessment and development  
 activities by the school owner and the school administration  
 that will open for assessment and follow-up of results

Agderforskning, the Work Research Institute and DPU (the Danish  
 School of Education) have been assigned the task of evaluating  
 the national quality assessment system. The evaluation, taking  
 place from 1 September 2005 to 31 December 2008, will  
 provide knowledge on the system as a construct, and about its  
 implementation, use and effects. Knowledge from the evaluation  
 will be used to continuously improve the system. The first sub-  
 report from the evaluation was issued in April 2006 (Langfeldt  
 and Lauvdal 2006). It sets the point of departure for the evalua-

tion and the researchers explain the quality assessment system  
 as a construct. Sub-report 2 (Deichman-Sørensen 2007)  
 examines quality assessment in vocational education, and is  
 dealt with in more detail in Chapter 6.6.

Of the many elements in the national quality assessment system,  
 the national tests and the website Skoleporten (The School  
 Portal) are the most important.

As a stage in the quality development work, information from  
 each school and school owner will be collected and presented.  
 Important information about primary and lower secondary  
 school and upper secondary education has so far been  
 collected on the web portal [www.skoleporten.no](http://www.skoleporten.no). Skoleporten is  
 a tool that school owners and school administrators can use to  
 assess and develop their activities. The website has been  
 important for quality development, but is not yet being used to  
 the full. Information on education and access to guidance  
 resources so that the information can be used in the best way  
 possible are necessary for further quality development. The  
 Norwegian Directorate for Education and Training has therefore  
 been assigned the task to develop Skoleporten. The revised  
 Skoleporten will be opened at the end of 2007.

The national tests are an important element in the national  
 quality assessment system. The tests in 2004 and 2005 were  
 criticised for not having common frames for the design, and  
 because both the assignment and the purpose of the tests were  
 unclear (Lie et al. 2004 and 2005). The experiences from the  
 two years these tests were carried out show that the national  
 tests may nonetheless be a useful tool for both the school  
 owners and national school authorities in assessing the quality  
 of the education at individual schools. However, problems in the  
 implementation and use of the test results have necessitated a  
 review of the purpose, design and other aspects of the tests.

In the autumn of 2007 national tests will be held in Year 5 and  
 Year 8 in primary and lower secondary school in mathematics  
 and in reading in Norwegian and English.<sup>1</sup> The purpose of the  
 tests is to determine basic pupil skills as they are described in  
 the subject curricula. The national tests will primarily give  
 information about the group and the year set to teachers, school  
 owners, local authorities and the regional and national level as  
 the basis for improvement and development activities. All in all,  
 information from the national tests and other testing and  
 assessment forms in the national quality assessment system,  
 such as surveys and grade and learning-supporting tests, will  
 give a good picture of pupil competence.

The results from the national tests will be published on the basis  
 of a common scale. Teachers and the school administration will  
 receive reports about their results as soon as the results are  
 registered in the web-based test administration system. Results  
 from the national tests are made public, but the Ministry will not  
 introduce a ranking of schools. The results will be available to  
 those who are to use them.

1) In addition to the national tests, tests will be prepared in writing in Norwegian and English for a nationally representative sample of pupils in primary and lower secondary school.

## National tests in Sweden and Denmark

The purpose of the national tests varies among the Scandinavian countries.

**Sweden** has had various forms of national tests since the 1940s. After the revision in 1994, the national testing system includes national tests in English, mathematics, Swedish and Swedish as a second language, and testing material in additional subjects in the Skolverket (the Swedish National Agency for Education) test bank. Primary and lower secondary schools are also offered diagnostic material. The national tests are mandatory in Year 9, but voluntary in Year 5 and upper secondary education. From 2009 national tests will also be introduced in Year 3. The purpose of the national testing system is to help pupils satisfy the objectives, to clarify the objectives and show the strong and weak sides of pupils, specify grade demands and syllabus objectives, support equal and fair assessment and grade setting, and provide the basis for analysis of the degree to which knowledge objectives are satisfied on the school level, school owner level and the national level. Evaluations have shown that the national tests do not contribute to equal rights as the intention was, and Skolverket has therefore been instructed to find out how the tests can be made more flexible and better adapted to various pupil groups, such as pupils in different programmes in upper secondary education. Results from all the schools are publicly available on the Skolverket website. The national tests cannot be compared over time, and cannot therefore give information about quality development.

(Source: [www.skolverket.se](http://www.skolverket.se))

**Denmark** previously conducted no other testing than examinations and participation in international studies such as PISA. National tests were introduced in the spring of 2007; initially tests in mathematics in Year 6, physics/chemistry in Year 8 and Danish/reading in Year 8. From the 2007–2008 school year tests will be carried out for several years, including in English, biology and geography, and there will be voluntary tests in Danish as a second language. The tests are IT-based, self-scoring and adaptive, i.e. they are carried out using a PC, corrected automatically and adapt to each pupil during the test. Based on the test results a national average will be calculated each year for each of the tests carried out in the various subjects. The national results will primarily give teachers something to compare individual pupil results with. The national results may also show the total development in the academic level for pupils from one year to the next. The national tests are primarily intended for in-house use in schools and in the cooperation between homes and school. They will not be used to rank schools and will not be published. (Source: [www.evaluering.uvm.dk](http://www.evaluering.uvm.dk))

## 6.2 School administration

§Section 9-1 in the Education Act states that: "All schools shall have sound professional, educational and administrative management." Beyond this no requirements are set for specific education for school administrators in Norway. There has, however, been focus on administration in school and competence development for school administrators in connection with implementation of the subject curriculum, focal areas and assessment and reporting, and in the day-to-day operation of the sector.

International research has shown that school administration is very important for good development of the school sector (Leithwood and Riehl 2005, Mulford and Johns 2004). Even though the focus on school administration has been intensified in Norway, there is rather little research on what school administration means for good and efficient schools (OECD 2007). Some Norwegian studies that have examined the relation between administration and development in school have, however, found the same tendencies as in international research (Erstad 2004, Møller and Fuglestad 2006).

Efforts are being made to develop the competence of Norwegian school administrators. In this connection ILS (the Department of Teacher Education and School Development at the University of Oslo) has been made responsible for coordinating the Nettverk for skoleledelse (Network for school leadership) on assignment from the Norwegian Directorate for Education and Training. Through this network, all the environments providing studies and competence development/programmes for school administrators and about school administration are supplied with information on a continuous basis and are invited to collaborate in the process.

Norway and 21 other countries have joined the OECD study Improving School Leadership. The purpose of the study is to stimulate, develop and enhance leadership in school, thus improving the situation for teachers and giving pupils better opportunities for learning. In the spring of 2008 the OECD will use the national country reports and case studies implemented with expert assessments to prepare a summary and also follow up recommendations for further development of school leadership in each country. The national report from Norway to the OECD gives a comprehensive picture of work with school leadership (OECD 2007). The report is primarily based on information, reports and argumentation that are research-based and published in Norway, such as school administration reports ILS has prepared for Læringscenteret (now part of the Norwegian Directorate for Education and Training) (Møller and Paulsen 2001) and the Norwegian Directorate for Education and Training (Møller et al. 2006)<sup>2</sup>. Where a research base is lacking, the information in the national report on Norwegian school leadership is based on input from an advisory committee with members from KS, the Union of Education in Norway and NSLF (the Norwegian Association of School Leaders).

2) The reports are dealt with in Utdanningsspeilet 2005, Chapter 6.

The national report from Norway to the OECD finds it positive that Report to Parliament no. 30 (2003–2004) *Kultur for læring* (Culture for Learning) shows that there is political will to make leadership in school clearer and more powerful (OECD 2007). This has been followed up in the Knowledge Promotion Reform by highlighting good leadership practices in demonstration schools, encouraging leadership studies and continuing cooperation in the academic environments through *Nettverk for skoleledelse*. In *Strategi for kompetanseutvikling for grunnskolelæringen 2005–2008* school leadership is given priority in the initial phase of the work. Fafo's follow-up evaluation (Hagen et al. 2006 and 2007) shows that this is being followed up (see Chapter 6.2). This is in accordance with a long tradition. Competence development for school administrators on all levels has long been given priority, and is the field given most emphasis in the education sector from the 1960s to the 1990s in Norway, with special national programmes for school administrators and leadership and development<sup>3</sup>. The programmes have generally been anchored and funded by the Ministry, but all levels in the education sector, the organisations and all relevant academic communities have been involved in preparation, implementation and evaluation. It is also positive that leadership as a subject has been established with a study on the Master's degree level, and that KS and the organisations are cooperating on training school leaders through national congresses and courses.

No analyses exist that can provide the basis for assessing whether school leadership in Norway is good or bad compared to other countries. Norway will join the planned OECD study TALIS, which also will examine school leadership.<sup>4</sup> The national report from Norway to the OECD draws attention to the fact that we do not know enough about whether we have good school administrators in Norway, which is a shortcoming. On the local level, some local authorities and county authorities admittedly have quality systems giving them good information about their school administrators. However, there is no consistency in the programmes offered school administrators across the country, and there are conflicting views as to what gives the greatest effect for individual school administrators, for school as an organisation and workplace and not least for the learning dividends for each pupil.

The national report from Norway to the OECD asks several questions about the school system and conditions for the education that indirectly provide data on the school leadership function. Acts, agreements and curricula are established on the national level, but the school owner is responsible for the education and for compliance, follow-up and reports. The first common national inspection that was carried out by the County Governors' Directors of Education in 2006 shows that most of the municipalities inspected did not satisfy the requirement for a quality-assessment system pursuant to section 13-10 of the Education Act (Norwegian Directorate for Education and Training 2006a). This shows that on the national level it will be difficult to give an aggregated and precise statement on

how school leadership is practised in Norway. The follow-up to *Improving School Leadership* may clarify how the term "clear leadership" is understood. In this way it may be possible to create new grounds for discussing school leadership competence and qualification requirements.

The comparative research project *Head 2003–2008*, which examines school leadership, started in 2003 and will continue into 2008. The project is organised through the Norwegian School of Management, CEM (Centre for Education Management), but is operated by a network of researchers from several Norwegian universities and colleges, including the University of Oslo. It is part of the research programme FIFOS (Innovation in the Public Sector) and is funded by NFR (the Research Council of Norway). The project will compare Norwegian education programmes at universities and colleges in Finland, France, Great Britain and the USA.

National reports have been prepared in cooperation with researchers from the countries involved in the *Head* project<sup>5</sup>. The national reports show that only France has a school leadership education that includes all the country's school leaders with formal competence requirements. In Finland and Great Britain school leaders are required to join a form of school leadership education before being hired. The central authorities in Norway and the USA do not demand formal school leadership competence in connection with hiring, but some states in the USA have such requirements. In both Norway and the USA many institutions of higher education offer various types of school leadership training (Fouquet 2006, Bush 2005, Värri and Alava 2005, Wales and Welle-Strand 2005, Björk and Murphy 2005).

Previously, Norwegian school leadership education consisted of short practical courses. In 2003 two Master's degree studies in education leadership were offered in Norway, and in 2004 there were ten Master's degree programmes. Now the programmes primarily consist of module-based course packages that are part of a Master's degree. The transition to Master's degrees comes as part of the restructuring in the Quality Reform into a new structure for academic degrees in higher education. Taran Thune (2005) claims that the programmes today are not as closely connected to the practical field of school leadership as they once were. Finnish school leadership education is, in contrast to what is offered in Norway, more closely associated with cooperating schools, where parts of the education are carried out in collaboration with guides and mentors from the schools. In much the same way as for teacher training, few of the institutions offering school leadership training in Norway undertake empirical research in the field.

### 6.3 Teacher competence

A review of international research shows that the most important school factor for good pupil dividends from the learning is the teacher (Gustafsson and Myrberg 2002). Both subject compe-

3) Such as the programme *Ledelsesutvikling i skolen* (LUIS) (Leadership management in school), which was introduced in 1992.

4) The study *Teaching and Learning International Survey 2007* (TALIS) focuses on school leaders and teachers in lower secondary school, and will give more insight into what characterises good schools and school activities in light of modern administration methods. The main study will be carried out in the 2007–2008 school year, with final reports in March 2009.

5) Read more on [http://www.bi.no/templates/artikkel\\_\\_\\_\\_29858.aspx](http://www.bi.no/templates/artikkel____29858.aspx).

tence and educational competence are important and necessary to ensure good learning. Teachers must also have didactic competence, change and development competence, social competence and ethical competence. The fact that digital competence has been included as one of the basic skills in the syllabuses makes it imperative that teachers also develop their digital skills. Report to Parliament no. 30 (2003–2004) Kultur for læring emphasises that it is important that teachers have solid competence in the subject they teach. Bearing this report in mind, Parliament has approved a number of measures to make basic education better able to face the challenges in the knowledge society. One of the most important measures is competence development for school leaders and teachers.

### Strategy for competence development

The purpose of *Kompetanse for utvikling – Strategi for kompetanseutvikling i grunnskolingen 2005–2008* is that employees in primary and lower secondary school and upper secondary education, will have a level of competence that ensures pupils and apprentices adapted teaching which will allow them to develop their abilities and talents in accordance with the general curriculum, the Learning Poster and the subject curricula. The strategy gives clear priorities for the main areas of competence development: competence development for school leaders, reform-related competence development for the teaching staff and further education in central areas. In 2005, NOK 300 million was allocated as state subsidies for this programme, and another NOK 375 million was allocated in 2006. The local and county authorities report that they have allocated a corresponding amount of their own funds in both years. To obtain knowledge about the local activities in connection with the strategy the Fafo research foundation will be evaluating it and the school owners also report annually on how they use the funding.

Competence in connection with new curricula, and understanding and analysing curricula are important challenges the schools will be facing in connection with the Knowledge Promotion Reform, and reports from the school owners also show that they are giving high priority to this field. More than 90 per cent of all public schools have been involved in measures raising competence in this field in both 2005 and 2006. In 2006 more than 66 000 teachers participated in programmes dealing with curriculum/subject curriculum understanding and analysis, and more than 60 000 teachers joined programmes to raise their subject competence. School owners report that more than 80 per cent of the schools participated in programmes connected to school leadership and organisation development in both years, and just as many participated in the field of adapted instruction and development of a good learning environment and prevention of behavioural problems.

Fafo's evaluation of *Strategi for kompetanseutvikling* (Hagen et al. 2007) supports the impression that there have been comprehensive activities in the continuing education field (courses, seminars, conferences etc.), focusing on both teachers and school leaders. Competence development focusing on adapted

teaching appears to be a key part of these measures. The scope of continuing education has, however, been restricted, with the exception of school leadership training which has been a priority area in both 2005 and 2006 for the majority of school owners (see Chapter 6.1).

Even if there is much activity in these central areas, many factors need to be present if new competence is to lead to changes in school. In its evaluation, Fafo argues that the prospects are good that *Strategi for kompetanseutvikling* will lead to real changes compared to previous programmes for competence development (Hagen et al. 2006 and 2007). However, an overriding requirement for success in this activity is that the school owner has the ability and will to organise the processes so that teachers and leaders feel that their needs are being met. To promote learning and development processes in school Fafo points out some important organisational requirements:

- teacher and school leaders must be committed to these processes
- the leaders of the development activities must have insight into learning and development processes
- development activities must be considered together with other change processes at the institution of learning
- there must be external support from experts

In Fafo's analysis of the planning phase in the municipalities and counties the interviews show that the school owner, head of school and staff representatives in the selected cases have somewhat different emphasis on the aims of the strategy. The interviews suggest that these three groups have in part different understandings of the competence needed and appropriate measures for developing new competence in school. The evaluation also shows that there are major differences in the organisation of processes to define local competence needs.

The interviews also suggest that the school owner most often takes control when it comes to developing local competence development plans. It appears that decisions on priorities of needs and choice of measures are generally made centrally by the local and county authorities. The reports suggest that a real study of competence has taken place in many schools, but that particularly teachers have not been involved to any great degree in the further planning process. Fafo points out the advantage of having the school owner control the development of plans, i.e. it strengthens the development of schools in the municipality as a whole, and that the competence in the school organisation may be utilised better by the local authorities. The danger might be that this could undermine involvement and a common understanding of challenges and choices made on the school and teacher levels. Another disadvantage may be that not enough consideration is given to the variation from one school to the next. To achieve the desired changes, Fafo argues for collective planning processes. This may give actors a greater common understanding of needs and measures. Such processes are more demanding, but Fafo deems them to have the greatest potential to create comprehensive positive changes. Based on the cases, Fafo claims that the local planning process so far has

had a relatively small integration effect. If the aim is that the process of development of competence development plans should be integrating, Fafo believes that it is important to involve schools more in the future and also to consider measures in relation to other on-going development processes.

When it comes to the initiatives phase, the danger of a centralised model is in Fafo's view that funding may be connected to purposes that are too distant from the school's day-to-day activities, or the resources at the school level may be inadequate to develop school as an organisation in a way that stimulates learning. To change the collective practice in schools, they must have an organisation and a culture that contributes to this. A model with individual teachers going off to courses does not always give the best conditions for such changes. Interviews with school leaders suggest that they generally find that the measures are for the most part relevant and cover all or most of the needs in school. Some leaders, however, point out needs that are not satisfied, particularly academic competence needs.

### Teachers' subject competence

High subject and pedagogical competence for teachers is an important requirement for quality in school. That teacher competence is important for the learning dividends of pupils is shown by a recent study from the evaluation of the Swedish primary and lower secondary school (Skolverket 2006). Whether a teacher has teacher training and education in the subject she or he teaches has impact on what pupils learn. The pupils also assess these teachers as good teachers. Researchers find a connection between pupil achievements and teacher competence, as educators and as subject teachers, among teachers teaching Swedish and English, but not in mathematics. Skolverket's analysis of teachers with pedagogical and subject competence in the subject they are teaching shows that they consider their own methodological and didactic competence higher than those of other teachers, and they also enjoy teaching more.

### Primary and lower secondary school

On assignment for the Norwegian Directorate for Education and Training, Statistics Norway has examined the subject competence of teachers in primary and lower secondary school in the subjects they taught in the autumn of 2005 (Lagerstrøm 2007).

This study was carried out as an interview study. The education of teachers in the subject they taught was measured in the form of study points, credits, annual units and so on in the report, and re-calculated into study points. When Lagerstrøm claims that teachers lack in-depth studies in the subject they teach, this does not mean that they do not have any form of formal education. All general teachers have formal competence to teach all the years in primary and lower secondary school.<sup>6</sup> Only 4 per cent of the teachers interviewed state that they have no pedagogical education at all. The proportion of teachers without approved training varies a great deal from one county to the next.

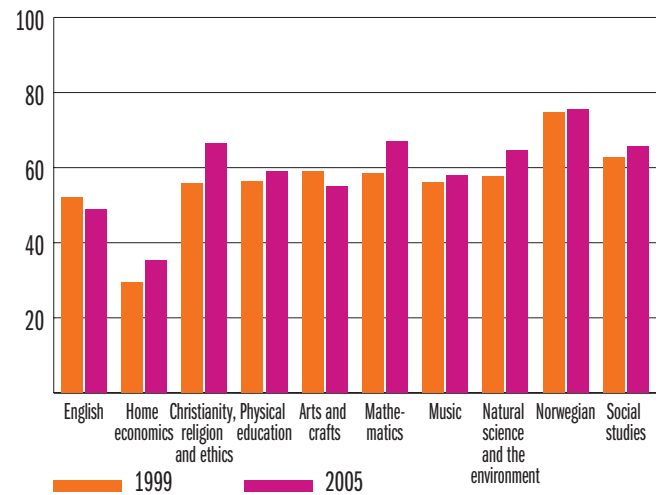
6) See the paragraph on evaluation of teacher training later in this chapter.

7) In the framework plan from 2003 the mandatory subjects in general teacher education today are Norwegian, mathematics, Christianity, religion and ethics, basic reading, writing and math teaching, pedagogy and practical training. In the framework plan from 1998 the mandatory subjects were aesthetic subjects (arts and crafts or music), Christianity, religion and ethics, mathematics, nature, society and the environment, Norwegian, practical subjects (home economics or physical education), pedagogy and practical training.

8) 60 study points correspond to a full year of studies in the subject. The strategy plan Realfag, naturligvis (Natural science, naturally) defines high subject competence as at least 60 study points.

Vest-Agder county has the highest number of teachers in relation to the total number of teachers in the county, with Buskerud county a close second.

**Figure 6.1: Percentage of teachers with in-depth studies in their subject, 1999 and 2005.**



Source: Lagerstrøm 2007

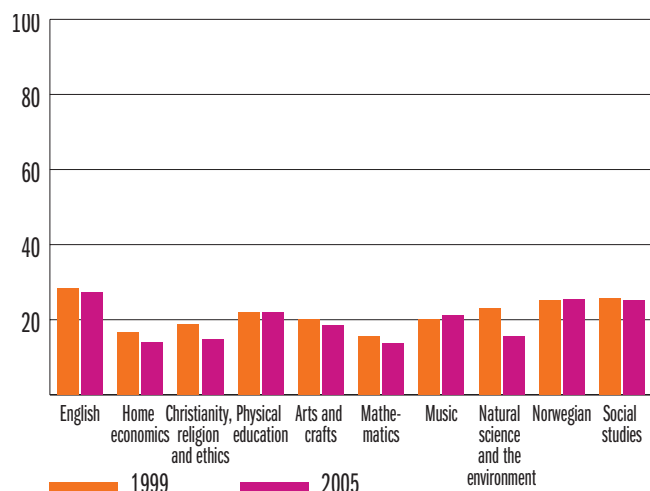
Many teachers teaching in primary and lower secondary school today have in-depth studies in the subjects they teach. The percentage is highest in the subject of Norwegian, as shown in Figure 6.1. Three of four teachers in Norwegian have in-depth studies in this subject. This is not unexpected, as the Norwegian subject have long traditions in the general teacher training in Norway.<sup>7</sup> Two of three teachers in mathematics, natural science and the environment, social studies and Christianity, religion and ethics (Norwegian acronym KRL) have in-depth studies in their respective subjects. Teachers of home economics and English have the least amount of in-depth studies. Less than half of those who teach English have in-depth studies in this subject, while this is the case for one of three home economics teachers.

In recent years much attention has been given to natural science subjects for both teachers and pupils. It is thus not unexpected that far more teachers have in-depth studies in mathematics and natural science and the environment in 2005 than in 1999. The percentage of mathematics teachers with in-depth studies in mathematics has increased from 59 to 67, for teachers in natural science and the environment from 58 to 65. For other subjects the changes relating to in-depth studies are small. Nonetheless, it is worth noting that relatively fewer teachers have in-depth studies in English and arts and crafts in 2005 than in 1999.

If, on the other hand, we consider the level of in-depth studies, as shown in Figure 6.2, more than every fourth English teacher has competence corresponding to 60 study points or more.<sup>8</sup> For Norwegian and social studies this applies to every fourth



**Figure 6.2: Percentage of teachers with at least 60 study points in subjects they teach, 1999 and 2005.**



Source: Lagerström 2007

teacher. Of mathematics teachers, 14 per cent have similar in-depth studies. The survey shows only minor changes over time when it comes to in-depth studies on this level, with the exception of the Christianity, religion and ethics subject and natural science and the environment, where the percentage is slightly lower than in 1999.

The survey shows that the amount of in-depth studies is generally largest among teachers teaching lower secondary school, both in terms of degrees and scope. The age distribution in relation to in-depth studies varies among the subjects. In Christianity, religion and ethics and mathematics a larger proportion of the youngest teachers have more in-depth studies than the oldest ones, while there are no large differences between the age groups when it comes to the proportion with in-depth studies of 60 study points or more. In Norwegian and natural science and the environment the percentage with in-depth studies is also greatest among the younger teachers, but here a larger proportion of the older teachers have 60 study points or more. In primary school the percentage of those with in-depth studies is substantially higher for teachers under 30 than for those who are 60 or older. This applies to all subjects except English, and this is because English is not mandatory in general teacher education.

### Upper secondary education

On assignment from the Norwegian Directorate for Education and Training, NIFU STEP has surveyed formal pedagogical and subject-specific competence for teachers in upper secondary education (Aamodt and Turmo 2007). The study has been undertaken as an electronic questionnaire for teachers in selected subjects in vocational programmes and programmes for general studies in Vg1, VK1 and VK2 in the 2006–2007 school year. Around one third of Norwegian schools decided to participate, and the response rate for teachers in the schools was around 50 per cent. The analyses presented here are preliminary and are based on more than 3500 teacher responses.<sup>9</sup>

**Table 6.1: Formal pedagogical competence for teachers in upper secondary education (N=3576). Per cent.**

	Programme for general studies	Vocational programme
Pedagogical training or PPU*	80	73
Subject teacher/general teacher education	16	18
No approved teacher education	4	9

\*Practical pedagogical training  
Source: Aamodt and Turmo 2007

The survey shows that the large majority of teachers have approved formal pedagogical competence. As Table 6.1 shows, the proportion lacking such competence is slightly higher in vocational programmes than programmes for general studies

**Table 6.2: Age and position category for teachers.**

Age/ position category	Teacher	"Adjunkt" Bachelor's degree	"Adjunkt" Bachelor's degree with seniority	"Lektor" (Master's degree) (LR30)	Lektor (Master's degree) (LR31)	Other	N
25-29	8	19	25	18	28	2	191
30-39	9	15	31	5	34	6	771
40-49	12	22	35	3	21	7	855
50-59	5	13	36	2	33	11	1270

Source: Aamodt and Turmo 2007

Table 6.2 shows the distribution of teachers in different age groups according to position categories. As each position category is defined by the scope of the education, the results in the table may be used to compare the total scope of teacher education. The proportion employed as a "lektor" is highest among the oldest and the youngest teachers. Of those above 60 years of age by far the most are "lektor med opprykk" (Master's degree with seniority), i.e. their total education is six years or more. Table 6.2 also shows that the proportion stating another position category increases with age, as is to be expected. The "Other" category here includes administrative positions, such as deputy head or head teacher.

Table 6.3 shows the education of teachers teaching common subjects in Year 1 (Vg1) in programmes for general studies. As it appears from the table, the total of the percentage values is not always 100 for subjects such as Norwegian or mathematics. For example, 7 per cent of teachers teaching Norwegian have not stated that they have any education in the subject Norwegian/Nordic studies. The questionnaire opened for entering a specific education in the category "Other", and many of the teachers have included education in another subject that is relevant for teaching Norwegian, such as literary science.

9) The final analysis report will be published on 1 June 2007 and is based on around 4500 teacher responses.

**Table 6.3: Education background for teachers in programmes for general studies, Vg1. Per cent.**

Subject taught	Less than one year of education	One year of education or more, no Master's degree	Master's degree
Norwegian	14	40	39
Mathematics	26	59	8
English	13	48	30
Natural science	Physics: 36	Physics: 14	Physics: 7
	Chemistry: 30	Chemistry: 36	Chemistry: 11
	Biology: 12	Biology: 25	Biology: 31
	Earth science: 11	Earth science: 5	Earth science: 3
Social studies	Sociology: 11	Sociology: 8	Sociology: 0
	Political science: 7	Political science: 14	Political science: 4
	History: 11	History: 25	History: 8

Source: Aamodt og Turmo 2007

Table 6.3 shows that Norwegian is the subject where most of the teachers teaching Vg1 state that they have a Master's degree. In mathematics only 8 per cent have education on this level in the subject, but this must be considered together with the fact that mathematics has few students on the Master's degree level. A substantial portion of the teachers have a Master's degree in one of the other natural sciences, thus having a high degree of mathematics in their range of subjects (not shown in the table). Most common is having a Master's degree in physics, with 12 per cent. Nine per cent have a master's degree in chemistry, 8 per cent in biology, 5 per cent in earth science and two per cent in informatics. Teachers teaching natural science have the strongest education background in biology. Around a third has a Master's degree in this subject. Of teachers teaching social studies, the highest number has a Master's degree in history. Very few have competence in the key social science subjects of sociology and political science.

**Table 6.4: Education backgrounds for teachers in vocational programmes, Vg1. Per cent.**

Subject taught	Less than one year of education	One year of education or more, no Master's degree	Master's degree
Norwegian	23	40	24
Mathematics	26	46	5
English	16	42	15
Natural science	Physics: 34	Physics: 6	Physics: 5
	Chemistry: 34	Chemistry: 22	Chemistry: 9
	Biology: 18	Biology: 18	Biology: 19
	Earth science: 10	Earth science: 5	Earth science: 3

Source: Aamodt and Turmo 2007

Table 6.4 shows the education backgrounds for teachers teaching common subjects in vocational programmes in Vg1. The teachers generally have lower education in these subjects than teachers in study programmes qualifying for higher education. The differences are nevertheless minor for physics and earth science.

**Table 6.5: Education backgrounds for teachers in programme subjects in three selected vocational programmes, Vg1. Per cent.**

Education	Health and social care (N=366)	Building and construction (N=147)	Restaurant and food processing (N=117)
Craftsman's or journeyman's certificate	10	80	64
Master's certificate	1	44	8
Technical college	1	50	4
Higher education, less than two years	2	34	11
Higher education, two to three years	10	26	27
Higher education, three to four years	27	6	26
Higher education, four to five years but no Master's degree	50	6	18
Master's degree	11	9	8

Source: Aamodt and Turmo 2007

Table 6.5 shows that the education backgrounds for teachers teaching programme subjects in three selected vocational programmes vary a great deal from one programme to the next. In particular building and construction as expected recruits many teachers with crafts backgrounds. The majority of teachers in health and social care have more than four years of education, while 80 per cent of teachers in building and construction have a craftsman's or journeyman's certificate. A large proportion of teachers in restaurant and food processing also have this type of education. Very few have a craftsman's or journeyman's certificate in health and social care. Even if the education profiles differ, there are many with higher education, also in building and construction and health and social care. Around one in four has between two and three years of higher education. In building and construction many of these are probably engineers. It should be born in mind that many of the teachers have ticked off several alternatives. This means they have both a craftsman's or journeyman's certificate and higher education.

### Evaluation of the general teacher education

In Norway we have several types of teacher education which have much in common but differ when it comes to academic scope or in-depth studies for the different levels in primary and lower secondary school (Lagerstrøm 2007).

The current general teacher education takes four years and qualifies for teaching in all of primary and lower secondary school. The education has a mandatory core with pedagogy, practical training and in-depth studies in important subjects in primary and lower secondary school. In the autumn of 2006, NOKUT (the Norwegian Agency for Quality Assurance in Education) (NOKUT 2006) completed its evaluation of general teacher education. The evaluation is based on the framework plan for general teacher education from 2003 (the Norwegian Ministry for Education and Research 2003), and includes all the 20 institutions offering such education in Norway.

The different elements in the general teacher education should together constitute a whole that lays the groundwork for teaching in a professional manner. The main impression from the evaluation is that integrating practical training, subject studies, subject didactics and pedagogical theory is a major challenge for the general teacher education.

The previous evaluation of the education was made in 2001/2002, when general teacher education was based on the framework plan from 1998. This evaluation criticised the education for lacking uniformity and continuity, and pointed out that the framework plan from 1998 had too strong a focus on learning targets categorised according to topics rather than to competence areas. Even though the new framework plan from 2003 allows greater freedom for specialization and profiling, the education these institutions offer is generally similar in structure and organisation. Both teachers and students believe that, generally, there is no more of a holistic approach now than there was before. The lack of continuity is seen between pedagogy and didactics and between didactical areas in the different subjects. This lack of continuity is also present when dealing with theory and practice.

There are also shortcomings in the focus on the profession in the education. It has been claimed, for example, that subject teachers know too little about primary and lower secondary school, and in schools it is found that college subject teachers show too little interest in practice. The division of responsibility and the communication between the college and the field of practice is perceived as unclear.

The flaws in the general teacher education also appear to be related to there being no scientific territory which teachers have helped develop themselves. Educational theories about teacher knowledge have been developed by others outside the teachers' colleges. Social orientation, globalization, ICT, the role of media and familiarity with multicultural perspectives all have inadequate places in the teacher education.

The evaluation panel<sup>10</sup> questions whether the education is so complex that it is almost impossible to be holistic. The education is meant to prepare students for teaching from Year 1 to Year 10. Both the evaluation in 2002 and the present evaluation are in general agreement that this is a major challenge. The education programme is dominated by too many subjects vying for attention, thus there is little opportunity for in-depth studies.

Study progression in general teacher education is relatively poor, and candidates are often changing their minds about subject choices and even dropping out. For the 1999 class of new students in general teacher education, researchers at NIFU STEP found that only 35 per cent completed their general teacher education within the normal time span (four years), while 10 per cent had completed other higher

education within the same time. In the autumn of 2004, after five years, 48 per cent had completed the general teacher education, 14 per cent had completed other higher education, 15 per cent continued in the education, while 23 per cent were out of the education system without having graduated. There were large differences in the completion rate between the teachers' colleges, varying from 37 to 68 per cent. Some of the reason for this appears to be that some institutions do not have as good procedures for registration of completion than others (Næss and Vibe 2006).

### **Attracting, developing and retaining good teachers**

The OECD claims that it is particularly important to have a policy relating to the teaching profession because so many people are involved. Teachers are the largest highly educated professional group in the OECD countries. Teachers are important when it comes to the dividends children and young people have from school. Attracting, developing and retaining effective teachers was an OECD project which was initiated in 2002. The participating countries, including all the Nordic countries, submitted national reports on a number of matters pertaining to the teaching profession. The project has also prepared the report *Teachers Matter* (OECD 2005) in cooperation with two of the networks in the OECD.

The OECD report (2005) addressed principal problems and proposed measures to make the teaching profession more attractive and to develop and retain good teachers. The OECD is concerned that a career as a teacher in general is not attractive enough, and considers it a problem that increasingly fewer men apply for the profession. There is a need to develop both the academic and educational knowledge and skills of teachers. The OECD is looking for a dimensioning policy for recruiting and training good teachers. Many countries find it difficult to retain good teachers and give feedback on good and poor teaching.

When it comes to improving the situation, the report refers to how successful political initiatives in some countries have improved the quality of the teaching. The important thing is that this relates both to teacher competence and improving teachers' working environment. Some countries have good experiences of introductory programmes from newly trained teachers, and this is given high priority by the OECD. The content and quality of teacher education must be improved, and this applies to school subjects and pedagogy. It is necessary to have systematic follow-up of further and continuing education needs and evaluation of the teaching and reward systems teachers use.

Teacher analyses under the auspices of the OECD are being continued with the study *Teaching and Learning International Survey 2007 (TALIS)*, which Norway also participates in (see Chapter 6.2).

10) Nine experts with broad competence fields and Nordic representation. The evaluation panel is responsible for the assessments and reports provided by the evaluation.

## 6.4 Digital competence

Digital competence is a central area of efforts in the Government's overriding ICT policy, where it is stated that "The Norwegian school shall be a groundbreaking school in the world when it comes to using ICT for teaching and learning<sup>11</sup>". Due to the Knowledge Promotion Reform, where using digital tools is defined as a basic skill, digital competence has been given an important anchor in the education and the teaching.

Program for digital kompetanse 2004–2008 (Programme for digital competence), launched by the then Ministry of Education and Research, focuses on how ICT influences the quality of the education, motivation for learning, learning forms and learning dividends. The programme's vision is digital competence for all, and objectives and targets are set in four priority areas:

- infrastructure
- competence development
- digital learning resources, subject curricula and work forms
- research and development

On assignment from the Ministry of Education and Research, the Norwegian Directorate for Education and Training will be developing and implementing a three-year strategy for knowledge formation, learning and experience interchange in Program for digital kompetanse. Plan for kunnskapsdannelse, læring og erfaringsdeling (Plan for knowledge formation, learning and experience interchange) forms the basis for this work, and it has been prepared in cooperation with Vox (Norwegian Institute for Adult Learning) and NOU (Norway Opening Universities). As a stage in this development the Norwegian Directorate for Education and Training has prepared a midpoint analysis of a sample of reports and documentation in relation to follow-up of the Program for digital kompetanse, also considered together with the Knowledge Promotion Reform. The report has two main conclusions (Erstad 2007):

- The distance is too great between strategy activities focusing on infrastructure which is continuously improving, and anchoring ICT in education practice, which keeps lagging behind
- Comprehensive understanding of digital competence is absent. In both the practice field and strategy activities there is a tendency that one is too restricted in some areas, and that synergies are not cultivated from the measures, activities and fields

Other matters the report singles out as critical are teacher education and teachers' digital competence, ICT and evaluation/examinations, school leadership in a digital perspective and digital teaching resources.

Digital competence is the competence that bridges skills such as reading, writing and doing mathematics, and the competence

required to adopt new digital tools and media in a creative and critical manner. Using digital tools, as understood in the Norwegian subject, includes what may be called general application competence but also means that pupils have the skills to apply critical assessment and critical use of sources. Using digital tools thus does not only include practical instrumental application of ICT but also digital judgement.

The SAFT project (Safety Awareness Facts and Tools) is a European collaborative project funded by the EU's action plan for safe use of the internet (Internet Action Plan). SAFT's Child Survey 2006 shows that just under 40 per cent of children and young people surfing the web have uncritical attitudes to the content and their own conduct on the web (SAFT 2006). Only two of ten respondents have been trained in source criticism at school. In cooperation with the Norwegian Directorate for Education and Training, the Data Inspectorate has launched the campaign [www.dubestemmer.no](http://www.dubestemmer.no), a website on privacy protection focusing on children and young people. The website provides information, including film, texts and illustrations, aimed at teaching and promoting reflection on the topic personal privacy and personal information and the use of digital media. Moreover, Skolenettet (the school web) has a special site with resources for schools and teachers on themes such as personal privacy, copyright and netiquette ([www.skolenettet.no](http://www.skolenettet.no)).

If teachers are to be able to teach ICT and use it, they must have insight into it themselves and the educational work forms this medium offers. In the study E-learning Nordic 2006 (Rambøll Management 2006) as much as 63 per cent of teachers respond "rarely or never" when asked whether they have facilitated for the pupils to explore and work innovatively using ICT. Based on this study it appears that the teacher is the person in the classroom who learns the most, the authors conclude.

The midpoint analysis of Program for digital kompetanse (Programme for digital competence) (Erstad 2007) also claims that ICT is rarely used for learning. ITU Monitor 2005 (Erstad et al. 2005) points to similar tendencies, that teachers use ICT more for administrative tasks than in the teaching situation. In upper secondary education the picture is slightly more diffuse. Here it turns out that pupils have had an increase in the use of ICT in all forms of educational activities, such as individual assignments, cooperation tasks and presentations.

*Lærande nettverk* (Learning networks) is a measure established in connection with *Programme for digital competence*. The idea is to make schools and school leaders, teacher education institutions and school owners more interested in this area and give them better qualifications so that ICT will be more widely used for learning.<sup>12</sup> *Learning networks* is in its third period with new networks. So far around 480 schools have joined the project, and 27 colleges and universities are responsible for administering a total of 28 networks. In the

11) Report to Parliament no. 17 (2006–2007) Eit informasjonssamfunn for alle (An information society for all), the Ministry of Government Administration and Reform.

12) Learning networks on the Norwegian Directorate for Education and Training's website: [http://www.udir.no/templates/udir/TM\\_Artikkel.aspx?id=2074](http://www.udir.no/templates/udir/TM_Artikkel.aspx?id=2074).

autumn of 2006 a number of assessment schemes were initiated regionally and also nationally. ITU has been given the main responsibility for carrying out a national assessment that must be considered together with the regional development measures. The result of the assessments will be published in the spring and autumn of 2007.

A smaller assessment from the national expert group connected to Learning networks concludes that the networks are on their way from being sharing to becoming learning, i.e. they are creating dialogues, exchanging experience and reflecting, and then using this as the basis for changing practice (Erstad 2006). But there are many challenges ahead. The most important one, as the expert group and network leaders see it, is to empower the school owner level and initiate distribution measures within the schools and to schools that have not been involved.

Digital content and digital teaching aids are an important field in focus as part of the *Programme for digital competence* and for the implementation of the Knowledge Promotion Reform. From the autumn of 2007 the county authorities are responsible for providing pupils with free access to necessary digital and printed textbooks in upper secondary education. To increase the amount of digital teaching material, the Norwegian Directorate for Education and Training and the Ministry of Education and Research have reached an agreement so that schools will have free access to parts of the NRK (the national broadcasting corporation) archives. An intention agreement has also been signed with Norway Digital so that the maps owned by the Norwegian Mapping and Cadastre Authority will be made available to schools.

The follow-up of the *Programme for digital competence* also has an international dimension. An important arena for international cooperation and the exchange of experience in the field of ICT is the European Schoolnet, EUN.<sup>13</sup> The Norwegian Directorate for Education and Training is also the national contact point for eTwinning, a so-called "accompanying measure" under the Comenius section of EU's programme for lifelong learning.<sup>14</sup> eTwinning is a low-threshold programme all schools may join to make international pedagogical cooperation via ICT a natural element of their day-to-day activities in school. A total of 109 cooperation projects are registered in the eTwinning portal [www.etwinning.net](http://www.etwinning.net).

The midpoint report for *Programme for digital competence* finds that there is still much that needs to be done and that in part there is a long way to go before the practice field satisfies its objectives. Currently the differences between individuals, education environments and levels are too great to speak about digital competence for all. "It may appear that primary and lower secondary school has a larger need for focus on implementation and facilitation of technology, while upper

secondary education has more challenges in connection with instantiating the educational use and how ICT may function as innovative for learning" (Erstad 2007). The report also finds that clear guidelines are needed when it comes to what digital competence means, bearing in mind the role ICT has been given in connection with the Knowledge Promotion Reform and which will remain important for the rest of the period of Programme for digital competence.

## 6.5 The Knowledge Promotion Reform – from word to deed

In 2005 the Ministry of Education and Research initiated Program for skoleutvikling (Programme for school development). The programme included project funding of comprehensive school development in connection with the introduction of the Knowledge Promotion Reform. In 2007 this was carried forward under the name *Kunnskapsløftet – fra ord til handling* (Knowledge Promotion – from word to deed). The school development programme is administered by the Norwegian Directorate for Education and Training.

*The Knowledge Promotion Reform – from word to deed* places pupils, teachers and learning processes in focus. A lot of money has been pumped into this comprehensive programme; over two years more than NOK 100 million. Organisationally strong central guidelines have been laid down, and the requirement is that the school owner will undertake to participate and distribute knowledge from the projects. Tools that are being developed centrally and in competence environments must be planted and used locally. All the projects must be based on research, in both theory and practice, by being connected to an external competence environment.

The overriding aim of "The Knowledge Promotion Reform – from word to deed" is to improve school for all pupils. This is being accomplished through a number of project themes with a wide scope, from burnout and school performance to learning environments and cooperation between homes and school. In 2007 the programme has been expanded to include early stimulation, the ambition to provide pupils with the same point of departure and the problem of drop-outs in the transition from lower secondary school to upper secondary education.

Three clear requirements have been defined for receiving funding. First, the school owner must be active and involved in the projects. Second, the project ideas must be broadly anchored in each school. Finally, but not least, the projects must be connected to an external competence environment that ensures both pedagogical and organisational development.

The school owner is the formal applicant and project owner, designing project descriptions and applying on behalf of one or

13) EUN is a association of the education authorities in 28 European countries, where the Norwegian Directorate for Education and Training represents Norway.

14) EU's programme for lifelong learning 2007–2013 includes the sub-programmes Comenius (for primary and lower secondary education), Leonardo da Vinci (for vocational education), Erasmus (for higher education) and Grundtvig (for learning for adults). There are also four sector-overriding programmes (for policy development, languages, ICT and presentation and result exploitation).

more schools. Project descriptions must include an analysis of the current situation when it comes to matters that concern learning and the learning environment for pupils. A template has been drawn up based on the general curriculum and the Learning Poster. The template must be used to design the current situation analysis, including qualitative and quantitative data about the school as a place where pupils learn. Local observations, surveys and assessments must be combined with selected data from the national quality assessment system.

Participant schools gain practical experience with project development and project activities. Schools with little experience receive assistance. The aim is that they should develop and assess their own practice to be able to carry out similar learning projects alone in the future.

As part of the launch of the development project all schools granted funding must carry out an analysis of how the organisation works. The programme offers a tool for collecting relevant data about the school as an organisation. The tool builds on research-based knowledge and tested questionnaires about the school as a learning organisation, and enables data about strong and weak sides of the school as an organisation to be collected and compiled from all employees at participant schools.

There were two parts to the first round of allocations in 2006, with an open and a guided round. In the guided section emphasis was given to coaching during the writing process and when drawing up the project description. A launch process was also carried out, where each school developed and became aware of how activities should be run. After the launch process, each school was visited by a school assessor. This role and the ensuing methodology were developed by Voss/Hardanger Kompetanseregion.<sup>15</sup>

The school owners and schools taking part in the open section were also given guidance in the sense that they could submit application drafts before the deadline and receive feedback on the content. Around 70 school owners made use of this. On the application deadline 210 school owners had submitted applications in the open round. Projects that were granted funding received feedback with grounds from an external expert panel. Applicants who were not accepted received a general summary in a document giving those who did not receive funding in 2006 a sound basis for applying in 2007.

In the work with the projects that received funding in 2006, great importance was attached to knowledge sharing and distribution across the projects, both relating to the concrete implementation and to more academic issues. A joint seminar was held, in part, to enable the establishment of networks. A comprehensive project catalogue has also been prepared

where participants and potential project schools may "steal" and be inspired by ideas about comprehensive school development activities.

After a bidding round Fafo was assigned the evaluation task for Program for skoleutvikling, now called "The Knowledge Promotion Reform – from word to deed". Ongoing reports and a final report shall be delivered with focus on the process and the final result. The final evaluation is to be delivered in the fourth quarter of 2009.

## 6.6 Quality in vocational education and training

Vocational education in Norway is often understood as the vocational education programmes in upper secondary education, now part of the basic education.<sup>16</sup> Internationally, vocational education – actually "vocational education and training" (VET) – is a wider concept, and includes a variety of programmes offered by private and public actors, also in higher education, labour market training and company in-house or industry-operated training.

Quality in vocational education and training is both a national and an international matter. Practical competence, tools and work techniques have always been developed across national boundaries. Increased globalization reinforces the international aspect of vocational education and training in our modern era. Changing and growing demands for competence are a challenge for cooperation between parties and education policy on the national and regional levels, and developments demand innovation in the concrete provision of the education in schools and companies. International cooperation also gives new development opportunities for vocational education and training, for policy and method developments in general, and in various types of industry cooperation schemes.

Vocational education and training is also important for economic development and competitiveness. This is one of the main reasons why inside the EU there has been cooperation to develop the quality of vocational education and training since the early 1950s. In comparison, the EU's other education cooperation came about more than 20 years later. The EU's cooperation on vocational education and training was initially focused on exchanging methods for training in the use of new production technology. Later this became a wider cooperation that also includes development of policy. In recent years the work has focused on developing common tools, methods, constructs and frameworks to ensure common understanding as the basis for quality assurance and quality development.

Quality assurance and quality development are a principal priority in the Copenhagen process<sup>17</sup>. Norway has participated in the EU cooperation on vocational education and training

15) <http://www.kompetanseregion.no/>

16) More about this in Chapters 1 and 5.

17) The Copenhagen process is a strategic cooperation to strengthen the quality of the vocational education and training in Europe. The overriding aims were determined at the first meeting in Copenhagen in 2002, and the priorities will be re-assessed at top meetings every second year, the last one was in Helsinki in 2006.

since it was established in 2002 as part of the Lisbon process<sup>18</sup>. A special network for quality in vocational education and training (European Network for Quality Assurance in Vocational Education and Training (ENQA-VET)) now comprises most EU and EEA countries. A common model has been prepared for quality assurance of the vocational education and training, emphasising quality assessment on the basis of documented knowledge.

The OECD has focused on recognition of qualifications and the opportunity for lifelong learning for a number of years. A major effort is now being planned and research efforts are focusing on vocational education and training. This work will be initiated in the autumn of 2007, and will be considered in conjunction with the EU's vocational education and training cooperation.

In Norway we also had an early focus on the quality of vocational education and training as part of the national education policy. The Schönberg committee, convened in 1972, recommended that working life needed national and qualitatively good vocational education and training in a number of vocations and trades, and was concerned that geographical conditions and the scattered population in Norway created special challenges in the efforts to satisfy this need.<sup>19</sup>

On assignment from the Norwegian Directorate for Education and Training, in the autumn of 2005 Fafo surveyed the status of Norwegian knowledge when it comes to quality in vocational education and training (Hagen 2005). Fafo states that there has been little systematic knowledge development in this field after the evaluation of Reform 94. The survey reveals that more documented knowledge is needed as the basis for development, both in the cooperation between the public authorities and the employee and employer organisations on the regional level, which is where the responsibility for the education programmes lies, and in individual schools and apprenticeship companies.

As part of this survey Fafo also reviewed some of the knowledge base for the county authorities in their efforts to ensure quality in vocational education and training. The county authorities need knowledge about the education in school, the transition from school to an apprenticeship company, the training with a company and how working life assesses the competence of those who have completed the education. Of these four main areas Fafo finds that an adequate knowledge base only exists for education in school relating to this quality work.

Since the Fafo survey, The Norwegian Directorate for Education and Training has prepared a proposal for national guidelines for quality in vocational education and training<sup>20</sup>, in close cooperation with the employee and employer organisations.

This has also been discussed in the vocational education and training boards and on the political level in most counties. The proposal pinpoints knowledge requirements in eight focal areas, and calls for broad cooperation with the actors in vocational education and training on developing a common model for quality activities.

In connection with the evaluation of the National System for Quality Assessment (cf. Chapter 6.1) the Work Research Institute (AFI) has carried out a survey of instructors and supervisors in 100 companies (Deichman-Sørensen 2007, unpublished). Each training company has a separate responsibility for assuring quality in vocational education and training, and the aim of the study has been to examine how the company follows up this responsibility. The results suggest that the companies take their education responsibilities very seriously. In their training practice the apprenticeship companies find themselves in a transition zone between two regimes, between locally based colleague-based training and assessment on the one hand, and more recent forms of documentation-based assessment systems on the other. The traditional master-apprentice model, with close cooperation between the apprentice and experienced workers, continues to be the dominant learning and assessment approach and is the most highly rated approach among the companies.

Work with quality assessment of the training in companies generally appears to be slightly less focused and systematic than it is in the foremost companies. Deichman-Sørensen claims that training in most companies still is not systematically integrated in the action plans and the general company operations, and the companies are still not generally concerned with systems and procedures for systematic planning of the training, including systematic self-assessment. The survey also shows the general will to improve and raise quality. There appears to be a strong wish to upgrade quality procedures in the training in one's own company, the industry and the sector. A large majority of the companies state that there is a need to upgrade the quality procedures in their company, and more than half of the companies disagree strongly that the current demands for reporting on training with a company are too high.

18) The aim of the Lisbon process is to make the EU the most knowledge-based and competitive economy in the world within 2010, based on sustainable economic growth, more and better jobs and social levelling. Education has a central place in this, see [http://ec.europa.eu/education/policies/2010/et\\_2010\\_en.html](http://ec.europa.eu/education/policies/2010/et_2010_en.html).

19) NOU 1976: 10 and NOU 1976: 31.

20) The Norwegian Directorate for Education and Training (2006b): Nasjonale føringer for kvalitet i fag- og yrkesopplæringen (National guidelines for quality in the vocational education and training). [http://www.udir.no/templates/udir/TM\\_Artikkel.aspx?id=2150](http://www.udir.no/templates/udir/TM_Artikkel.aspx?id=2150).

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	Primary school	Lower secondary school	Primary and lower secondary school together
1997–1998	100.00	100.00	100.00
1998–1999	102.78	100.49	102.14
1999–2000	104.92	102.43	104.22
2000–2001	106.54	104.81	106.06
2001–2002	107.27	108.72	107.67
2002–2003	108.17	113.37	109.62
2003–2004	108.22	118.07	110.97
2004–2005	107.45	120.36	111.05
2005–2006	107.31	121.62	111.30
2006–2007	107.24	121.40	111.19

**Appendix Table 1.2 for Figure 1.2: Distribution of small, medium-sized and large regular primary and lower secondary schools by per cent, 1997–1998 to 2006–2007.**

	Less than 100 pupils	100–299 pupils	300 pupils or more
1997–1998	40.0	42.0	19.0
1998–1999	38.0	42.0	20.0
1999–2000	38.0	41.0	21.0
2000–2001	37.2	40.8	22.0
2001–2002	36.3	40.5	23.2
2002–2003	35.8	40.3	23.9
2003–2004	36.2	39.0	24.8
2004–2005	35.2	39.0	25.8
2005–2006	35.2	39.0	25.8
2006–2007	35.0	40.0	26.0

**Appendix Table 1.3 for Figure 1.3: Distribution of pupils in small, medium-sized and large regular primary and lower secondary schools by per cent, 1997–1998 to 2006–2007.**

	Less than 100 pupils	100–299 pupils	300 pupils or more
1997–1998	11.0	46.0	43.0
1998–1999	10.0	46.0	44.0
1999–2000	10.0	44.0	46.0
2000–2001	9.6	42.9	47.5
2001–2002	9.2	41.6	49.1
2002–2003	9.0	40.8	50.2
2003–2004	8.7	39.3	52.0
2004–2005	8.7	38.3	53.0
2005–2006	8.8	38.3	52.9
2006–2007	8.0	39.0	53.0

**Appendix Table 1.4 for Figure 1.4: Regular primary and lower secondary schools with bokmål, nynorsk and Sami as the first-choice language, by county, 2006–2007. Per cent.**

	Bokmål	Nynorsk	Sami
Østfold	100	0	0
Akershus	100	0	0
Oslo	100	0	0
Hedmark	100	0	0
Oppland	65	35	0
Buskerud	91	9	0
Vestfold	100	0	0
Telemark	69	31	0
Aust-Agder	83	17	0
Vest-Agder	93	7	0
Rogaland	58	42	0
Hordaland	32	68	0
Sogn og Fjordane	1	99	0
Møre og Romsdal	31	69	0
Sør-Trøndelag	99	1	0
Nord-Trøndelag	99	1	0
Nordland	100	0	0
Troms	99	0	1
Finnmark	95	0	5

**Appendix Table 1.5 for Figure 1.5: Apprenticeship contracts as of 1 October 2000–2006. Preliminary figures**

	With the youth right	Without the youth right	Total
2000	17 186	12 913	30 099
2001	17 035	12 645	29 680
2002	17 929	11 308	29 237
2003	19 696	8 794	28 490
2004	20 183	8 836	29 019
2005	21 573	9 184	30 757
2006	24 631	10 021	34 652

**Appendix Table 2.1 for Figure 2.1: Proportion of expenditures, for education in general and primary and lower secondary education in particular, of GNP for mainland Norway and of total public expenditures, 2003–2006.**

	2003	2004	2005	2006
Proportion of total expenditures for primary and lower secondary school	6.0	6.0	6.2	6.0
Proportion of total expenditures for upper secondary education	3.1	3.3	3.0	3.0
Proportion of total expenditures for other education	4.9	4.6	4.9	4.7
Proportion of GNP for mainland Norway spent on primary and lower secondary school	3.4	3.3	3.2	3.1
Proportion of GNP for mainland Norway spent on upper secondary education	1.8	1.8	1.6	1.6
Proportion of GNP for mainland Norway spent on other education	2.8	2.4	2.6	2.5

\* Any changes from figures presented in previous editions in Utdanningsspillet are due to adjusted figures. Bear in mind that the figure shows the proportion of what is spent on education in total, not only of what is spent on primary and lower secondary education.  
Source: Statistics Norway, the National Accounts

**Appendix Table 2.2 for Figure 2.2: Distribution of municipalities according to adjusted gross operating expenditures per pupil and operating expenditures adjusted for needs per pupil, 2005.**

Gross operating expenditures per pupil in NOK 1000	Number of municipalities. Adjusted gross operating expenditures	Number of municipalities. Operating expenditures adjusted for needs
45-50	5	1
50-55	13	0
55-60	47	8
60-65	79	33
65-70	66	79
70-75	56	144
75-80	49	87
80-85	26	49
85-90	23	10
90-95	25	11
95-100	12	6
100-105	11	1
105-110	3	0
110-115	6	0
115-120	3	0
120-125	0	0
125-130	2	0
130-135	2	0
135-140	1	0
Total	429	429

**Appendix Table 2.3 for Figure 2.3: Expenditures per pupil in programmes for general studies, by county and year. 2004 to 2005.**

	2004	2005	2006	2006 new
Østfold	86 961	93 342	93 733	93 733
Akershus	81 604	83 401	87 183	87 183
Oslo	92 634	63 347	67 891	97 260
Hedmark	89 662	87 811	90 460	90 460
Oppland	98 569	103 302	117 323	117 323
Buskerud	82 052	84 424	83 345	83 380
Vestfold	74 303	76 381	82 542	82 542
Telemark	82 651	80 104	79 577	81 663
Aust-Agder	85 538	87 130	94 757	95 330
Vest-Agder	76 617	80 523	81 760	81 760
Rogaland	75 002	75 144	77 608	77 608
Hordaland	81 619	85 909	88 753	88 753
Sogn og Fjordane	98 761	95 143	106 374	106 374
Møre og Romsdal	79 262	84 476	89 805	89 817
Sør-Trøndelag	87 588	94 585	93 249	93 249
Nord-Trøndelag	99 449	100 979	106 553	106 553
Nordland	90 881	91 958	99 399	99 399
Troms	108 835	111 280	112 734	113 064
Finnmark	115 353	111 609	111 386	111 386
Average all counties	85 808	85 282	88 955	91 572

**Appendix Table 2.4 for Figure 2.4: Expenditures per pupil in vocational programmes, by county and year. 2004 to 2006.**

	2004	2005	2006	2006 new
Østfold	111 554	125 635	122 922	122 922
Akershus	106 686	109 281	112 900	112 900
Oslo	106 915	80 415	84 582	113 951
Hedmark	112 743	112 125	115 814	115 814
Oppland	110 639	113 984	111 317	111 317
Buskerud	95 055	94 117	98 383	98 436
Vestfold	97 643	99 500	106 273	106 273
Telemark	101 783	98 995	99 703	101 772
Aust-Agder	105 813	113 321	115 895	116 544
Vest-Agder	92 728	94 971	98 689	98 689
Rogaland	96 182	97 352	100 404	100 404
Hordaland	100 746	106 353	114 448	114 448
Sogn og Fjordane	123 684	119 167	124 622	124 622
Møre og Romsdal	104 838	112 497	116 687	116 699
Sør-Trøndelag	105 039	116 193	111 906	111 906
Nord-Trøndelag	119 796	124 538	125 741	125 741
Nordland	112 905	115 627	125 584	125 584
Troms	126 482	133 339	138 248	138 585
Finnmark	130 998	125 436	124 242	124 242
Average all counties	106 334	107 554	111 006	113 627

**Appendix Table 2.5 for Figure 2.5: Developments in pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 1 to Year 4.**

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-01	1,000	1,000	1,000	1,000
2001-02	0,994	0,993	1,002	0,995
2002-03	1,005	1,029	0,976	1,000
2003-04	0,941	1,008	0,932	1,002
2004-05	0,973	1,058	0,919	0,994
2005-06	0,985	1,094	0,901	0,989
2006-07	0,992	1,089	0,912	0,981

**Appendix Table 2.6 for Figure 2.6: Developments in pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 5 to Year 7**

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-01	1.000	1.000	1.000	1.000
2001-02	1.014	1.020	0.994	1.020
2002-03	1.018	1.031	0.987	1.032
2003-04	1.063	1.025	1.039	1.028
2004-05	1.048	1.017	1.033	1.020
2005-06	1.038	1.015	1.026	1.019
2006-07	1.043	1.024	1.021	1.027

**Appendix Table 2.7 for Figure 2.7: Developments in pupil hours, teacher hours and teacher density from 2000 – 2001 to 2006 – 2007 for Year 8 to Year 10**

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-01	1.000	1.000	1.000	1.000
2001-02	1.023	1.034	0.991	1.036
2002-03	1.047	1.082	0.969	1.079
2003-04	1.073	1.121	0.960	1.122
2004-05	1.090	1.142	0.957	1.144
2005-06	1.089	1.150	0.949	1.153
2006-07	1.089	1.146	0.954	1.148

**Appendix Table 2.8 for Figure 2.8: Proportion of all pupils with 75 or fewer hours special teaching, and proportion with more than 270 hours\*.**

	75 hours or fewer	More than 270 hours
1997-1998	1.4	1.0
1998-1999	1.4	1.0
1999-2000	1.2	1.0
2000-2001	1.0	1.1
2002-2003	0.8	1.2
2003-2004	0.8	1.1
2004-2005	0.7	1.2
2005-2006	0.7	1.3

\*All hours are measured as 60 minutes per class.

**Appendix Table 2.9 for Figure 2.9: Expenditures per pupil in OECD countries**

	Primary school	Lower secondary school	Upper secondary education
Mexico	1 656	1 495	2 790
Slovakia	2 020	2 106	2 737
Czech Republic	2 273	3 939	4 241
Poland	2 859	2 693	3 184
Hungary	3 286	3 269	4 620
Korea	4 098	5 425	7 442
Portugal	4 503	6 158	6 022
Germany	4 624	5 627	10 232
Ireland	4 760	6 329	6 428
New Zealand	4 841	4 803	6 730
France	4 939	7 603	9 992
Finland	5 321	8 608	6 654
Australia	5 494	7 442	8 362
Netherlands	5 836	7 566	6 271
Japan	6 350	6 991	7 552
Austria	7 139	8 719	9 189
Sweden	7 291	7 446	7 848
Italy	7 366	7 688	8 108
Iceland	7 752	7 475	6 459
Denmark	7 814	7 958	8 401
Norway	7 977	9 208	12 380
Switzerland	8 131	9 538	15 014
USA	8 305	9 156	10 105
Luxembourg	11 481	16 754	17 364
OECD average*	5 450	6 560	7 582

\* The OECD average for primary and lower secondary school and upper secondary education comprises six more countries than those presented here.

**Appendix Table 3.1 for Figure 3.1: Girls' and boys' average overall achievement grades in lower secondary school in 2006, according to subject**

	Girls	Boys	Difference
Physical education	4.3	4.5	-0.2
Mathematics	3.5	3.4	0.1
Natural science and the environment	4.1	3.8	0.3
Social studies	4.2	3.9	0.3
Written English	4.0	3.6	0.4
Music	4.4	4.0	0.4
Oral English	4.2	3.8	0.4
Arts and crafts	4.5	4.0	0.5
Oral Norwegian	4.3	3.8	0.5
Christianity, religion and ethics	4.3	3.7	0.6
Norwegian second-choice language	4.0	3.4	0.6
Norwegian first-choice language	4.2	3.6	0.6
Home economics	4.7	4.1	0.6

**Appendix Table 3.2 for Figure 3.2: Boys' and girls' average grades on final examinations in lower secondary school 2006, according to subject.**

	Girls	Boys	Difference
Written mathematics	3.1	3.1	0.0
Oral English	4.5	4.2	0.3
Oral social studies	4.5	4.2	0.3
Oral mathematics	4.2	3.9	0.3
Written English	3.8	3.5	0.3
Oral natural science and the environment	4.5	4.1	0.4
Written Norwegian first-choice language	3.9	3.4	0.5
Written Norwegian second-choice language	3.6	3.1	0.5
Oral Norwegian	4.6	4.1	0.5
Christianity, religion and ethics	4.6	4.1	0.5

**Appendix Table 3.3 for Figure 3.3: Distribution of girls' and boys' lower secondary school points 2006**

Lower secondary school points	dens. girls	dens. boys
11.0573	0.0000	0.0000
12.1914	0.0000	0.0001
13.3255	0.0001	0.0002
14.4596	0.0001	0.0002
15.5937	0.0001	0.0003
16.7278	0.0001	0.0005
17.8619	0.0002	0.0009
18.9960	0.0004	0.0013
20.1301	0.0006	0.0020
21.2642	0.0009	0.0027
22.3983	0.0013	0.0038
23.5324	0.0019	0.0052
24.6664	0.0028	0.0071
25.8005	0.0040	0.0093
26.9346	0.0052	0.0116
28.0687	0.0063	0.0139
29.2028	0.0078	0.0168
30.3369	0.0096	0.0203
31.4710	0.0116	0.0234
32.6051	0.0142	0.0260
33.7392	0.0166	0.0281
34.8733	0.0186	0.0304
36.0074	0.0205	0.0321
37.1415	0.0227	0.0340
38.2755	0.0252	0.0363
39.4096	0.0274	0.0389
40.5437	0.0294	0.0403
41.6778	0.0316	0.0404
42.8119	0.0350	0.0405
43.9460	0.0383	0.0406
45.0801	0.0402	0.0403
46.2142	0.0411	0.0393
47.3483	0.0417	0.0384
48.4824	0.0430	0.0374
49.6165	0.0457	0.0360
50.7506	0.0494	0.0345
51.8846	0.0509	0.0322
53.0187	0.0495	0.0287
54.1528	0.0451	0.0242
55.2869	0.0387	0.0194
56.4210	0.0311	0.0146
57.5551	0.0243	0.0102
58.6892	0.0182	0.0072
59.8233	0.0128	0.0051
60.9574	0.0085	0.0033
62.0915	0.0053	0.0018
63.2256	0.0027	0.0010
64.3597	0.0011	0.0005
65.4937	0.0004	0.0002
66.6278	0.0001	0.0000

**Appendix Table 4.1 for Figure 4.1: Teachers stating they use ICT in teaching natural science and mathematics in Year 8 in lower secondary school, by teacher age. Per cent**

	Mathematics	Natural science
29 years old or younger	82	78
30 - 39 years old	78	77
40 - 49 years old	85	68
50 - 59 years old	84	74
60 years and older	66	75

**Appendix Table 4.2 for Figure 4.2: Mathematics teachers in Year 8 in 2006, by educational orientation, their actions and pupil actions.**

	Teacher educational orientation	Teacher reported actions	Pupil reported actions
Traditional orientation	3.1	3.1	2.7
Pupil orientation	3.4	2.8	2.3
Cooperative learning	3.1	2.4	1.9
Communicative orientation	2.6	2.0	1.2

**Appendix Table 5.1: Old and new terminology in upper secondary education**

Programmes for general studies in Vg1	Areas of study in the foundation course (old scheme)
Programmes for specialization in general studies	General, and business/administration area of study
Sports	Sports
Music, dance and drama	Music, dance and drama
Vocational programmes	
Building and construction	Construction, technical construction and wood processing
Design and crafts	Arts, crafts and design*
Electricity and electronics	Electrical subjects
Health and social care	Health and social care
Media and communication	Media and communication
Agriculture, fishing and forestry	Agriculture, fishing and forestry
Restaurant and food processing	Hotel and catering
Service and transport	Sales and service, which also includes transport
Technology and industrial production	Chemistry, processing and metalworking without transport

\* The education programme for design and crafts corresponds to some extent to the arts, crafts and design subject, but it is also possible to take specialization in general studies with in-depth studies in arts and design.  
Source: the Directorate of Education and Training

**Appendix Table 5.2 for Figure 5.1: Proportion of girls among applicants for Vg1 as of 1 March 2006, according to education programme**

Education programme	Proportion girls
Building and construction	3.6
Electricity and electronics	4.5
Technical and industrial production	11.0
Technical general subjects	23.1
Alternative education	36.0
Sports	40.5
Service and transport	47.3
Media and communication	47.9
Restaurant and food processing	55.6
Specialization in general studies	56.9
Agriculture, fishing and forestry	58.3
Music, dance and drama	65.6
Health and social care	86.0
Design and crafts	89.1
Total/Average	48.1

**Appendix Table 5.3 for Figure 5.2: Proportion of girls among pupils in Vg1 as of 1 October 2006, according to education programme**

Education programme	Proportion girls
Building and construction	3.2
Electricity and electronics	4.0
Technical and industrial production	10.6
Technical general subjects	14.0
Alternative education	36.4
Sports	42.9
Service and transport	45.3
Media and communication	51.3
Restaurant and food processing	53.9
Specialization in general studies	55.8
Nature use	58.4
Music, dance and drama	66.6
Health and social care	86.8
Art/design and crafts	87.6
Total/Average	48.2

**Appendix Table 5.4: Proportion of girls among applicants for VK1 as of 1 March 2006, according to area of study**

Areas of study	Proportion of girls
Construction	2.5
Electrical subjects	3.7
Metalworking	5.9
Technical construction	13.2
Wood processing	16.0
Chemistry and processing	27.3
Outside areas of study	31.1
Sports	41.9
Media and communication	51.0
General, business/administration area of study	51.8
Sales and service	53.7
Hotel and catering	55.0
Agriculture, fishing and forestry	55.5
Technical general studies	59.2
Music, dance and drama	69.4
Arts, crafts and design	88.1
Health and social care	89.2
Total/average	48.5

Source: the Directorate of Education and Training

**Appendix Table 5.5: Proportion of girls among pupils in VK1 as of 1 October 2006, according to areas of study**

Area of study	Proportion of girls
Construction	2.4
Electrical subjects	3.8
Metalworking	5.6
Technical construction	12.0
Wood processing	16.4
Chemistry and processing	25.6
Outside any course of study	32.0
Sports	41.2
Technical general studies	48.3
Media and communication	50.9
General. business/administration area of study	51.9
Hotel and catering	55.0
Sales and service	55.8
Agriculture. fishing and forestry	56.8
Music. dance and drama	69.2
Arts crafts and design	87.8
Health and social care	90.4
Total/average	49.0

Source: the Directorate of Education and Training

**Appendix Table 5.6: Proportion of girls among applicants for VK2 in school as of 1 March 2006, according to area of study**

Areas of study	Proportion of girls
Construction	0.0
Metalworking	0.0
Electrical subjects	7.3
Wood processing	20.0
Technical construction	29.8
Outside any course of study	38.7
Hotel and catering	40.0
Sports	42.6
Media and communication	52.5
General. business/administration area of study	57.1
Agriculture. fishing and forestry	59.7
Music. dance and drama	69.7
Arts. crafts and design	81.4
Health and social care	94.5
Total/average	59.8

Source: the Directorate of Education and Training

**Appendix Table 5.7: Proportion of girls among pupils in VK2 in school as of 1 October 2006, according to area of study**

Areas of study	Proportion of girls
Construction	2.3
Wood processing	4.0
Electrical subjects	4.0
Metalworking	8.2
Technical construction	24.5
Technical general studies	27.0
Chemistry and processing	28.6
Sports	42.6
Outside any course of study	47.2
Hotel and catering	48.2
Media and communication	52.7
General. business/administration area of study	57.7
Agriculture. fishing and forestry	62.4
Music. dance and drama	69.4
Sales and service	79.0
Arts. crafts and design	83.1
Health and social care	92.9
Total/average	59.0

Source: the Directorate of Education and Training

**Appendix Table 5.8: Proportion of girls among apprenticeship place applicants as of 1 March 2006, according to area of study**

Area of study	Proportion of girls
Construction	1.2
Electrical subjects	3.1
General. business/administration area of study	3.3
Metalworking	4.0
Technical construction	4.3
Wood processing	13.8
Chemistry and processing	30.1
Media and communication	35.4
Technical general studies	38.7
Agriculture. fishing and forestry	38.9
Hotel and catering	53.9
Sales and service	63.3
Health and social care	86.4
Arts. crafts and design	96.4
Total/average	27.9

Source: the Directorate of Education and Training

**Appendix Table 5.9 for Figure 5.3: Proportion of girls among new apprentices as of 1 October 2006, according to area of study**

Area of study	Proportion of girls
Construction	1.3
Electrical subjects	3.7
Technical construction	4.9
General. business/administration area of study	5.1
Metalworking	5.3
Wood processing	14.8
Chemistry and processing	34.6
Agriculture. fishing and forestry	51.0
Media and communication	51.0
Hotel and catering	53.7
Sales and service	66.6
Health and social care	85.0
Arts. crafts and design	95.3
Total/average	27.9

Source: the Directorate of Education and Training

**Appendix Table 5.10 for Figure 5.4: Proportion of applicants as of 1 March 2006 with Norwegian and immigrant backgrounds by status as of 1 October 2006 and according to level**

		Immigrant background	Norwegian background	Background not stated	
Vg1	First choice	58	70	49	
	Other upper secondary education				
	secondary education	23	22	17	
	No upper secondary education	18	8	34	
	Total	100	100	100	
VK1	First choice	71	76	57	
	Other upper secondary education				
	secondary education	16	14	10	
	No upper secondary education	13	10	32	
	Total	100	100	100	
VK2 school and apprenticeship	First choice	53	56	55	
	Apprentice	13	21	13	
	Other upper secondary education	11	8	8	
	No upper secondary education	23	16	24	
		Total	100	100	100

Source: Statistics Norway/the Directorate of Education and Training

**Appendix Table 5.11 for Figure 5.6: Status five years after start of school for pupils in programmes for general studies and vocational programmes for year sets 1997, 1998, 1999 and 2000**

	General studies				Vocational programmes			
	1997	1998	1999	2000	1997	1998	1999	2000
Completed in the normal time	73.6	75.2	76.2	73.5	39.2	40.6	40.3	37.7
Completed in more than normal time	9.3	8.5	7.6	8.2	16.9	16.3	15.3	15.0
Still in upper secondary education after five years	2.4	3.0	2.7	3.4	8.0	8.0	8.3	9.0
Dropped out of upper secondary education	14.7	13.4	13.6	14.9	36.0	35.0	36.1	38.3
Total	100	100	100	100	100	100	100	100

**Appendix Table 5.12 for Figure 5.7: Status five years after starting school for pupils with Norwegian and immigrant backgrounds for the year sets 1997, 1998, 1999 and 2000**

	1997		1998		1999		2000	
	Immigrant background	Norwegian background	Immigrant background	Norwegian background	Immigrant background	Norwegian background	Immigrant background	Norwegian background
Completed in the normal time	41.4	58.3	45.3	59.5	46.9	59.5	43.9	57.1
Completed in more than normal time	13.2	12.9	11.7	12.3	11.4	12.3	11.5	11.5
In upper secondary education	5.5	5.0	6.7	5.3	6.5	5.3	6.0	6.1
Dropped out	39.9	23.9	36.4	22.9	35.3	22.9	38.7	25.3
Total	100	100	100	100	100	100	100	100

**Appendix Table 5.13 for Figure 5.8: Status five years after start of school for pupils who started upper secondary education in 2000, by county**

	Completed in the normal time	Completed in more than normal time	Still in upper secondary education after five years	Dropped out of upper secondary education
Østfold	52.4	11.5	6.4	29.7
Akershus	58.8	9.3	5.3	26.6
Oslo	59.4	8.3	5.0	27.3
Hedmark	55.4	10.7	5.6	28.3
Oppland	59.7	10.7	4.3	25.3
Buskerud	57.9	10.9	4.3	26.9
Vestfold	54.0	12.6	6.1	27.4
Telemark	54.8	13.6	4.8	26.8
Aust-Agder	56.8	10.3	6.6	26.4
Vest-Agder	59.6	13.0	5.3	22.1
Rogaland	58.0	11.3	6.6	24.1
Hordaland	57.6	11.7	6.5	24.2
Sogn og Fjordane	60.5	11.5	8.3	19.7
Møre og Romsdal	57.2	14.7	6.0	22.1
Sør-Trøndelag	60.1	13.1	5.5	21.4
Nord-Trøndelag	58.2	13.1	5.7	23.0
Nordland	46.5	12.3	8.3	32.9
Troms	45.7	10.8	9.0	34.4
Finmark	34.7	14.1	11.0	40.3

**Appendix Table 6.1 for Figure 6.1: Percentage of teachers with in-depth studies in a subject, 1999 and 2005**

	1999	2005
English	52.0	48.8
Home economics	29.5	35.4
Christianity, religion and ethics	55.7	66.5
Physical education	56.3	58.9
Arts and crafts	59.1	55.1
Mathematics	58.4	67.1
Music	56.2	58.0
Natural science and the environment	57.6	64.6
Norwegian	74.6	75.5
Social studies	62.8	65.6

**Appendix Table 6.2 for Figure 6.2: Percentage of teachers with at least 60 study credits in the subject they teach, 1999 and 2005**

	2005	1999
English	27.3	28.3
Home economics	14.1	16.6
Christianity, religion and ethics	14.7	18.7
Physical education	21.9	22.0
Arts and crafts	18.6	20.2
Mathematics	13.8	15.6
Music	21.1	20.1
Natural science and the environment	15.6	23.0
Norwegian	25.5	25.1
Social studies	25.3	25.7



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