

The Education Mirror

2007

Analysis of primary and lower secondary school and upper secondary education in Norway

The Education Mirror 2007



© 2008 The Norwegian Directorate for Education and Training

First edition / First printing run

ISBN 82-486-1062-4

Design, illustration and production: 07 Gruppen AS

Preface

In 2007, the findings of two international studies – PISA and PIRLS – were published, and these fuelled the debate in Norway on the state of the Norwegian school.

The results of the Norwegian national tests from the county and municipal levels, and from the schools themselves, provided further input not only for the debate, but also, and not least, for quality development processes and local efforts.

The debate and efforts are the result of new knowledge, and the quality of the debate is raised when it is based on knowledge and facts on the state of education in important areas. Having more documentation and knowledge is therefore a key element in improving the Norwegian school and staking out the direction of further efforts.

The Norwegian Directorate for Education and Training aims to be a key supplier of knowledge relating to the state and developments of Norwegian primary and secondary education. The Education Mirror is one of the Directorate's most important

contributions when it comes to presenting statistics and research in this field.

This year's Education Mirror shows that resources are stable, but one trend we see is that the use of assistants in school is on the rise. The international studies show that the reading performance of Norwegian pupils has dropped compared to six years ago. Our national tests show great variations in results from one county and municipality to the next and between schools, and that there are clear relations between the achievements of pupils and their parents' background. The Education Mirror also shows that bullying is not declining as we had expected after many years of concentrated efforts in this area. These are vital issues to keep track of in the years ahead.

I am confident that the Education Mirror will contribute to guiding the efforts to develop the Norwegian school in the right direction.



Petter Skarheim

*Petter Skarheim
Director
The Norwegian Directorate for Education and Training*

Contents

Preface	1	4 The learning environment	53
Some glimpses into the Education Mirror	3	4.1 The physical learning environment at school	54
		4.2 The psycho-social learning environment at school	55
		4.3 The teaching at school	56
1 Facts about primary, lower and upper secondary education	13	5 The number of pupils and completion rates in upper secondary education and training	61
1.1 Pupils in primary and lower secondary school	14	5.1 Applicants to upper secondary education and training	62
1.2 Adults in primary and lower secondary school	15	5.2 Pupils and apprentices in upper secondary education and training	66
1.3 Primary and lower secondary schools	16	5.3 Completion rates and progression in upper secondary education and training	68
1.4 Teachers and administrators in primary and lower secondary school	17	5.4 Natural science in upper secondary education	72
1.5 Pupils and apprentices in upper secondary education	18	6 Quality development	74
1.6 Adults in upper secondary education	19	6.1 National quality assessment system	74
1.7 Teachers and administrators in upper secondary school	20	6.2 School leadership	76
1.8 The education level in Norway	21	6.3 Evaluation of national strategies	77
		6.4 From word to deed	78
2 Resources	22	Reference list	80
2.1 Measurements for resource allocation in primary, lower secondary and upper secondary education	22	List of tables and figures	84
2.2 Municipal and county expenditures for primary and lower secondary education	23	Attachments	87
2.3 County authority expenditures on upper secondary education	30		
2.4 Resources for ICT in primary, lower secondary and upper secondary education	32		
2.5 Norway's resource allocation on education in a national and international perspective	33		
3 Learning outcomes	35		
3.1 Determining reading skills in Year 2	36		
3.2 Reading results from the PIRLS study of Years 4 and 5	36		
3.3 National tests in Years 5 and 8	38		
3.4 Results from the PISA study for 15-year olds	41		
3.5 Analyses of the grade statistics for Year 10	46		
3.6 Grades in upper secondary school	48		
3.7 Results from vocational education	51		

Some glimpses into the Education Mirror



Task culture and learning outcomes

Strengthening competence in natural science subjects in primary and lower secondary school is an important goal at this education level. Greater variation in teaching methods may be an important method in this respect. Seven schools in the municipality of Malvik in the county of Sør-Trøndelag are now participating in a project that will place tasks and teaching methods in a new light.

The national reform programme "Kunnskapsløftet – fra ord til handling" (Knowledge Promotion – from word to deed) aims to create better learning and a better learning environment by focusing on school as an activity. The programme allocates funding to development projects where the school owner (the county or municipal administration) and schools cooperate with external experts on focused and systematic development activities in school as a learning organisation. Selected schools and school owners are given practical assistance in carrying out necessary changes in the classroom, in the school as a whole and in the interaction with the school's local environment. The programme's targets specify the ability of schools to systematically evaluate their own practices to bring about improvement.

Digital tools

Norwegian children and young people have become diligent PC users both at home and in school, as findings from the ITU Monitor 2007 tell us. This study of pupils in Years 7 and 8 as well as in Year 11, the first year of upper secondary school, shows that the time pupils spend in front of a PC screen is increasing substantially. The study shows, however, that PCs are used relatively traditionally in school, for internet searches and with standard software such as Microsoft Office. At home, use is more varied and sophisticated, with more multimedia applications. Pupils do not spend much time using Web portals and services aimed at use in school and school subjects. According to the ITU Monitor, the focus should now be more on use than on infrastructure, for example more utilisation of learning platforms in the teaching.

Studies have shown that boys use computers more often than girls, but a comparison of PISA from 2000 to 2006 shows that this gender gap is changing. At home both boys and girls use PCs much, nine of ten saying that they use the PC every day. Boys continue to use the PC more at school. Only 12 per cent of girls use a computer every day at school, while 21 per cent of boys state that they do so.

Task culture

Digital tools and ICT are key elements in the project "Felles løft – felles retning – økt læringsutbytte" (Joint effort – joint direction – increased learning outcomes) in the municipality of Malvik in the

county of Sør-Trøndelag. This project is part of the "From word to deed" programme. The local authorities in Malvik are working with HiST (Trondheim and Sør-Trøndelag University College) and NTNU (the Norwegian University of Science and Technology) on putting task culture high on the agenda. The aim of the project has been to make task culture more exciting and creative to increase the learning outcomes, particularly in natural science subjects and mathematics.

"The aim of the project has been to make task culture more exciting and creative to increase learning dividends ..."

Scenically located on the Trondheim fjord only 15 minutes from the regional hub of Trondheim (Norway's third largest city), Malvik is experiencing a great influx of new inhabitants. This growth is very noticeable in the school sector, where new buildings are being planned to house more pupils in the municipality's seven schools. Thus school development has been placed high on the agenda for the local authority. The focus is on how pupils are challenged in their day-to-day work in school by the tasks they are given, where the aim is to furnish schools and teachers with technical equipment and give them the appropriate training to raise competence levels.

The schools have worked systematically to develop a task culture that will make the pupils active, curious and exploring. For this to succeed, teachers have had to dare to leave traditional teaching methods behind and develop their own task culture linked to the learning objectives in the Knowledge Promotion subject curricula. Working in this way has developed teacher self-confidence in relation to their subjects and their ability to teach in new ways.

Taking technology into use

At Sveberg school in Malvik, there is hectic activity as pupils in Year 4 are preparing an advertising video. The task is part of the teaching in the Norwegian subject, and the pupils are eagerly discussing target groups and techniques to use in their film. The products they are promoting range from tickets to local football club matches to chewing gum. The school has invested in equipment that enables creative task resolution. The pupils have access to video cameras, PCs with editing software and projectors displaying their product on a large screen.

"We started to address the ICT issue quite early, and our main focus in the Malvik project has been on using digital tools. This means tools for learning, expressing oneself and communicating, and a focus on infrastructure," says Sonja Næss, subproject manager at Sveberg school. The local authority made an early decision to invest in PCs for each teacher in the municipi-

pality. "This was absolutely necessary. We can't just stand on the sidelines and say that we as teachers won't take part in technological development," says Næss.

The pupils use digital aids to learn English grammar, develop their language skills and tools through production of radio shows and learn visualisation through producing photo stories.

Sonja Næss believes varied work methods are important to help as many pupils as possible to learn. The school has, for example, started to use a number of internet-based resources, presented the learning material to the pupils in new ways and allowed greater room for in-depth studies.

"Working with digital tools and alternative methods than the traditional ones motivates the pupils more, and we also see that it increases the motivation of those who may need it most. Interactive programmes, for example, give instant feedback to pupils as to whether they are right or wrong, and they can also easily practise things that require a great deal of repetition. Digital aids give pupils new ways of expressing themselves, and they also feel that they master things," Næss comments.

The school has also worked intently to integrate digital tools across subjects. "We find it essential that there is a pedagogical reason underlying the choice of tools for the teaching. When we create advertising, this is part of the Norwegian language subject, which is about expressing oneself and using communication techniques. Similarly, we have tools we use for pupils to learn English grammar, and music notation software," Næss adds.

In connection with the "Joint effort" project, all the schools in the municipality have started to use a learning platform. In addition to being the platform for the schools' own planning and communication, this enables them to communicate with and involve the parents. Pupils from each year in the school have their own web page where parents can for instance read the weekly plans and find out what homework their child has.

"We have also deemed it important to develop a better website for the school so we can document our education practice and present ourselves to the world," Næss says.

The school at Sveberg has benefited from external competence in working on development activities. "We have worked with experts from Sør-Trøndelag University College, and this has given us valuable feedback and guidance. For example, we have worked intensely with the Knowledge Promotion reform and its competence objectives," Næss concludes.

New exercises

At Hommelvik school the task culture is demonstrated in practice so one can see how it helps to improve teaching in

"The school natural science team has introduced an effective standardisation of experiments."

teaching biology, but less so in chemistry and physics. The key has been to make it simpler for the teacher to arrange natural science experiments. These experiments used to take a lot of work and time to set up, but we have found a system that simplifies how these experiments are carried out, and this has yielded positive results," says Øyvind Pettersen, who teaches natural science at the school.

In the natural science laboratory, the school's natural science team has introduced an effective standardisation of experiments. This lowers the threshold significantly for the teachers, who now can carry out experiments with a minimum of preparation, and with certainty that the experiment is relevant, works in practice and gives the intended result. The standardisation uses simple plastic boxes which have been prepared and are lined up ready for use. Each box contains everything a teacher needs for an experiment, including equipment and materials, and with descriptions of methods and instructions for the experiment printed on simple laminated cards. The natural science team has also prepared practical tips for users. The box is also labelled with the relevant competence objective in the Knowledge Promotion subject curriculum the experiment is designed for.

"We also have a PC and a digital camera ready to use so that the teacher can document the experiment. A special evaluation form is also prepared for the experiment so that we can evaluate what works well and less well. Finally, it is also important that we visualise and share knowledge about the experiment with other teachers," Pettersen says.

Part of the key is to make the experiments mobile so that a teacher and the class are not forced to use the natural science laboratory. The school has a large number of pupils in each year class, but mobile experiments ensure that having more than 20 pupils in each group is no longer a barrier. It is easy to move the experiment from the natural science laboratory to a regular classroom, and then teachers are not compelled to resort to more traditional teaching methods due to room limitations.

The school administration has assisted by making new

natural science. With simple and effective modifications the natural science team has made it simpler for teachers to carry out experiments as a key element of the teaching.

"Our aim has been to make natural science a subject where the pupils are more active. Traditionally it has been easy to let pupils be active when





Pia Skog

procurement schemes. Materials are supplemented as the experiments are carried out by more and more classes. The pupils become active learners, which yields better learning outcomes and increases the joy of learning, as they state in their feedback. A glass display case shows the result of one experiment, one where the pupils had made jacket badges with light-emitting diodes and moss rubber. Both creativity and motivation are combined with natural science theory.

"We have had excellent responses. Natural science has become a fun subject," says Pettersen.

Joint development

Participation in the Malvik project has created a sense of togetherness for the schools, which the project participants find very positive.

"One of the most important results we have achieved is that the schools have started to work together. This has expanded the number of teacher and administration colleagues, resulting in joint school development and knowledge sharing. This benefits each pupil," says Pia Skog, school administration consultant and Malvik project manager.

She is active and dedicated in her work to involve schools, visiting them as often as she can. Six times annually the subproject managers from each school meet, where they first give a brief status report, while the host school provides in-depth information about its focus and endeavours. The project is on the agenda at the monthly principal meetings for all the heads of school. Another aim has been to familiarise all politicians, pupils, employees and parents/guardians with the project. In addition to several articles in the local press, the 2007 project year was given special local attention through broad participation at the municipal conference "Kunnskapsdeling" (Knowledge sharing). Teachers, employees in the school day-care programme, school administrators and politicians participated at the conference, as in fact did all those who deal with children and young persons in their day-to-day activities.

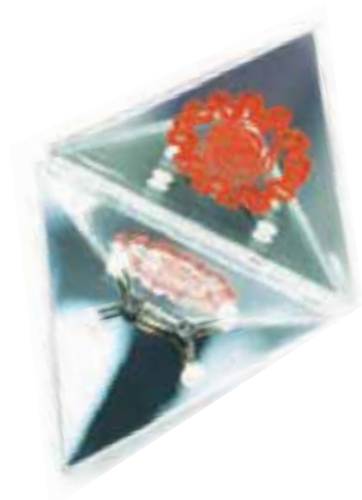
"The project has a solid foundation in the local municipal administration and at each school. We have strong dedication to child development and education in this municipality, and this has been very important," says Skog.

Each school participating in the project has had ties to resource persons from such competence environments as HiST (Sør-Trøndelag College) and NTNU (University of Trondheim). They have actively participated on the pupil level at each school and contributed expert and creative support when it comes to developing the school's task culture.

"We have become more aware as buyers of external services when it comes to competence and knowledge development. Schools have in particular received assistance in evaluating and documenting their activities, and this has been very important. Now this work will be carried forward, and each school will have the opportunity to undertake in-depth development in one area, making them local competence environments," Skog adds.

Now Malvik intends to document whether their development activities actually lead to greater learning outcomes. This is a demanding task involving school owners and external competence environments.

"Now that we have started to look ahead, it is clear that we are off to a good start, but we still have a lot to do. We're now starting a major process with focus on documentation and dissemination, and we need to define which of the project experiences should be included in the school's future teaching practice," Skog concludes.



Quality development and learning outcomes on the agenda

One key issue in the public debate over the last six months has been learning dividends and quality development in school, as the publication of the national-test results and international studies show that Norwegian pupils have not performed as well as could be expected.

Until the end of the 1990s there was little focus on quality development and learning outcomes in the Norwegian school. During the last ten years the education authorities have focused on making results visible by documenting pupil learning outcomes.

National tests

Experiences from national tests in 2007 show that they are a useful tool for quality assessment of the education and training in Norwegian schools. On assignment from the Norwegian Directorate for Education and Training, the polling marketing-research company Synovate prepared a report on the implementation of the national tests in 2007. The report states that the implementation of these tests has been far more successful than previous attempts. This is also confirmed by the great number of school administrators and teachers who believe that the tests yield good information about what should be strengthened in the education of each individual pupil and pupil group. This is also in accordance with the purpose of the national tests, which is that they should provide greater knowledge and serve as the basis of quality development on the local and central levels.

The national tests in 2007 show that most pupils in most municipalities and schools are to be found in the middle of the test assessment scale. The results show, however, that there are clear differences from one municipality to the next and between schools. The Norwegian Directorate for Education and Training intends to analyse thoroughly the causes of the variations in the results.

International studies

Norway participates in two major international studies, PISA (Programme for International Student Assessment) and PIRLS (Progress in International Reading Literacy Study). The purpose of the studies is to measure changes in pupil competence from one year to the next.

PIRLS determines and maps reading efforts, reading skills and attitudes to reading among pupils in Year 4. Norway has received the lowest score among the Nordic countries. The results are confirmed by the PISA study from 2006. This study measured the competence of 15-year-olds in reading, mathematics and natural science. Publication of the results has fuelled political and public debates.

The PISA study in 2006 showed that Norwegian pupils scored significantly below the average in the OECD area in all subjects, and that the competence of Norwegian pupils now is lower in natural science, reading and mathematics than six years ago.

Marit Kjærnsli, who is a researcher at the Faculty of Teacher Education and School Development at the University of Oslo, and the project manager for PISA in Norway, finds these results surprising.

"The results for the Norwegian schools is not fun reading. It is vital to bear in mind that the main point of the PISA studies is to compare the results with previous years and examine development. It may also be interesting to compare the results to those from other countries. Norway does not do well in these comparisons," says Kjærnsli.

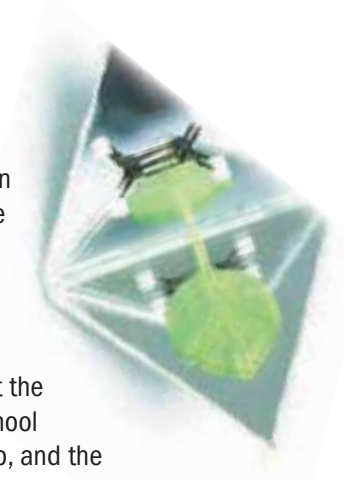
The results of the PISA study

Natural science, reading and mathematics are three key skills in school. This is also reflected in the Knowledge Promotion reform, where reading and mathematics are described as the most fundamental skills for acquiring knowledge in all other subject fields. The PISA survey shows clear differences in the reading skills of boys and girls in the Norwegian school. But this is not a unique Norwegian phenomenon. During the last six years increasing gender differences have been observed in the entire OECD area.

In natural science, the trend shows that Norwegian pupils continue to perform significantly under the OECD average. Norwegian 15-year-olds particularly demonstrate weak skills in drawing logical conclusions from natural science data to apply to an everyday situation or social issue.

The Norwegian achievements in mathematics show a slight decline in the period 2000 to 2006. This decline is negligible from one measurement to the next, but viewed across the whole period of six years it documents a negative development.

"The most important finding is that we have a clear decline in the results for mathematics, reading and natural science from 2000. This cannot be ignored; these are crucial skills for our pupils. Therefore we must take these figures very seriously," Kjærnsli maintains. Studies show that Norwegian pupils feel comfortable in school and have a sense of belonging, not that this should have any relation to the results. "It is certainly possible to have a school that pupils enjoy attending and that





Marit Kjærnsli

has a keen focus on knowledge. However, it just might be that the Norwegian school has leaned a little too much on the idea that school should be fun. But finding enjoyable activities that also give knowledge apparently demands too much of the teachers,” says Kjærnsli.

She makes a point of saying that the intention is not to blame the teachers for the results.

The social debate

The publication of the PISA study has made school the focal point of the public debate during the last six months. Aslak Bonde, analyst and editor of Politiskanalyse.no, believes that the PISA study and other recent international comparative tests have had a significant influence on the development of the school debate.

“It’s difficult to envision how the discussion would have been without such tests. Even before PISA, some results showed that many pupils left school without being able to read and write. But as I recall them, these studies were more fragmented and moreover easier to explain away. What PISA and the others have achieved is to contribute to a more intense focus on traditional knowledge in traditional subjects. They have also nourished the debate on how much bang we get for the bucks we invest in school,” Bonde says.

Marit Kjærnsli feels that the discussion in the media on the Norwegian school is too unbalanced.

“The media use PISA to describe matters in schools far beyond what the study actually says anything about. If PISA is to become the guideline for development in the Norwegian school, the study may gain too much importance. One could get the impression that PISA measures everything in the Norwegian school. It doesn’t. It measures pupil competence in three fields: mathematics, natural science and reading,” says Kjærnsli.

Bonde believes the media are using the PISA study for different purposes.

“PISA is used by some media almost as a keyword to describe a school dominated by constant unrest and little learning.”

“The media will use any study and virtually any fact to describe more than there is any basis for. This is the nature of the big public media. PISA is used by some media almost as a keyword to describe a school dominated by constant unrest and little learning. This occurs particularly in contexts where the media are really not writing

about school or PISA, where these subjects are only mentioned in passing, such as general discussions about what we get in return for our tax money. When reporting on school in feature articles I feel that the media are more balanced, and there they often have at least a fact box where they state that PISA does not paint the full picture, and where they might even include something about the areas where Norwegian schools score well in the PISA test,” Bonde states.

Complex causes

Some voices have been heard claiming that Norwegian pupils have shown poor motivation in relation to the PISA study. Kjærnsli maintains that there are no data suggesting that test motivation is inadequate, nor that it has changed. “We believe that the performance of pupils on the test more or less reflects their normal achievement in school and that the results probably are relatively realistic.”

“The challenges in Norwegian school are probably complex.”

Kjærnsli believes there is no one direct causal explanation for the Norwegian results in the PISA study.

“The challenges in the Norwegian school are probably complex. I believe we can find different explanations if we analyse different levels, ranging from teacher education to the general view in society on knowledge and pedagogy,” Kjærnsli concludes.



Adapted teaching in practice

An explicit aim in the Knowledge Promotion reform is that the teaching as far as possible shall be adapted to each individual pupil. However, this must not be understood as an individualised school. Charlottenlund lower secondary school in Trondheim has restructured its teaching where the pupil is placed in the role of teacher/presenter.

Adapted teaching is a vital principle in the Knowledge Promotion reform, which states that all the pupils must be given challenges they can strive for and master alone or together with others. The aim is that adapted teaching will give greater learning outcomes and help each and every pupil, regardless their background, to exploit their full potential to succeed as far as possible within their environment.

Motivation

The Knowledge Promotion reform emphasises that collaboration will help make the pupils more aware of their own learning processes and give them more influence on their own learning. The evaluation of the L-97 reform shows that adapted teaching also has broad acceptance, but that many pupils do not receive this type of teaching. Nine of ten pupils in the study claim that teaching using the blackboard with the teacher facing the pupils is the method used several times a week. Six of ten pupils feel that the teaching is adapted to their level in many or all subjects. However, ten per cent feel that they have no adapted teaching at all.

Many pupils feel that they have little influence on the learning objectives. The pupil study for 2007 shows that almost half of the pupils feel that they are included in determining their own learning objectives. Pupils should also join in the assessment of their work pursuant to the Education Act. The practice of conducting development interviews is well established in school, where more than half of the pupils have had two or more development interviews, even if 12 per cent of pupils in lower secondary school and upper secondary school say they have never had this statutory interview. Almost half of the pupils, regardless the year, feel that they benefit from the development interview to a high or very high degree.

Pupil motivation is important for their learning dividend. Even if factors such as the socio-economic background of parents influence pupil motivation, the school's learning environment may help increase the motivation to learn, the pupil study shows. Figures from the study indicate that maintaining pupil motivation throughout lower secondary school is a challenge, where on the national level the motivation for learning in Year 7 is higher than in Year 10. Eight of ten pupils state that they are interested in learning in school in many or most subjects. Half of the pupils state that they like schoolwork well or very much.

Restructuring for adaptation

In 2007, many of the projects that were part of the "From word to deed" programme focused on adapted teaching and digital competence. A key part of the project "1001 speil" (1001 mirrors) at Charlottenlund lower secondary school is precisely that the teaching should give increased collaboration and hence more adaptation to each pupil. The school has attached importance to using forms of teaching that support the pupils who do not cope with the traditional teaching forms, where the pupils can exploit their strengths better. The project has become an important element in a large restructuring of the school.

"Charlottenlund lower secondary school had been a traditional school for 40 years. Three years ago the school had to adapt to a new curriculum, moved into a new school building and hired a new principal. This became the start of a comprehensive restructuring process," says Per Egil Toldnes, the principal.

He took over a school with a very traditional background. The new school building meant leaving traditional classroom teaching behind and using instead a partially open plan solution in a so-called flexible school building.

"There was much uncertainty in connection with the impending changes. The staff and the school both needed to adopt new and more modern teaching methods through systematic development activities," says Toldnes.

The pupil as teacher/presenter

This was the inception of the project "1001 mirrors". The project had two cornerstones:

- Learning through re-formulation and knowledge sharing
- Organisational development with focus on strengthening opportunities for knowledge sharing and experiential learning for pupils and teachers

"The main idea is that pupils achieve the best learning when they present knowledge to others."

The project has paid special attention to developing competence in language development, natural science subjects, drama and ICT/digitalisation. The main idea is that pupils achieve the best learning when they present knowledge to others. When preparing and presenting material to other pupils the pupil will achieve better understanding of the material. The





Per Egil Toldnes

Anita Normann

process means that each pupil must reflect upon and re-formulate the material, and then select the form and mode of expression. Teacher colleagues at Charlottenlund are therefore working according to a postulate that each pupil must "stand on top of the learning pyramid". This means that the pupils gradually must take on and master the role of teacher/presenter.

"Pupils learn best by being at the top of the learning pyramid and by adopting the role of the presenter of knowledge. The theory states that the learning dividend in a traditional lecture situation is approximately five per cent. When the pupils participate in the teaching the learning dividend increases, and the greatest dividend can be reaped when the pupils become the presenters," says Anita Normann, a teacher at Charlottenlund. One specific example of this is how pupils in Year 9 present knowledge on pupil entrepreneurship to Year 7 pupils, while pupils in Year 10 teach ICT to Year 8 pupils. The school has also paid great attention to giving the teaching/presentation a solid academic foundation.

"Presentation is nothing new in school. The systematic adoption of presentation by pupils in all subjects is new, and we find that this is what yields results. The pupils have a wide range of expressions at their disposal and use these to present material from all subjects. They may, for example, use animation to present chemical reactions. Then they must first master the chemistry involved thoroughly to create a successful expression," says Toldnes.

The pupils adapt

Adapted teaching does not mean customising and individualising, but rather that school adequately considers the aptitudes of each individual pupil. This is a challenge schools must address within their entire organisation.

"Adapted teaching has been the greatest challenge in school for decades, and all the subject curricula have aimed to increase the level of adapted teaching. The challenge has primarily been the

"Adapted teaching has been the greatest challenge in school for decades ..."

idea that the teacher is the one to adapt the teaching to each pupil. However, we cannot have 30 different subject curricula in a class. The most important change is the idea that the pupils can adapt the teaching when we allow each pupil to

make choices based on their own skills and strengths. Here ICT also plays a major role as a tool for adaptation. This has been a paradigm shift in school. Not because we have had so many technical aids, but we now have pupils with vast experience in using these aids. We must use these experiences in the teaching."

Teaching the tools

One major idea is that the pupils must choose the mode of expression based on what they themselves master. Thus we accomplish teaching that is better adapted to the strengths of each individual pupil. This requires an approach with solid training in using the tools.

"Our organisational development has taken as its point of departure that it is the educational system that controls our activities. Therefore we started with the educational foundation, because the pedagogical system is what controls our activities. When pupils make statements or expressions, these must be based on correct knowledge. Therefore we have emphasised teaching the tools as the basis for everything we do," says Toldnes.

Gives results

"For example, we use digital history narratives where personal voiceovers are added to images. This does not mean that the challenge is mastering audio and video editing software. The pupils must also have knowledge about the narrative genre, which is part of several language subjects. They must also be able to use pictures to visualise, which may be a topic in several theory subjects and the arts and crafts subject. Using one's voice may also be part of the music subject. In total this is what helps make the expression as good as possible," says Normann.

Normally, it takes a long time to change educational practices, but the team at Charlottenlund has achieved results in only a few years. The staff states that their work is yielding good results, and a report prepared by SINTEF on "1001 mirrors" confirms this impression. The report emphasises the decisive role of the school administration. "Solid academic background and experience" are key elements of good administration. Even if the principal is clear when it comes to his role and what he wishes to achieve with the transition to another approach to education, all employees are invited to take an active part in the design of their new working day as teachers, the report shows. The employees state that they have a great deal of empowerment in the process.

Completion of upper secondary education

It is a political goal that as many pupils as possible should start and complete upper secondary education after completing lower secondary education. Akershus county has initiated a project where five upper secondary schools are cooperating on reducing the dropout rate and developing alternative cooperation models with working life.

Various strategies have been tried over a number of years to reduce the dropout rate in upper secondary education. The number of pupils who do not complete this level of education within five years has, however, remained stable. Figures from Statistics Norway show that 57 per cent of the pupils who started upper secondary education in 2001 completed within the normal time. If we consider the completion rate after five years, the proportion increases to 70 per cent. In part the figures show large differences in completion and progression when we compare general studies and vocational studies. In recent years, between 74 and 77 per cent have completed general studies within the normal time, while 38 to 40 per cent complete vocational studies within the normal time.

Even if the dropout rate in upper secondary school is significant, the trend we are seeing now is that increasing numbers of young persons start upper secondary education compared to earlier.

Developing school activities

The programme "Kunnskapsløftet - fra ord til handling" (The Knowledge Promotion reform - from word to deed) takes as its point of departure that schools can improve the academic and social learning of pupils by developing school activities. Research has documented that schools that develop a common culture, a clear educational administration and a high ambition level succeed better than other schools. Good organisation and good interaction among teachers also help the school establish new practices in response to the changes in requirements that school is and will be facing.

The programme primarily aims to give the school and school owner the opportunity to work with competence environments in their endeavour to improve the teaching. The programme focuses on specific challenges in the work with pupils and also develops the school as a learning organisation. Great importance has been attached to obtaining documentation of processes, experiences and results attained for pupil learning and for the school as an organisation.

"Redusert bortvalg i en lærende organisasjon" (Reduced negative choices in a learning organisation) is Akershus county's project in "The Knowledge Promotion reform - from word to deed". The county authorities were allocated project funding in 2006 to develop models to increase the proportion of pupils who complete upper secondary

education. The project was established as a cooperative project between Bjertnes, Drømtorp, Holmen, Kjelle and Strømmen upper secondary schools. These schools are also cooperating with 17 lower secondary schools. The overriding aim of the project is to reduce the dropout rate in participating schools in the short term and in all of Akershus county in the long term.

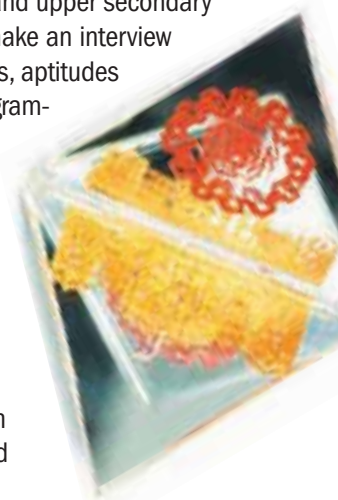
Kjelle upper secondary school in the municipality of Aurskog-Hørland leads the development project under the auspice of Akershus county administration.

"The point of departure is that school in general does not have a good system that can identify pupils who need practice and social training instead of theoretical learning situations. Our aim is that a larger proportion of pupils should at an earlier stage start aiming for a planned competence on a lower level," says project manager Øyvind Sæteren.

Research environments have analysed what characterises those who drop out of upper secondary education, and find that the grade level from lower secondary education is significant for the upper-secondary-education completion rate. Family background also plays a role, primarily because family background influences the grades in lower secondary school. Statistics show, for example, that young persons who live with both their parents have a lower probability of dropping out than those who live with only one of the parents. Non-Western youths have a higher average dropout rate than other young persons. This is generally due to the fact that they often have poorer grades from lower secondary school, and that their parents have lower education levels.

In cooperation with Eifred Markussen, a researcher at the NIFU STEP research institute, "Reduced negative choices in a learning organisation", has developed what they call "IKO models" (for identification, needs assessment and follow-up). "On the basis of Markussen's research on what characterises young people who drop out of upper secondary education, we have developed models for early identification, needs assessment and follow-up of pupils in both lower secondary school and upper secondary education. They have then been used to make an interview guide for a conversation to determine skills, aptitudes and interests. A web-based computer programme has also been developed for the planning, implementation and documentation of individual teaching," says Sæteren.

The participating lower secondary schools have initiated systematic work with pupils in the target group. Primarily pupils in Year 9 with poor term grades and pupils with high absenteeism rates are selected for an interview to determine skills, aptitudes and interests.





Øyvind Sæteren

“More than 90 per cent of the companies state that they would like to accept trainees.”

appreciated being taken seriously, and state that they are grateful to be noticed,” Sæteren says.

Cooperation with working life

Report to Stortinget (Norwegian Parliament) no. 16 (2006-2007) “...og ingen sto igjen. Tidlig innsats for tidlig læring” (... and nobody was left behind. Early efforts for early learning) the Ministry of Education and Research proposed specifying some examples of basic competence that might be offered by companies engaged in teaching apprentices or pupils, and which would be in demand in working life. The scheme has been drawn up in cooperation with the employee and employer organisations, and means that pupils with inadequate skills for completing upper secondary education with today’s requirements may have the opportunity to acquire formalised competence on a lower level.

The Akershus county project has conducted a study of businesses, asking 231 companies in Oslo and Akershus about their needs for labour with lower competences than craft or journeyman certificates.

“Other individual matters a teacher is made aware of may also trigger such an interview. We have been careful to avoid stigmatisation in being picked to participate in this project, and so far we have no indication this has happened. Feedback from the pupils in question has only been positive. They have ap-

preciated being taken seriously, and state that they are grateful to be noticed,” Sæteren says.

“More than 90 per cent of the companies state that they would like to accept trainees, while around 70 per cent of them are willing to establish formal cooperation. Upper secondary school should find ways to use this more,” project manager Sæteren states enthusiastically.

“The study also uncovers important matters connected to the need for competence. For example, the companies attach more importance to social competence than academic competence. Working life is dominated by procedures, requirements and restrictions. You must come to work on time, carry out the work you are asked to do and conduct yourself respectfully. For many young persons these are precisely the framework requirements they need. When the job also includes practical tasks where the youths get to use their hands instead of theorising, they have a platform for mastering the situation,” says Sæteren.

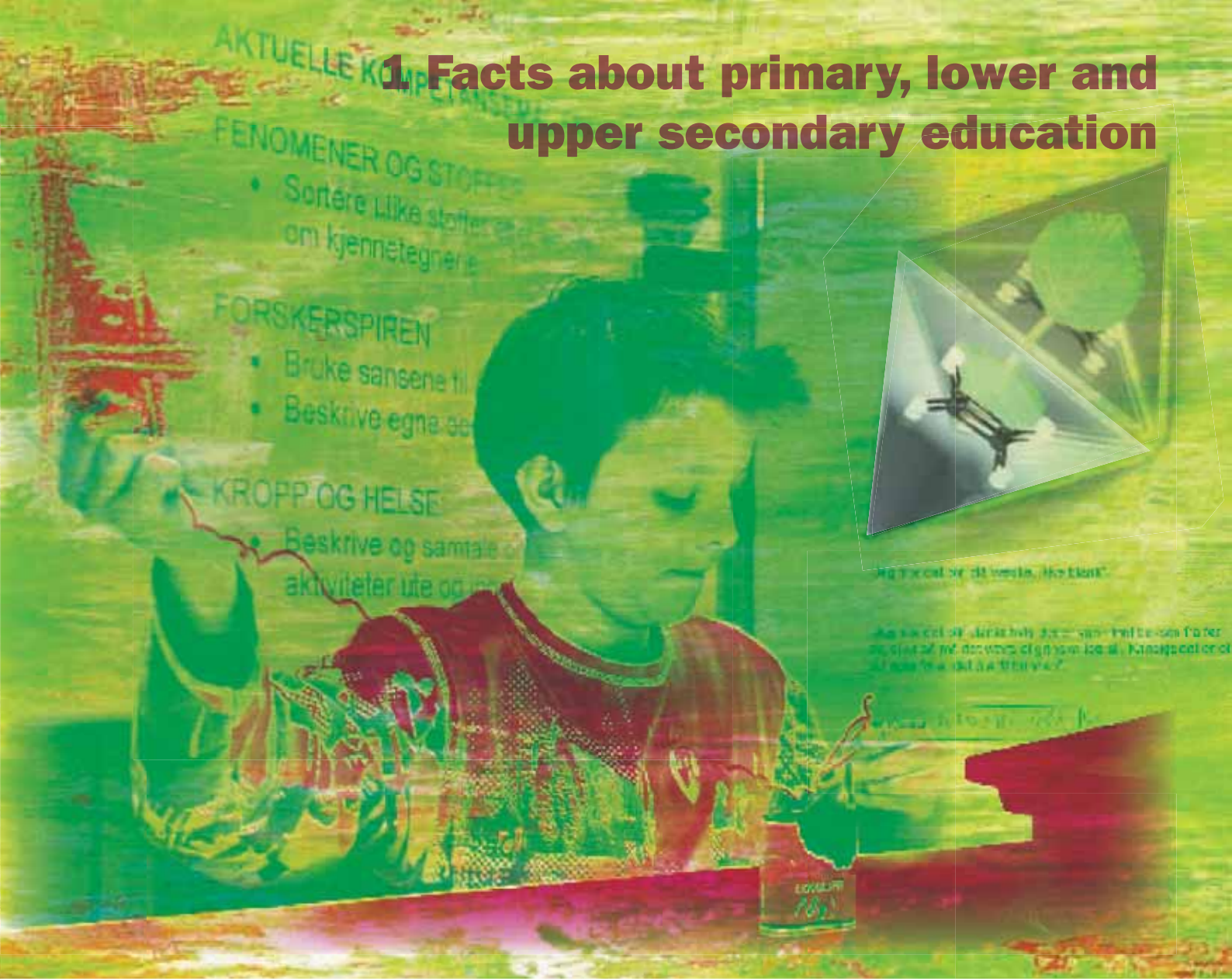
“It is not necessarily funding that is the key to reducing negative choices in upper secondary school ...”

need to be considered in a different light on the system level,” Øyvind Sæteren concludes.

The project manager believes it is too early to comment on how the work methods of the project should be implemented in the schools in Akershus county, but feels that the discussion has been started.

“It’s not necessarily funding that is the key to reducing negative choices in upper secondary school, rather things

1 Facts about primary, lower and upper secondary education



After many years where the number of pupils in primary and lower secondary education has increased, the number of pupils is now dropping. In the autumn of 2007, 617 121 pupils attended regular primary and lower secondary school, a drop of more than 2600 from last year. The drop in the number of pupils applies both to primary school and lower secondary school. In upper secondary education the number of pupils has remained stable compared to last year.

The trend towards an increasing number of large schools and fewer small and medium-sized schools continues. The closing of small schools or merging them with other schools to make larger schools has been going on for years, and therefore the total number of schools is dropping. One manifestation of this development is that more than 50 per cent of pupils in primary and lower secondary education is attending schools with more than 300 pupils.

Since the 2000–2001 school year, 64 new privately operated primary and lower secondary schools have been established in Norway, an increase of 72 per cent. However, private schools

only amount to five per cent of today's primary and lower secondary schools.

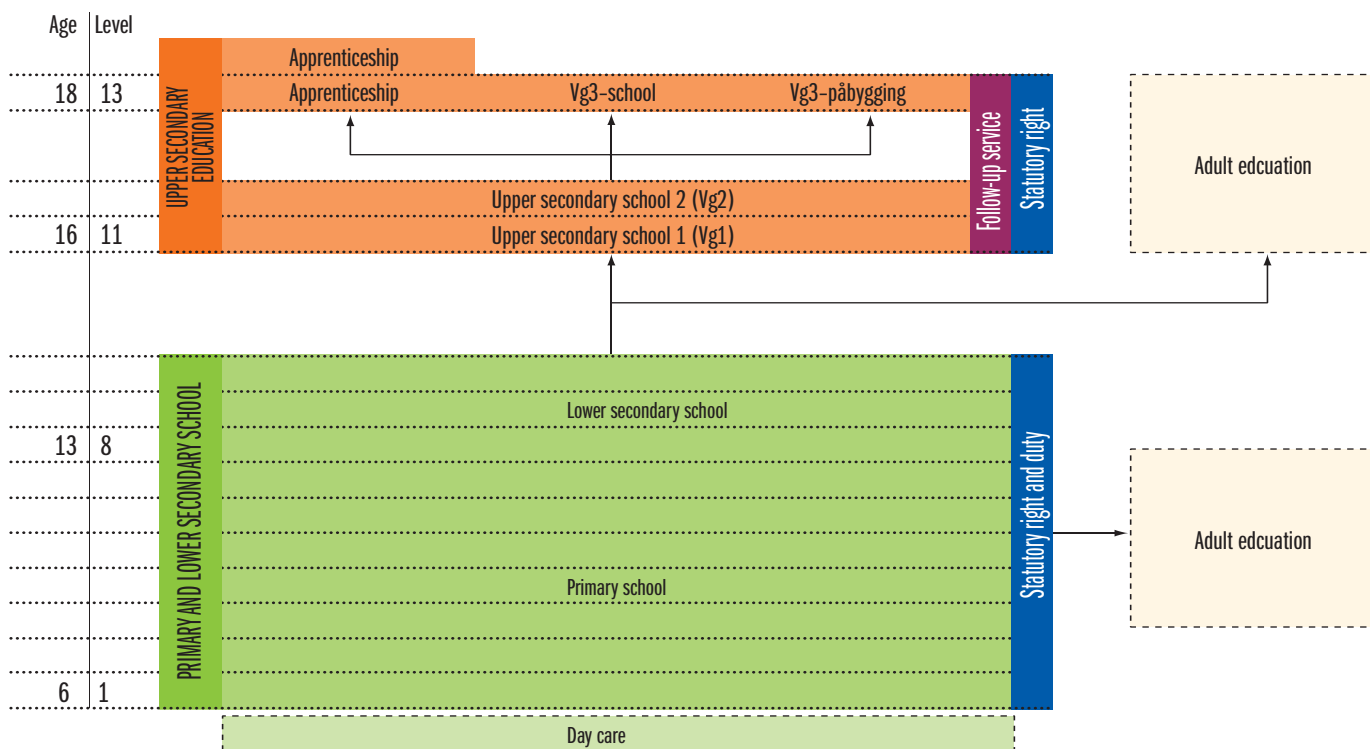
In the autumn of 2007, 39 076 pupils received special teaching according to individual decisions. This constituted 6.3 per cent of the total number of pupils, and is 0.4 per cent more than last year.

Of the 66 000 teachers in primary and lower secondary education, women outnumber men almost three to one, while the gender distribution among the 4500 administrators in primary and lower secondary school is more even. This also applies to the gender distribution in upper secondary education, where slightly more than half of the 24 500 teachers are men.

The average age of teachers in upper secondary school is relatively high. In the autumn of 2006, 30 per cent of teachers were 56 years or older, while only 15 per cent were younger than 35. The gender distribution is more even in primary and lower secondary school, where slightly more than half of the 23 000 teachers are men.

This chapter presents figures and statistics that provide an overview of the status in primary, lower secondary and upper

The education path for primary and lower/upper secondary school



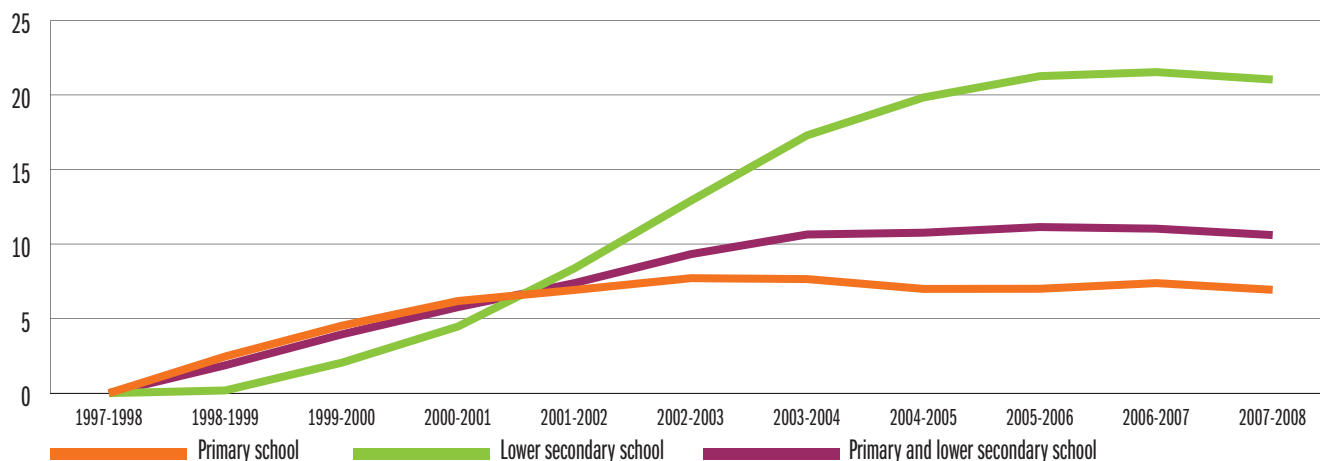
secondary education in Norway, including the number of pupils, apprentices, adults, teachers and administrators.

1.1 Pupils in primary and lower secondary school

In the autumn of 2007, 617 121 pupils attended regular primary and lower secondary school, a decline of more than 2600 pupils from last year. Of the total number of pupils in primary and lower secondary school, 70 per cent are attending primary school and 30 per cent are attending lower secondary school. A total of 15 202 pupils in primary and lower secondary school are attending private schools, and 733 of these are in Norwegian private schools abroad.

Figure 1.1 shows the relative distribution of pupils in primary school and lower secondary school. The distribution has been recalculated as an index where the first year, 1997–1998, has been given the value 0. The figure shows that the number of pupils in primary and lower secondary school has increased by more than 10 per cent since 1997–1998, but that it now appears to be dropping again. The highest registered number of pupils was in the 2005–2006 school year with approximately 620 100 pupils in primary and lower secondary school. The figure also shows that the largest increase in the number of pupils has been in lower secondary school.

Figure 1.1: Developments in the relative distribution of pupils in primary school and lower secondary school in the period 1997–1998 to 2007–2008.



Source: The information system for primary and lower secondary school

Table 1.1: The distribution of adults according to different types of primary and lower secondary education, with figures for the percentages of language minorities and women 2002–2003 to 2007–2008.

Year	Ordinary teaching			Special teaching			Total		
	Pupils	Per cent language minorities	Per cent women	Pupils	Per cent language minorities	Per cent women	Pupils	Per cent language minorities	Per cent 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	4 268	72,8	58,0	6 352	5,6	47,1	10 620	32,6	51,5
2007–2008	4 128	69,7	59,3	5 610	7,1	47,8	9 738	33,6	52,7

Source: GSI

In the autumn of 2007, 6254 pupils in primary and lower secondary school received special teaching at the school they attended, while 2894 attended special teaching groups for language minorities. In addition, 2083 pupils attended special schools, 128 more than in 2006.

Pupils who do not have adequate learning outcomes from the regular teaching programme are entitled to special teaching pursuant to section 5 of the Education Act and section 3–6 of the Private Schools Act. Overall, more than 6.3 per cent of pupils in regular primary and lower secondary school are receiving special teaching in accordance with individual decisions in the 2007–2008 school year. This is an increase of 0.4 percentage points from last year, when 5.9 per cent received special teaching. A larger proportion is receiving special teaching in lower secondary school (8.6 per cent) than in primary school (5.4 per cent), but the percentage is increasing for both schools. With respect to gender distribution, around twice as many boys are receiving special teaching.

1.2 Adults in primary school and lower secondary school

The Education Act grants adults needing compulsory school the right to such tuition if they request it. The local authorities are obliged to provide teaching to persons who have not completed primary and lower secondary school, persons who have completed primary and lower secondary school but still need education from this level and foreign nationals with a settlement permit, work permit and/or residence permit or collective protection (section 4A of the Education Act).

Primary and lower secondary education for adults is divided into ordinary teaching and special teaching. In the autumn of 2007, 4128 adults took ordinary primary and secondary education. In addition, 5610 adults received primary and secondary education in the form of special teaching.

Table 1.1 shows that in recent years the total number of adults in primary and lower secondary school has remained relatively stable at around 10 000 adults. There has nevertheless been some development when it comes to who actually takes part in this teaching. The table shows that an increasing proportion of those receiving adult education are from language minorities. While almost every fourth adult participant spoke a minority

language in 2002, this group today makes up every third participant. A full 70 per cent of adults in ordinary education represent minority languages, while this group makes up 7 per cent of adults receiving special teaching.

There are also gender differences with respect to who is taking adult education. Around 60 per cent of those receiving ordinary teaching are women while 40 per cent are men. In contrast, slightly more men than women are receiving special teaching.

Even though many adults have not completed their primary and lower secondary education, relatively few avail themselves of their right to education as adults. The challenges in getting adults to pursue an education have been explained in publications such as 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). This report finds that many aspects of the practising of the adult right to primary and secondary education do not function satisfactorily. There are probably many causes for the low rate of participation, including the fact that many are unfamiliar with this right. There is also reason to assume that the threshold for seeking primary and lower secondary education for adults is high. Another explanation of the low participation rate is that the programmes are often ill-suited to the needs of adults and that the teaching takes place in the daytime (Vox 2007, Report to Parliament no. 16 (2006–2007)).

Many adults have poor basic skills in reading, writing and mathematics. An international study of adult reading skills shows that between 30 and 40 per cent of the adult population in Norway have reading and writing difficulties in one form or another (Gabrielsen, Haslund and Lagerstrøm 2005).

Teaching in Norwegian and social studies for adult immigrants

Pursuant to the Introduction Act, newly arrived immigrants have the right and the obligation to complete 300 hours of teaching in Norwegian and social studies. The obligatory teaching applies to persons who have been granted asylum, persons with residence and work permits and persons who are reunited with their families. Labour immigrants who have been granted permits pursuant to the EEA rules, on the other hand, have neither the right nor the obligation to take the course in

Table 1.2: Development in the number of persons receiving schooling in Norwegian and social studies with the percentage of women, 2002–2003 to 2007–2008.

Year	Persons	Per cent 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
2007-2008	22 823	62,4

Source: GSI

Norwegian. Completing the tuition in accordance with the introductory programme is a requirement for being granted residence and citizenship.

Table 1.2 shows that the number of those who have completed the course in Norwegian and social studies has declined during the last six years. While more than 30 000 immigrants completed the course in the 2002–2003 school year, only approximately 23 000 participants have been registered for the 2006–2007 school year. There are several reasons for the decline. Previously, asylum seekers and EEA nationals were offered free instruction in the Norwegian language. When this programme was terminated, the number of participants declined. Pursuant to the current rules in force, only around 20 per cent of immigrants are entitled to free instruction in Norwegian (Kavli 2006). Participation among those who are entitled to a free course is also very low. According to figures from NIR (the National Introduction Register), which registers persons who have the right and the obligation to participate, only 57 per cent of women and 42 per cent of men took part in the tuition in 2006. One possible explanation is that many immigrants are unaware of their rights and obligations (Vox 2007).

Table 1.2 also shows that the proportion of women who receive tuition has increased consistently during this period.

1.3 Primary and lower secondary schools

In the 2007–2008 school year, there were 2941 primary and lower secondary schools, three inter-municipal primary and lower secondary schools and one state primary and lower secondary school. There were also 174 private schools, 16 of these abroad. In the same school year there were 79 special schools in Norway. Of these, 45 were municipal, eight were inter-municipal, 16 were county, and there were five state and five private special schools.

New schools and closed schools

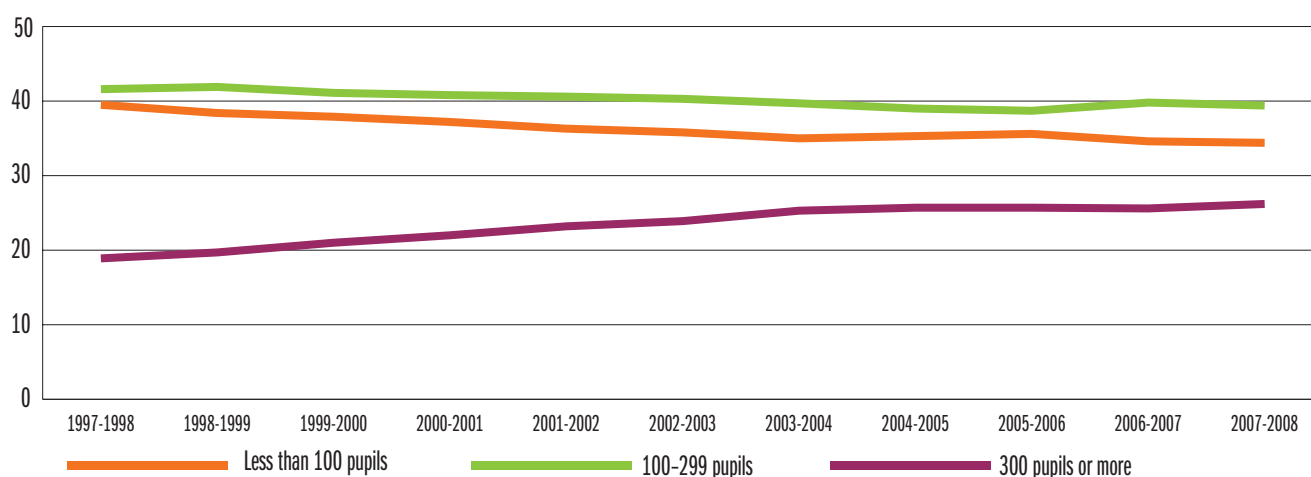
From the 2006–2007 school year to the 2007–2008 school year, 42 schools were closed down, while 16 new schools were established. In two of these cases the closing down or establishment of a school was the result of schools being merged. Two of the public schools that were closed down were replaced by private schools. The schools that closed down had a total of 2765 pupils, an average of less than 66 pupils per school. Correspondingly, the new schools had 2020 pupils, an average of 126 pupils per school.

The drop in the number of schools follows a trend that has been prevalent in recent years. In the course of the last five years the number of primary and lower secondary schools has dropped by 117 in Norway. The schools that have been closed have generally been in municipalities with many small schools and a low average number of pupils per group (Hollås 2007).

The development where small schools are closed down or merged into larger schools is shown in Figure 1.2. The figure shows that the number of large schools has seen a stable increase during the last ten years. During this period the number of large schools has increased by around seven per cent with a corresponding drop in the number of small schools. In the 2007–2008 school year, more than every fourth school had more than 300 pupils.

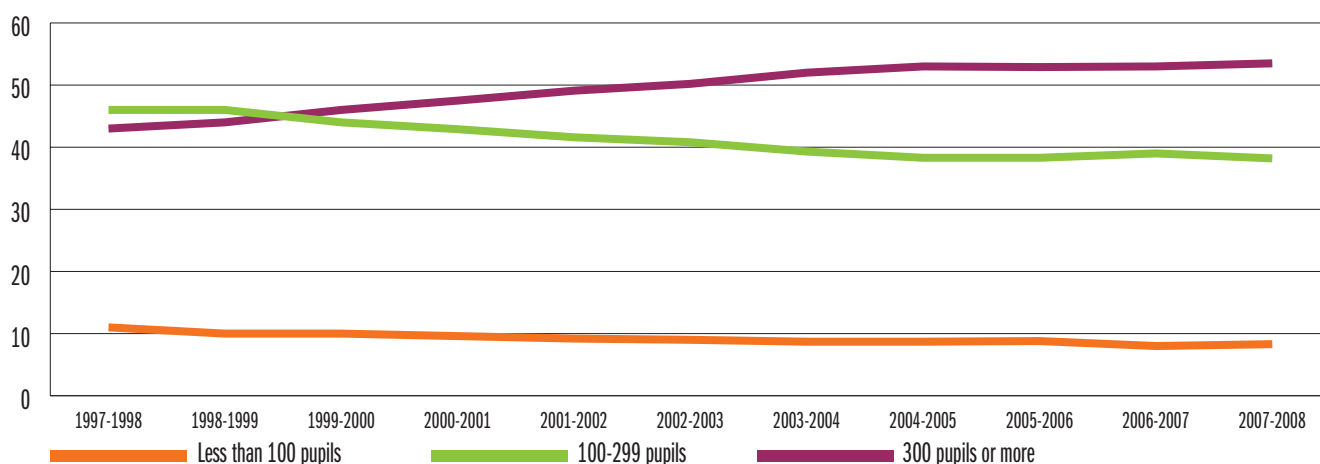
In accordance with this development, Figure 1.3 (see next page) shows that the proportion of pupils attending large schools has increased, while the proportion attending small and medium-sized

Figure 1.2: The distribution of small, medium-sized and large ordinary primary and lower secondary schools in percentage, 1997–1998 to 2007–2008.



Source: GSI

Figure 1.3: The distribution of pupils in small, medium-sized and large ordinary primary and lower secondary schools in percentage, 1997–1998 to 2007–2008.



Source: GSI

schools has been reduced. While 43 per cent were pupils at schools with more than 300 pupils in the 1997–1998 school year, this number had risen to 54 per cent a decade later. Since the 2002–2003 school year, more than 50 per cent of the pupils have attended large schools.

Private schools

The number of private schools has increased in recent years. Currently, there are 153 ordinary private primary and lower secondary schools in Norway, while there were only 89 in the 2000–2001 school year. This is a 72 per cent increase in the number of private schools from the 2001–2002 school year to 2007–2008. Private schools make up an increasing proportion of primary and lower secondary schools. While 2.7 per cent of primary and lower secondary schools were privately operated in the 2000–2001 school year, the figure is 4.9 per cent today. Only 2.5 per cent of pupils attend private schools. The reason the percentage of private schools is higher than the percentage of pupils in private schools is that the private schools on average have a lower number of pupils than public schools.

Language of choice

A clear majority of pupils in primary and lower secondary schools, around 86 per cent, receive their schooling in "bokmål", one of the two official forms of the Norwegian language. The proportion of pupils receiving their tuition in this language has increased by around 2 per cent in the course of the last decade. Approximately 14 per cent of pupils are taught in "nynorsk", the other official form of the Norwegian language. Figure 1.4 shows that the county with the largest proportion of "nynorsk" is Sogn and Fjordane, where 99 per cent of the pupils have "nynorsk" as their first-choice Norwegian language. The counties of Møre and Romsdal and Sogn and Fjordane are the only two counties where a majority of pupils have "nynorsk" as the teaching language. In Finnmark county, around 8 per cent of the pupils receive their tuition in the Sami language.

1.4 Teachers and administrators in primary and lower secondary school

Table 1.3 (see next page) shows that there are approximately 66 000 teachers and 4500 administrators in primary and lower

Figure 1.4: Ordinary primary and lower secondary schools with "bokmål", "nynorsk" and Saami as the first-choice language, by county, 2007–2008. Percentage.



Source: GSI

Table 1.3: Teachers and administrators in municipal and county primary and lower secondary schools, according to qualifications and gender. 2006. Percentage.

Teachers	Total	Men	Women
Higher degree university or college with education science	3,3	4,9	2,7
Higher degree university or college without education science	0,9	1,6	0,6
Lower degree university or college with education science	85,6	81,5	87,1
Lower degree university or college without education science	4,3	5,9	3,7
Upper secondary or lower (without education science)	5,9	6,1	5,9
Number of teachers	65 961	17 611	48 350
Administrators			
Higher degree university or college with education science	4,3	4,7	3,9
Lower degree university or college with education science	90,3	88,6	91,9
Administrators without education science	5,4	6,7	4,3
Number of administrators	4 565	2 160	2 405

Source: SSB

secondary schools. There are almost three times as many female as male teachers. In contrast, the gender division between administrators is fairly even, with 52 per cent women and 48 per cent men.

A majority of teachers have lower degrees from university or college training with education science. Part of the reason why so many are placed in this category is that it includes those with Bachelor (Cand. mag.) degrees and practical teacher training from universities and those with general teacher training from university colleges. A slightly larger proportion of the male teachers have higher university or university college degrees compared to the female teachers.

As is the case for teachers, a majority of administrators have lower university or university college degrees or university college degrees with education science. A slightly larger proportion of administrators have higher university or university college degrees compared to teachers. There is no requirement for formal training in pedagogy to be an administrator in primary and lower secondary school or upper secondary school. Table 1.3 shows, however, that nine of ten administrators have lower university or university college degrees with education science.

Table 1.4: Teachers and administrators in municipal and county primary and lower secondary schools by age groups. 2006. Percentage.

	Under 25	25-35	36-45	46-55	56-65	66 and above	Total
Teachers	2,3	28,0	24,0	25,1	19,7	0,8	65 961
Administrators	0,0	6,9	17,9	37,0	37,5	0,7	4 565

Source: SSB

Table 1.4 shows that teachers are evenly distributed on age categories, if we disregard the youngest and the oldest. Around 30 per cent of teachers are younger than 36 years. A large proportion is between 36 and 55 years, constituting 50 per cent of all teachers. The final 20 per cent is over 56 years of age. When it comes to administrators, the number is far lower in the youngest age groups. Three of four administrators in primary and lower secondary school are between 46 and 65 years of age.

Many teachers working in primary and lower secondary school have in-depth studies in the form of study credits in the subjects they teach. This applies in particular to the subject of Norwegian, where three of four teachers have in-depth studies. In English, only half of the teachers have in-depth studies (Lagerstrøm 2007).

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. 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, often called the youth 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 as an apprentice in a apprenticeship company. The entire right must have been used by the end of the year during which the person in question turns 24 years of age (section 3-1 in the Education Act). Around 97 per cent of all 16-18-year olds used this right and pursued an upper second-

Table 1.5: Distribution of pupils according to education programme and levels in upper secondary school, 2001-2002 to 2007-2008. Preliminary figures for all the years.

Year	Year 1 (Vg1)		Year 2 (Vg2)		Year 3 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	35 736	39 380	28 788	35 011	38 317	10 082	187 314
2007-2008	35 712	38 907	29 326	33 371	40 036	9 887	187 239

* Adults integrated in ordinary courses or special groups in an upper secondary school are included.

** For 2004-2005 and 2005-2006 pupils with vocational training in a school are included.

Source: SSB

dary education in the autumn of 2007. The proportion of young persons attending upper secondary education has remained stable at more than 90 per cent since 1995 (Hollås 2007).

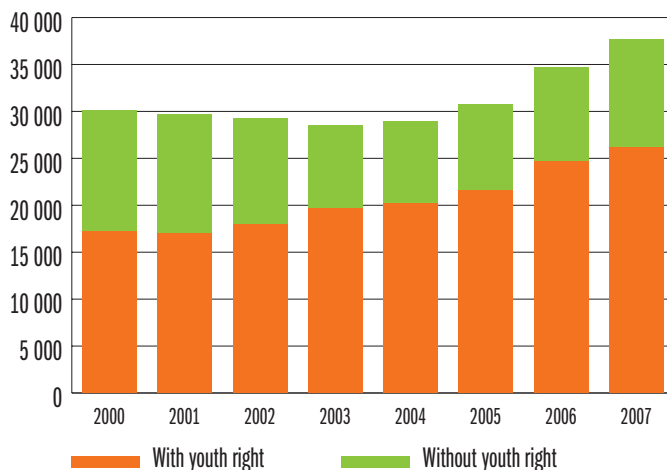
In 2006, there were 453 upper secondary schools in Norway. Of these, 371 were county schools, 77 were private schools and five were state schools (Statistics Norway 2008 a). Since 2001, there are 43 fewer upper secondary schools. The number of private schools has increased by 17 during the same period.

Table 1.5 (see page 17) shows that there has been a steady increase in the number of pupils in upper secondary school in recent years. During the last school year, the number of pupils has nevertheless stabilized. Even if there is a minor decline in the number of pupils from 2006–2007 to 2007–2008, there has been an increase of more than 2000 pupils among those between 16 and 18 years of age. This decline is thus the result of a reduction in the number of adults in upper secondary school. This is probably due to the improved situation in the labour market.

A total of 52 per cent of those who started Year 1 (the Norwegian abbreviation/name is Vg1) in upper secondary education in the autumn of 2007 had chosen a vocational programme. This is 4 percentage points less than in 2005 before the Knowledge Promotion reform was introduced. Preliminary numbers for the autumn of 2007 show that 36 300 apprentices and almost 900 trainees were registered in upper secondary education. Trainees sit for a competence test that is less comprehensive than the examination for the journeyman's or craft certificates (Statistics Norway 2008 b).

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 2006 to 2007 the number of apprenticeship contracts as of 1 October increased by almost 9 per cent. The largest increase has been for apprentices without the youth right (15 per cent increase), but there has also been an increase for those with this right (6 per cent).

Figure 1.5: Apprenticeship contracts as of 1 October 2000 to 2007. Preliminary figures.



Source: SSB

Table 1.6: Contract partners and apprentices as of 1 November 2007. Preliminary figures.

	Contract partners	Apprentices
Total	4 436	36 014
1 apprentice	2 509	2 509
2–4 apprentices	1 256	3 121
5–19 apprentices	345	2 924
20–99 apprentices	241	11 306
100 apprentices or more	85	16 154

Source: VIGO Fag

Table 1.6 shows the number of contract partners and the number of apprentices as of 1 November 2007. The contract partner is the company an apprentice signs with. The apprenticeship contract stipulates the working hours and pay for the apprentice, and also obliges the apprenticeship company to provide training in accordance with the vocational curriculum and the Education Act.

Both apprenticeship companies and 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 when the apprenticeship is performed under the direction of a vocational training office, the reporting on the actual apprenticeship company is incomplete so it is impossible to know the exact number of apprentices in each apprenticeship company.

1.6 Adults in upper secondary education

Adults born before 1 January 1978 who have completed primary and lower secondary school or similar but who have not completed upper secondary school, have the right to upper secondary education (section 4A-3 of the Education Act). The county authorities must provide a free education programme adapted to the adult in question. This right is often called the adult right.

Even if the intention of the adult right is to ensure the right of adults to pursue an education, a large group is left outside this right, primarily persons born after 1978 who have not taken upper secondary education or who have dropped out of school. The act particularly excludes immigrants born after 1978 who came to Norway too late to use the youth right. Due to this, the Government has now proposed an extension of the right to upper secondary education for adults. The proposal is to change the rules so that the right to education is changed from applying to the year of birth to a person's age, i.e. all those who are 25 or older. It is expected that Stortinget will adopt this proposition so that the change will come into effect from the autumn of 2008. The national budget for 2008 allocated NOK 21 million to counties to cover additional expenses in connection with the extension of the adult right (Ministry of Education and Research 2008).

There are three options open to adults wishing to take upper secondary education. 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

Table 1.7: Adults who apply and adults participating in programmes for adults, by county of residence and in total. 2007.

	Applicants	Programmes	Per cent with programme
Østfold	2 466	1 740	71
Akershus	4 223	3 575	85
Oslo	3 787	2 906	77
Hedmark	2 421	1 428	59
Oppland	2 273	1 933	85
Buskerud	2 133	1 680	79
Vestfold	3 160	1 695	54
Telemark	2 428	1 884	78
Aust-Agder	688	564	82
Vest-Agder	3 766	2 655	70
Rogaland	5 540	3 941	71
Hordaland	5 043	2 560	51
Sogn og Fjordane	1 353	1 135	84
Møre og Romsdal	3 011	1 741	58
Sør-Trøndelag	2 604	1 624	62
Nord-Trøndelag	1 346	1 320	98
Nordland	5 889	2 968	50
Troms	2 184	1 569	72
Finnmark	722	529	73
Norway in total	55 037	37 447	68

* The figures do not include apprentices
Source: SSB

non-formal competence, the so-called adult learning way. For this option, they apply directly to the county authorities and not through the general admission service to upper secondary education. The third option is to turn to private course providers (Vox, Norwegian Institute for Adult Learning, 2006).

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 has found that the county authorities have a large degree of flexibility in their course programmes, which allow adults to combine a job and education. On the other hand, only half of the adults under education have had their non-formal competence assessed (Vox 2006).

Table 1.7 shows the number of applicants to education programmes adapted for adults and how many of them have been offered education in school. The table shows that there are large differences from one county to the next when it comes to the proportion of applicants that have been offered admission to school. This suggests that the adult education programme varies according to where one is resident in Norway. The fact that the national average for the proportion receiving education is not higher than 68 per cent indicates that, in general, demand is larger than supply. At the same time, the supply is also quite good in some counties.

The numbers presented here deviate from previous reports on adults in upper secondary education. While Table 1.7 shows that more than 37 000 have been offered admission to school,

Table 1.8: Teachers and administrators in upper secondary school, by qualifications and gender. 2006. Percentage.

Teachers	Total	Men	Women
Higher degree university or college with education science	19,5	19,7	19,3
Higher degree university or college without education science	7,9	9,1	6,6
Lower degree university or college with education science	55,5	51,7	59,5
Lower degree university or college without education science	9,7	9,0	10,4
Upper secondary or lower (without education science)	7,4	10,4	4,1
Number of teachers	24 555	12 700	11 855
Administrators	Total	Men	Women
Higher degree university or college with education science	21,9	22,4	21,2
Lower degree university or college with education science	54,8	54,3	55,5
Administrators without education science	23,3	23,3	23,3
Number of administrators	2 472	1 399	1 073

Source: SSB

figures taken directly from the county authorities show that at any point in time only 20 000 adults are pursuing an upper secondary education. Thus there is reason to believe that the figures reported by Statistics Norway are too high.¹

The system of reporting on adults in upper secondary education is not functioning satisfactorily. A working group has been convened, with representatives from Statistics Norway, Vox (the Norwegian Institute for Adult Learning), the Norwegian Directorate for Education and Training and the VIGO steering group, to find ways of improving the statistics data. The group will also examine which types of national guidelines are necessary for establishing common case processing and registration systems in all counties.

1.7 Teachers and administrators in upper secondary school

Table 1.8 shows that there are around 24 500 teachers and 2500 administrators in upper secondary school. The gender division among teachers is quite even: 53 per cent men and 48 per cent women, while this is a greater difference among administrators; 57 per cent men and 43 per cent women.

The table also shows that the majority of teachers and administrators in upper secondary school have lower degrees from university or university college with education science. This education category includes those who have taken ordinary teacher training at a college and those who have taken a Bachelor's degree or similar with education science from university. There are some differences in the education level between male and female teachers. More male than female teachers are found on both ends of the education scale. Thus a larger proportion of men than women have the highest education level, while a larger proportion also have the lowest education level. More female teachers have taken education science compared to male teachers.

¹ The reason is that people who have received an offer of education but have dropped out of their education or only taken one subject will remain in the statistics until they are removed from the register of participants. This is multiplied, as the data comprises applicants as far back as 2000. Reports of the number of participants in selected school years support the theory that the number of registered participants is too high. Feedback from the county authorities also suggests this (Vox 2007).

Table 1.9: Teachers and administrators in upper secondary school, by age groups. 2006. Percentage.

Teachers	Under 25	25-35	36-45	46-55	56-65	66 and older	Total
	0,5	14,7	23,2	31,5	28,5	1,6	24 555
Administrators	Under 39	40-45	46-55	56-61	62 and older	Total	
	7,1	10,6	38,2	32,2	11,9	2 472	

Source: SSB

Even if there is an equal amount of female and male teachers in upper secondary school, the distribution of the areas of study that they teach is quite skewed. This also applies to the distribution of pupils. Very few women teach in the programmes for technical and industrial production, building and construction and electricity and electronics, and virtually no male teachers are found in health and social care subjects (Turmo and Aamodt 2007).

Table 1.9 shows that more than 60 per cent of the teachers in upper secondary school are more than 46 years of age. Compared to the situation in primary and lower secondary schools (Table 1.4), the percentage of teachers in the two youngest categories is far lower. A third of the teachers and 44 per cent of administrators are more than 56 years of age. Less than 17 per cent of teachers are under 45 years of age.

1.8 The education level in Norway

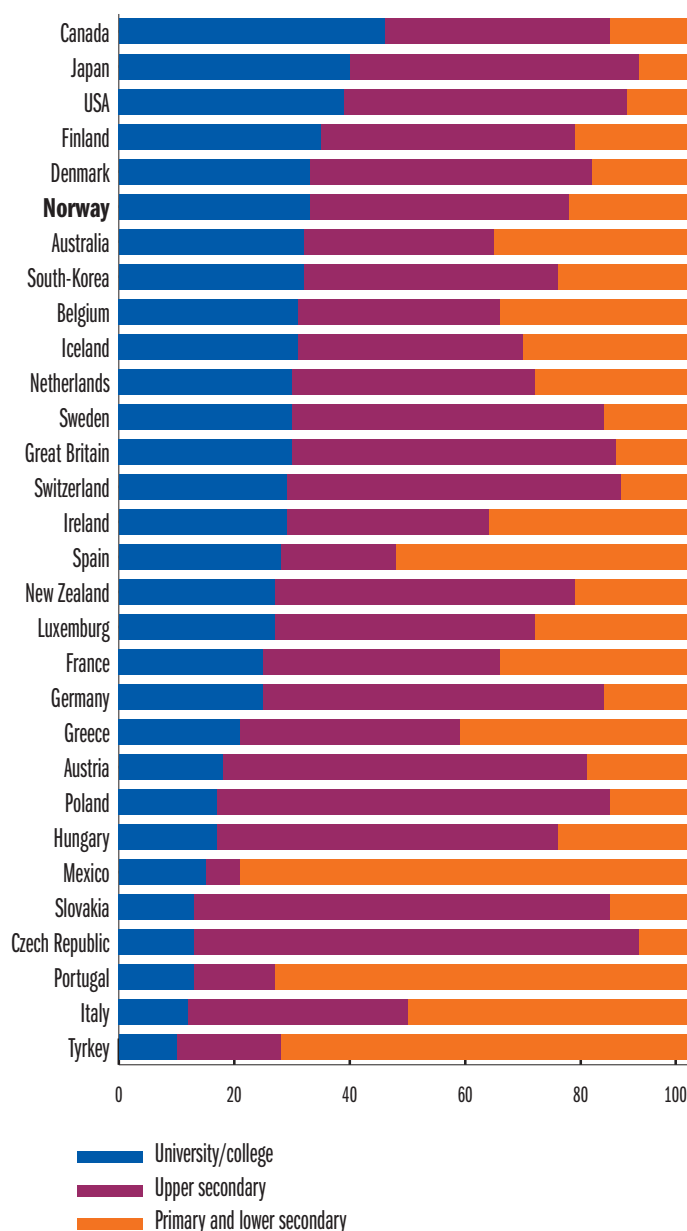
In international comparisons, the population in Norway has always had a high education level. Figure 1.6 shows that Norway is in sixth place of OECD countries when ranking the proportion of the population between 26 and 64 years of age that has higher education. The figure shows that 33 per cent of the Norwegian population has upper secondary education, and that is well above the OECD average of 26 per cent. A total of 45 per cent has upper secondary education as the highest education level, while 22 per cent has an education corresponding to primary and lower secondary school. The figures for the OECD average are 45 per cent with upper secondary education and 29 per cent with primary and lower secondary school. Table 1.10 shows how the education level in Norway varies

Tabell 1.10: The highest education level in the population. Persons 16 years old or older by education level and age. 2006. Percentage.

Age	Primary and lower secondary	Upper secondary	University and college	
			Lower degree	Higher degree
Total	31,3	43,4	19,6	5,8
16-19 years of age	88,8	11,2	0	0
20-24 years of age	30,7	53,1	15,9	0,3
25-29 years of age	21,1	39,1	32,4	7,5
30-39 years of age	18	43	29,3	9,7
40-49 years of age	25,5	43,7	23,7	7,1
50-59 years of age	21,4	51,1	20,8	6,6
60-66 years of age	27,3	50,3	16,5	5,9
67 years and older	45,3	42,3	9,3	3,2

Source: SSB

Figure 1.6: The highest education level of the population in OECD countries in the 25-64 age group, ranked by the proportion with higher education. 2005. Percentage.



Source: Education at a Glance 2007, OECD

from one age group to the next. The age group with the highest education level is between 25 and 39 years of age. In this age bracket almost 40 per cent have upper secondary education. Not unexpectedly, the education level decreases in the older categories. Among those above 67 years of age, only 12.5 per cent have upper secondary education.

There are large variations between the education levels from one county to the next in Norway. Oslo has the highest education level with 40 per cent having upper secondary education. Hedmark and Oppland counties rank at the bottom with only 19 per cent with upper secondary education. In total, a slightly larger proportion of women than men has education on the university or university college level; 26.6 per cent women to 24.1 per cent men.



One of the overriding objectives for primary, lower secondary and upper secondary education in Norwegian school is to provide the pupils with good general knowledge to serve as the basis for continued education and lifelong learning. One of the requirements for giving all the pupils adequate general knowledge and skills regardless their abilities and aptitudes is that the teaching and the teaching environment must be of a certain quality. Therefore monitoring resource allocation in primary, lower secondary and upper secondary education is vital. It is of particular importance to keep an eye on those school owners that allocate relatively minor resources to primary, lower secondary and upper secondary schools.

The amount of resources spent per pupil annually may vary from one municipality to the next by as much as NOK 100 000. A number of factors must be considered when assessing whether a local authority is spending so little that there is cause for concern. The number of pupils, the school structure and the settlement structure all play a part. It is, for example, more expensive to operate a school in municipalities with few

inhabitants living far apart and only a few pupils in each year class than in municipalities where these factors are quite the opposite. The need for a high level of special teaching will also increase the amount of spending.

This chapter focuses on developments in resource allocation to primary, lower secondary and upper secondary education from the local authorities and county authorities and on the national and international levels. In brief, Norway has a high degree of variation on the municipal level (primary and lower secondary school), while on the county level (upper secondary education), the variation is moderate. In international comparisons, Norwegian resource allocation has been stable and high.

2.1 Measurements for resource allocation in primary, lower secondary and upper secondary education

Several types of indicator may be used to outline the resource allocation in primary, lower and upper secondary education. One indicator that may be used for resource allocation in a municipality or county is cost per pupil. Other indicators used are teacher hours per pupil and teacher hours per pupil hours, which indicate the allocation of teacher resources and teacher density.

In addition to showing resource allocation, it is important that the indicators also provide the best possible basis for comparison between schools or school owners. An indicator must not, for example, be greatly influenced by differences in the way the school owner organises internal school operations. Therefore, we have decided to use accounting figures from adjusted gross operating expenditures, including the purchase of services from own enterprises and IKS's (intermunicipal enterprises – see text box for a detailed description) to calculate costs per pupil for upper secondary education, instead of adjusted gross operating expenditures as used previously. Thus, costs per pupil are more easily comparable from one municipality to the next. However, a full comparison between county authorities is not feasible because consideration has not been taken as to whether school owners organise operating duties externally, i.e. as services from private enterprises.

Adjusted gross operating expenditures including the purchase of services from own enterprises and IKS's have still not been implemented for primary and lower secondary school.

2.2 Municipal and county expenditures for primary and lower secondary education

Expenditures per pupil

Average operating expenditures¹ per pupil in primary and lower secondary school have increased by 6.4 per cent during the last year. Only the municipalities that have submitted accounting figures for both 2006 and 2007 have been included in the calculations (see Table 2.1).

Because pupils are not evenly distributed between municipalities, it may be useful to weight the expenditures for each municipality with the number of pupils in the municipality. This will give a better picture of the resource situation for each pupil. A comparison between years may be simplified by presenting figures for all years in 2007 prices. This means that we have adjusted for price rises in the years we are considering. In the school sector, changes to the payroll in municipalities weigh heavily². The real growth in operating expenditures is 2.9 per cent from 2006 to 2007 based on this accounting basis (see figures in parenthesis in Table 2.1). This corresponds to approximately the real growth of operating expenditures that took place from 2005 to 2006 (3.1 per cent).

Definition of resource allocation indicators

Adjusted gross operating expenses. This indicator shows the local authority's expenditures on statutory responsibilities. It comprises operating expenses for the local authority's own service production + VAT expenses and depreciations – double entries caused by the distribution of expenditures/in-house purchases – reimbursements for sick pay – VAT compensation. Differing from gross operating expenses, the purchase of services from or transfers to other entities (state authorities, county authorities, other municipalities, IKS's, private enterprises etc.) are not included.

Adjusted gross operating expenses including purchases from own enterprises and intermunicipal enterprises (IKS). The intention behind this indicator is to show the local authority's expenditures for statutory responsibilities, regardless of internal organisation. Therefore purchases from an IKS where the local authority itself is a participant and purchases from enterprises and companies in one's own municipality, which keeps separate accounts, are included.

Teacher hours per pupil.* This indicator includes the number of hours a teacher is obliged to teach, the teaching obligation (this means the number of minutes a teacher is in a teaching situation with pupils divided by 60) divided by the total number of pupils.

Teacher hours per pupil hours.* This means the number of hours a teacher is obliged to teach divided by the number of hours pupils are taught.

*The indicators for teacher density do not include tuition in a native language and tuition in Finnish.

Table 2.1: Adjusted gross operating expenditures per pupil in primary and lower secondary education by type of expense, 2003 to 2007. Continuous prices and permanent 2007 prices (in italics).

Year	Total	Payroll	Fixtures and equipment	Teaching aids	Miscellaneous
2003	63504 (71359)	49152 (55230)	587 (660)	1280 (1438)	12485 (14031)
2004	64949 (71148)	49901 (54660)	623 (863)	1158 (1267)	13267 (14538)
2005	65021 (69177)	51979 (55302)	655 (696)	1101 (1172)	11286 (12007)
2006	68743 (71321)	54398 (56437)	819 (849)	1361 (1412)	12165 (12623)
2006*	68509 (71056)	54287 (56194)	819 (849)	1362 (1410)	12045 (12603)
2007	72860 (73082)	56837 (57102)	904 (908)	1776 (1784)	13225 (13288)

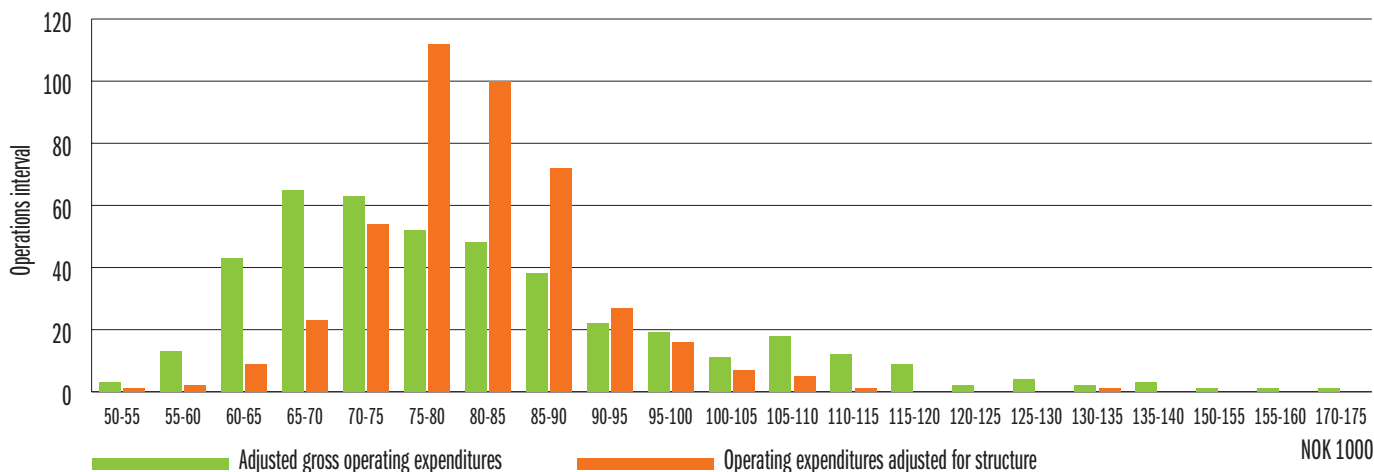
* Figures for 2006 for municipalities which also submitted in 2007. A total of 397 municipalities have submitted accounting figures for 2007.

Source: KOSTRA (Preliminary figures), Hægeland et al. 2008.

1 Measured in current prices.

2 The technical calculation committee's index is based on last year's price change, wage growth, product allocation and gross investments for the municipal sector. The figures supplied by Hægeland et al. (2008) show current figures deflated by the wage growth in the school sector, and not the index for total municipal service provision.

Figure 2.1: Distribution of municipalities according to real operating expenditures and operating expenditures adjusted for cost structure per pupil in 2006.



Source: Hægeland et al. 2008.

Payroll expenditures normally constitute almost 80 per cent of operating expenditures. Changes in the payroll thus have a heavy influence on the total resource development. Real growth in the payroll is an expression of the actual resource allocation measured in terms of labour because it has been adjusted for wage increases. The real increase of payroll expenses from 2006 to 2007 amounts to 1.6 per cent. This is a decline in growth from 2005 to 2006 (2.1 per cent), but is higher than the preceding year. Expenditures for fixtures and equipment have seen a stable increase in recent years, while expenditures for teaching material and other operating equipment (miscellaneous) have varied more. There has been a particularly large increase in expenditures on teaching material from 2005 to 2007. This increase may generally be ascribed to the introduction of the Knowledge Promotion reform and the subsequent need for new teaching material.

School operations are not equally expensive for all municipalities. This may be due, for example, to the disadvantages of small-scale operations seen in municipalities with a spread population. For example, local authorities with small schools are obliged to cover a number of fixed costs relating to administration, operation and other common expenditures. The expenditure per pupil is thus relatively higher in these municipalities than in municipalities with larger schools. Expenditure on wages per pupil will also be higher at small schools if there are only a few pupils in each year. To justify the comparison between municipalities, operating expenditures are therefore adjusted for the number of pupils and indicators for settlement patterns (travel time and distances). This is called structural adjustment.

Resource allocation measured in adjusted gross operating expenditures for 2006 in Figure 2.1 shows that the number of municipalities spending less than the average interval (NOK 70–75 000) was far smaller (29 per cent) than municipalities spending more than the average interval (57 per cent). In spite of a large spread in the resource allocation, 72 per cent of the municipalities lie within an expenditure interval of between NOK 60 000 and NOK 90 000.

Figure 2.1 shows that a structural adjustment of the expenditures reduces the spread between municipalities significantly. The average is conversely changed minimally (NOK 71 274 kroner). The consequence of such adjustment is generally that the number of municipalities with more than NOK 100 000 in expenditures is reduced from 64 to 13. At the same time, the number of municipalities within an expenditure interval of between NOK 60 000 and NOK 90 000 kroner is increased from 72 per cent to 86 per cent. This suggests that many local authorities spending a relatively high amount on operating schools do so due to circumstances beyond their control, such as the number of pupils and settlement patterns. The variation between municipalities in expenditures per pupil has remained quite stable during the last five years. This applies to both real and structurally adjusted expenditures per pupil.

The proportion of the variation between the municipalities that is due to differences in expenditure structure and how much is due to differences in free income may be estimated by using indexes for factors that raise expenses. Hægeland et al. (2008) have calculated that more than 70 per cent of the variation between municipalities may be explained by differences in structural circumstances, such as the number of pupils and their travel distances to school. Two to five per cent may be ascribed differences in free income (funding that is not earmarked). The remaining 25 per cent of the expenditure variation between municipalities is therefore due to currently unknown circumstances.

Common features of municipalities with particularly low and high resource allocation

Table 2.2 (see the next page) shows the percentage by which the average of the 25 municipalities with the lowest or highest consumption deviates from the national norm. Such a comparison may suggest which indicators are most important for municipal operating expenditures.

Table 2.2 shows that there are large differences between the municipalities with the highest and lowest operating expenditures when it comes to the number of pupils and travel distances.

Table 2.2: Characteristics of the 25 municipalities with lowest or highest operating expenditures in 2006.

	Difference in percentage from the average for all municipalities	
	25 with lowest operating expenditures	25 with highest operating expenditures
Number of pupils (Years 1-10)	23*	0,6*
Operating expenditures per pupil	-29	57
Operating expenditures per pupil (adjusted)	-13	13
Travel time	-32	84
Zone	-96	93
Neighbour	-60	97
Pupils per computer	21	-37
Extra teacher hours per pupil	-24	-10
Proportion with special teaching	-12	5
Proportion assistant full-time equivalents	-4	-30
Proportion immigrants (0-16 years)	56	-38
Family background index	2	-2
Free income (index, 100)	-8	31
Free income excluding property taxes	-13	50

* Proportion in per cent of the total number of pupils.
Source: Hægeland et al. 2008.

As many as 23 per cent (140 000) of the pupils in Norway attend school in the 25 municipalities with the lowest operating expenditures per pupil. In comparison, only 0.6 per cent (16 000) of all pupils attend school in the 25 municipalities with the highest operating expenditures per pupil. The indicators for travel times and distances are almost 90 per cent greater in municipalities with high operating expenditures than the national average, while those in municipalities with low operating expenditures in total are 60 per cent lower than the national average. Municipalities with low operating expenditures also have a higher proportion of immigrants, a lower number of computers per pupil and a lower proportion of free income. This suggests that densely populated municipalities in central regions (large cities) have substantial advantages due to large-scale operations, spending 29 per cent less than the national average on primary and lower secondary school. Sparsely populated municipalities with a scattered population incur high transportation costs and disadvantages stemming from small-scale operations, spending 57 per cent more than the national average.

The economic situation in each municipality also appears to have some importance when it comes to how much is spent on primary and lower secondary school. An analysis of the importance of free income for resource allocation per pupil shows that when revenues from property taxes and electrical power licences are excluded, the importance of free income lapses (Hægeland et al. 2008). This indicates that there is little connection between municipal revenues from taxes and framework allocations and expenditure on primary and lower secondary school.

Hægeland et al. (2008) have also examined the number of municipalities that recur in the category "25 municipalities with lowest expenditures" / "25 municipalities with highest expenditures" on primary and lower secondary school over a period

of four years (2003–2006). They find that a high proportion of the top/bottom municipalities are the same from one year to the next. This particularly applies to municipalities with high expenditures. A common feature of the recurring high expenditure municipalities is that they have an average number of pupils of 160 and a high proportion of free income, close to 50 per cent above the national average. The recurring 25 low expenditure municipalities had an average number of pupils of 4300 and free income of 8 per cent below the national average. An interesting find is that almost half of the recurring high expenditure municipalities are so-called electrical power municipalities³, while none of the low expenditure municipalities during the same period of time are such a municipality.

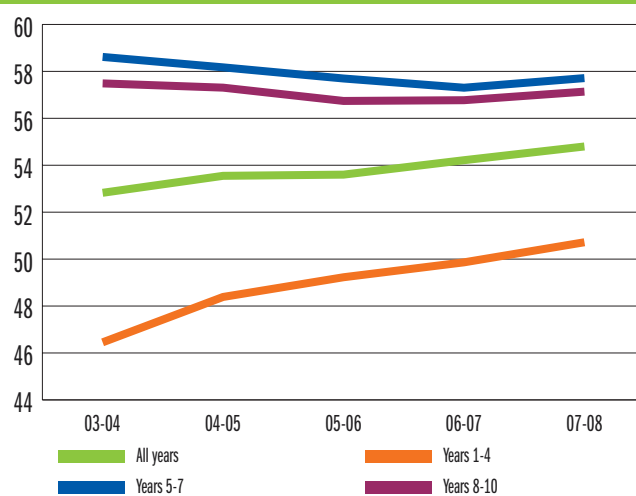
Municipal differences in resource allocation based on teacher hours and assistant hours

Teacher hours

Figure 2.2 shows that the average teacher hours per pupil (see text box on page 23) for primary and lower secondary school is 54.8 in 2007–2008. The most teacher hours per pupil are in Years 5 to 7 (57.7). In Years 8 to 10, the number of teacher hours is slightly lower per pupil (57.2). In Years 1 to 4, the allocation of teacher hours is significantly lower (50.7).

From 2006–2007 to 2007–2008 there has been an increase in the allocation of teacher hours for all years in primary and lower secondary school. Teacher hours per pupil have increased most during the last year in Years 1 to 4 (1.7 per cent). For Years 5 to 7 and Years 8 to 10, teacher hours per pupil increased by respectively 0.7 and 0.6 per cent last year. The number of teacher hours per pupil in Years 1 to 4 has increased annually since 2003–2004 in contrast to other levels in school. The reason is that the number of pupil hours has increased during this period.

Figure 2.2: Development of teacher hours per pupil (Years 1–4, 5–7 and 8–10) over time.



Source: Hægeland et al. 2008.

Teacher hours for language minorities

Section 2–8 of the Education Act defines the right to special language tuition for language minority pupils: "Pupils in primary and lower secondary school with another native language

3 The definition of an electrical power municipality is that it must have an annual property tax income from power stations of at least NOK 1000 per inhabitant during the period 1992-2001. This definition covers 75 municipalities for the period in question.

Table 2.3: Proportion in percentage of teacher hours for special language instruction for minorities, of the total number of teacher hours.

År	Number of municipalities	Average proportion
2003-2004	431	6,6
2004-2005	431	6,6
2005-2006	431	6,7
2006-2007	431	6,7
2007-2008	431	6,5

Source: Hægeland et al. 2008.

than Norwegian and Sami have the right to special tuition in the Norwegian language until their skills in the Norwegian language are adequate for following ordinary tuition. If necessary such pupils also have the right to tuition in the native language, bilingual tuition in subjects or both.”

Table 2.3 shows that the proportion of teacher hours used on tuition of minority language pupils in primary and lower secondary school on a national basis has remained relatively stable during the last five years. On the municipal level, on the other hand, there is a large difference in the proportion of hours given to minority tuition because there is much variation between municipalities when it comes to the proportion of minority language pupils. In 2007–2008, the variation was greater between municipalities in the proportion of hours given to minority language pupils than in the four preceding years. This is because the number of municipalities using a higher proportion of hours has risen and that more municipalities use a low proportion of hours on teaching minority language pupils.

Teacher hours for special teaching

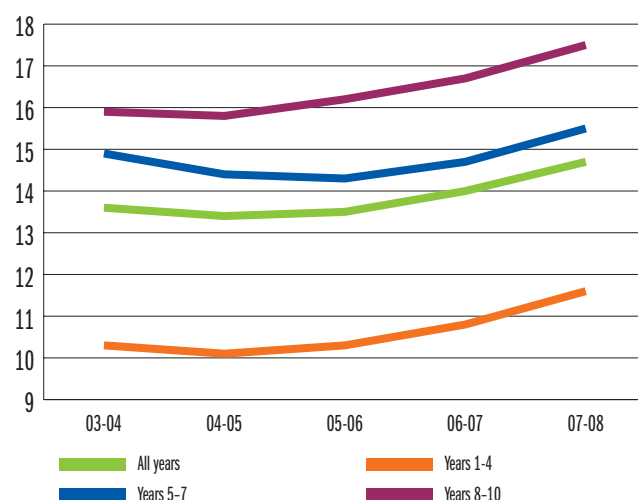
Pupils who do not have satisfactory learning outcomes from ordinary teaching have the right to special teaching. Based on an expert assessment, a municipality can then make an individual decision on special teaching pursuant to section 5–1 of the Education Act. The number of hours given to special teaching includes all teacher hours given to special teaching of pupils with individual decisions, while assistant hours are not included. In recent years there has been a political focus on identifying pupils in need of special teaching as early as possible in primary and secondary education. The interest in so-called early intervention has further increased because it has been shown that Finland, which gives much special teaching to pupils in the early years of school, does particularly well in international comparisons of pupil results (see Chapter 3).

Table 2.4: Percentage of pupils receiving special teaching and proportion with special teaching in Norwegian.

School year	Proportion special teaching	Proportion special teaching in Norwegian
2002-2003	5,5	5,5
2003-2004	5,5	5,7
2004-2005	5,4	5,8
2005-2006	5,5	6,1
2006-2007	5,9	6,4
2007-2008	6,3	6,5

Source: Grunnskolen informasjonssystem (GSI).

Figure 2.3: Hours for special teaching, proportion of teacher hours in total per year.



Source: Hægeland et al. 2008.

Table 2.4 shows that the proportion of pupils with special teaching has increased since 2005–2006. The proportion of pupils with special Norwegian tuition has increased steadily since 2002–2003. This is because the proportion of minority language pupils in Norwegian schools has increased.

Figure 2.3 shows that the proportion of hours granted for special teaching has increased from 2004–2005 to 2007–2008. The increase applies to all the stages of school, but is greatest in Years 1 to 4. However, more pupils still receive individual decisions (also includes special teaching with assistants) in higher stages than lower stages (GSI, 2007–2008). However, fewer hours are given per pupil in higher stages of school.

Hours for special teaching constitute almost 15 per cent of all teacher hours. The variation between municipalities in the proportion of hours for special teaching has also increased slightly during the last three years. This is generally due to the fact that more municipalities use a high proportion of hours on special teaching. In 2007–2008, 80 per cent of the municipalities used between 10 and 20 per cent of all their teacher hours on special teaching.

Assistant hours

An assistant carries out duties connected to the tuition but does not teach. Table 2.5 shows that the proportion of full-time equivalents carried out by assistants in relation to full-time equivalents for teaching has increased continuously since 2003–2004. The increase was particularly large last year

Table 2.5: Proportion in percentage of full-time equivalents worked by assistants, of the total number of teaching full-time equivalents.

Year	Number of municipalities	Proportion
2003-2004	430	9,9
2004-2005	430	10,2
2005-2006	429	10,8
2006-2007	427	11,5
2007-2008	429	13,1

Source: Hægeland et al. 2008.

(14 per cent). This is because the number of assistant full-time equivalents has increased by 11.5 per cent, while the number of teaching full-time equivalents has dropped by 1 per cent. In 2007–2008, each full-time assistant had an average of 94 pupils while the corresponding figure for 2003–2004 was 128.

From 2006–2007 to 2007–2008, the total number of pupils who have been allocated special teaching (individual decisions) with assistants has increased by 4.2 per cent. In the course of the last five years the number of pupils who have received special teaching with an assistant has increased by 25 per cent. This increase is generally due to a large increase (50 per cent) in the group of pupils with individual decisions calling for more than 270 hours with an assistant per year.

The increase in the scope of use of assistants will be monitored closely by the Norwegian Directorate for Education and Training in the coming years.

The use of extra teaching hours

Another way of comparing the resource allocation to municipalities is to examine how many "extra teaching hours" are allocated per pupil. This gives a measure of teacher allocation beyond a minimum level where only one teacher is present in a standard group of pupils. One can also consider how the extra teaching hours are distributed according to hours granted for ordinary teaching and hours for special teaching. Extra teaching hours including hours for special teaching are called "extra teaching hours in total".

In most cases the calculated "extra teaching hours" will exceed "basic resources" and result in positive values (see text box for definitions). But this will be the opposite for some schools so that the result gives negative values for "extra teaching hours". There may be a number of reasons for this. Negative extra resources may easily be calculated for schools with mixed age groups. Therefore only schools with more than 12 pupils per year class (on average) are included in the calculations. Removing the rule of dividing classes has given schools greater flexibility and the option of structuring teaching in other ways than previously was the case. A primary school with 30 pupils per year class gains high calculated basic resources because the class division rule means two classes for each year class. If the school opts to have a substantial portion of teaching take place in only one group per year class, while also supplementing with special teaching and/or assistants, this may easily lead to negative values for "extra teaching hours". "Extra teaching hours in

Table 2.6: Extra teaching hours per pupil.

Year	Extra teaching hours	Extra teaching hours in total
2003–2004	7,5	18,4
2004–2005	7,5	18,4
2005–2006	7,0	18,0
2006–2007	6,7	18,2
2007–2008	6,8	18,7

Source: Hægeland et al. 2008.

Definition of basic resources and extra resources

Basic resources are calculated according to the number of teaching hours stipulated by the minimum requirements in the Education Act, the number of pupils in each year class and previous class division rules*. It is also assumed that there is only one teacher per class per hour.

Extra teaching hours are defined as the difference between the number of ordinary teaching hours actually provided and the calculated basic resources.

Extra teaching hours in total are defined as the difference between the total number of teaching hours given (including teaching hours for special teaching and tuition in Norwegian and native languages for language minorities), and the calculated basic resources.

*If there were more than 28 pupils in Years 1 to 7, or more than 30 pupils in Years 8 to 10, a class must be divided into two.

total" will not be affected to the same degree because the total number of teaching hours given will be higher, bearing in mind that hours for special teaching are included.

Table 2.6 shows that the average "extra teaching hours" per pupil has dropped by almost 11 per cent from 2003–2004 to 2006–2007. This may be because it took time before schools made use of the flexibility that became available when the statutory class division rule was rescinded in 2003–2004. The slight increase last year may be related to the growth of municipal finances for 2007.

"Extra teaching hours in total" per pupil has dropped by 2.2 per cent from 2003–2004 to 2005–2006. From 2005–2006 to 2007–2008 "extra teaching hours in total" per pupil has increased by almost four per cent. This corresponds to the increase in the proportion of teacher hours in total used for special teaching (see Figure 2.4 on page 28). It is worth noting that "extra teaching hours in total" in 2007–2008 constituted more than 30 per cent of the total number of teacher hours per pupil (see Figure 2.2). This means that if there were only resources enough for one teacher per hour, and the old class division rules were followed, there would have been more than 30 per cent fewer teacher hours than today.

In 2007–2008, 64 per cent of all extra teaching hours granted per pupil were given as special teaching hours.

The relation between "extra teaching hours" and special teaching

From 2004–2005 up to today, there has been a drop in "extra teaching hours" while the use of special teaching has increased, and far more assistants have been employed. A relevant question is therefore whether extra teaching hours have been substituted with special teaching and/or assistants. Hægeland et al. (2008) have carried out a regression analysis of the relation between "extra teaching hours" and "special teaching in total" to examine whether there are signs on the municipal level of such substitution. "Special teaching in total" also includes assistant hours.

The analysis shows a great degree of co-variation between extra teaching hours and "special teaching in total" between municipalities. The relation between "special teaching in total" and "extra teaching hours" reveals that when "extra teaching hours" are reduced by one hour per pupil, hours for "special teaching in total" increase by 0.18 per pupil. Hence, there is a trend where municipalities allocating relatively few "extra teaching hours" allocate more hours to special teaching with teaching staff and assistants than the municipalities that allocate many "extra teaching hours" per pupil.

Teacher density in primary, lower secondary and upper secondary education

Teacher density is used as an indicator of the allocation of teacher hours. Teacher density can be calculated by dividing teacher hours by pupil hours. This definition of teacher density includes teacher hours given to special teaching and to special Norwegian tuition for language minorities. Pupils receiving special teaching and special Norwegian tuition for language minorities are often physically separated from their co-pupils. By including these pupils when calculating teacher density, the impression is created that teacher density is higher than it actually is.

Another way of calculating teacher density is to exclude hours for special teaching and special Norwegian tuition for language minorities from both teacher hours and pupil hours. The disadvantage of this way of calculating is that changes in the use of special teaching and special Norwegian tuition will influence the indicator. Therefore, it is not a good measure of changes in resource allocation over time.

The Norwegian Directorate for Education and Training presents figures calculated in accordance with the first definition of teacher density because this gives the best picture of resource allocation over time.

Figures 2.4–2.6 show the percentage of change of teacher hours, pupil hours, the number of pupils and teacher density over time. Figure 2.4 shows that the teacher density in Years 1 to 4 has dropped steadily until 2005–2006. This is because pupil hours have increased proportionally more than teacher

hours until 2005–2006, even if they have followed the same trend. From 2005–2006, teacher hours have conversely increased while pupil hours have dropped, which has generated an increase in teacher density. The drop in pupil hours is due to the reduced number of pupils in Years 1 to 4.

Figure 2.5 shows that for Years 5 to 7, teacher hours and teacher density have traced a virtually parallel curve over time. The reason is that both pupil hours and the number of pupils have changed relatively little since 2001–2002. The increase in teacher density from 2002–2003 to 2003–2004 for Years 5 to 7 is due to teacher resources being transferred from Year 1 and evenly distributed on Years 2 to 7. This occurred because of the removal of the requirement for two teachers per class if there are more than 18 pupils in the class.

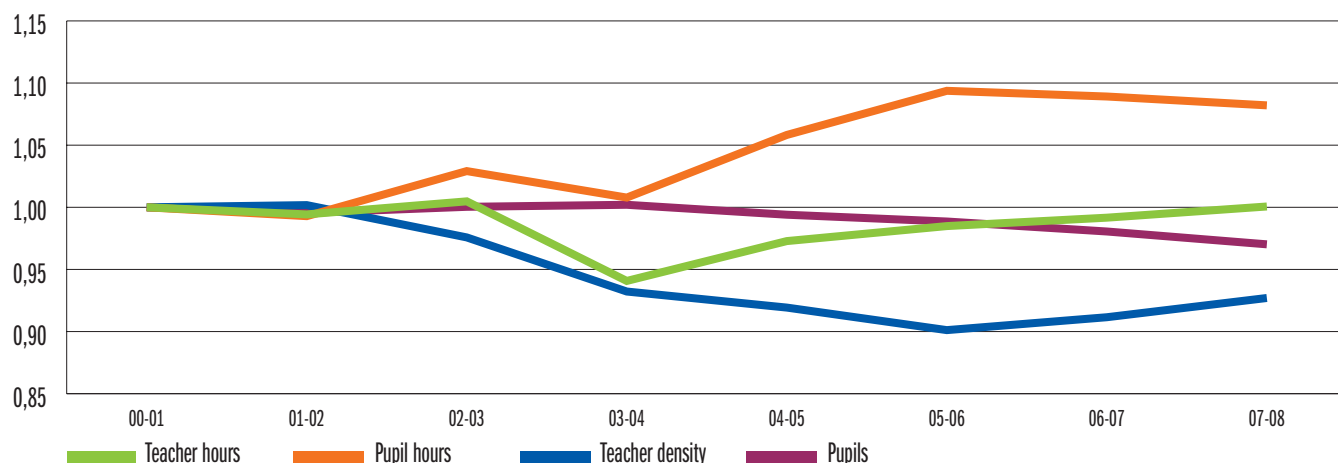
Figure 2.6 shows that pupil hours in Years 8 to 10 have increased more than teacher hours from 2000–2001 to 2005–2006 because the number of pupils has increased. Consequently teacher density dropped during this period. After 2005–2006 the number of pupils has declined slightly, resulting in a slight increase in teacher density.

If hours for special teaching are not included when calculating teacher density, a decline will be seen for last year. This means that the increase in teacher density last year was due to more teacher resources being allocated to special teaching. This applies to all year classes.

Group size may be defined as the total number of pupil hours divided by the total number of teacher hours. Average group size expresses how many pupils must share a teacher in an average teaching situation. Section 8–2 of the Education Act states that pupils may be divided into groups as needed, but such groups must not be larger than what is suitable from an educational point of view. The average group size in 2007–2008 was 13.9 pupils. This is a decline from the preceding year when the group size was 14.0.

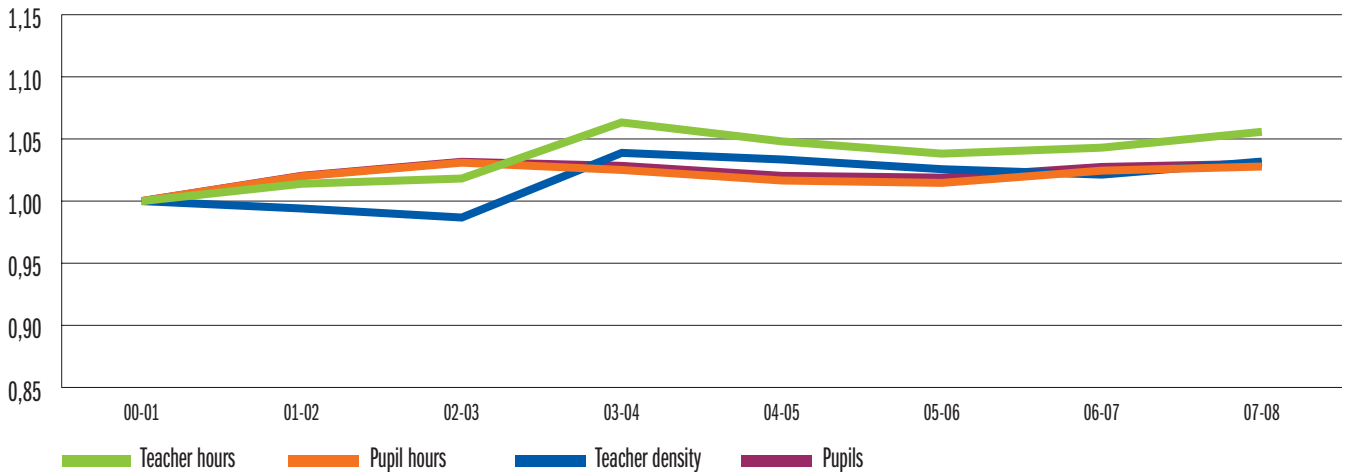
If group size is calculated exclusive of hours for special teaching, it will have increased from 2006–2007 to 2007–2008 from 16.9 to 17.1.

Figure 2.4: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 1–4.



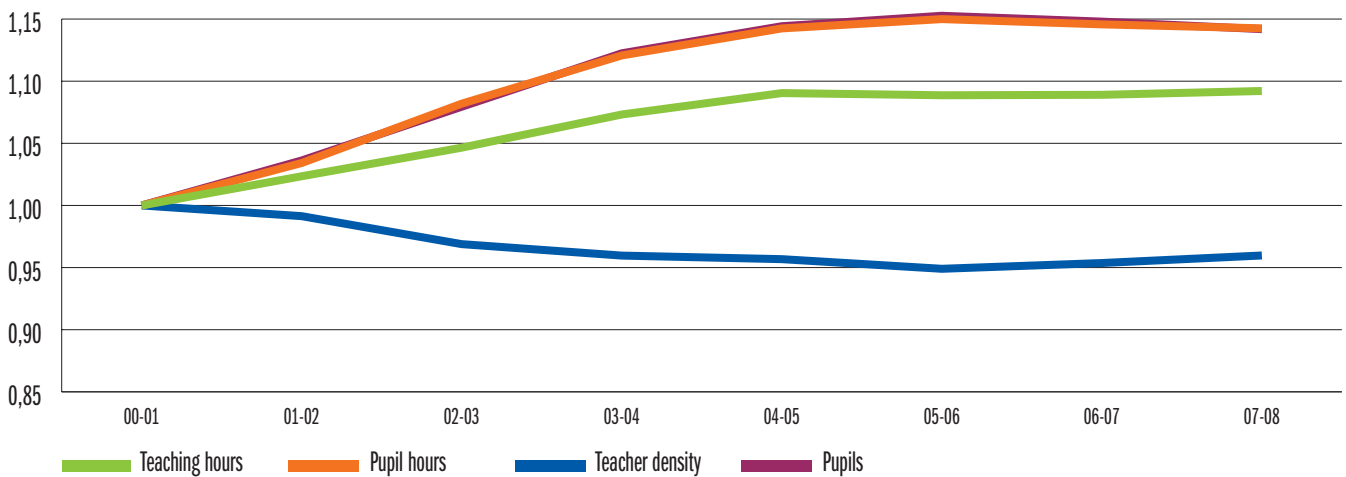
Source: Grunnskolen informasjonssystem (GSI). Preliminary figures.

Figure 2.5: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 5–7.



Source: Grunnskolens informasjonssystem (GSI). Preliminary figures.

Figure 2.6: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 8–10.



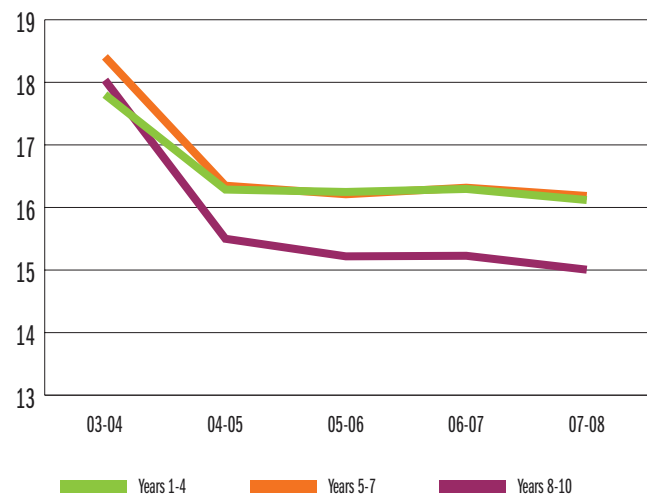
Source: Grunnskolens informasjonssystem (GSI). Preliminary figures.

Pupils per form teacher in primary and lower secondary school

According to section 8-2 of the Education Act, each pupil must have a form teacher who is responsible for the practical, administrative and social-pedagogy duties relating to the pupil. The purpose of this is closer and better individual follow-up of the pupil. Normally the duties of a form teacher include providing the pupil with the necessary information, arranging academic and personal follow-up of the pupil (pupil interviews), and functioning as the contact with parents/guardians, counselling services and PPT (the pedagogical psychological service).

Figure 2.7 shows that the average number of pupils per form teacher was reduced dramatically from 2003–2004 to 2004–2005, and has since remained relatively stable. Last year had an indication of a slight drop. The average number of pupils per form teacher for the 2007–2008 school year is more than 16 in Years 1 to 4 and 5 to 7, and 15 in Years 8 to 10. Table 2.7 shows that respectively 56 per cent of the pupils and 40 per cent of schools have form teachers with responsibility for more than 15 pupils. Very few pupils have a form teacher with responsibility for less than 10 pupils.

Figure 2.7: Development in the number of pupils per form teacher by year.



Source: Hægeland et al. 2008.

Table 2.7: Pupils per form teacher distributed by the proportion of pupils and schools for 2007–2008.

Pupils per form teacher	Percentage pupils	Percentage pupils
< 5	< 1	< 1
5-10	2	11
10-15	42	49
15-20	41	31
> 20	15	9

Source: Hægeland et al. 2008.

2.3 County authority expenditures on upper secondary education

Expenditures per pupil

From 2007, the county authority expenditures for transport of pupils between their home and school were removed from the total transportation expenditures for upper secondary education. Transportation expenditures are included in the calculation of operating expenditures, including purchases from own enterprises and IKS's per pupil. It has thus been necessary to also remove school transportation expenditures from total expenditures in 2006 to render figures from 2006 and 2007 comparable.

Table 2.8: Adjusted gross operating expenditures per pupil in upper secondary education and training according to type of expenditure, 2004 to 2007. Continuous prices.

Year	General studies qualifying for higher education			Vocational		
	Total	Payroll	Operations	Total	Payroll	Operations
2004	87234	51946	35288	107764	68258	39506
2005	87979	52271	35708	110257	70364	39893
2006	92084	54167	37917	116088	73345	42743
2006*	89350	54167	35183	113355	73345	40010
2007	96397	56652	39744	122153	77475	44676

* Figures for 2006: expenditures for transport are removed from Art170 under Function 510 to make them comparable to the figures for 2007.

Source: KOSTRA (Preliminary figures), Hægeland et al. 2008.

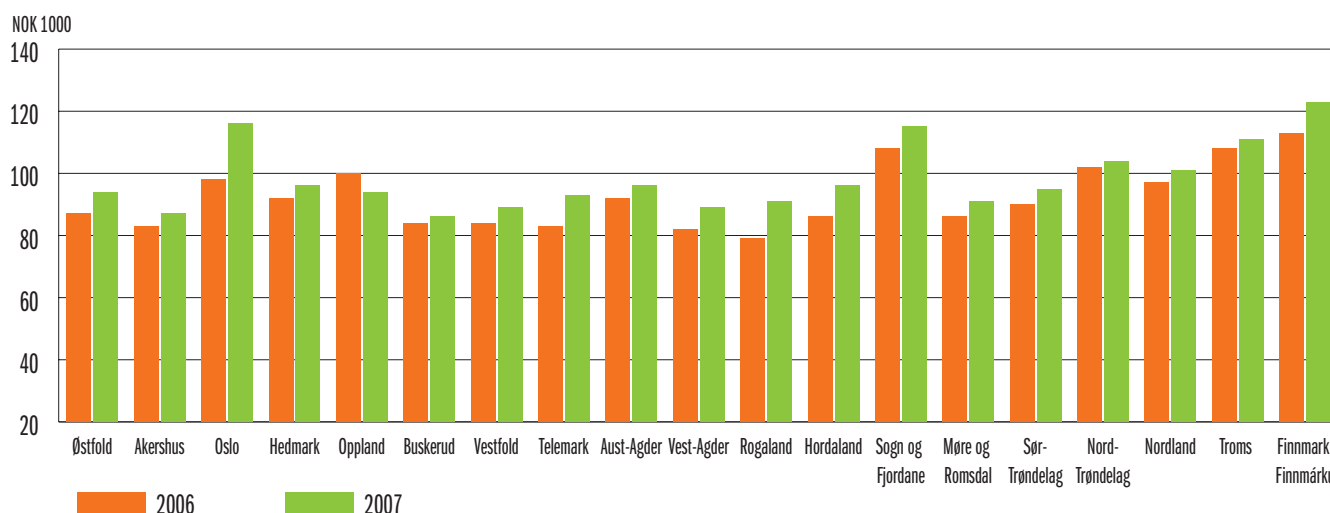
Table 2.8 shows that the total expenditures per pupil in programmes for specialisation in general studies and programmes for vocational education have increased by respectively 7.9 and 7.8 per cent from 2006 to 2007. If the growth of prices and wages in the municipal sector⁴ is included, the real growth is respectively 3.6 and 3.5 per cent. This significantly higher growth rate, compared to previous years, is primarily due to a large increase in operating expenditures, but the payroll expenditure has also risen more than in previous years. Higher wage expenditures per pupil are generally the reason why total expenditures per pupil are higher for pupils in vocational educational programmes than those in programmes for specialisation in general studies, as vocational education programmes require fewer pupils per teacher.

Stortinget (the Norwegian Parliament) granted NOK 212 million for the introduction of the scheme with free teaching aids and textbooks in upper secondary education for the 2007 budget year. This was to cover expenses for textbooks in Vg2 (the second year of upper secondary school) from the autumn of 2007, and may explain some of the large increase in operating expenditures last year.

Differences in county authority expenses

Figures 2.8 and 2.9 show the resource allocation for upper secondary education distributed by county. The variation in resource allocation from one county to the next is not as large as the one from one municipality to the next. But the variation can still be regarded as substantial. For 2007, the average expenditure per pupil for programmes for general studies and vocational education were, respectively, NOK 98 448 and NOK 122 994. For general studies programmes, 80 per cent of the counties were within an expenditure interval per pupil of NOK 7683, while the corresponding figure for vocational education programmes was NOK 7877. Even if most counties lie around the average consumption, some counties stand out. Some of these counties show a change from 2006 that cannot be explained on the basis of the data reported to KOSTRA.

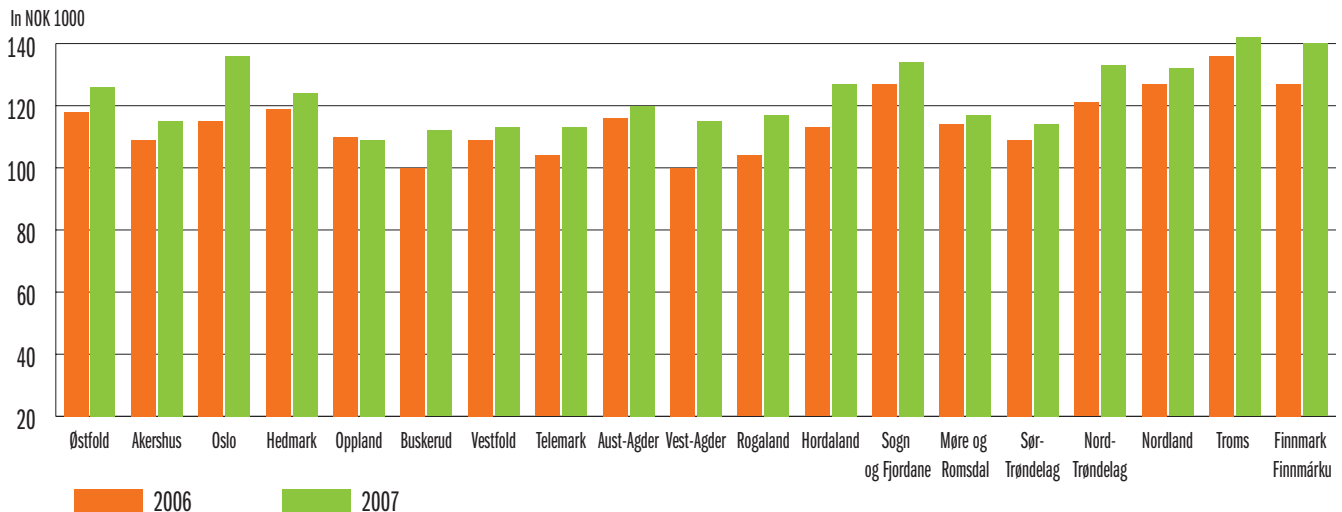
Figure 2.8: Expenditures per pupil in programmes for specialisation in general studies, 2006 and 2007.



Source: KOSTRA. Preliminary figures.

⁴ The municipal deflator for wage growth and price growth has been applied to deflate, respectively, payroll and operating expenditures.

Figure 2.9: Expenditures per pupil in vocational education programmes, 2006 and 2007.



Source: KOSTR. Preliminary figures.

The analysis of county authority differences makes adjustments for circumstances the county authorities have no control over, as was also done for municipalities (structural adjustment, see section 2.2). For the county authorities, a structural adjustment means adjusting for the number of 16–18-year olds in the county and the proportion of applicants to vocational education programmes. The structural adjustment does not, however, explain much of the variation in operating expenditures per pupil from one county to the next (10 per cent for 2006). Free income has the greatest impact on resource allocation and explains almost 50 per cent of the variation (Hægeland et al. 2008).

Common characteristics of county authorities with particularly low and high resource allocation

Table 2.9 shows that the three counties with the lowest resource allocation per pupil use 12 per cent less than the average for all the counties. Structurally adjusted expenditures are of a similar size. Thus structural circumstances are unable to explain differences between the three counties with the highest or lowest resource allocation per pupil. The counties that use the least have relatively many pupils, a high proportion of immigrants and a lower proportion of free income compared to the national average. This shows that advantages of large-scale operations are important for resource allocation in upper secondary education.

Table 2.9: Characteristics of the three counties with highest or lowest operating expenditures in 2006.

Variable	Difference in percentage from the average for all municipalities	
	Three lowest	Three highest
Total number of pupils	18*	8*
Operating expenditures per pupil	-12	17
Operating expenditures per pupil (adjusted)	-13	16
Proportion immigrants 16–18 years	15	-27
Free income	-5	10

* Proportion in percentage of the total number of pupils.
Source: Hægeland et al. 2008.

Resources for special teaching

Hours are also allocated to pupils in upper secondary education based on individual decisions with special needs for facilitated tuition. These include pupils with physical disabilities or mental or social problems. Pupils with immigrant backgrounds and poor language skills are also in the target group needing special teaching. Table 2.10 (page 32) shows the percentage of pupils in upper secondary school receiving special teaching. Those receiving special teaching include pupils with specially facilitated courses, planned competence on lower levels and special teaching pursuant to individual decisions. In addition there is special teaching for immigrants and language minorities.

Table 2.10 shows that there are major differences between counties in terms of the proportion of pupils receiving special teaching. Hægeland et al. (2008) have analysed the relationship between the county variation and the related county characteristics, but no characteristic appears as significant. Whether this is because the counties deal differently with the right to special teaching or use varying reporting practices is unclear. Expenditures connected to special teaching and specially facilitated tuition reported to KOSTRA for 2006 suggest that there are minor differences between the counties, and these are thus not comparable to the figures in Table 2.10.

The table distinguishes between special teaching connected to immigrants and language minorities and other special teaching. The difference between these two percentages varies strongly from one county to the next. Some of the variation is due to differences in the proportion of pupils with minority languages in each county. One example is that the number of pupils and apprentices in the 16–18 age bracket with immigrant backgrounds is almost 30 times higher in Oslo than Sogn og Fjordane county. Another contributing factor may be that minority-language pupils also receive other special teaching.

Table 2.10: Proportion in percentage of pupils with special teaching in 2006.

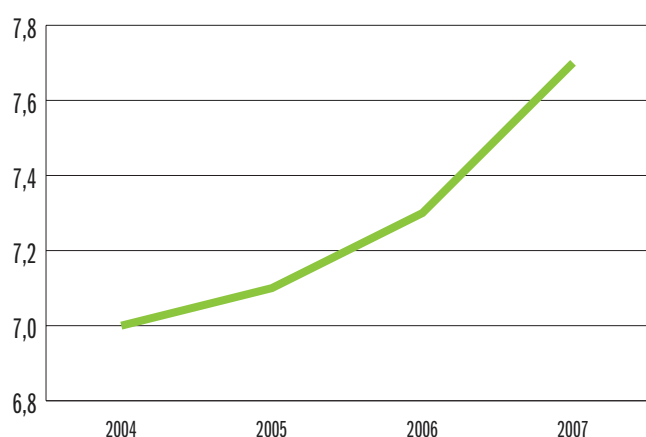
County	Excluding minorities	Including minorities
Sogn og Fjordane	0,75	0,8
Østfold	1,1	1,3
Troms	1,4	1,4
Vestfold	1,7	1,9
N-Trøndelag	2,1	2,9
Oppland	2,2	3,0
Hordaland	2,9	3,4
Finnmark	3,2	3,3
Møre og Romsdal	3,3	3,9
S-Trøndelag	3,6	4,6
Rogaland	3,8	4,9
Nordland	3,9	5,8
Hedmark	4,9	5,1
Telemark	4,9	6,4
Akershus	5,0	6,4
Aust-Agder	5,3	5,3
Oslo	5,5	6,4
Vest-Agder	6,5	6,5
Buskerud	7,0	8,2

Source: Hægeland et al. 2008.

Resources for vocational education programmes

Expenditures for vocational training covered by county authorities generally comprise appropriations to apprenticeship companies, administrative costs and theory costs (teaching aids, payroll) for apprentices and trainees. The proportion of net operating expenditures to upper secondary education assigned to vocational education in working life has climbed from 2004 to 2007 (Figure 2.10). The increase last year was two times as large as in preceding years. The number of apprentices in upper secondary education has admittedly increased in recent years, but that does not fully explain the relatively high growth in resource use last year.

Figure 2.10: Percentage of net operating expenditures for upper secondary education allocated to vocational education.



Source: KOSTRA. Preliminary figures.

2.4 Resources for ICT in primary, lower secondary and upper secondary education

The aim of "Program for digital kompetanse 2004–2008" (Programme for digital competence 2004–2008) (Ministry of Education and Research 2004) has been to even out digital differences and consequently also social differences by promoting basic digital competence for all. The introduction of the Knowledge Promotion reform in the 2006–2007 school year has integrated basic skills in the use of digital tools in the competence objectives for all subjects. It is therefore a goal that all pupils should have access to a PC with an internet connection.

Table 2.11: Pupils per PC in primary and lower secondary education 2007–2008, with and without internet connection.

Pupils per PC	Without internet		With internet	
	Proportion pupils	Proportion schools	Proportion pupils	Proportion schools
<2	4,5	12,7	3,9	10,5
2–3	14,1	20,0	12,8	17,9
3–4	22,2	21,9	20,0	20,1
4–5	20,3	16,6	18,8	16,2
5–6	14,2	10,9	13,8	11,0
6–7	8,2	6,2	8,4	6,8
7–8	6,1	4,5	6,7	5,2
8–9	3,4	2,4	4,1	3,0
9–10	6,4	4,2	10,5	7,8
>10	0,7	0,7	0,9	1,4

Source: Hægeland et al. 2008

PC density in primary and lower secondary school has increased continuously during the last five years. In 2003–2004, an average of 8.4 pupils needed to share a PC. In 2007–2008, the corresponding figure was 3.4 pupils per PC. Differences between municipalities have also diminished. Five years ago 80 per cent of municipalities had between 5.8 and 11.8 pupils per PC, while today 80 per cent of the municipalities are within an interval of 3.1 and 5.6 pupils per PC. Table 2.11 shows that almost 13 per cent of schools have less than two pupils per PC, but that only 4.5 per cent of the pupils attend these schools. This shows that the highest saturation of PCs is found at small schools, both with and without an internet connection.

The main findings by ITU Monitor 2007 (Arnseth et al. 2007), a quantitative study of pupils in Years 7 and 8 of primary and lower secondary school and in the first year of upper secondary school, shows a clear increase in the time pupils spend in front of a computer monitor both at school and at home. Major differences are also found in the scope of ICT use between pupils in the same year class. At school, ICT is primarily used for internet searches and Office software, while web portals and websites designed for schools are used negligibly. The use of multimedia tools (such as photo, film, audio and animations) is much higher at home than in school.

As one of 22 countries, Norway has participated in SITES 2006 (Second Information Technology in Education Study), which is the third SITES study (Ottestad 2008). The main purpose of SITES is

to develop our understanding of how ICT influences the learning of children and young persons and how ICT is used for teaching. A number of questions are asked of school administrators, ICT managers at schools and teachers of mathematics and natural science in Year 8 relating to educational visions, educational practices and circumstances for teaching with ICT. Access to PCs and network connections are significantly better in Norway than in many other countries. In spite of this, Norwegian school administrators and IT managers believe that the availability of computers for teaching is the major barrier to a school's ability to realise its educational goals. Bandwidth and the age of the hardware are considered less decisive, even if substantial numbers of school administrators and IT managers state that these are also barriers. Attention is also drawn to the inadequate skills teachers have as one of the greatest barriers to satisfying school's educational goals. It is also stated that teacher training is without clear national aims for the digital competence of student teachers.

2.5 Norway's resource allocation on education in a national and international perspective

National priorities for education

A national measure of how education is prioritised may be given by considering the proportion of the gross national product (GNP) or proportion of public expenditures spent on education. Figure 2.11 shows that the proportion of the GNP used for education in mainland Norway in total has dropped continuously during the last five years, from 8.0 to 6.9 per cent. During the same period of time, the proportion spent on primary and lower secondary education has declined from 3.4 per cent to 3.0 per cent, while the proportion spent on upper secondary education has declined from 1.8 per cent to 1.5 per cent. The GNP for mainland Norway has nevertheless increased by 34

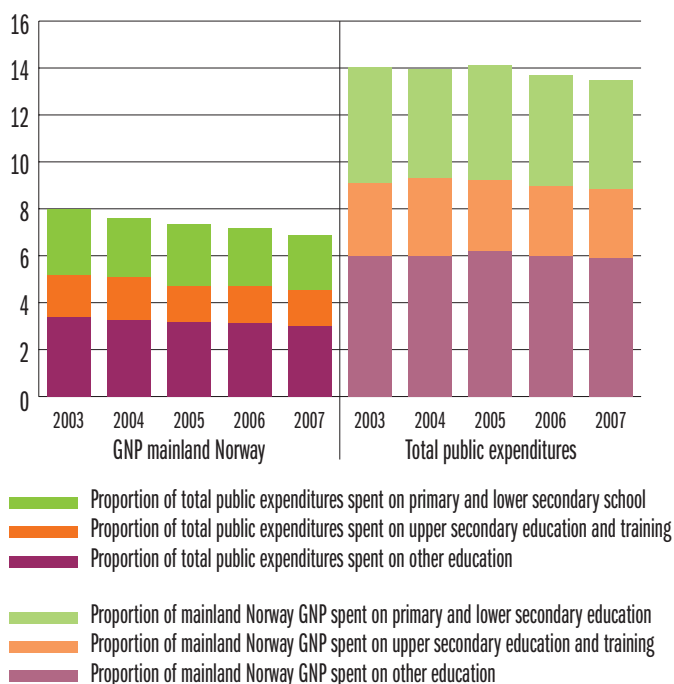
per cent from 2003 to 2007, so that measured in terms of funding, the resources allocated to both primary and secondary education and upper secondary education have increased.

The proportion of total public expenditures that has been used on education has dropped from 2005 to 2007, from 14.1 to 13.5 per cent. During the same time the proportion spent on primary and lower secondary school has declined from 6.2 to 5.9 per cent, while the proportion spent on upper secondary education has dropped from 3.0 to 2.9 per cent. Total public expenditures have increased by 13 per cent from 2005 to 2007. According to amounts spent, as for GNP, there has been a total growth in resources allocated to primary and secondary education.

Norway's use of resources compared to other OECD countries

Since 2001 the OECD has published a comparison of the use of resources in member countries (Education at a Glance). During these years there has been little change in the ranking of countries when they are ranked according to expenditures in primary school, as shown in Figure 2.12. The figures from the 2007 edition (Education at a Glance 2007), based on figures from 2004, show that Norway remains in fourth place when ranked according to resource allocation in Years 1 to 7, and in third place when ranked according to Years 8 to 10 or upper secondary education. In relation to the OECD average, Norway spends 46 per cent more per pupil in Years 1 to 7, 37 per cent more on Years 8 to 10 and 59 per cent more per pupil in upper secondary education. It is important to bear in mind that the basis for calculation in Norway only includes public spending while in most OECD countries both public and private expenditures are included.

Figure 2.11: Proportion in percentage of expenditures on education in relation to GNP and the total of public expenditures 2003 to 2007.

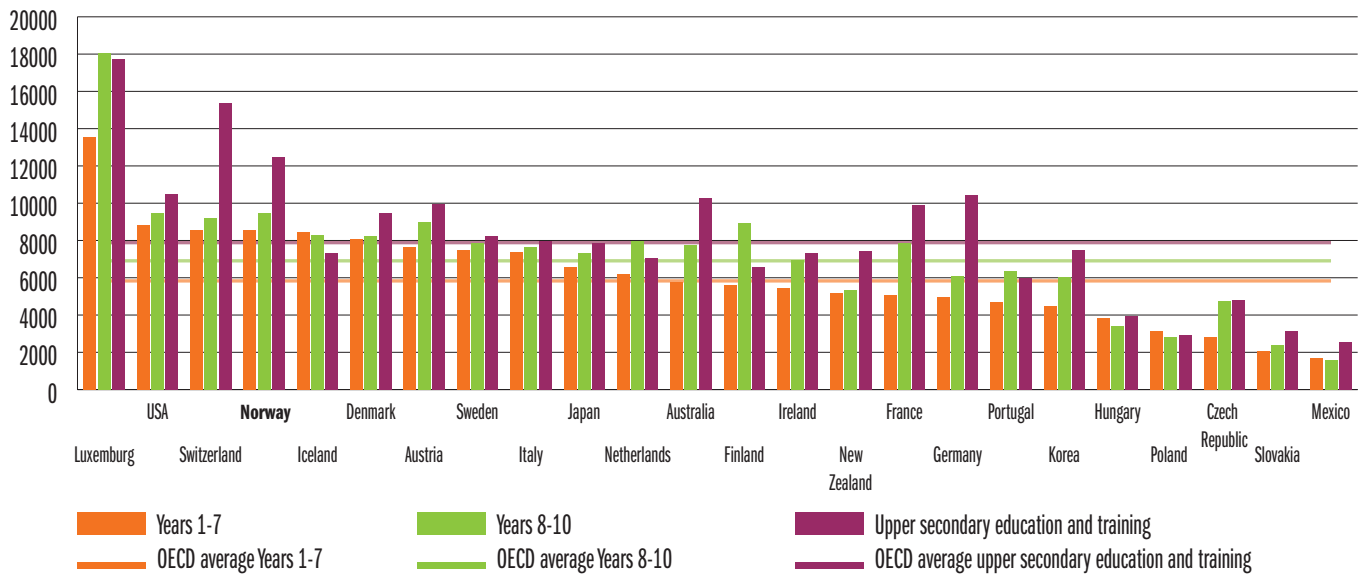


The other Nordic countries are close to Norway when it comes to the use of resources, particularly when it comes to expenditures per pupil in Years 1 to 7 and Years 8 to 10. The exception is Finland, which uses slightly below the OECD average in Years 1 to 7 and in upper secondary education. For distribution of expenditures on year classes Finland also represents an exception, spending a relatively much larger proportion of their resources on Years 8 to 10 than on Years 1 to 7 and in upper secondary education. In the other Nordic countries, and also in most OECD countries, the level of expenditures rises in accordance with the level of schooling. This is a very interesting observation bearing in mind that Finland scores very well in knowledge tests of 15-year olds (see more about PISA in Chapter 3).

The expenditure per pupil for education compared to GNP per inhabitant says something about how education is prioritised in the country in question. In such a comparison, Norway places very close to the OECD average, which for years 1 to 7, years 8 to 10 and upper secondary education is respectively 20, 23 and 28 per cent. However, Norway has the highest GNP of the countries being compared to and therefore spends more resources in most sectors compared to countries that are less well off. The total GNP is used for the comparison of OECD countries. This means that Norway's petroleum revenues are included.

Source: SSB, National accounts

Figure 2.12: Expenditures per pupil in OECD countries, measured in USD.



* The expenditures is adjusted for differences in purchasing power between the countries. Source: Education at a Glance 2007.

Why does Norway spend more on education than other countries?

Compared to the other OECD countries Norway has one of the highest teacher densities (the number of pupils per teacher), approximately 28 per cent above the OECD average. Moreover, the teaching time for Norwegian teachers is 7–8 per cent lower than the OECD average. Both these factors contribute to making the expenditures per pupil higher in Norway than the OECD average. Other factors often mentioned in connection with the high expenditures on resources per pupil in Norway

include the scattered population and integration of pupils with functional disabilities. Bonesrønning et al. (2008), using data relating to school size and the number of pupils per year, estimated that resource allocation might have been reduced by 5–6 per cent if the population had lived closer together. Expenditures for integration of functionally disabled pupils can hardly explain the high use of resources, as expenditures on special pupils are included in the total costs regardless whether the pupils attend special schools or are integrated in ordinary schools or classes.



3 Learning outcomes

Hvordan er situasjonen når det gjelder skrivingen din nå.	Du sier det best selv i evalueringen! (Vi skal på formelle møter)			
Karakter på mappe.				

Vår skole er deg selv, E m
Fantastiske produkter som
Du er jo en kunstner.



Together with the findings of the PISA and PIRLS international studies, the results of the national tests have helped place learning outcomes on the political agenda. Starting with the first PISA study, which was published in 2001, both national and international studies have drawn attention to the fact that the teaching in many Norwegian schools does not result in the expected pupil achievements.

This chapter starts with the results from the study of reading skills in Year 2 and then follows with the results from the international study PIRLS (Progress in International Reading Literacy Study) in Years 4 and 5. Then we present results from national tests in Years 5 and 8, the international study PISA (Programme for International Student Assessment) for 15-year olds, grade statistics for Year 10 and for Year 11 to 13 in upper secondary school, and finally the results from vocational education.

The results of the reading test in Year 2 from 2007 show progress for several of the tasks compared to 2006. However, reading results for Year 4 in the PIRLS study show little change

from 2001 to 2006, but the proportion with the weakest reading results has dropped slightly. The national tests for Years 5 and 8 show variations between municipality, particularly between Oslo and Akershus and the rest of Norway. There are, moreover, larger differences between pupil results in Year 8 according to gender, social background and immigration background than in Year 5.

The PISA study from 2006 indicates that the achievements of Norwegian pupils have declined in reading, natural science and mathematics from 2000 to 2006. Grade statistics for Year 10 school leavers show minor differences from previous years. The largest differences in pupil grades can be explained by social background, measured by parental education level, but there are also prevalent gender differences and differences between pupils with immigrant or Norwegian backgrounds. Girls and boys score different grades in upper secondary school, and the gender differences appear to be slightly greater in vocational education programmes than in general studies programmes. When apprentices have reached the stage where they are to sit for their craft or journeyman's certificate examinations, 93 per cent pass.

3.1 Determining reading skills in Year 2

The primary aim of the reading test material for Year 2 is to identify the weakest readers. The material consists of a group-based screening test designed to identify pupils that have developed or are in danger of developing reading difficulties. The test material can also function as an educational tool because the tasks focus on areas that are vital for the development of reading skills. There are indications that the test material tasks no longer have the appropriate difficulty level to identify the pupils who need extra assistance and support (Engen et al. 2005). For this reason new reading test material has been developed, and was taken into use in the spring of 2008.

The sample of pupils used as the basis for the analysis of reading skills in Year 2 in 2007 comprises a total of 86 schools and the response rate is 71 per cent. The study examines pupil attitudes when it comes to reading, phonological analysis skills, knowing the letters of the alphabet, familiarity with the relation between letters and language sounds, automated word reading skills and reading understanding.

Table 3.1 shows that the findings of the study in 2007 are in accordance with the developments we have seen in recent years. For all tasks, there is progress compared to last year's study. In 2006 and 2007, the difference in percentage points for pupils under the border to be identified as poor readers are small, and the tasks "recognising letters of the alphabet", "word dictation" and "instruction" show significant change from 2006 to 2007. In all years with testing pupils at or under the border to be identified as poor readers, the results have been significantly higher for boys than for girls.

Table 3.1: Results of reading tests in Year 2 in 2000, 2006 and 2007.

	Max point score achievable	«Boundary for concern	Percentage on/under the border to be identified as poor readers »		
			2000 (stand.)	2006 (n=2363)	2007 (n=1551)
Basic skills:					
Count sounds in words	12	<= 8	18	8	7
Recognise letters	16	<=10	21	10	6*
From language sound to letter	14	<=10	19	11	9
Word dictation	12	<= 4	19	7	6*
Reading words and letters					
From word to picture	20	<=11	20	10	9
From picture to word	20	<= 9	19	12	9
Reading sentences	20	<= 9	21	11	9
Instructions	10	<= 4	23	19	15*

* Means that the change from 2006 to 2007 is significant on at least a 0.05 level. Source: Engen et al. 2007.

3.2 Reading results from the PIRLS study of Years 4 and 5

Norway participated in the Progress in International Reading Literacy Study (PIRLS) in 2001 and 2006. The PIRLS study measures pupil reading skills in Year 4 under the auspices of the International Association for the Evaluation of Educational Achievement (IEA). In 2006, the study comprised pupils in 45 countries or states. With school starting at the age of six, Norway and Iceland have younger pupils in Year 4 than many of the other countries participating in the study. For this reason Iceland and Norway have included pupils in both Year 4 and Year 5 in the PIRLS study in 2006 to have a better basis for the comparative analyses with Denmark and Sweden. Only Year 4 is included in the international analyses.

Table 3.2 shows that Norwegian pupils in Year 4 have a total reading score of 498 points in PIRLS 2006, i.e. very close to the average for participating countries, which is 500 points.¹ Among the OECD countries, Norway is the country with the lowest PIRLS score (Mullis et al. 2007, Daal et al. 2007). There is, however, clear progression from 498 to 541 reading-skill points from Year 4 to Year 5 among the Norwegian pupils. However, the Swedish and Danish pupils in Year 4 have significantly better results than Norway among pupils in Year 5.

Sweden has the best results among the Nordic countries in both 2001 and 2006, but had a significant decline from 2001 to 2006. Denmark did not participate in PIRLS in 2001 and in 2006 scored on a par with Sweden. Finland did participate in the PIRLS study neither in 2001 nor in 2006.

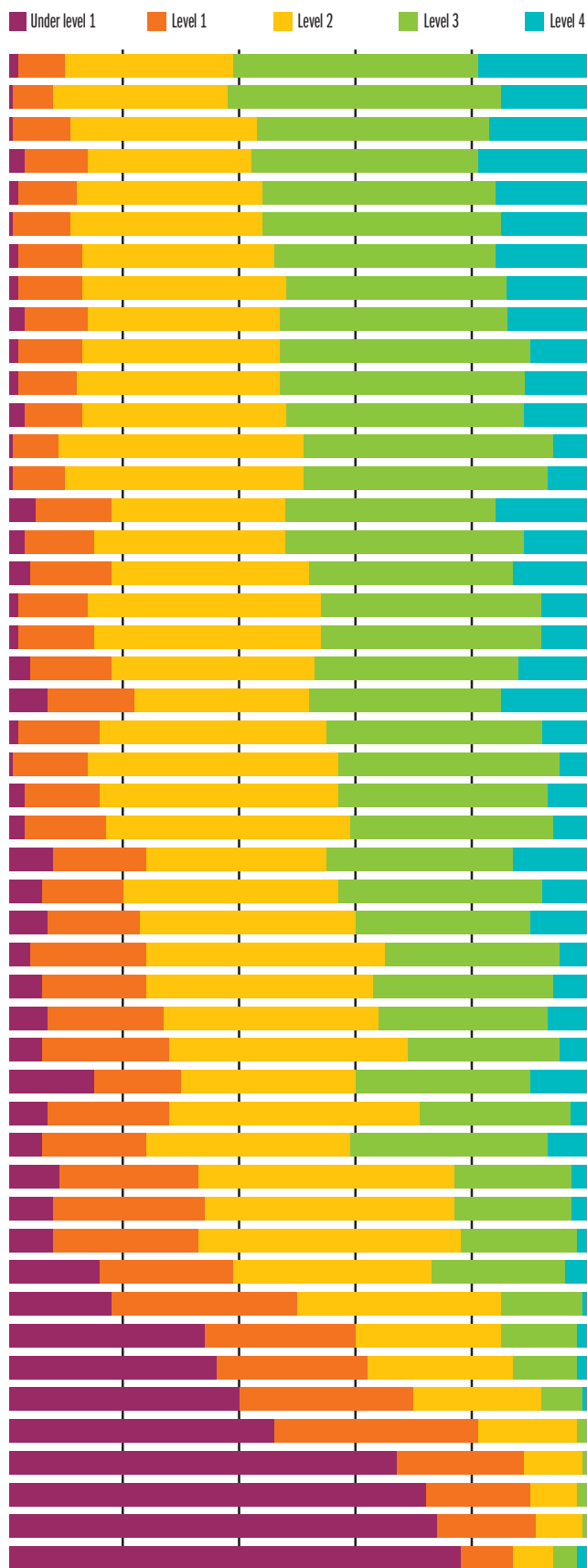
PIRLS has defined four levels of reading skills. Norway was among the countries with the greatest spread in reading results in the PIRLS study in 2001. This spread has been significantly reduced in 2006, where the number of poor readers in the Norwegian sample is lower, but on the other hand, the number of good readers is also lower. In Norway, only 2 per cent of the pupils are in the group "advanced readers", while Iceland has 3 per cent, and Sweden and Denmark have 11 per cent of their pupils in this group. In Sweden and Denmark more than half of the pupils place in the groups "advanced" and "high" when it comes to the score on the reading test. In Norway only 22 per cent of the pupils achieve at least 550 points. In Norway 8 per cent of the pupils perform below 400 points, while the per cent for Iceland is 7. A total of 3 per cent of pupils in Denmark and 2 per cent of pupils in Sweden score below 400 points (Mullis et al. 2007, Roe and Solheim 2007).

Norwegian pupils in Year 4 are among the youngest participating pupils in PIRLS. The mean age among Norwegian pupils in the study is 9.8 years, while the Swedish pupils in comparison are 10.9 years. These differences to some degree explain the relatively poor Norwegian results in PIRLS, both in 2001 and 2006. But there are also many other reasons connected to the Norwegian results. Norway compared to countries with good results have better reading habits, use more learning and

¹ The average is 500 points and this is based on the average for the countries participating in PIRLS in 2001.

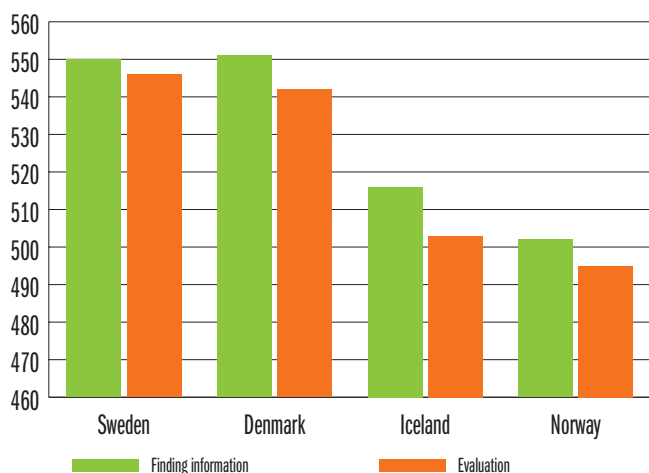
Table 3.2: Average reading score for pupils in Year 4* and proportion of pupils on the different competence levels in PIRLS 2006.

Countries/Regions	Average score	Average age	Years of formal schooling	Under level 1	Level 1	Level 2	Level 3	Level 4
Russia	565	10,8	4					
Hong Kong	564	10	4					
Canada, Alberta	560	9,9	4					
Singapore	558	10,4	4					
Canada, British Col.	558	9,8	4					
Luxembourg	557	11,4	5					
Canada, Ontario	555	9,8	4					
Italy	551	9,7	4					
Hungary	551	10,7	4					
Iceland Year 5	550	10,8	5					
Sweden	549	10,9	4					
Germany	548	10,5	4					
Netherlands	547	10,3	4					
Belgium, Flemish	547	10	4					
Bulgaria	547	10,9	4					
Denmark	546	10,9	4					
Canada, Nova Scotia	542	10	4					
Latvia	541	11	4					
Norway Year 5	541	10,8	5					
USA	540	10,1	4					
England	539	10,3	5					
Austria	538	10,3	4					
Lithuania	537	10,7	4					
Chinese Taipei	535	10,1	4					
Canada, Quebec	533	10,1	4					
New Zealand	532	10	4					
Slovakia	531	10,4	4					
Scotland	527	9,9	5					
France	522	10	4					
Slovenia	522	9,9	4					
Poland	519	9,9	4					
Spain	513	9,9	4					
Israel	512	10,1	4					
Iceland Year 4	511	9,8	4					
PIRLS average	500							
Moldova	500	10,9	4					
Belgium, French	500	9,9	4					
Norway Year 4	498	9,8	4					
Romania	489	10,9	4					
Georgia	471	10,1	4					
Macedonia	442	10,6	4					
Trinidad and Tobago	436	10,1	5					
Iran	421	10,2	4					
Indonesia	405	10,4	4					
Qatar	353	9,8	4					
Kuwait	330	9,8	4					
Morocco	323	10,8	4					
South Africa	302	11,9	5					



* The table shows also the results for Norway and Iceland in year 5.
Kilde: Source: Mullis et al. 2007, Skolverket 2007.

Figure 3.1: Reading understanding in tests for Year 4 in PIRLS 2006. Nordic countries.



Source: Solheim and Roe 2007.

reading strategies and allocate early and extra resources when a pupil lags behind in reading development (Mullis et al. 2007, Daal et al. 2007).

PIRLS reading tests include literary and factual texts. The pupil's understanding of reading is measured through questions connected to four processes: 1) extracting information, 2) drawing simple conclusions, 3) interpreting and comparing information and 4) assessing language, content and techniques in a text.

In all the Nordic countries the results are best when it comes to skills at extracting information. Figure 3.1 shows that the difference between extracting information and assessment is least in Sweden, with 4 points, and greatest in Iceland with a 13-point reading score spread (Roe and Solheim 2007).

Factors that may explain the PIRLS 2006 reading results

In all countries participating in the PIRLS study, girls have higher reading scores than boys. In Norway, girls had significantly better reading skills than boys in both 2001 and 2006. Boys achieved the same scores in 2001 and 2006, while girls scored slightly lower in 2006. Girls read both literary texts and factual texts better than boys in 2006 (Solheim and Roe 2007).

There are greater differences between the scores of majority language and minority language pupils in the reading tests in Norway than in Denmark and Sweden. Table 3.3 shows that the difference between majority language and minority language pupils constitutes a score difference of 58 points between pupils in Norway, 39 points in Denmark and 35 points in Sweden in favour of majority language pupils (Ogle et al. 2008).

PIRLS also administers questionnaires to pupils, schools (principals), teachers and parents/guardians. When PIRLS

Table 3.3: Average reading score for majority and minority pupils in PIRLS 2006.

	Denmark	Norway	Sweden
Language majority pupils	550	504	555
Language minority pupils	511	446	520
Difference in favour of majority pupils	39	58	35

Source: Ogle et al. 2008.

selects the sample of year and class, groups of pupils who have been taught by the same teacher may be studied in relation to other pupil groups. Information about pupil circumstances related to reading in the home, the ethnic background of parents/guardians and their socio-economic status, and information relating to the pupils at preschool age are interesting when it comes to explaining differences in pupil reading skills.

In their study, van Daal et al. (2007) have applied a multilevel analysis to the relation between background and result variables. Using multilevel analyses allows them to use sophisticated models of complex interactions between factors of various levels, such as characteristics of schools, parents and pupils. The analyses have been undertaken with data from the Nordic participant countries in PIRLS 2006.

Norway, Iceland, Sweden and Denmark have much in common. Factors of general importance for reading skills in the PIRLS study are pupil gender, age and the number of years they have attended a day-care centre. Three important factors in the pupil's home are language activities prior to starting school, the number of books in the home (a measure of "cultural capital") and parental attitudes to school. Other important factors are types of text read for recreation, assessment of own reading skills, time spent doing homework, recreational activities related to reading, non-negative attitudes to reading and skills relating to reading when starting school.

Factors related to the teachers which are significant for pupil reading skills in the Nordic countries are post-reading activities and topics in the teacher's training.

In spite of poor reading skills for pupils in Year 4 for Norway, the 2006 PIRLS study shows that Norwegian pupils read more than they did in 2001. Two years with the strategy "Make room for reading!" appears to have increased reading activities in Norwegian school, but not enough to improve pupil reading skills in the short term.

3.3 National tests in Years 5 and 8

National tests in reading in Norwegian and English and in mathematics were carried out in September 2007 for all pupils in Years 5 and 8. These tests have proved to be very useful for teachers, parents and pupils, as well as for school owners and regional and central school authorities (Kavli 2008).

Table 3.4: Pupils in Year 5 in national tests in 2007, by mastering levels 1 to 3. Per cent.

	Level 1	Level 2	Level 3	Participated	Exempted	Not participated
English	27,5	47,5	25,0	98,1	1,5	0,4
Reading	26,6	50,1	23,3	96,9	2,2	0,9
Mathematics	26,6	47,2	26,2	97,1	2,0	1,0

Source: The Norwegian Directorate for Education and Training.

The new national tests have functioned well. The tests have a high level of reliability and the level of difficulty is suitable for the pupils on the various skill levels so that everybody can demonstrate their skills/lack of skills in relation to what the tests aim to discover. The results of the tests establish the basis for assessing whether the pupils' English and Norwegian reading skills and mathematics skills are in accordance with the objectives in the subject curricula.

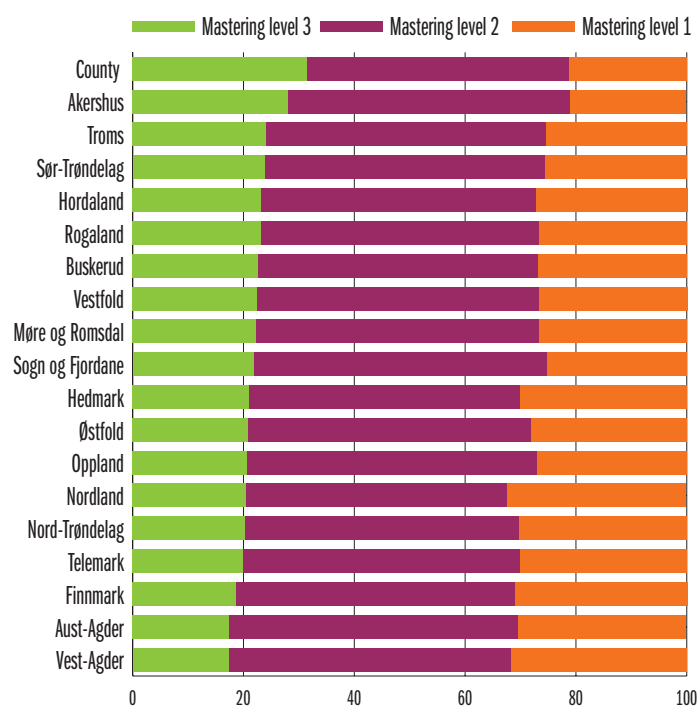
The tests are intended as instruments for improvement and development activities locally and centrally. The pupils are placed on different levels based on the points scored in the test. The scale for Year 5 has three levels, while the scale for Year 8 has five assessment levels. Level 1 is the lowest. Each scale level is accompanied by a brief text describing the skills of a typical pupil on the level in question. The boundaries between scale levels have been determined on the basis of statistical analyses of international results.

Pupils' scoring on the scale may be the point of departure for feedback to pupils and their parents/guardians, but it is important to bear in mind that the pupils within each level have achieved different test scores, and that some pupils may have achieved a score close to a value dividing two levels.

Table 3.4 shows the percentage distribution that was used to construct the three-stage scale for Year 5 in reading in Norwegian and English and in mathematics. Participation in the tests has been high. Counties, local authorities, schools and groups may compare the distribution on their level with the distribution for the whole country.

Table 3.5 shows the percentage distribution that was used to construct the scale for Year 8 on the national level. Year 8 has a five-level scale. Participation was also high in national tests for Year 8.

Figure 3.2: Pupils in Year 5 in national tests 2007, by mastering level and county. Per cent.



Source: The Norwegian Directorate for Education and Training.

Even if the majority of the pupils within each county and municipality are concentrated in the middle of the national tests scale, test results show clear differences between counties, municipalities and schools in both Year 5 and Year 8.

Figure 3.2 shows that Oslo is the county with the best results in the national tests in Year 5, measured according to the levels achieved by the pupils on a scale from 1 to 3, where 3 is the highest achievement level. Next come Akershus, Troms, Sør-Trøndelag, Hordaland and Rogaland, all counties with universities. Nordland, Vest-Agder and Finnmark have a large proportion of their pupils on achievement level 1.

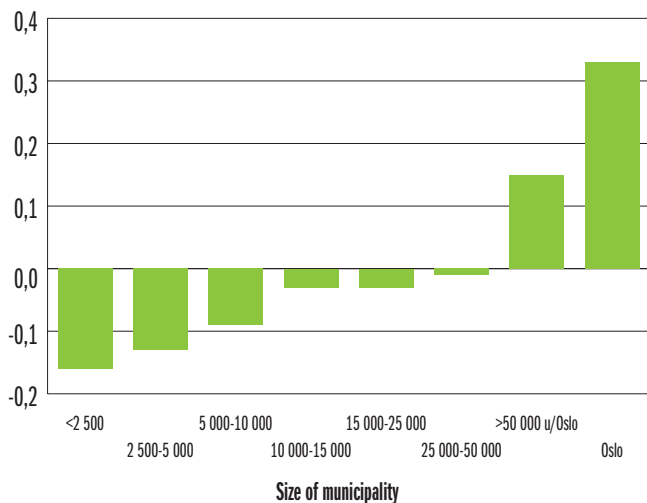
On assignment from the Norwegian Directorate for Education and Training, the Centre for Economic Research has analysed the national tests in relation to pupils gender, family background and municipal variation. The analyses use the total point scores of the pupils, but these have been standardised and the test scores in reading in English and Norwegian and mathematics have been combined.

Table 3.5: Distribution of pupils in Year 8 in national tests in 2007, by mastering levels 1 to 5. Per cent.

	Level 1	Level 2	Level 3	Level 4	Level 5	Participated	Exempted	Not participated
English	8,5	19,5	43,4	20,9	7,8	98,9	0,7	0,5
Reading	7,5	17,5	41,3	20,9	12,8	97,3	1,3	1,4
Mathematics	6,6	18,9	43,2	20,4	10,8	97,0	1,2	1,8

Source: The Norwegian Directorate for Education and Training.

Figure 3.3: Standardised national test results from 2007 in Year 5 in reading, mathematics and English in total, according to size of municipality measured in the number of inhabitants.



Source: Bonesrønning et al. 2007.

Some preliminary results of these analyses of the national tests show that results are weaker in small municipalities than in the large urban municipalities in total, and that the group of the smallest municipalities have the weakest results. Figure 3.3 shows how the 2007 national test results for pupils in Year 5 vary with the size of the municipalities.² Results are below average in all types of municipalities with less than 50 000 inhabitants, and above average in municipalities with more than 50 000 inhabitants (Bonesrønning et al. 2008).

The results from Oslo are far above the average. This may be related to factors correlating with municipal size, e.g. the social background of pupils. Social background of the pupils does not

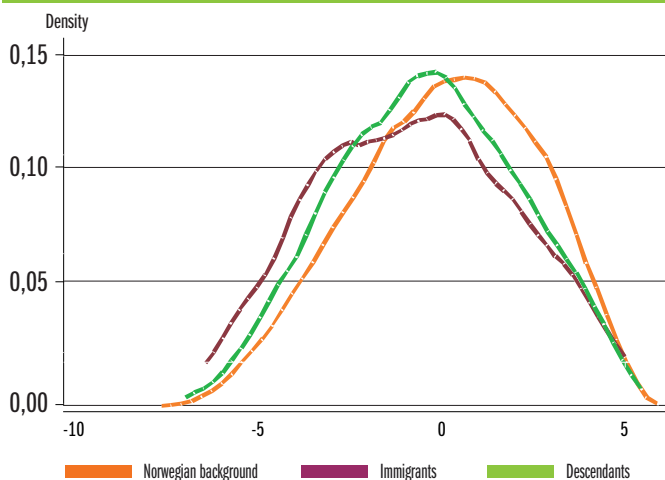
explain the differences found between Oslo and other municipalities. However, differences between municipalities in the rest of the country, also in relation to other large urban municipalities, are explained by differences in pupils' social background. In future analyses, it will be interesting to see Oslo's results in relation to small municipalities and other large urban municipalities to obtain a better basis for explaining why pupils in Oslo achieve such good results on the national tests (Bonesrønning et al. 2008).

Common for all national tests is that the spread in results is greater among boys than girls. Girls score higher than boys in both Year 5 and Year 8 on the national tests in 2007, while boys score slightly higher than girls in mathematics in Year 8. In English (both years) and mathematics in year 5, there are small differences between boys and girls. However, the gender differences, neither in Year 5 nor Year 8, are as major as the differences in the results by the pupils family background, as measured in relation to parental education levels and whether they have background as immigrant or Norwegian (Bonesrønning et al. 2008).

Figures 3.4 and 3.5 show standardised results from the national tests in 2007, in respectively Year 5 and Year 8, vary according to whether the pupils are first-generation immigrants, descendants of immigrants or have a Norwegian background. The results are presented with a total score for reading, mathematics and English. Scores are standardised with an average 0, and the graphs show how much the results of the various groups deviate from the average score for all the pupils.³

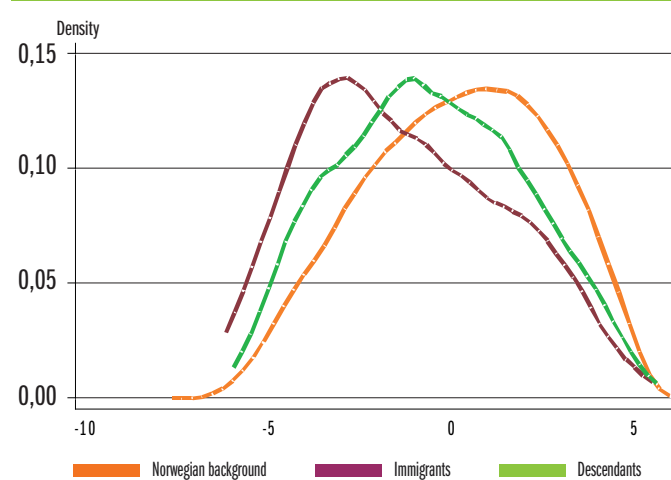
Figure 3.4 show that the graph for pupils in Year 5 has a relatively normal distribution for all three groups. Immigrants

Figure 3.4: Standardised national test results from 2007 in Year 5 according to immigrant background.



Source: Bonesrønning et al. 2008.

Figure 3.5: Standardised national test results from 2007 in Year 8 according to immigrant background.



Source: Bonesrønning et al. 2008.

² The tests are standardised with a total score for reading, mathematics and English (the score is standardised with an average 0), while the municipalities are grouped by the number of inhabitants. Standardisation of the tests has been used because the tests have different scales for different subjects.

³ The distribution is here shown as a density graph, i.e. that the graph evens out some minor variations in the distribution of lower secondary school points. The figure gives a graphic picture of the distribution of standardised scores for the different groups, rather than providing detailed information about the proportion of pupils with a given number of points.

have a curve that tends slightly more to the left than both descendants of immigrants and pupils with Norwegian backgrounds, who constitute the majority of the pupils. This means that immigrants have far more pupils with low test scores than descendants of immigrants and pupils with Norwegian backgrounds. Comparing Figure 3.4 to Figure 3.5 we find that the differences between immigrants and pupils with Norwegian backgrounds increase from Year 5 to Year 8. This particularly applies to first-generation immigrants, whose curve leans very much to the left, but also descendants of immigrants lag further behind pupils with Norwegian backgrounds in Year 8 than they did in Year 5. A significant part of the results of immigrant pupils can be explained by their social background measured by their parents' education levels.

Pupils with highly educated parents generally achieve significantly better results in Year 5 compared to pupils whose parents have lower education levels. The effect of the parents' education levels on the pupil results grows stronger from Year 5 to Year 8. This means that the pupil results are more dominated by the social background in Year 8 than in Year 5.

3.4 Results from the PISA study for 15-year olds

The Programme for International Student Assessment (PISA) is organized by the Organisation for Economic Cooperation and Developments (OECD). The PISA study compares Norwegian 15-year-olds with pupils of the same age in other OECD countries in key subject fields: natural science, reading and mathematics. The purpose of the PISA study is to examine developments in more detail over time by conducting a study every three years covering all three subject fields each time, but where one subject field has the primary focus and the majority of the test time. The point of departure for the trend studies for the subject areas is the year they receive the main focus. PISA was carried out the first time in 2000 with reading as the primary focus, in 2003 mathematics had the primary focus and in 2006 natural science is the main topic.

PISA does not consider the national curriculum or the school subject curricula of each country. The study instead aims to measure the proficiency of pupils in actively using knowledge and experience in concrete situations. A questionnaire focuses on pupil attitudes and motivation, their home situation, their plans for further education and the teaching they have received (Kjærnsli et al. 2007). In Norway, most of the 15-year-olds who

participated in the PISA study in 2006 were in Year 10, and they started the second year of school as seven-year-olds when Reform 97 was introduced.⁴

Table 3.6 shows that in 2000, the OECD average has been set at a score of 500 in PISA for reading, and this is the point of departure for measuring changes in reading skills. The results show that the pupils reading competence has declined for all the OECD countries from 2000 to 2006. When the Norwegian PISA results from 2006 were published, the drop in Norwegian reading scores, 16 points in the score from 2003 to 2006, was the most surprising result for Norway.

The point of departure in mathematics is 2003, and there is a small decline in the results achieved by Norwegian pupils in mathematics from 2003 to 2006. As natural science was not the main focus until 2006, this means that 2006 is the point of departure for measuring changes in natural science in the OECD area. The large drop in results for Norway in natural science in the PISA study from 2000 to 2003 must for this reason be interpreted with care when considered in isolation, but bearing in mind that the TIMSS study of Year 8 in 2003 also shows a dramatic drop in the competence of Norwegian pupils in natural science, there is reason for concern (Grønmo et al. 2004).

Reading in PISA

The PISA reading test generally builds on the same framework as the PIRLS reading test. The difference is that the texts span a wider range of paper-based genres, such as fiction, factual articles from different fields, letters to the editor and guidebooks. Many of them are multimedia texts and may include maps, graphs, tables and diagrams. The texts may be narrative, argumentative, explanatory, descriptive and guiding. The tasks may be divided into three main groups which form the basis for reporting of results on three subscales in PISA 2000: 1) finding information in the text, 2) understanding and interpreting the text and 3) reflecting upon and assessing the text (Roe and Solheim 2007).

Table 3.7 shows that Korea scores highest in the PISA study of reading in 2006, followed by Finland. Swedish pupils also have relatively high scores, but Danish pupils do slightly poorer, approximately on a par with the average in the OECD. Norwegian and Icelandic pupils score 484 points, which is 8 points below the OECD average.⁵

Table 3.6: Norwegian average scores in the PISA studies in 2000, 2003 and 2006 in reading, mathematics and natural science compared to the OECD average.

Year of study	Reading			Mathematics			Natural science		
	2000	2003	2006	2000	2003	2006	2000	2003	2006
OECD average	500	494	492	500	500	498	500	500	500
Norwegian average	505	500	484	499	495	490	500	484	487

Kilde: OECD 2001, 2004 og 2007.

⁴ The reform meant that six-year-olds would start school. Thus two New Year classes started school at the same time in the autumn of 1997.

⁵ A significant number of countries outside the OECD area also participate in the PISA study; their results have not been included in Tables 3.7, 3.8 and 3.9.

From 2000 to 2006, reading skills appear to have declined in the whole OECD area according to overall results. The Norwegian reading average in 2006 (484 points is 21 points lower than six years before. Only three other OECD countries have had greater declines during the same period. In spite of the general decline in the OECD, there are countries that have had significant improvement in reading from 2000 to 2006. This applies particularly to Korea and Poland (OECD 2007a, Kjærnsli et al. 2007).

The PISA study also describes pupil results in reading on five achievement levels, as shown in the horizontal bar graph in Table 3.7. This means that in addition to being ranked according to a total average score, the achievements can also describe the size of the groups of pupils on each of the competence levels in the individual participant countries. Pupils on level 1 can only carry out the least complicated tasks, while pupils on level 5 can carry out very complex tasks. On average, 9 per cent of pupils in the OECD countries and 8 per cent of pupils in Norway are on level 5, the best readers. A total of 20

per cent of the pupils in the OECD countries and 22 per cent of the pupils in Norway are on level 1 or lower. When pupils score below level 2, this does not mean that they cannot read in a technical sense, but rather that they will encounter problems due to poor reading skills and hence need special follow-up to succeed in their further education.

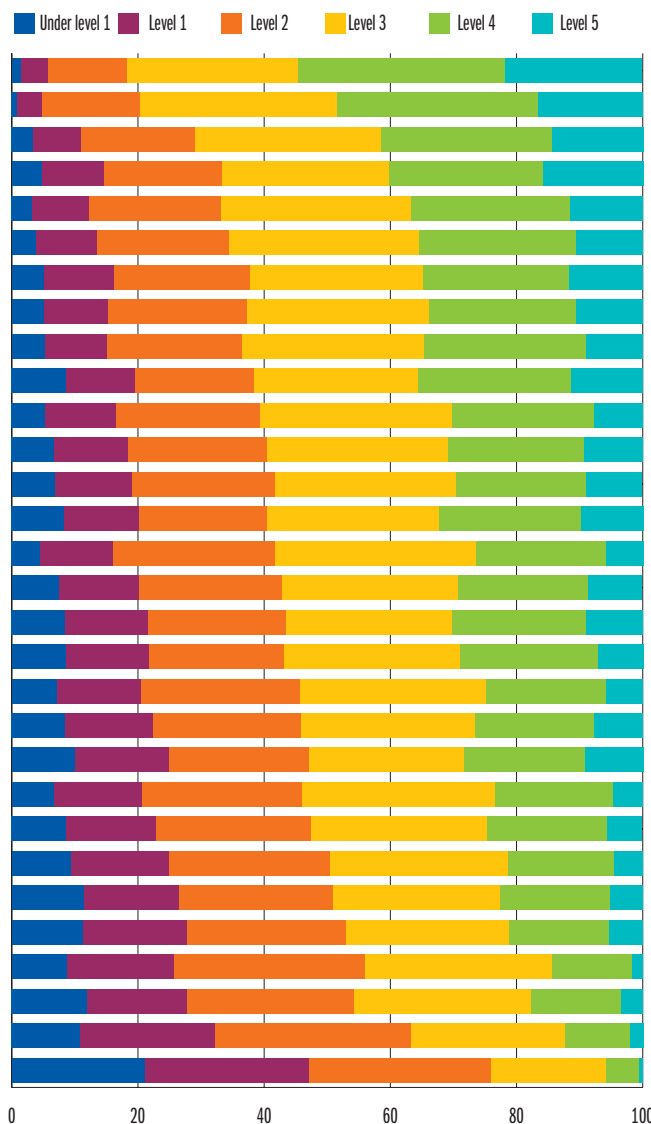
The spread of pupil reading results is greater in Norway than in the other Nordic countries. The proportion of pupils in Norwegian school scoring on level 1 or below level 1 has increased from 17 per cent in 2000 to 22 per cent in 2006. On the two highest levels, the proportion of pupils has dropped from 35 to 28 per cent during the same period. On levels 2 and 3, the proportion of pupils has remained around 50 per cent.

Gender differences in reading in PISA

In all countries taking part in PISA 2000, there were significant gender differences in reading in favour of girls. The same also applied in 2006. During the period in the total OECD area there has been an increase in gender differences. Norway is

Table 3.7: Average reading scores for 15-year olds and proportions on the different mastering levels in the PISA study in 2006.

Land	Average deviation	Average	Standard deviation
Korea	556	(3,8)	88
Finland	547	(2,1)	81
Canada	527	(2,4)	96
New Zealand	521	(3,0)	105
Ireland	517	(3,5)	92
Australia	513	(2,1)	94
Poland	508	(2,8)	100
Sweden	507	(3,4)	98
Netherlands	507	(2,9)	97
Belgium	501	(3,0)	110
Switzerland	499	(3,1)	94
Japan	498	(3,6)	102
Great Britain	495	(2,3)	102
Germany	495	(4,4)	112
Denmark	494	(3,2)	89
OECDs average	492	(0,6)	99
Austria	490	(4,1)	108
France	488	(4,1)	104
Iceland	484	(1,9)	97
Norway	484	(3,2)	105
Czech Republic	483	(4,2)	111
Hungary	482	(3,3)	94
Luxembourg	479	(1,3)	100
Portugal	472	(3,6)	99
Italy	469	(2,4)	109
Slovakia	466	(3,1)	105
Spain	461	(2,2)	89
Greece	460	(4,0)	103
Tyrkey	447	(4,2)	93
Mexico	410	(3,1)	96



Source: Kjærnsli et al. 2007.

one of the countries where gender differences have been greater than the average in the three PISA studies. With the exception of Denmark, which is one of the countries where gender differences in reading are smaller than the OECD average, the other Nordic countries have stood out by having large gender differences.

In Norway, boys achieve an average of 463 points on the PISA scale, while girls score 507 points. If we consider each reading task, gender differences vary substantially. Around 15 per cent of the tasks had no significant gender differences. Typical of these tasks is that they either require very good understanding of maps, graphs and tables or they are simple tick-the-right-alternative tasks. Girls especially perform better than boys in tasks that involve continuous text and in open tasks requiring that pupils formulate and give grounds for their understanding of the text or their reflections. These characteristics are the same as found by analyses of a far larger number of tasks in PISA 2000 (Roe and Taube 2003).

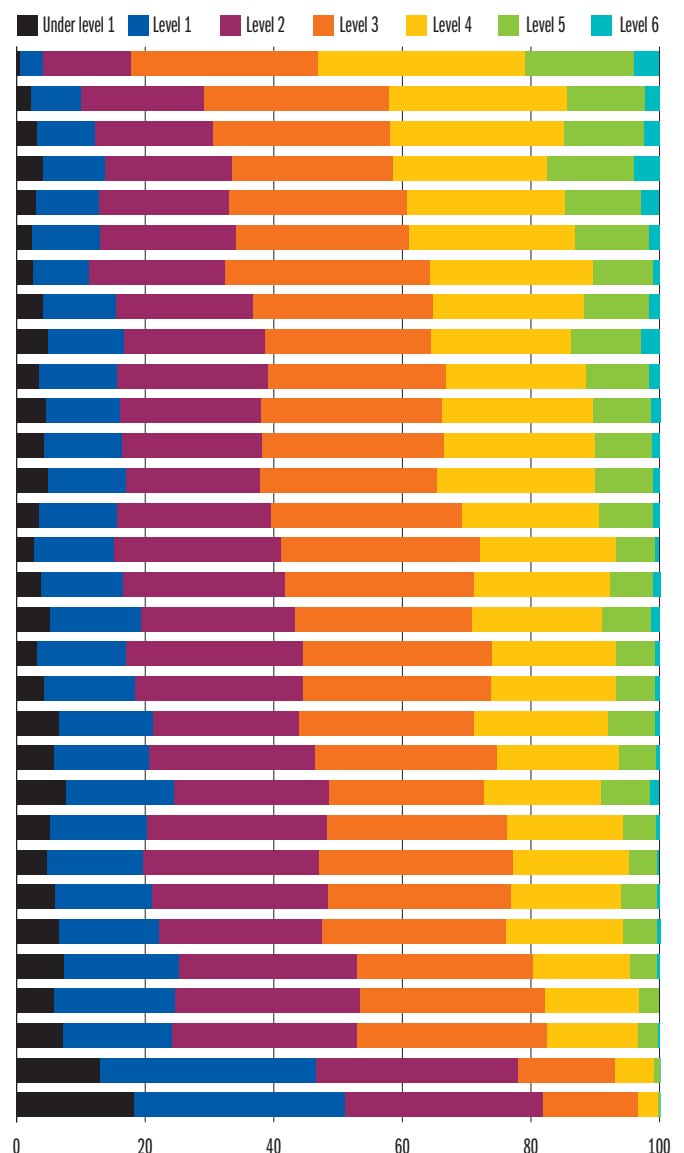
Gender differences in Norway are also striking when we consider how girls and boys are distributed on the different competence levels. There is a clear increase in the number of pupils on the lowest levels and a corresponding drop in the proportion of pupils on the highest levels among both genders from 2000 to 2006. The proportion of girls on the two highest levels has dropped from 43 per cent in 2000 to 33 per cent in 2006. For boys, 23 per cent of them scored on level 1 or lower in 2000, while in 2006 this applied to 29 per cent of the boys.

In 2000, Norwegian pupils were among those who least enjoyed reading of the OECD countries. Norwegian boys are the ones who are the least positive of all. Finnish girls excel by being the most positive of all. The correlation between reading scores and attitudes to reading is significantly positive (Lie et al. 2001). In 2006, 40 per cent of the Norwegian boys respond that they do not read for enjoyment, and the decline from 46 per cent in 2000 is significant. There is no significant change among the girls' attitudes to reading from 2000 to 2006. Boys

Table 3.8: Average science scores for 15-year olds and proportions on the different levels in the PISA study in 2006.

Country	Average deviation	Average	Standard deviation
Finland	563	(2,0)	86
Canada	534	(2,0)	94
Japan	531	(3,4)	100
New Zealand	530	(2,7)	107
Australia	527	(2,3)	100
Netherlands	525	(2,7)	96
Korea	522	(3,4)	90
Germany	516	(3,8)	100
Great Britain	515	(2,3)	107
Czech Republic	513	(3,5)	98
Switzerland	512	(3,2)	99
Austria	511	(3,9)	98
Belgium	510	(2,5)	100
Ireland	508	(3,2)	94
Hungary	504	(2,7)	88
Sweden	503	(2,4)	94
OECDs average	500	(0,5)	95
Poland	498	(2,3)	90
Denmark	496	(3,1)	93
France	495	(3,4)	102
Iceland	491	(1,6)	97
USA	489	(4,2)	106
Slovakia	488	(2,6)	93
Spain	488	(2,6)	91
Norway	487	(3,1)	96
Luxembourg	486	(1,1)	97
Italy	475	(2,0)	96
Portugal	474	(3,0)	89
Greece	473	(3,2)	92
Tyrkey	424	(3,8)	83
Mexico	410	(2,7)	81

Source: Kjærnsli et al. 2007.



have become slightly more positive to reading activities, while there are no changes among girls.

Scientific literacy in PISA

The natural science tests in PISA measure the competence of pupils to utilise natural science theories, models and concepts. They must also demonstrate that they are able to interpret, assess and comment on natural science texts. In terms of content, the PISA natural science tests are generally focused on the subjects of biology, physics and chemistry, but some questions also touch on geography and geology. The Norwegian pupils score slightly better on questions on geography and geology than the other natural science subjects.

Table 3.8 shows that Finnish pupils score best of all the countries in the PISA study in natural science, but apart from this none of the other Nordic countries stand out for their good results. Sweden and Denmark lie close to the OECD average. Iceland lies 9 points below the OECD average. Norwegian pupils, with an average score of 487 points, score 13 points below the OECD average in natural science.

Six achievement levels are defined in scientific literacy as shown in the horizontal bar graph in Table 3.8. On average, 29 per cent of pupils in the OECD countries and 23 per cent of Norwegian pupils are on level 4 or better. A total of 21 per cent of pupils in Norway are on level 1 or lower. In Finland, only 4 per cent of the pupils have scores on level 1 in the natural science test in PISA 2006.

Scientific literacy measures how natural scientific knowledge is used in practice and in relation to information on the subject. The tasks require that the pupils have natural science knowledge and that they can use it and reason with it in concrete situations described in the text. Scientific literacy in the PISA study is divided into three competence areas: 1) explaining phenomena scientifically, 2) identifying natural science issues and 3) using natural science evidence. Finland excels with high scores in each of these fields, and together with Iceland they score higher on producing natural science proof than they do in the other areas. The other Nordic countries have their lowest scores in producing natural science proof when compared with the other two areas.

Gender differences in scientific literacy in PISA

Gender differences in scientific literacy appear as fairly small and insignificant in the OECD countries, but some countries have large differences between the scores of boys and girls. Great Britain has particularly large differences in favour of boys, while the girls especially score highest in Greece and Turkey. Boys perform better than girls when it comes to facts about natural science, concepts and laws in natural science. On the international level girls appear to be better than boys when it comes to distinguishing the types of issues natural science can answer, and questions natural science cannot study, such as ethical or aesthetic issues. Boys know more natural science, but the girls understand more of what it involves, to put it in a simple way (Kjærnsli et al. 2007).

The results among boys and girls in natural science in the Nordic countries generally follow the international trend. Finland, which in total appears as a country with insignificant gender differences in natural science overall, is one of the countries with the greatest variation in gender differences across different natural-science areas (Kjærnsli et al. 2007).

Over the most recent decades, girls in Norway have obtained strong academic achievements in relation to boys in school. Girls generally achieve better grades than boys in all the subjects in primary and lower secondary school. This also applies to natural science. However, in international studies this effect has not appeared earlier. In Norway, this time around the girls have caught up with the boys on scores in natural science. In addition to a lasting trend favouring girls, this must be considered in view of the fact that the PISA study attaches substantial importance to aspects of the subject where girls score particularly well. In Norway, boys score substantially higher than girls in geo subjects and physics/chemistry, while girls score slightly better in biology topics and far better than boys in knowledge about natural science (Kjærnsli et al. 2007).

Mathematics in PISA

The purpose of the mathematics tests in the PISA study is to assess how the pupils are able to use their mathematical competence in a number of realistic situations.

The results in mathematics as they appear in Table 3.9 show some of the same trends as for reading and natural science. Finland is the undisputed leader, followed by Korea, the Netherlands, Switzerland and Canada.

Icelandic, Danish and Swedish pupils score higher than the OECD average, but only the Swedish pupils score significantly higher. The spread in mathematics results for Norway; it is the largest in the Nordic countries and just as high as the OECD average.

The PISA study shows a continuous decline in mathematics achievements of Norwegian pupils during the period from 2000 to 2006. This decline is small from one point of time to the next, but when the period is considered as a whole, a negative trend is quite clear. The Norwegian achievement, not being significantly different from the OECD in the first studies, has fallen significantly below the average in the OECD countries in 2006. Also the TIMSS study (Grønmo et al. 2004) showed that the drop in mathematics was very large from 1995 to 2003 for pupils in Year 8; therefore, this downward trend cannot simply be ignored. Compared to the other Nordic countries, the Norwegian results are clearly the weakest.

The horizontal bar graphs in Table 3.9 show the proportion of pupils on the various levels of the mathematics scale. In general, countries that achieve well on average also have low proportions of pupils on or below level 1. This figure clearly shows how the different spread in countries appear on the levels.

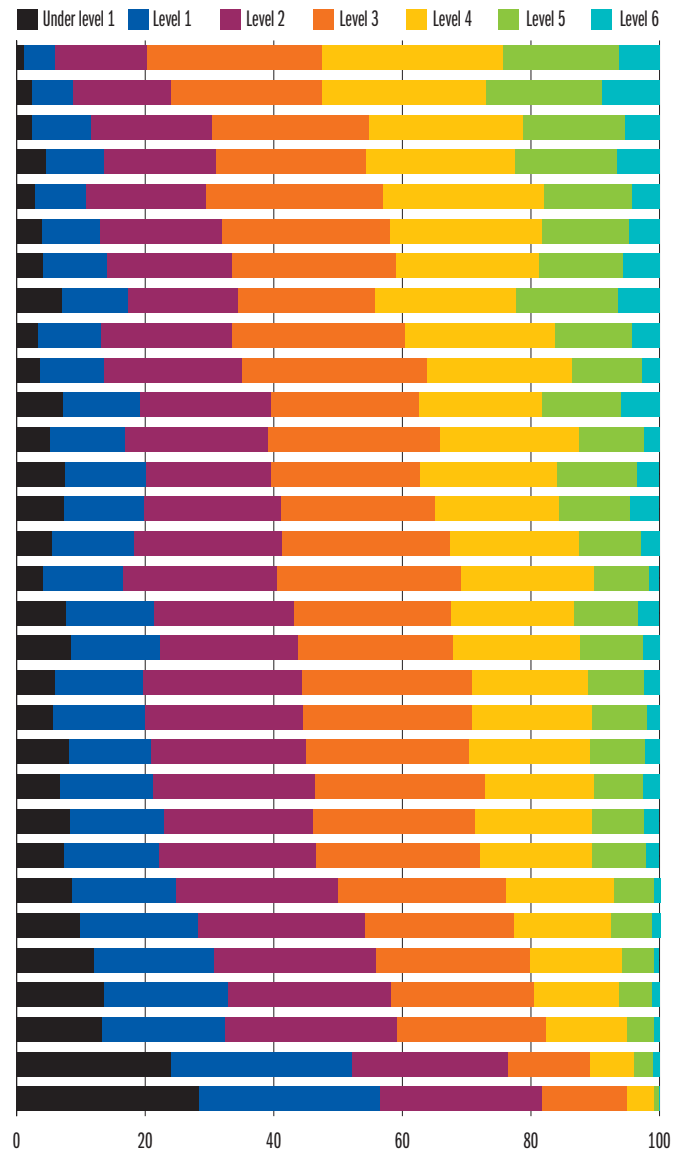
Finland and Korea, both performing very well, differ by Korea having a far greater proportion of pupils on the highest level than Finland. Thus Korea succeeds particularly well in developing pupils on a very high level combined with a high average and a low proportion of pupils on the lowest levels. Finland succeeds particularly well in having few pupils achieving poorly while the average is very high.

In general, the graph in Table 3.9 shows that all the Nordic countries have relatively few pupils on the two highest levels compared to the countries immediately above or below in the figure. This is because the Nordic countries generally have relatively low spreads. From an education-policy perspective, it is particularly interesting that the proportion of pupils on the lowest levels relates more strongly to the average for a country than the proportion of pupils on the highest levels. Thus, the comparison across countries suggests that the countries that succeed particularly well with the weakest pupils also succeed in attaining good average achievements.

The Norwegian proportion of pupils at the lowest levels is very close to the OECD average. The reason why the Norwegian average score is lower than the OECD is because of a relatively lower proportion on the upper levels in Norway. In a discussion on the type of mathematical competence needed in a country, there should, on the one hand, be a system that ensures that as many pupils as possible attain basic competence in mathematics. On the other hand, it is reasonable to claim that if the aim is to recruit young people to a specialised career in a science field, then the proportion of pupils on high levels may possibly be an even more relevant indicator. What PISA in general shows, is that it is not necessarily the case that the one aspect comes at the expense of the other (Kjærnsli et al. 2007).

Table 3.9: Average mathematics score for 15 year olds and proportions on the different levels in the PISA study in 2006.

Country	Average deviation	Average	Standard deviation
Finland	548	(2,3)	81
Korea	547	(3,8)	93
Netherlands	531	(2,6)	89
Switzerland	530	(3,2)	97
Canada	527	(2,0)	86
Japan	523	(3,3)	91
New Zealand	522	(2,4)	93
Belgium	520	(3,0)	106
Australia	520	(2,2)	88
Denmark	513	(2,6)	85
Czech Republic	510	(3,6)	103
Iceland	506	(1,8)	88
Austria	505	(3,7)	98
Germany	504	(3,9)	99
Sweden	502	(2,4)	90
Ireland	501	(2,8)	82
OECDs average	498	(0,5)	92
France	496	(3,2)	96
Great Britain	495	(2,1)	89
Poland	495	(2,4)	87
Slovakia	492	(2,8)	95
Hungary	491	(2,9)	91
Luxembourg	490	(1,1)	93
Norway	490	(2,6)	92
Spain	480	(2,3)	89
USA	474	(4,0)	90
Portugal	466	(3,1)	91
Italy	462	(2,3)	96
Greece	459	(3,0)	92
Tyrkey	424	(4,9)	93
Mexico	406	(2,9)	85



Source: Kjærnsli et al. 2007.

The detailed profile of mathematics achievements for Norwegian pupils in 2006 is quite similar to the one from 2003. Norwegian pupils do relatively well in tasks tied to practical probability calculation and statistics, but they do not perform as well in the other fields. Kjærnsli et al. (2007) point out that it is a particular concern that Norwegian pupils perform poorly when dealing with numbers, a characteristic of the mathematical competence of Norwegian pupils that was even more obvious in the TIMSS study (Grønmo et al. 2004, Lie et al. 1997).

Gender differences in mathematics in PISA

Gender differences in mathematics favour boys in all the OECD countries, with Iceland as the only exception. The gender differences in Norway are small. Gender differences are also related to some particular tasks, which makes it difficult to give a clear and also general description of what these differences between boys and girls actually are.

The importance of the pupils social background for the PISA results

In Norway and in the other Nordic countries, the differences in pupil scores from one school to another are small in an international context. Norwegian pupils have very favourable home backgrounds, and the spread in the indicator for a family's economic, social and cultural status (ESCS) is smaller in Norway than what it typically is in other OECD countries. The relation between ESCS and the achievements of Norwegian pupils in the PISA study in 2006 are, moreover, weaker in Norway and the other Scandinavian countries than this relation is on average in the OECD area (Kjærnsli et al. 2007).

3.5 Analyses of the grade statistics for Year 10

In this section we present results from the grade statistics for pupils leaving lower secondary school in the spring of 2007. The cohort completing Year 10 in 2007 is the only cohort that has received their whole primary and lower secondary school education from Year 1 to Year 10 pursuant to L97 (the 1997

curriculum reform), since a new reform was implemented from 2006.

Completing 10 years of primary and lower secondary school, pupils receive overall achievement grades in 13 subjects, and all pupils in lower secondary school must sit for two final examinations, one written and one oral. The overall achievement grades are intended to indicate a pupil's broad competence based on the learning goals of the curriculum. The written final examination represents an assessment of a single written product by the pupil, prepared in limited time with restrictions on aids. At the oral final examination, the pupil must document his or her competence in the subject in a dialogue with an external examiner and the subject teacher, and the pupil may supplement and correct answers. Subjects in lower secondary school are assessed starting in Year 8 using a grade scale from 1 to 6, where six is the best grade.

Table 3.10 shows almost no changes in the overall achievement grades among pupils leaving Year 10 of lower secondary school from 2002 to 2007. There has, however, been a small increase of 0.1 grade points in several subjects. Variations in the grade level between subjects cannot be interpreted as expressions of real variations in pupil's competence in different subjects.

There have been small changes in the grade level on both the oral and written final examinations in the period 2002 to 2007. A comparison of Table 3.10 and Table 3.11 shows that the grade level is lower on the written final examination than for the overall achievement grade. In the overall achievement grade in written English, pupils on average received a grade of 3.8, while the grade awarded on the final examination in English averaged 3.6.

The oral final examination is locally assigned. Grades awarded for oral final examinations are typically better than the overall achievement grades pupils receive. The overall achievement grade given in oral English was on average 4, while the same

Table 3.10: Average overall achievement grades for pupils leaving lower secondary school, 2002 to 2007, by subject.

Subject	2002	2003	2004	2005	2006	2007
Norwegian first-choice language and first language, written	3,8	3,8	3,8	3,9	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	4,0
Norwegian second-choice language and second language, written	3,6	3,6	3,7	3,7	3,7	3,7
English oral	4,0	4,0	4,0	4,0	4,0	4,0
English written	3,7	3,7	3,7	3,8	3,8	3,8
Mathematics	3,4	3,5	3,5	3,5	3,4	3,4
KRL (Christianity, religion and ethics)	3,9	4,0	4,0	4,0	4,0	4,0
Natural science and environmental subjects	3,9	3,9	3,9	4,0	3,9	3,9
Social studies	4,0	4,0	4,0	4,1	4,0	4,0
Physical education	4,3	4,3	4,4	4,4	4,4	4,4
Music	4,1	4,2	4,2	4,3	4,2	4,2
Home economics	4,3	4,3	4,4	4,4	4,4	4,4
Arts and crafts	4,2	4,2	4,2	4,2	4,2	4,2

Source: The Norwegian Directorate for Education and Training.

Table 3.11: Average grades on written final examinations in lower secondary school, 2002 to 2007, by subject.

Subject	2002	2003	2004	2005	2006	2007
Norwegian first-choice language and first language, written	3,6	3,6	3,7	3,6	3,6	3,6
Norwegian second-choice language and second language, written	3,3	3,3	3,3	3,3	3,3	3,4
English written	3,5	3,5	3,6	3,6	3,6	3,6
Mathematics, written	3,3	3,3	3,2	3,1	3,1	3,1

Source: The Norwegian Directorate for Education and Training.

pupils were given an average grade of 4.3 on the final examination in oral English.

There are clear differences between the grades received by boys and girls on their overall achievement grades and final examination grades. Girls on average receive better overall achievement grades than boys in all subjects apart from physical education. These gender differences have continued during the period 2002–2007, which are the years with national statistics for pupils leaving lower secondary school in Norway.

Primary and lower secondary school points 2002–2007

In 2007, the calculation of points calculated from the grades given in lower secondary school was changed. See Gravaas et al. (2008) for a more detailed description of the basis for calculation.

Table 3.12 shows that in 2007, pupils attained 44.2 lower secondary school points when the total was calculated in the old way, and 39.6 points when using the new method. The attained primary and lower secondary school points according to the new calculation method are on average 4.6 points lower. Pupils' lower secondary school points have increased by 0.8 points from 2002 to 2007. This generally is related to the fact that some subjects have increased by 0.1 grade points during this period.

In 2007, girls attained on average 4.1 lower secondary school points more than boys when calculated in the old way and 3.8

Table 3.12: Average lower secondary school points, 2002 to 2007. All. Girls and boys.

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
2007	44,2	46,3	42,2
Ny beregningsmåte 2007	39,6	41,6	37,8

Source: Gravaas et al. 2008.

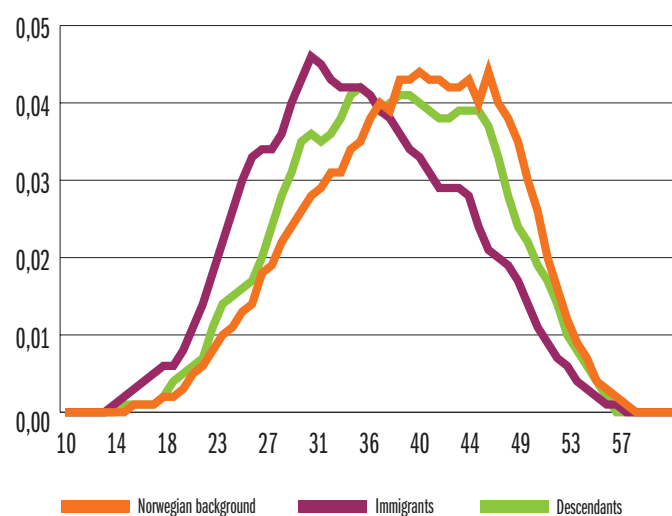
points when the new method was used. The total lower secondary school points achieved by boys, on the other hand, has increased slightly more than the total for girls from 2002 to 2007 regardless of which calculation method is used.

Lower secondary school points according to gender and family background

Figure 3.6 shows that a higher proportion of immigrants than descendants of immigrants and pupils with a Norwegian background have low points from lower secondary school. The curve for pupils with Norwegian backgrounds is skewed to the right, which means that there are more pupils with high lower secondary school point scores here. Descendants of immigrants are found in the middle between the group of immigrants (first-generation) and pupils with a Norwegian background.

In their analysis of grade data from 2007, Gravaas et al. (2008) find that the negative effect of a pupil's immigrant background does not apply to all types of immigrants and in all subjects. This picture is clearer when distinguishing between immigrants from Western and from non-Western countries.

Figure 3.6: Distribution of lower secondary school points by immigrant background.⁶



Source: Gravaas et al. 2008.

⁶ The distribution is shown as a density graph, i.e. that the graph evens out some minor variations in the distribution of lower secondary school points. The figure gives a graphic picture of the distribution of lower secondary school points for the different groups, rather than providing detailed information about the proportion of pupils with a given number of lower secondary school points.

Table 3.13: Lower secondary school points achieved in 2007, according to gender, parents' education and immigrant background.

Pupils' gender and parents' education level	Total	First-generation immigrant	Descendant of immigrants	Norwegian background
Boys and girls	39,6	35,5	38,4	39,9
Grunnskole	34,1	34,3	35,8	33,8
Videregående, grunntdanning	36,9	36,0	37,9	36,8
Videregående, avsluttende utdanning	38,1	37,6	39,0	38,1
<= 4 år høyere utdanning	42,5	38,7	40,9	42,6
> 4 år høyere utdanning	45,6	44,5	43,7	45,6
Boys	37,8	33,6	36,9	38,0
Primary and lower secondary school	32,3	33,3	34,0	32
Upper secondary, basic education	34,8	31,3	36,0	34,8
Upper secondary, final education	36,1	35,1	37,4	36,1
<= four years of higher education	40,6	36,6	39,2	40,7
> four years of higher education	44,0	41,4	42,0	44,1
Girls	41,6	37,5	40,0	41,8
Primary and lower secondary school	35,9	35,7	37,4	35,7
Upper secondary, basic education	38,9	39,6	40,2	38,9
Upper secondary, final education	40,2	39,9	40,6	40,2
<= four years of higher education	44,4	41,5	42,9	44,5
> four years of higher education	47,3	47,2	45,8	47,3

Source: Gravaas et al. 2008.

Table 3.13 shows differences in average lower secondary school points by gender, immigrant background or Norwegian background, and parents' level of education. We find the largest difference (15 points) between immigrant boys whose parents have education on the primary and lower secondary school level, and girls with Norwegian backgrounds whose parents have higher education of more than four years. It is interesting that among pupils having parents without higher education, descendants of immigrants perform better than pupils with Norwegian backgrounds and first-generation immigrants.

For all groups of pupils, mothers' education has a slightly stronger positive impact on pupil grades than fathers' education. It has a positive and significant effect on the results of the pupils in all subjects if the parents are married or cohabitants, (Gravaas et al. 2008). Lauglo (2008) confirms and elaborates on this picture with references to international literature and Norwegian analyses. The pupils, cultural capital measured by parental education level or the number of books in the home, is a strong explanatory factor for the social differences in school achievements, Lauglo (2008) links the importance of family structure for pupil results to the pupils social capital (social networks), which appears to be an important dimension when it comes to explaining differences in school achievements, perhaps particularly in the Nordic countries among the Western countries.

3.6 Grades in upper secondary school

Pupils in upper secondary school receive overall achievement grades on completion of each school year and examination grades in some subjects. Grades express the competence achievement in relation to subject specific curricula. From

2007 on, the assessment scale has 1 as the lowest grade and 6 as the best grade. Before 2007 the grade scale went from 0 to 6. The subject has been passed if the grade is 2 or better.

The grade statistics in upper secondary education comprise the 15 areas of study within the L94 reform and the 12 study programmes within the latest reform, KP06, in addition to a very high number of subjects. The composition of classes from one subject to the next also varies a great deal. Due to the broad scope of data material for upper secondary education, we will here only present grade statistics for some major subjects.

In upper secondary education, it is also possible to examine the significance of a pupil's earlier school achievements for their results. Analyses of the data set for 2006 show a strong impact of grades achieved in Year 10 on grades in upper secondary school. In general, a subject grade from lower secondary school is a good indicator for grades in similar subjects in upper secondary school. Both grade levels and differences between pupil groups display a high level of stability from one year to the next (Hægeland et al. 2007).

In total, girls achieve better grades in upper secondary school than boys do. The general picture in 2006 was that girls achieved between 0.2 and 0.4 higher grade points than boys in general studies programmes, and 0.1 to 0.4 higher grade points in vocational programmes (Hægeland et al. 2006).

In Table 3.14, some subjects have been selected from the general studies programme in Year 11 (Vg1) from 2007. This is the first year of pupils receiving education pursuant to the new reform, Knowledge Promotion Reform 2006 (KP06), where we have national grade data. Only overall achievement grades are

Table 3.14: Average overall achievement grades in selected subjects in programmes for specialisation in general studies in Vg1. 2007. All. Girls and boys.

Subject in Vg1	Total	Girls	Boys
English	4,0	4,1	4,0
Practical mathematics	3,2	3,3	3,1
Theoretical mathematics	3,8	3,9	3,7
Norwegian first-choice language, written	3,9	4,0	3,7
Norwegian first-choice language, oral	4,2	4,3	4,0

Source: The Norwegian Directorate for Education and Training/VIGO.

given in these subjects in KPO6. The old curriculum, L94, required examinations in English and Mathematics after the first year in upper secondary school, while the new plan does not require a final examination in these subjects until the completion of Year 12 (Vg2).

According to table 3.14 the overall achievement grade in the new English subject in Year 11 is 4.0, with girls score 4.1 and boys 4.0. In comparison, the achieved average overall achievement grade in English was 3.9 from 2004 to 2006 under the L94 curriculum, where girls achieved overall achievement grades of 4.0 and boys 3.8.

In the Mathematics variant called 1MY in Year 11 in upper secondary school under the L94 curriculum, the average overall achievement grade was 2.8 from 2004 to 2006.

In the practical Mathematics the average overall achievement grade was 3.2 at 2007, under KPO6. For the theoretical variant of Mathematics (1MX) there is a small drop in the grade level from 3.9 at 2006 to 3.8 at 2007, but the difference is so small that it may be an incidental shift from one year to the next.

Norwegian language, both written and oral, is the subject where gender differences in grades are largest among the three key school subjects in Year 11, as shown in Table 3.14. The difference amounts to 0.3 grade points in favour of girls. In comparison, the gender difference in written Norwegian language in lower secondary school is 0.6 grade points.

There are larger differences in the average grade in written Norwegian between boys and girls in vocational education programmes in Year 11 than in general studies programmes. In English and Mathematics there is, respectively, no difference and a small gender difference between boys and girls in the vocational programme in Year 11, while the gender difference in Natural science amounts to 0.3 grade points, again in favour of girls.

In selected subjects from common core programme subjects in Year 11 for the two large vocational programmes Service and transport (Norwegian abbreviation SSA) and Technical and industrial production (Norwegian abbreviation TIP), gender differences are generally large in SSA subjects and slightly smaller and more varying in the TIP subjects. In the SSA subjects, gender differences are between 0.5 and 0.7 grade

Table 3.15: Average overall achievement grades in selected vocational subjects in Vg1. 2007. All. Girls and boys.

Subject in Vg1	Total	Girls	Boys
English	3,4	3,4	3,4
Mathematics	3,0	3,1	3,0
Norwegian written	3,5	3,7	3,3
Norwegian oral	3,6	3,7	3,5
Natural science	3,3	3,5	3,2
SSA Planning	3,4	3,7	3,2
SSA Operations and follow-up	3,4	3,7	3,1
SSA Communication and service	3,6	3,9	3,2
TIP Production	3,5	3,6	3,5
TIP Technical services	3,4	3,6	3,3
TIP Documentation and quality	3,4	3,8	3,4

Source: The Norwegian Directorate for Education and Training/VIGO.

points, while in the TIP subjects they vary between 0.1 and 0.4 grade points, and then in favour of girls. In the education programme Service and transportation, 47 per cent of the pupils are girls, while only 11 per cent of the pupils in Technical and industrial production are girls (Gravaas et al. 2008).

Overall achievement and examination assessment in Year 13 of upper secondary school

From 2005 to 2007 there are small changes in grades at Year 13 for the general studies areas. In 2007, the pupils who have been leaving school after three years in upper secondary school have followed the old L94 curriculum.

Table 3.16 shows that the grade level is lower for written examinations than overall achievement grades. The largest difference between overall achievement grades and examination results is in Biology and Social science. In these subjects, pupils received on average a 0.7 points lower grade on their examination than their overall achievement grade.

Table 3.16: Average overall achievement grades and examination grades in selected subjects in the third year of upper secondary school from areas of study qualifying for higher education (the old VK2), 2005 to 2007.

Subject in Year 3	Overall achievement grade			Examination		
	2005	2006	2007	2005	2006	2007
Norwegian first-choice language, written	3,7	3,7	3,8	3,3	3,3	3,2
Norwegian second-choice language, written	3,4	3,5	3,5	3,1	3,1	3,1
English II (alt. A), written	3,9	3,9	3,9	3,3	3,2	3,3
Physics (3FY), written	4,0	4,0	4,0	3,6	3,6	3,5
Chemistry (3KJ), written	4,1	4,0	4,0	3,6	3,4	3,3
Biology (3BI), written	3,9	3,9	3,9	3,3	3,4	3,2
Social studies (3SK-A), written	3,8	3,8	3,9	3,5	3,3	3,3
Social studies (3SK-B), written	3,8	3,8	3,9	3,4	3,3	3,2
Mathematics (3MX), written	4,0	3,9	3,9	3,5	3,4	3,4
Mathematics (3MZ), written	3,6	3,5	3,6	3,2	3,1	3,2

Source: The Norwegian Directorate for Education and Training/VIGO.

Table 3.17: Average examination grades in selected subjects in the third year of upper secondary school from areas of study qualifying for higher education (the old VK2), 2005 to 2007. Girls and boys.

Subject in Year 3	Girls			Boys		
	2005	2006	2007	2005	2006	2007
Norwegian first-choice language, written	3,4	3,4	3,2	3,2	3,1	3,1
Norwegian second-choice language, written	3,2	3,3	3,2	3,0	3,0	3,0
English II (alt. A), written	3,3	3,2	3,3	3,3	3,1	3,3
Physics (3FY), written	3,6	3,8	3,7	3,5	3,5	3,4
Chemistry (3KJ), written	3,7	3,4	3,2	3,6	3,4	3,4
Biology 3BI, written	3,3	3,4	3,3	3,2	3,2	3,0
Social studies (3SK-A), written	3,5	3,4	3,4	3,4	3,1	3,2
Social studies (3SK-B), written	3,5	3,4	3,4	3,1	3,1	2,9
Mathematics (3MX), written	3,7	3,5	3,6	3,2	3,3	3,2
Matematics (3MZ), written	3,3	3,3	3,5	3,0	2,8	2,9

Source: The Norwegian Directorate for Education and Training/VIGO.

Table 3.17 shows slightly smaller gender differences in Year 15 on the written examination in Norwegian language in Advanced Course in general studies areas in 2007 than in previous years. In English in Year 13, there are no or small gender differences in pupil grades from 2005 to 2007.

In Physics in Year 13, girls have better results than boys, but in Chemistry, boys have better results than girls. In mathematics in Year 13, girls have far better results than boys, and this also applies to social studies. In the PISA study, Norwegian boys score better than girls in Physics and Mathematics. The reason why differences between boys and girls in these subjects go in the opposite direction is probably because girls are more

strongly selected than the boys. There are far fewer girls taking Physics and Mathematics in Year 13 than boys, and these pupils are often called specialists in Physics and Mathematics in upper secondary education.

The importance of pupil gender and family background

Table 3.18 shows the average overall achievement grade of pupils in written Norwegian in programmes for specialisation in general studies by gender, social background and immigrant background. There are clear differences in the average grades of pupils by parents' educational level, a difference amounting to 0.9 grade points. The difference between girls and boys is 0.3 grade points, the same as the difference between immigrants and pupils with Norwegian backgrounds.

The difference in results between immigrant boys whose parents have less or only lower secondary school and girls with Norwegian background and parents with higher university education is 1.3 grade points for the overall achievement grade in written Norwegian in Year 13.

Pupils with Norwegian backgrounds have the best results in written Norwegian, first-generation immigrants have the lowest average grades and descendants have results approximately in the middle between the two other groups. A regression analysis shows that when the family background is the same, gender differences in written Norwegian are 0.4 grade points when checked for other characteristics of the pupils, while differences between immigrants and pupils with Norwegian backgrounds are reduced to 0.2 grade points when checked for gender and parents' education levels (Gravaas et al. 2008).

Table 3.18: Average overall achievement grades in Norwegian first-choice language in the third year of upper secondary school (the old VK2) in areas of study qualifying for higher education, according to gender, parents' education and immigrant background 2007.

Pupil gender and parental education level	Total	First-generation immigrant	Descendant of immigrant	Norwegian background
Boys and girls	3,8	3,5	3,6	3,8
Primary and lower secondary school	3,3	3,2	3,4	3,4
Upper secondary, basic education	3,6	3,2	3,5	3,6
Upper secondary, final education	3,6	3,4	3,4	3,6
<= four years of higher education	3,9	3,6	3,8	3,9
> four years of higher education	4,2	4,3	4,0	4,2
Boys	3,6	3,3	3,4	3,6
Primary and lower secondary school	3,1	3,1	3,3	3,1
Upper secondary, basic education	3,3	3,1	3,0	3,3
Upper secondary, final education	3,3	3,1	3,1	3,3
<= four years of higher education	3,7	3,5	3,5	3,7
> four years of higher education	4,0	3,9	3,8	4,0
Girls	3,9	3,6	3,7	3,9
Primary and lower secondary school	3,4	3,3	3,5	3,5
Upper secondary, basic education	3,7	3,3	3,9	3,7
Upper secondary, final education	3,7	3,6	3,5	3,7
<= four years of higher education	4,0	3,7	4,0	4,0
> four years of higher education	4,4	4,5	4,1	4,4

Source: Gravaas et al. 2008.

Table 3.18 also shows that immigrant girls whose parents have higher university education are the pupils who achieve the best overall achievement grades in written Norwegian of all the pupils in general studies in Year 13. Immigrant girls with Western backgrounds whose parents have higher university education lift this average. The average overall achievement grade is 4.7 for those girls in written Norwegian.

3.7 Results from vocational education

Vocational education is completed with the approval of the craft or journeyman's certificate/competence examination in the subject of choice. In this section we present results from craft or journeyman's certificate examinations for apprentices. Chapter 5 explains in more detail completion rates in upper secondary education in total.

The journeyman's certificate examination is graded as "very good", "passed" or "failed", reports to VIGO do not provide the basis for distinguishing between "very good" "passed", for all the counties. For this reason only the proportion that has passed is presented.

In 2007, 18 996 persons sat for a craft or journeyman's certificate examination, and of these 93 per cent passed. Table 3.19 shows that in 2007, the highest number of craft or journeyman's certificate examinations was held in Rogaland and the lowest number was in Finnmark. The highest pass rates

Table 3.19: Percentage that passed the journeyman's and craft certificate examinations in 2007, by county.

County	Proportion passed	Number sitting for an exam
Total	93,1	18 996
Østfold	91,8	905
Akershus	94,1	1 124
Oslo	88,0	824
Hedmark	94,9	745
Oppland	94,1	811
Buskerud	91,9	745
Vestfold	92,5	772
Telemark	94,3	668
Aust-Agder	94,7	551
Vest-Agder	97,4	885
Rogaland	93,7	2 211
Hordaland	91,0	2 111
Sogn og Fjordane	95,7	516
Møre og Romsdal	94,9	1 195
Sør-Trøndelag	94,5	1 188
Nord-Trøndelag	94,6	663
Nordland	90,2	1 040
Troms	92,4	706
Finnmark	90,2	41
Not stated	92,6	1 295

Source: Statistics Norway.

Table 3.20: Journeyman's and craft certificate examinations and the proportion that passed in percentage of those sitting for examinations in 2007.

Year	Number sitting for exams	Number passed	Percentage of passes
2001	20817	19340	92,9
2002	20029	18584	92,7
2003	19165	17736	92,5
2004	18301	16917	92,4
2005	18597	17185	92,4
2006	18415	17146	93,1
2007	18996	17694	93,1

Source: Statistics Norway.

were found in the counties of Vest-Agder and Sogn og Fjordane, and lowest in Oslo.

Table 3.20 shows that 17 694 persons have passed a craft or journeyman's certificate examination in 2007, which is 552 higher than in 2006. There is virtually no change in the pass rate in the period from 2001 to 2007.

Table 3.21 shows that more than twice the number of boys compared to girls sit for craft or journeyman's certificate examinations. However, there are minor differences between boys and girls when it comes to the proportion that passed the craft or journeyman's certificate examination in 2007.

Table 3.22 shows that there are major differences in the number of craft or journeyman's certificate examinations held in the various trades. In 2007, the lowest number was arranged in Design and crafts, Building and construction, Media and communication, Chemistry and processing and Wood processing. The highest number of examinations was in Metalworking. Of all craft or journeyman's certificate examinations held, 21 per cent were in Metalworking. The proportion of apprentices passing the craft or journeyman's certificate examination is high in most trades. In Chemistry and processing, 98 per cent of the apprentices pass, while the pass rate is 96 per cent in wood processing. The lowest proportion of passes is in Building and construction, where only 73 per cent have passed the craft or journeyman's certificate examination in 2007. In Design and crafts, 85 per cent have passed, and in Technical building and construction, 86 per cent have passed.

Table 3.21: Journeyman's and craft certificate examinations 2001 to 2007, and the proportion that passed in percentage of those who sat for examinations by gender.

Year	Number sitting for exams	Number passed	Percentage of passes
Boys	13 161	12 312	93,5
Girls	5 835	5 382	92,2

Source: Statistics Norway.

7 The vocational training includes training where the two last years normally take place in a company. Other vocational training taking place in a school in its entirety is not included here.

Table 3.22: Journeyman's and craft certificate examinations in 2007, by area of study and gender.

Area of study	Number sitting for an exam	Proportion passed	Proportion passed girls	Proportion passed boys
Total	18 996	93,1	92,2	93,5
General, business/administration area of study	328	95,4	88,9	95,6
Health and social care	2 885	92,5	93,4	88,3
Agriculture, fishing and forestry	366	94,5	92,4	95,4
Arts and design	1 139	84,9	84,8	88,1
Hotel and catering	1 599	92,0	93,0	90,9
Construction and building	3 163	94,0	95,5	94,0
Technical construction and building	796	85,8	86,5	85,8
Electricity and electronics	2 637	93,1	93,8	93,0
Metalworking	3 993	95,5	95,5	95,5
Chemistry and processing	147	98,0	95,0	99,1
Woodworking	175	96,0	94,1	96,5
Media and communication	136	94,1	95,7	92,4
Sales and service	1 108	95,8	96,3	94,7
Technical building	112	91,1	72,7	93,1
Design and crafts	10	100,0	100,0	100,0
Technology and industrial production	402	96,8	100,0	95,9

Source: Statistics Norway.

Table 3.22 also shows differences between boys and girls who pass in the same area of study. The largest difference between boys and girls is in Building and construction, where 93.1 per cent of boys and only 72.7 per cent of girls passed. No study has been undertaken to ascertain whether there are differences by subject among boys and girls within the same area of study.

There are different paths leading to the craft or journeyman's certificate. Pursuant to the main model (with the appropriate examinations), apprentices complete two years in upper secondary school before joining a company for practical training for two years. After completing their apprenticeship, they sit for a practical examination. The trainee scheme enables adults with long and versatile practice to sit received all their training in a school before sitting for a craft or journeyman's certificate examination.⁸

Table 3.23 shows that trainees have the highest proportion of passes on the craft or journeyman's certificate examination.

Trainees have worked in the trade for at least five years and thus have substantial experience with the trade they are taking the examination in. Apprentices, however, have almost the same proportion of passes as trainees. The proportion is lowest among pupils taking the entire education in school. There are relatively large differences between girls and boys who have taken the training in school. Girls have a far higher proportion of passes of those who have taken their training in school.

Table 3.23: Pupils, apprentices and trainees that passed the journeyman's and craft certificate examinations in 2007. All. Girls and boys.

	Apprentice	Pupil	Trainee
All	93,1	74,3	94,9
Girls	91,7	80,2	92,5
Boys	93,7	69,7	95,1
Total	11 789	378	5 527

Source: Statistics Norway.

⁸ The vocational training includes training where the two last years normally take place in a company. Other vocational training taking place in a school in its entirety is not included here.

4 The learning environment



Chapter 9a of the Education Act lays down that schools are responsible for the pupils' learning environment. This chapter, which is often called the pupils' working environment act, says: "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, well-being and learning." The Education Act distinguishes between the physical and the psycho-social environment, the underlying idea being that systematic work in school to improve the physical and psycho-social environment for the pupils can and should help foster and promote health, well-being and learning for the pupils.

The physical and psycho-social environment at school is a key element of the school's efforts to facilitate pupils' learning. Another important factor for the learning is the quality of the teaching. Facilitation of a good learning environment thus

means continuous development and improvement of the physical and psycho-social environment at school and the teaching that takes place there (see Strategy for the learning environment in primary education, lower secondary education and upper secondary education (2005-08)).

This chapter is based on the national analysis of the Pupil Survey¹ in the spring of 2007 (Furre et al. 2007). In addition to the Pupil Survey, reference is made to new reports that document and supplement circumstances that impact the pupils' learning environment.

The chapter documents that many schools still are not approved for complying with the regulations relating to environmentally focused healthcare in day-care centres and schools. A total of 5 per cent of pupils are bullied once or more every week. A total of 11 per cent feel that the education in very few or no subjects is adapted to them and a total of 18 per cent state that they receive ongoing assessment in very few or no subjects.

¹ While it is voluntary for pupils to answer the Pupil Survey, it is compulsory for the school owner and the school administration to carry out this study each spring for pupils in Year 7 and Year 10 in primary and lower secondary school and in Vg1 in upper secondary school. This applies to public schools and private schools (cf. section 2-3 in the Regulations relating to the Education Act and section 2-3 of the Regulations relating to the Private Schools Act).

The user surveys show the learning environment of pupils and apprentices

The Pupil Survey was carried out the first time during the 2001–2002 school year, and was then called the Pupil Inspectors². Since then, the Norwegian Directorate for Education and Training has undertaken a total of five user surveys: the Pupil Survey, the Parent Survey, the Teacher Survey, the Apprentice Survey and the Instructor Survey. They are included in the national quality development system (Norwegian abbreviation NKVS), which was established in 2003, and were all revised in 2006–2007. Due to the revisions, it may be difficult to study changes over time. Individually or when combined, these surveys establish an overview of the learning environment of pupils and apprentices, and are a good point of departure for reflecting upon the efforts to improve the learning environment in each school and apprenticeship company. The surveys also give the school owners and central authorities insight into and the means of conducting a school and education policy which is based on knowledge of the sector.

The response rate for the Pupil Survey in the spring of 2008 was: 86 per cent of pupils in Year 7, 79 per cent of pupils in Year 10, and 67 per cent of pupils in Vg1 (the first year in upper secondary school, now part of the new reform). In total, 289 895 pupils from Year 5 up to VK2 (the third year in upper secondary school, the last year was still under the old curriculum) responded to the Pupil Survey. This constituted 51 per cent of all the pupils in these years. A total of 153 771 of those who responded attended the three years where the school owner is under the obligation to carry out the Pupil Survey. Thus 53 per cent of the responding pupils attended Year 7, Year 10 or Vg1.

In the spring of 2007, almost 500 schools chose to hold the Teacher Survey and the Parent Survey, in addition to the Pupil Survey. Another 500 schools undertook one or the other of the Teacher Survey or Parent Survey. The response percentage varies a great deal.

The county authorities can use the Directorate's Apprentice Survey and Instructor Survey to systematically survey the learning environment for apprentices in apprenticeship companies. In the 2007–2008 school year, seven county authorities chose to undertake the Apprentice Survey and the Instructor Survey. The response rate for the counties that surveyed the learning environment for apprentices varies from 20 to 48 per cent. The response rate for the Instructor Survey on the county level varies from 0 to 30 per cent.

A report from the Norwegian Labour Inspection Authority (Deichman-Sørensen 2007) finds a great need to develop the assessment culture in apprenticeship companies. While half of all apprenticeship companies lose apprentices during the apprenticeship period of two years, only 5 per cent of them have evaluated or followed up on this.

4.1 The physical learning environment at school

Section 9a-2 in the Education Act states clearly: "Schools must be planned, built and operated so that consideration is taken of the safety, health, well-being and learning of the pupils."³

In March 2008, on behalf of the Norwegian Directorate for Education and Training, Østlandsforskning/Research Centre (Schanke et al. 2008) surveyed national and international research on the relation between school design and the learning outcomes of pupils. In their summary, the researchers point out many aspects relating to how school buildings can influence the day-to-day business of school for children and young persons. One such aspect was the size of classes. Open plan schools often have large assembly rooms for teaching more than one class at a time, while smaller group rooms are used when pupils participate more actively. Open plan schools have fewer traditional classrooms. However, there is no scientific data to help us to determine if one design or another is better. Other factors affecting the learning environment are more important, particularly the teachers and parents. If the school structure is to function, teachers and parents must agree on the design of the school building.

The experiences gained by the Norwegian Directorate for Education and Training's counselling service for school facilities, <http://skoleanlegg.utdanningsdirektoratet.no>, correspond well with the summary provided by the research centre. They also conclude that the requirement for a successful school facility is that users are included in the planning process when planning, building and renovating a school.

The analysis of the Pupil Survey (Furre et al. 2007) shows that 55 per cent of the pupils are satisfied or very satisfied with the school library and the cleaning. A total of 50 per cent are satisfied or very satisfied with the outdoor area at school. More than 25 per cent are not very satisfied with the school building, locker rooms and showers, toilets and the air in the classrooms. A larger proportion of pupils at small schools state that they are satisfied with locker rooms and showers and the cleaning than pupils at large schools.⁴

The Office of the Auditor General of Norway has surveyed how the local authorities administer their school buildings, concluding that many primary and lower secondary school buildings are in unsatisfactory condition, and that many schools violate laws and regulations that apply to the physical school environment (Riksrevisjonen 2005).

The Ministry of Education and Research and the Ministry of Health and Care Services have recently undertaken a study of the school environment at all primary and lower secondary schools and upper secondary schools in Norway (TNS gallup 2008). The study's point of departure was the requirement that all schools must be approved pursuant to the regulations relating to environmentally focused healthcare in day-care centres and schools. The regulations set standards for the indoor climate, sanitary conditions, cleaning and maintenance.

2 In the spring of 2006, the name was changed to the Pupil Survey.

3 Apprentices and trainees are employed in a company. Section 9a does not apply to them, but they come under the Working Environment Act.

4 Small schools have from 1 to 215 pupils; large schools have more than 407 pupils (Furre et al. 2007)..

A total of 70 per cent of the municipalities chose to respond to the survey. They are responsible for 68 per cent of the schools in Norway, and the survey shows that half of these schools are approved pursuant to the regulations. A total of 20 per cent of the schools have temporary approvals, meaning that there are matters that must be rectified before the school satisfies all the requirements in the regulations. A total of 30 per cent are not approved, either because they do not satisfy the requirements or because they have not been assessed.⁵

Following the survey, the Ministry of Education and Research sent letters to county governors and the local authorities emphasizing the fact that all pupils have the right to a good physical school environment. In the autumn of 2009, a new survey will be conducted to check that the local authorities have addressed issues raised by the results.

A study from the International Centre for Indoor Environment and the Energy Department of Mechanical Engineering at the Technical University of Denmark shows that the indoor climate impacts pupils' learning. The study registered possible relations between pupil learning and changes in ventilation and temperature in the classroom.⁶ The pupils who participated in the study were from 10 to 12 years of age, and their learning was measured according to how quickly they solved tasks and how many mistakes they made while engaged in ordinary schoolwork. In the summer the results were substantially better when the temperature was reduced from approximately 25° C to 20° C. Similarly, results improved substantially in winter when the amount of air in the ventilation was increased from approximately 4 to approximately 10 litres per second per person (Wargocki et al. 2006).

4.2 The psycho-social learning environment at school

Section 9a-3 of the Education Act states: "If any person employed by the school learns or suspects that a pupil is subjected to insulting words or acts such as bullying, discrimination, violence or racism, this person must without undue delay investigate the matter and inform the school administration, and if necessary and possible, personally and directly intervene."

Many schools have introduced measures to counteract bullying and problem behaviour, and pupil respondents to the Pupil Survey provide answers as to whether there is bullying and discrimination in their school.

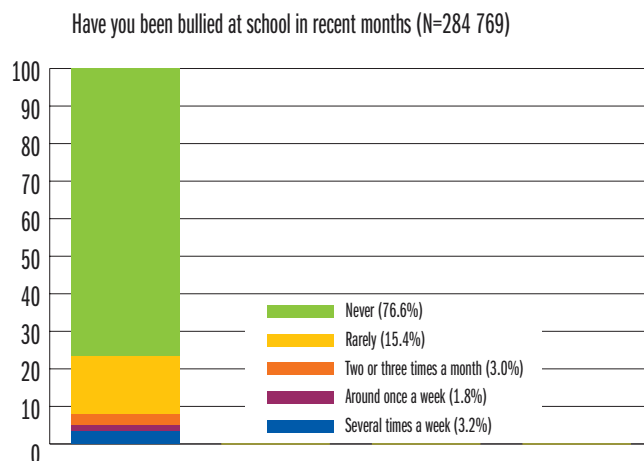
Bullying

In the revision of the Pupil Survey, a definition of the term bullying was added. The web-based version pupils are now asked to answer has this text: "By bullying we mean repeated negative or "malicious" behaviour by one or more pupils directed against a pupil who has difficulties defending him- or herself. Repeated teasing in an uncomfortable or hurtful manner is also bullying."

⁵ See the whole report at www.udir.no/forskning - "Godkjenning av skoler etter forskrift om miljørettet helsevern" (Approval of schools pursuant to the regulations relating to environmentally focused healthcare).

⁶ See <http://www.ie.dtu.dk/News.asp?ID=106>.

Figure 4.1: Bullying. All pupils.



* Number of responses to this question in the survey.
Source: The Pupil Survey (Furre et al. 2007).

Figure 4.1 shows that 3 per cent of the pupils feel they are bullied several times each week. A total of 77 per cent are never bullied. The wording of the question on bullying during recent months was slightly changed in the revision of the Pupil Survey in the autumn of 2006. This makes it difficult to compare changes over time.

The questions on who practises bullying are the same in 2007 as in 2005. Pupil responses suggest that they feel subjected most to bullying from other pupils in their group or class or other pupils in the same school. Next come the teachers, while other adults are reported to be responsible for the least bullying of the pupils. A total of 80 per cent of pupils state that they have never been bullied by other pupils. A total of 90 per cent have never experienced bullying from a teacher, and 94 per cent have never been bullied by other adults at school.

Bullying is one of the two areas where the results of the Pupil Survey in the spring of 2007 might suggest that there has been a unwanted development between 2005 and 2007. The increase is marginal and may have random causes, but developments must be followed closely in the coming years.

Pupils in primary and lower secondary school more often state that they have been bullied by other pupils at school than pupils in upper secondary school. A higher number of boys than girls state that they are bullied by other pupils at school, and the Pupil Survey similarly shows that a larger proportion of boys than girls state that they have joined in bullying pupils at school in recent months.

Research shows that developing and maintaining a good learning environment is an effective measure to keep problem behaviour at bay (Nordahl et al. 2006). Characteristics of schools with good learning environments include calm and positive class environments, measures to promote development and competence for pupils and employees, and a

carefully managed social and physical environment. These schools invest much effort in the social and academic learning outcomes for both pupils and staff. They have strong academic management, clear rules and consistent enforcement of rules and treatment of problem behaviour, teaching that is pupil-oriented and differentiated, pupil participation in decisions, positive class environments, relation-building classroom management and high adult density.

A school can implement preventive measures focusing on three target groups (Nordahl et al. 2006). In the first instance, all the pupils at a school are the target group for measures to prevent problem behaviour and bullying. These measures *target the entire school*, and one of these universal measures is the Olweus anti-bullying programme. The second target group comprises pupils at moderate risk of developing behavioural problems, and the LE model (LP in Norwegian for "Læringsmiljø og pedagogisk analyse" – Learning Environment and educational analysis) and the PALS model ("Positiv atferd, støttende læringsmiljø og samhandling i skolen" – positive behaviour, supportive learning environments and interaction in school) are two examples of *pupil-focused* measures targeting this type of pupil in particular. The third target group comprises pupils at high risk of developing serious behaviour problems. Any measure launched by the school to reach this target group must be *multi-focused*, i.e. it must target the family as a social system.

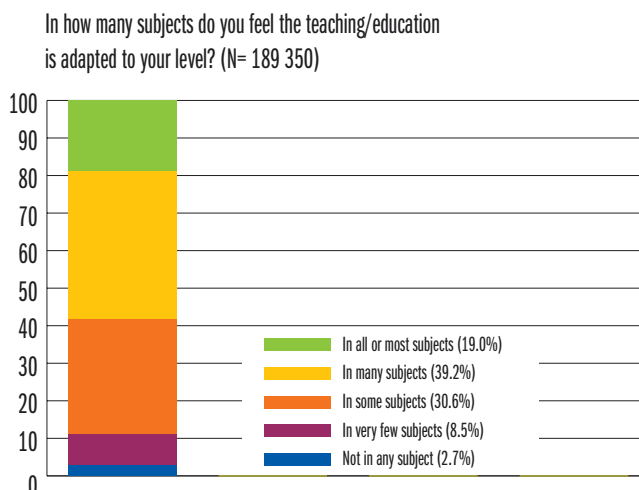
For school to succeed in its comprehensive plan for measures to counteract problem behaviour, it is vital that the measures are suitable in relation to the age of the target group, that binding and constructive cooperation is established with parents/guardians, and that the measures are launched at an early stage (Nordahl et al. 2006).

The report "Forebyggende innsatser i skolen" (Preventive efforts in school) (Nordahl et al. 2006) gives an overview of programmes with documented effect when it comes to preventing problem behaviour and developing social competence. Some of these programmes with documented effect are the LP model, Zero, PALS and the Olweus programme. More than 1000 schools have used one of the four programmes in the period 2001–2007.

It is important to distinguish between the introductory phase and continuous follow-up of the anti-bullying activities. The Olweus group is, for example, supervising approximately 250 schools which introduced the programme prior to 2006. Around 100 instructors have been trained whose job it is to quality assure the programme to ensure that *the effect continues after the introductory period is over*.

In January 2008, the Norwegian Directorate for Education and Training invited all primary and lower secondary schools to start using the Olweus and the Zero programme in the 2008–2009 school year. Lillegården kompetansesenter/Resource Centre (the LE model) and Atferdssenteret/Behavioural Centre (PALS) at the University of Oslo are responsible for inviting new schools to take part.

Figure 4.2: Adapted education. Lower secondary school and upper secondary education.



Source: Furre et al. 2007.

Well-being

The new national analysis of the Pupil Survey tells us that approximately 90 per cent of pupils find their breaks and their group/class enjoyable or very enjoyable. A total of 85 per cent also enjoy or enjoy very much attending school in general (Furre et al. 2007). It is worth noting, however, that around 10 per cent do not find their breaks or group/class enjoyable or only find breaks and group/class somewhat enjoyable. A total of 70 per cent are pleased with their teacher in many or most subjects, while 6 per cent say that they are satisfied with the teacher in none of the subjects or only a few subjects.

4.3 The teaching at school

Adapted education

The requirement for adapted education is expressed in "Prinsipper for opplæring i Kunnskapsløftet" (Principles of teaching in the Knowledge Promotion Reform) (the Ministry of Education and Research 2006). The paragraph "Tilpassa opplæring og likeverdige føresetnader" (Adapted education and equal aptitudes) states: "When working with school subjects, all the pupils must encounter challenges that give them something to strive for and which they can manage alone or with others." *The regulations point out* that all pupils, not only those who for a variety of reasons need extra help, must be challenged and experience mastering, alone or with others.

Figure 4.2 shows that 60 per cent of the pupils feel that the education is adapted to their level in many subjects. A total of 11 per cent feel that the education is adapted to them in very few subjects.

A more thorough analysis of data from the Pupil Survey shows that adapted education is clearly more important for the motivation of children than empowerment, pupil democracy and a sense of belonging.

Organising the teaching

The evaluation of L-97 shows that the goal of adapted education has wide acceptance, but that many pupils do not receive such education. More variation when it comes to method and organisation is probably part of the answer (Hølleland et al. 2007).

Findings in PISA 2006 indicate that Norway has particularly good opportunities to organise pupils in new ways. The survey examined the use of pupil groups composed according to ability across or within the same year of teaching. In a Nordic context, Norway and Finland have the least grouping of pupils according to ability within the same year, while the use of such pupil groups is above the OECD average in Denmark, Sweden and Iceland. Particularly in Norway it is relatively rare that pupils are grouped according to ability, whether across years or within the same year (Kjærnsli et al. 2007). An important explanation is probably section 8-2 of the Education Act, which lays down that pupils may be grouped according to need, but normally not organized according to academic level, gender or ethnic background. The PISA findings suggest that schools rarely use their option of *temporarily* grouping pupils according to academic level.

As of August the first 2007, "Prosjekt leksehjelp" (Project homework assistance) comprised 34 projects of many different types (Haugsbakken et al. 2007). A central aim of "Project homework assistance" is that homework assistance will increase the learning outcome and social levelling. The challenge for the project is to determine what organised homework assistance must do to satisfy these goals.

A clear majority of the participants in the local projects believe that homework assistance increases the learning outcome. They cannot refer to quantitative measurements for this, but project managers, teachers and parents report that pupils who receive homework assistance acquire better work habits and achieve better.

The project participants are, however, uncertain as to how much homework assistance has contributed to social levelling during the project period. This is primarily because the homework assistance projects are voluntary, and that it is first and foremost gifted pupils with good learning results who use this scheme. Recruiting those "who need it most" is therefore the major challenge for the local projects today.

Participation in measures for testing the models varies a great deal. In primary school it is easy to get pupils to take part, while motivating lower secondary school pupils has been more difficult. The lowest participation in school-based homework assistance is in upper secondary education. There are, however, also examples of pupils on this level using the programme outside school.

The report indicates a general pattern: Parental involvement is heavy in primary school but declines in lower secondary school

and in upper secondary school. Parents feel that homework assistance is a welcome programme. Project participants rarely report scepticism by parents, and feel that homework assistance strengthens the cooperation between home and school. Both the school and parents would like to establish good cooperation (Haugsbakken et al. 2007).

Work methods

"Principles for the teaching in the Knowledge Promotion reform" stipulates that school must promote adapted education and varied ways of working.

The Pupil Survey shows that the blackboard continues to be much used in Norwegian schools. A total of 90 per cent of the pupils state that the teacher uses the blackboard several times each week when teaching. Almost 80 per cent state that they work alone several times per week. Only 8 per cent report that every week they use projects as a work form. A total of 25 per cent claim that they only spend time on practical work with their subjects two to four times per six months or even more rarely (Furre et al. 2007).

In the project "PISA+: Lærings- og undervisningsstrategier i skolen" (PISA+: Learning and teaching strategies in school) (Klette et al. 2007) the researchers analyse in more detail the disturbing findings in PISA 2000 and PISA 2003. The project has videotaped and analysed 136 hours of teaching in Year 9 in six schools. The researchers find much "under-use of learning situations". This means there is no relation between general high pupil activity and the focus and direction of the teaching. In particular the researchers point to the fact that teachers rarely give pupils a systematic introduction when they start teaching. The purpose of the activities is rarely summarised. Thus activities often become isolated incidents and are rarely placed in a larger context in terms of subject knowledge. The meta-cognitive transfer value of the activity is thus scarcely realised. This is a particularly obvious problem in classes where work plans are much in use.

Work plans open for varied and adapted work tasks, but the researchers also point out that work plans appear to complicate formalised learning connected to

- the relation between the teaching and the teacher's explanations and the pupil's tasks and skill training
- the whole class as a common learning arena
- the pupil performance review as a learning tool
- focus on written work and handing in written work
- work plans as a tool to differentiate between pupil groups
- activity-oriented work methods (solving tasks) versus learning-oriented work methods (focus on learning objectives)

The researchers find in general a narrow repertoire of learning strategies. The pupils have been trained in using such organisation strategies as key words and mind maps. They conversely find few traces of training in and use of in-depth strategies, which is about linking what the pupils already know to what is

7 See www.skuleporten.no on the structure of the indicator motivation.

Table 4.1: Motivation – indicator in the new School Portal⁷.

Year	Theme	Score	Question
Year 7	Motivation	4,2	Do you do your homework?
Year 10	Motivation	3,7	Are you interested in learning at school?
Vg1 (Year 11)	Motivation	3,8	Response alternatives: In all or most subjects - In many subjects - In some subjects - In very few subjects - In no subjects
			How well do you like schoolwork?
			Response alternatives: Very much - Much - Not so much - Not very much - Not at all
			Do you pay attention when the teacher is speaking?
			Response alternatives: Very often or always - Often - Occasionally - Rarely - Never

Source: Skuleporten

to be learned. Memorising and suitable memory-building techniques also play a minor role. Summarising strategies with a focus on the meta-cognitive transfer value of the activities is rarely observed, as mentioned above.

Motivation

Motivation is an important theme in the Pupil Survey because it is a key learning factor. The survey measures motivation as a quantitative concept. The focus is on the intensity of the pupil's motivation, i.e. the level of motivation, not the type of motivation. The level of motivation is important for direction, intensity and stamina in school work, and motivation is affected by many factors (Furre et al. 2007).

The indicator for motivation in the School Portal ("Skuleporten" is the web service the Norwegian Directorate for Education and Training uses to provide schools and school owners with relevant and reliable data on primary and secondary education) is composed of four questions from the Pupil Survey, see Table 4.1.

Table 4.1 indicates that pupils are more motivated in Year 7 than in Year 10 and Vg1 (the first year in upper secondary school). There is a similar trend that pupils in Vg1 are slightly more motivated than the pupils in Year 10.

When asked "Do you often do your homework?" in the Pupil Survey, pupils in primary and lower secondary school report that they do their homework slightly more frequently than pupils in upper secondary school do. Last but not least, there is a clear trend that girls do their homework in more subjects than boys do.

A total of 79 per cent of all pupils are interested in learning in school in most or all subjects. A total of 84 per cent state that they often or always listen carefully when the teacher is speaking, and 51 per cent like schoolwork a lot or very much. A total of 43 per cent of all the pupils believe that the tasks they receive in school are neither easy nor difficult, 21 per cent feel that the tasks are slightly easy or very easy and 4 per cent believe they are very difficult.

More than half of all the pupils in the Pupil Survey state that they have teachers who make them want to learn in many or most subjects. The challenge of motivating them to work harder in

school is, however, not evenly distributed between the subjects. In primary and lower secondary school the pupils' favourite subjects are physical education, art and design, and food and health. The common factor for these three subjects is that it is easy to combine theory and practice in them. At the other end of the scale, the pupils place Christianity, religion and ethics, Norwegian and natural science as the subjects liked least well.

Awareness of what is to be learned

Two questions in the Pupil Survey reveal how aware pupils in lower secondary school and upper secondary school are of what they should learn from the teaching (Furre et al. 2007). The first question shows awareness of what is required to satisfy the various competence objectives in the subjects. These objectives control all teaching in KL-06. A total of 23 per cent of the pupils claim that they are not aware of in any or very few of the subjects of what is required of them to satisfy the competence objectives.

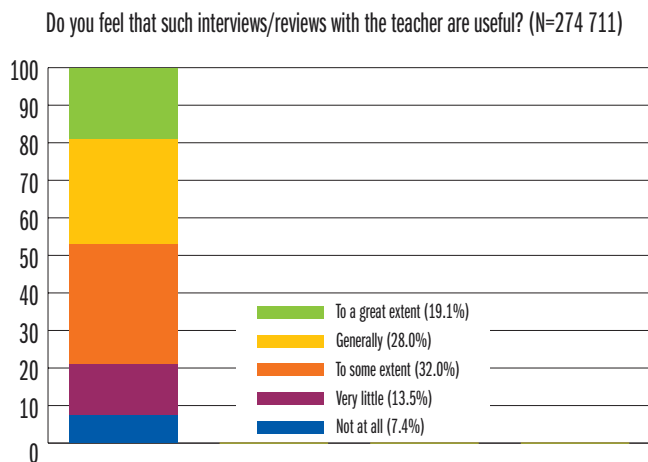
The second question determines whether the pupils are aware of what is required to achieve the different grades. A total of 19 per cent of the pupils claim that they do not know what is required in any subject or very few subjects. At the positive end of the scale, 52 per cent of the pupils state that they know what they have to learn in many or most subjects. Pupils in lower secondary school more often than pupils in upper secondary school report that the teacher has dealt with what is required to achieve the different grades.

Pupil empowerment and pupil democracy

Pupil empowerment and the pupil council are mentioned in sections 1-2, 11-2 and 11-6 of the Education Act. The "Principles of teaching in the Knowledge Promotion Reform" stipulate that pupil empowerment shall "prepare the pupils for participating in democratic decision-making processes" and "the pupils must be empowered to participate in planning, implementation and assessment of the teaching within the framework laid down by law and regulations, including the national curriculum" (Kunnskapsløftet 2006).

The national analysis of the Pupil Survey asks the pupils this question (Furre et al. 2007): "Does the teacher encourage pupils to participate in pupil council activities and other

Figure 4.3: The value of performance reviews. All pupils.



Source: Furre ofl. 2007

activities as class representatives?" Almost 70 per cent of the pupils who responded to this question believe that teachers encourage participation to some extent, a great extent or very high extent. Ten per cent responded "Not at all".

The pupils were also asked to state in how many subjects they feel they are allowed to set their own learning objectives. Almost half of all the pupils report that they are invited to set their personal learning objectives in very few or almost no subjects. A total of 23 per cent indicate that they are allowed to do so in many or most subjects.

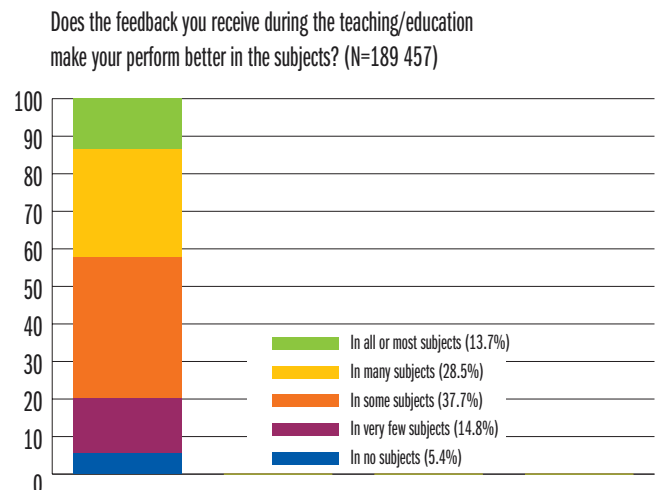
The degree of pupil democracy is measured in the Pupil Survey by two questions. One is whether school listens to proposals from the pupils. A total of 46 per cent of all the pupils respond that school often or always listens to such proposals. A total of 19 per cent claim that school rarely or never listens to them, and pupils in primary and lower secondary school feel they are heard more often than pupils in upper secondary school.

Assessment and feedback in subjects

Assessment and guidance shall help motivate the pupils (Kunnskapsløftet 2006). Sections 3-3 and 4-4 in the Regulations relating to the Education Act distinguish between continuous assessment and final assessment. The aim of the continuous assessment is to promote learning, develop the pupil's competence and provide the basis for adapted education. This type of assessment can be given with or without grades. The final assessment shall express the pupil's achievement level on leaving lower secondary school, and in upper secondary school when completing the teaching in the subjects.

The Pupil Survey asks all the pupils whether the teachers tell them what they have to do to improve in the subjects. Thus the pupils are asked whether they receive continuous assessment. A total of 52 per cent state that they receive such assistance from the teacher in most or all subjects, while 18 per cent state that they receive continuous assessment in very few or no subjects. A total of 30 per cent respond that they receive information about what they have to do to improve in some subjects.

Figure 4.4: The value of subject achievement feedback. Lower secondary school and upper secondary education.



Source: Furre ofl. 2007

The Pupil Survey (Furre et al. 2007) also asks the pupils how many performance reviews/pupil interviews they have had with a form teacher in the school year. Section 3-3 in the regulations relating to the Education Act states that teacher shall "continuously" give pupils ongoing assessment. Section 4-5 in the regulations states in relation to upper secondary school that: "The pupil, apprentice and trainee must be empowered to participate in assessment of their own work. As part of the guidance and assessment without a grade, the school and the apprenticeship company must have an interview/performance review with the pupil, apprentice or trainee at least once each half year." The results of the Pupil Survey suggest that 12 per cent of pupils in lower secondary school and in upper secondary school have not had a performance review or pupil interview this school year. A total of 38 per cent have had one review, while 51 per cent claim that they have had two or more reviews. Of pupils in Year 5 to Year 7, 8 per cent report that they have not had any performance review or pupil interview. A total of 23 per cent have had one review/interview, while 69 per cent claim they have had two or more.

Figure 4.3 does not distinguish between different years, and the average figures may thus include differences between the years. Regardless of the year, 20 per cent of the pupils respond that they find it not useful at all or very little useful to have a review/interview with the teacher. A total of 47 per cent claim that the performance review is useful to a great extent or a very great extent.

Figure 4.4 shows that 42 per cent of the pupils believe that continuous feedback leads to improved achievements in many subjects. A total of 20 per cent of the pupils in lower secondary school and in upper secondary school respond, however, that the continuous feedback only leads to improved achievements in a very few subjects.

In the spring of 2007, the project "Bedre vurderingspraksis" (Better assessment practice) was established. This project aims to establish clearer regulations on assessment and to promote a more relevant and fair assessment in the work done

in subjects by the pupils. Overall, 78 learning institutions (primary and lower secondary schools, upper secondary school and adult education centres) from all the counties in Norway have been chosen to take part in a pilot project examining what characterises achievement of learning objectives in a sample of subjects. The project started in November of 2007 and will be evaluated by researchers. Determining characteristics of satisfaction of learning objectives is one of several measures relating to individual assessment the Directorate is undertaking on assignment for the Ministry of Education and Research. The project will be completed on August the first 2009.

The PISA+ research programme registered great variation in the guidance competence of teachers when it comes to feedback to and guidance of individual pupils. In some classrooms the teacher's guidance was primarily connected to emotional support and motivation, in other classrooms the guidance focused on academic advice and comments. Guidance in meta-cognitive activities for problem solution was less common (Klette et al. 2007).

Working environment

PISA 2000 and 2003 revealed that some of the hours in school were used for other things than teaching (Kjærnsli et al. 2007). This particularly applied to the period of time before the teaching actually started. Findings in PISA+ confirm that a relatively large amount of time is spent on other things than working with the subjects, and another study concluded that 30 per cent of school hours were used on tasks not relating to the subject, such as administration and reprimands.

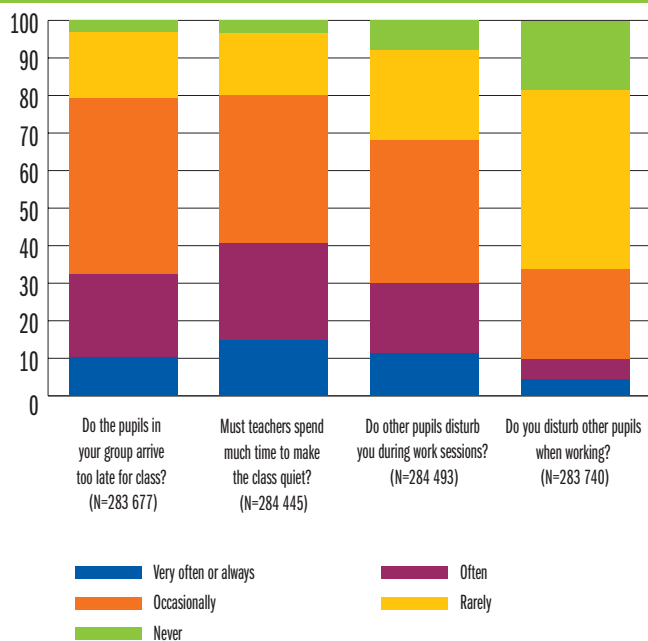
Figure 4.5 shows that only 20 per cent of the pupils report that other pupils rarely or never are late for class. An equal proportion of the pupils report that the teacher rarely or never is forced to spend much time establishing order in class. A total

of 30 per cent state that they always or often are disturbed by other pupils during work sessions, while only 10 per cent admit that they disturb other pupils.


Another question asked in the Pupil Survey ascertains pupil perception of whether teachers come to class on time. Almost 70 per cent of the pupils claim that the teachers often or very often arrive on time. At the other end of the scale 8 per cent of the pupils claim that teachers rarely or never come on time.

In the Pupil Survey 2007, the researchers point to two areas that are important to follow closely in the coming years. One is bullying, the second is pupils disturbing each other in class. Results suggest that between 2005 and 2007, the trend has been in a negative direction in both these areas.

Figure 4.5: Disruption and unrest. All pupils.



Source: Furre ofl. 2007



5 The number of pupils and completion rates in upper secondary education and training

The Knowledge Promotion reform was introduced in 2006 and will be completely implemented during 2009. The reform brings changes in the structure and content of the teaching. The education programmes in upper secondary education have been changed slightly, some subjects have been given new names, some new ones have been introduced and some subjects have new content. Upper secondary education now has three programmes for specialisation in general studies and nine vocational education programmes.

The three programmes for specialisation in general studies span three years in school and qualify pupils for admission to higher education, such as to colleges, university colleges and universities. All the education programmes, with the exception of the programme for sports and physical education, are divided into areas of study. The studies can then be further divided into programme subjects, where some are common core subjects and others are electives.

The nine vocational education programmes lead to a craft certificate or journeyman's certificate or other vocational competence. The main model for the vocational education programmes is two years in school and two years in an apprenticeship company. Pupils who opt to start a vocational education programme can also qualify for admission to higher education by completing and passing the supplementary studies qualifying for admission to higher education in Vg3 (the third year in upper secondary school) after first having completed Vg1 and Vg2 of the vocational education programme. Another option is to attend a four-year course which after being completed and passed qualifies the pupil for admission to higher education and also provides vocational competence. This scheme is found in the programme for health and social care, the programme for agriculture, fishing and forestry, the programme for technical and industrial production and the programme for electricity and electronics. In tables and figures in this chapter these programmes have been combined under the category "Other programmes"¹.

1. Some pupils do not follow the ordinary curriculum but complete according to an individual plan. These applicants and pupils are grouped under Alternative education in the tables and figures.

Table 5.1: The number of applicants to Vg1 as of 1 March 2006, 2007 and 2008, in total and proportion with youth right.

	2006		2007		2008	
	All	With youth right	All	With youth right	All	With youth right
All education programmes	76912	95,1	75483	95,7	75442	96,9
Alternative education	2116	88,0	2182	89,5	2089	93,8
Building and construction	5836	93,8	5630	95,0	5494	96,3
Design and crafts	3880	94,5	3690	94,3	3520	95,9
Electricity and electronics	4531	94,1	5309	95,3	5531	95,7
Health and social care	8055	87,2	7375	89,2	7231	91,6
Sports and physical education	4949	99,5	5005	98,8	4819	99,5
Music, dance and drama	3433	98,8	3270	98,3	3082	99,3
Media and communication	4637	98,1	4904	98,3	5380	99,0
Agriculture, fishing and forestry	1600	94,4	1552	95,6	1451	95,2
Restaurant and food processing	2990	92,3	2376	93,4	2388	94,2
Service and transport	3458	94,1	2845	94,1	2876	95,6
Specialisation in general studies	24490	98,5	24463	98,3	24454	99,1
Other programmes*	381	97,6	613	98,5	608	98,5
Technological and industrial production	6556	91,5	6269	93,4	6519	95,0

* Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies.

Source: Norwegian Directorate for Education and Training.

Attachment Table 5.1 provides an overview of the programmes in upper secondary education and training.

This chapter presents statistics on applicants, admissions, completion rates and achieved competence for pupils and apprentices in upper secondary education and training in the 2007–2008 school year. The number of applications to upper secondary education and training in the 2008–2009 school year are also presented. The applications for the two last years are dealt with together.

Differences in the choice of education programmes and competence achievement based on various background factors such as gender, immigrant background and social background are also outlined. Where appropriate, time series have been included to show the development over recent years.

In the 2007–2008 school year, the Knowledge Promotion reform had been introduced in Vg1 and Vg2 (the first and second years of upper secondary school), while pupils in Year 3 in upper secondary education and training continued with the Reform 94 curriculum (VK2). The introduction of the Knowledge Promotion reform means that there is a break in the time series for applicants and pupils.

At the end of the chapter pupils' choices and their competence achievements in natural science are presented.

5.1 Applicants to upper secondary education and training

Young people who have completed primary and lower secondary education and are over 15 years of age have the right to three years of full-time education or an education that cor-

responds to the education or training time stipulated in the subject curriculum (cf. section 3 of the Education Act). This right is called "the youth right" and must be used within a continuous period of five years, or six years when the education or training is wholly or partly given in an apprenticeship company, and within the end of the year the person in question turns 24 years of age. The pupil, apprentice or trainee can also apply to the county authority to postpone or take a break in the education or training without losing the "youth right". The right to upper secondary education and training can also be extended by one year in cases involving an application to make a new choice (section 3-1 of the Education Act). Previously, the period covered by the right counted from when the pupil left primary and secondary education, while it now commences when the pupil starts his or her upper secondary education and training.

The figures showing the number of applicants that are presented here are those we find every year on 1 March when the deadline for applying for admission to upper secondary education and training expires. However, up until the initial admission session that is undertaken in July, applicants may change their primary choice. The figures presented here are therefore preliminary.

Applicants to Vg1

A total of 63 563 pupils left Year 10 of primary and secondary education in the spring of 2008 (GSI). The majority of these pupils apply for upper secondary education and training. There are also applicants to Vg1 who were in upper secondary education and training the year before. Among the applicants to Vg1 in the spring of 2008, 8 per cent attended Vg1 in the 2007–2008 school year. The proportion re-applying to Vg1 has remained stable in recent years.

Table 5.2: The number of applicants to Vg2 as of 1 March 2007 and 2008, in total and proportion with youth right.

	2007		2008	
	All	With youth right	All	With youth right
All education programmes	67798	94,9	68677	96,1
Alternative education	496	97,8	666	97,1
Building and construction	5338	96,1	5251	96,7
Design and crafts	2853	91,4	2770	92,3
Electricity and electronics	3897	94,2	4203	96,4
Health and social care	7879	87,2	7636	89,4
Sports and physical education	3445	99,5	3532	99,7
Music, dance and drama	2065	99,1	2063	99,1
Media and communication	3022	97,9	3140	98,9
Agriculture, fishing and forestry	1235	93,7	1425	93,9
Restaurant and food processing	2787	91,9	2376	94,0
Service and transport	4721	89,5	4529	92,6
Specialisation in general studies	23891	98,8	24021	99,1
Other programmes*	137	75,9	137	99,3
Technological and industrial production	6032	91,3	6928	93,2

* Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies.

Source: Norwegian Directorate for Education and Training.

Table 5.1 shows a total of 75 442 applicants to Vg1 in the spring of 2008, and this figure is more or less unchanged from the number of applicants in the spring of 2007. A total of 43 per cent of the applicants apply for admission to one of the education programmes qualifying for higher education, while 57 per cent of the applicants have applied for vocational education programmes (applications to alternative education and training and programmes resulting in both vocational competence and qualifying for higher education are not included). The proportion of applicants to Vg1 choosing programmes qualifying for higher education has remained constant during the three years after the introduction of the Knowledge Promotion reform.

An analysis carried out by Statistics Norway of the situation before and after the Knowledge Promotion reform shows that currently fewer pupils are choosing vocational education programmes. The change is approximately 4 percentage points (SSB 2008b).

When divided according to education programmes, in the spring of 2008, the highest number of applicants applied for programmes for specialisation in general studies (24 454 applicants). Among the vocational education programmes, the most popular programmes are health and social care (7231 applicants) and technical and industrial production (6519 applicants).

The number of applicants to health and social care is showing a downward trend. Compared to the spring of 2006, there are approximately 800 fewer applicants in the spring of 2008. The largest growth in the number of applicants from 2006 to 2008 has been for the programme for electricity and electronics, which had around 1000 more applicants in 2008.

The proportion of applicants with "youth right" has increased from 2006 to 2008. Among the applicants in the spring of 2008, 96.9 per cent have "youth right". This is an increase of almost two percentage points. Among applicants to health and social care in the spring of 2008, 91.6 per cent have "youth right", while for applicants to education programmes qualifying for higher education, more than 99 per cent have "youth right".

Applicants to Vg2

Table 5.2 shows a total of 68 677 applicants to Vg2 in the spring of 2008, and this is approximately 1000 more applicants than the preceding year. A total of 96 per cent of the applicants have "youth right"; a small increase compared to the spring of 2007. Around four per cent of the applicants to Vg2 also attended Vg2 the year before

The largest proportion of applicants with "youth right" is in the programme for sports and physical education, the programme for specialisation in general studies and the programme for music, dance and drama. The lowest proportion of applicants with "youth right" is in the programme for health and social care.

A majority of the applicants – 57 per cent – has applied to vocational education programmes (programmes resulting in both vocational competence and qualification for higher education and alternative education and training and are not included). The highest number of applicants for any one programme is in education programmes for specialisation in general studies (24 021 applicants). There is also a relatively high number of applicants for the education programmes for health and social care (7636 applicants), technical and industrial production (6928 applicants) and building and construction (5251 applicants).

Table 5.3: The number of applicants to VK2 in school as of 1 March 2007, in total and the proportion with youth right.

	2008	
	All	With youth right
All education programmes	41518	87,1
General, business/administration	30234	86,0
Music, dance and drama	1479	97,8
Sports and physical education	2521	98,7
Electricity and electronics	118	89,0
Arts and design	2366	90,4
Health and social care	2062	71,9
Metalworking	7	85,7
Media and communication	1703	96,8
Agriculture, fishing and forestry	730	80,1
Technical construction	142	81,7
Woodworking	1	100,0
Other programmes*	85	98,8
Outside regular education programmes	70	84,3

Source: Norwegian Directorate for Education and Training.

The 2007–2008 school year was the first year the Knowledge Promotion reform was in force for Year 2 in upper secondary education and training. In connection with the reform, the education programme for specialisation in general studies has been divided into different areas of study in Vg2 (Year 2). In the 2007–2008 school year, the areas of study were natural science and mathematics, language, social studies and economics and arts, crafts and design. The greatest number of appli-

Table 5.4: The number of applicants to Vg3 in school as of 1 March 2008, in total and proportion with youth right.

	2008	
	All	With youth right
All education programmes	42270	91,5
Alternative education	589	86,2
Building and construction	1	100,0
Design and crafts	334	86,8
Electricity and electronics	888	93,9
Health and social care	849	71,0
Sports and physical education	3036	98,6
Music, dance and drama	1558	98,7
Media and communication	2024	97,5
Agriculture, fishing and forestry	668	78,0
Supplementary year	10393	75,2
Restaurant and food processing	8	100,0
Service and transport	4	100,0
Specialisation in general studies	21728	98,4
Other programmes*	81	98,8
Technological and industrial production	109	92,7

* Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies.

Source: Norwegian Directorate for Education and Training.

cants applied for the natural science and mathematics area of study (10 493 applicants) and social studies and economics (10 157 applicants). A total of 1333 applicants applied for the languages area of study. Starting in the 2008–2009 school year, language studies and social studies and economics have been merged. Applications in the spring of 2008 show that the new study programme is the largest, with 12 183 applicants, while there are 10 147 applicants to natural science and mathematics studies. The number of applications to arts, crafts and design studies has declined, where in the spring of 2008 there were 1142 applicants.

Applicants to VK2 and Vg3 in school

Starting in the 2008–2009 school year, the Knowledge Promotion reform will also be implemented in the third year of upper secondary education and training. The number of applicants in the spring of 2007 therefore refers to the structure under Reform 94, while the new applicant numbers concern the structure under the Knowledge Promotion reform. These two structures are not comparable, so that applicant numbers are presented separately.

Table 5.3 shows the number of applicants to VK2 (the third year in upper secondary school and training pursuant to Reform94) in school for the 2007–2008 school year. The number of applicants reflects the fact that for a number of vocational educational programmes, the normal procedure is to apply for an apprenticeship after completing the two first years of upper secondary education and training.

In total, there were 41 518 applicants to VK2 in the spring of 2007. The general and business/administration area of study is by far the largest area of study in VK2 (30 234 applicants). Among the applicants to this area of study, approximately one third applied for the supplementary year that qualifies for higher education. This is a programme for pupils who after two years in vocational education programmes wish to qualify for admission to higher education.

In total, 87.1 per cent of those who applied to VK2 in school had "youth right". The highest proportion with "youth right" comprised applicants to the programme for sports and physical education (98.7 per cent) and the programme for music, dance and drama (97.8 per cent).

The figures for applications in the spring of 2008 are presented in Table 5.4. The table shows that in total there are 42 270 applicants to Vg3. The trend continues that the majority of applicants on this level (the third year in upper secondary education and training) are applicants aiming to qualify for higher education. The education programme for specialisation in general studies has 21 728 applicants. In addition, there are 10 393 applicants to the supplementary programme qualifying for higher education.

The number of applications to the programme for health and social care dropped substantially in the spring of 2008 compared to the spring of 2007. This is due to the new health

Health and social care worker

The programme for health and social care workers is new in the Knowledge Promotion reform. This subject replaces two previous subjects in the health and social care area of studies, assistant nurse and care worker. It has proven to be very difficult to find adequate numbers of applicants in relation to the need for such workers in the future. For this reason "Aksjon helsefagarbeider" (The health and social care worker campaign) was established as a cooperative project between KS (the Norwegian Association of Local and Regional Authorities), HSH (the Federation of Norwegian Commercial and Service Enterprises), and the employer organisation Spekter. The Directorate of Health and the Norwegian Directorate for Education and Training have funded the project. The recruiters for the campaign have successfully recruited young people, and the number of applicants has risen in those places they have visited. However, there is a small drop in the number of applicants to education and training among young people (in 2007 there were 2714 and in 2008 there are 2576, i.e. 138 fewer applicants). Håkon Høst, a Norwegian researcher, (2007) draws attention to the fact that this field has traditionally recruited adult women, and that the reason may be the characteristics of the field and the phase of life applicants are in. Thus there may be a need in the future to focus more on facilitating education and training for adults in addition to the education and training given to youths in this subject.

Høst, Håkon (2007): "Utdanningsreformer som moderniseringsoffensiv. En studie av hjelpepleieryrkets rekruttering og dannelsehistorie 1960-2006" (Education reforms as modernisation offensives. A study of the recruitment and history of the assistant nurse profession). University of Bergen, doctoral dissertation.

and social care worker subject that was introduced in connection with the Knowledge Promotion reform, and which organises a larger proportion of the healthcare education training as on-the-job training (see text box).

Among the applicants to Vg3, 91.5 per cent have "youth right". But this varies from one education programme to the next. In the education programme for health and social care and the programme for agriculture, fishing and forestry, the proportion is, respectively, 71 and 78 per cent, while almost 99 per cent of the applicants to the education programme for sports and physical education and music, dance and drama have "youth right".

Applicants to apprenticeship

Table 5.5 shows the number who applied for an apprenticeship in the 2007–2008 school year. In total, 16 653 applied. The highest number applied for the metalworking programme (3800 applicants) and the programme for electricity and electronics (2871 applicants).

Table 5.5: The number of applicants to an apprenticeship as of 1 March 2007, and proportion with youth right.

	2007	
	All	With youth right
All education programmes	16653	85,1
General, business/administration	495	86,7
Building and construction	2635	92,4
Electricity and electronics	2871	88,0
Arts and design	968	83,4
Restaurant and food processing	1667	84,9
Health and social care	1681	69,1
Chemistry and processing	274	88,0
Metalworking	3800	86,8
Media and communication	106	67,0
Agriculture, fishing and forestry	358	76,3
Sales and service	1087	83,1
Technical construction	571	89,1
Woodworking	135	78,5

Source: Norwegian Directorate for Education and Training.

In total, 85 per cent of the applicants had "youth right". The pupils who applied for an apprenticeship in the spring of 2007 were the last cohort that applied under the Reform-94 structure.

Starting in the spring of 2008, the Knowledge Promotion reform also includes those who apply for apprenticeship. The new structure makes it difficult to compare the number of applications from the spring of 2007 with the new figures.

A total of 15 805 applicants were registered as of 1 March 2008 (see Table 5.6). The new figures show that there has been a large increase in the number of applicants for an apprenticeship in the programme for health and social care. This is due to the new health and social care worker subject

Table 5.6: The number of applicants to an apprenticeship as of 1 March 2008, and proportion with youth right.

	2008	
	All	With youth right
All education programmes	15805	87,7
Building and construction	3428	94,3
Design and crafts	938	85,6
Electricity and electronics	1759	92,7
Health and social care	2582	75,1
Media and communication	102	82,4
Agriculture, fishing and forestry	405	82,5
Restaurant and food processing	1373	89,7
Service and transport	1768	85,7
Technological and industrial production	3450	89,6

Source: Norwegian Directorate for Education and Training.

which replaces previous studies which had training in school (see text box in the paragraph above).

In the new structure, the highest number of applications is for an apprenticeship in the programme for technical and industrial production (3450 applicants) and the programme for building and construction (3428 applicants). The proportion with "youth right" has increased slightly, now comprising 87.7 per cent of the applicants.

5.2 Pupils and apprentices in upper secondary education and training

The figures for pupils and apprentices were compiled as of 1 October. At that point in time admissions and placement of apprentices have generally been concluded, even if some apprentice contracts are still signed after this date.

Of the applicants for admission to school in the 2007–2008 school year 89 per cent received an offer and started in school as pupils. A higher number than this was offered admission, but declined the offer or did not attend when school started. A total of 76 per cent of all the applicants were granted admission that was in accordance with their first choice for the programme area as entered on the application form.

A total of 79 per cent of those who applied for an apprenticeship became apprentices, and 62 per cent of the applicants got an offer in accordance with their primary choice. A total of 12 per cent of all applicants did not receive an offer of education or training.

Table 5.7: The number of pupils in Vg1 as of 1 October 2007, according to education programme and proportion with youth right.

	2007	
	All	With youth right
All education programmes	73537	95,4
Alternative education	2054	94,5
Building and construction	5656	96,9
Design and crafts	3394	94,0
Electricity and electronics	4563	97,0
Health and social care	7440	91,7
Sports and physical education	4002	97,3
Music, dance and drama	3261	97,3
Media and communication	2236	95,2
Agriculture, fishing and forestry	1688	86,6
Restaurant and food processing	2814	94,0
Service and transport	3319	95,0
Specialisation in general studies	26347	95,9
Technological and industrial production	6515	96,5
Other programmes*	248	99,6

* Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies.

Source: Norwegian Directorate for Education and Training.

Pupils in Vg1

By far most pupils go straight from primary and lower secondary education to upper secondary education. Among the pupils who finished Year 10 in the spring of 2007, 96.4 per cent had started in Vg1 in the autumn of 2007 (KOSTRA). The figure is slightly below last year's figure, but it is difficult to ascertain whether the drop is real or is due to more complete data.

In total, 73 537 pupils² were registered in Vg1 in the autumn of 2007 (see Table 5.7). The highest number attended the programme for specialisation in general studies (26 347 pupils). In the vocational education programmes the highest number of pupils attended the programme for health and social care (7440 pupils) and the programme for technical and industrial production (6515 pupils). The lowest number of pupils was in the programme for agriculture, fishing and forestry (1688 pupils). Uncertainty in relation to the data regarding the number of pupils in 2006 renders it difficult to consider the changes from 2006 to 2007. Among all the pupils, 95.4 per cent had "youth right" in the autumn of 2007.

A total of 5 per cent of the pupils changed their choice from the 2006–2007 school year to the 2007–2008 school year (3738 persons). Because the programme for specialisation in general studies is the largest programme, the highest number of pupils making a new choice is also found in this programme. The proportion is nevertheless slightly lower than for the whole year class of pupils. Among the pupils attending the programme for specialisation in general studies in 2006–2007 and who then made a new choice, 23.6 per cent chose the programme for health and social care in 2007–2008, while less than 12 per cent started in the programme for service and transport and the programme for design, arts and crafts. Of those of who chose the programme for music, dance and drama in 2006–2007, only 1.7 per cent of the pupils changed their choice, a total of 62 pupils.

Pupils in Vg2

Table 5.8 shows that there were 62 640 pupils in Vg2 in the autumn of 2007. The highest number was in the programme for specialisation in general studies (23 823 pupils) and the programme for health and social care (7204 pupils). The lowest number was found in the programme for agriculture, fishing and forestry (1403 pupils) and music, dance and drama (1939 pupils). This being the first year with pupils in Year 2 who follow the new structure under the Knowledge Promotion reform, it is difficult to draw any conclusions about any changes after the reform.

The proportion with "youth right" is high also among pupils in Vg2. The programme for health and social care stands out among the education programmes as having a low proportion of pupils who have "youth right" (81 per cent). The education programmes sports and physical education, media and communication, music, dance and drama and specialisation in

² The figures are from the Norwegian Directorate for Education and Training's statistics. They may deviate somewhat from the figures from Statistics Norway.

Table 5.8: The number of pupils in Vg2 as of 1 October 2007, according to education programme and proportion with youth right.

	2007	
	All	With youth right
All education programmes	62640	93,5
Alternative education	589	95,6
Building and construction	4545	93,4
Design and crafts	2330	90,8
Electricity and electronics	3431	93,1
Health and social care	7204	80,6
Sports and physical education	3485	97,4
Media and communication	2750	98,3
Music, dance and drama	1939	98,2
Agriculture, fishing and forestry	1403	84,6
Restaurant and food processing	2420	91,7
Service and transport	3691	92,4
Specialisation in general studies	23823	97,3
Technological and industrial production	4922	91,9
Other programmes*	108	98,1

* Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies.

Source: Norwegian Directorate for Education and Training.

general studies all have a proportion of pupils with "youth right" that is higher than 95 per cent.

Pupils in VK2 in school

A total of 49 921 pupils attended VK2 (the third year of upper secondary education and training according to the old structure) in school in the autumn of 2007. The number of pupils is higher than the number of applicants presented in Table 5.3. This is because the number of pupils includes those who have started upper secondary education and training without applying in the spring. The reason may be that they originally applied for admission to a private school but actually started in a school owned by local authorities. Some have also applied for admission after the deadline or have applied for an apprenticeship without receiving one and then been granted admission to school instead.

Table 5.9 shows how pupils are distributed according to the education programmes. On the VK2 level, a large number of pupils in school attend education programmes qualifying for admission to higher education. The largest is the general, business/administration area of studies with 34 425 pupils. The number of pupils in this area of study has increased slightly compared to the figures in the autumn of 2005.

The 2007–2008 school year was the last year when pupils in the third year of upper secondary education followed the national curriculum under the old structure of Reform 94. Starting in the autumn of 2008 the Knowledge Promotion reform has been implemented on all levels of upper secondary education and training in school. Next year's statistics will show how the new structure influences the distribution of pupils on the various education programmes in the new Vg3 structure.

Table 5.9: The number of pupils in VK2 in school as of 1 October 2005 and 2007, according to education programme and proportion with youth right.

Area of study	2005*	2007**	
	Number of pupils	Number of pupils	With youth right
All education programmes	46641	49921	80,9
General, business/administration	32213	34425	82,2
Building and construction	30	30	60,0
Electricity and electronics	997	704	77,1
Design and crafts	2353	2373	89,3
Health and social care	3587	3346	43,0
Restaurant and food processing	77	39	74,4
Sports and physical education	2586	3293	92,4
Chemistry and processing	15	1	-
Media and communication	1275	1718	94,8
Metalworking	444	417	59,2
Music, dance and drama	1733	1906	95,6
Agriculture, fishing and forestry	1001	991	61,3
Sales and service	14	36	11,1
Other programmes***	128	107	90,7
Technical building and construction	181	130	75,4
Woodworking	7	2	50,0
Outside regular education programmes	-	403	92,6

* The figures of pupils for 2005 are from Statistics Norway.

** The figures of pupils for 2007 are from the Norwegian Directorate for Education and Training's statistics.

*** Includes educations that gives both vocational competence and qualification for higher education, health and social care with general studies, agriculture, fishing and forestry with general studies, electricity and electronics with general studies, building and construction with general studies, technological and industrial production with general studies..

Source: Norwegian Directorate for Education and Training.

Apprentices

As of 1 October 2007, there were a total of 37 199 apprentices (see Table 5.10). This was 10 per cent more than the

Table 5.10: The number of apprenticeship contracts in force as of 1 October 2005, 2006 and 2007, according to course of studies and the proportion with youth right.

Area of study	2005	2006	2007	
	Number of apprentices	Number of apprentices	Number of apprentices	Proportion with youth right
All education programmes	31316	33829	37199	69,5
General, business/administration	701	711	796	80,0
Building and construction	6026	6436	6995	74,5
Electricity and electronics	5355	6127	7170	71,3
Design and crafts	2617	2684	2633	52,3
Health and social care	2645	2613	3379	61,6
Restaurant and food processing	2990	3121	2688	75,1
Chemistry and processing	244	235	702	67,9
Metalworking	5830	6647	7147	34,8
Media and communication	304	307	313	75,3
Agriculture, fishing and forestry	699	699	825	58,8
Sales and service	1570	1770	1826	70,5
Technical building and construction	1933	2083	2275	63,7
Woodworking	402	396	447	49,2

Source: Norwegian Directorate for Education and Training.

preceding year. From 2006 to 2007 the number of apprentices in the chemistry and processing area of study tripled, and there has been a 29 per cent increase in the number of apprentices in health and social care. The number of apprentices has also increased substantially in agriculture, fishing and forestry and electricity and electronics, with increases of, respectively, 18 and 17 per cent compared to the previous year. Metalworking, electricity and electronics, and building and construction are the three largest apprenticeship subjects with around 7000 apprentices each.

The proportion of apprentices with "youth right" is generally lower than for pupils in school. A total of 69.5 per cent of the apprentices had "youth right". In metalworking, only 35 per cent of the apprentices had "youth right". Less than 60 per cent of apprentices in wood processing, agriculture, fishing and forestry and arts, crafts and design had "youth right". This is probably due to the fact that some of the apprentices sign an apprenticeship contract after first qualifying for admission to higher education.

Of the apprentices in the autumn of 2007, around 5 per cent had immigrant backgrounds. By far most of them had non-Western backgrounds. A total of 75 per cent of apprentices with immigrant backgrounds were first-generation immigrants, while the rest were born in Norway of two foreign-born parents.

Girls and boys in upper secondary education and training

There are large and stable gender differences in upper secondary education and training. Girls choose arts, crafts and design and health and social care, while boys dominate in building and construction, electricity and electronics and technical and industrial production.

Figure 5.1 shows the proportion of girls in the various education programmes in Vg1. The gender distribution is relatively equal in the following education programmes: sports and physical education, service and transport, restaurant and food processing, media and communication, specialisation in general studies, and agriculture, fishing and forestry. These education programmes have at least 40 per cent of both genders. The largest education programme, specialisation in general studies, has a slightly higher number of girls. The trend in gender differences in Figure 5.1 also applies in Vg2 and Vg3.

5.3 Completion rates and progression in upper secondary education and training

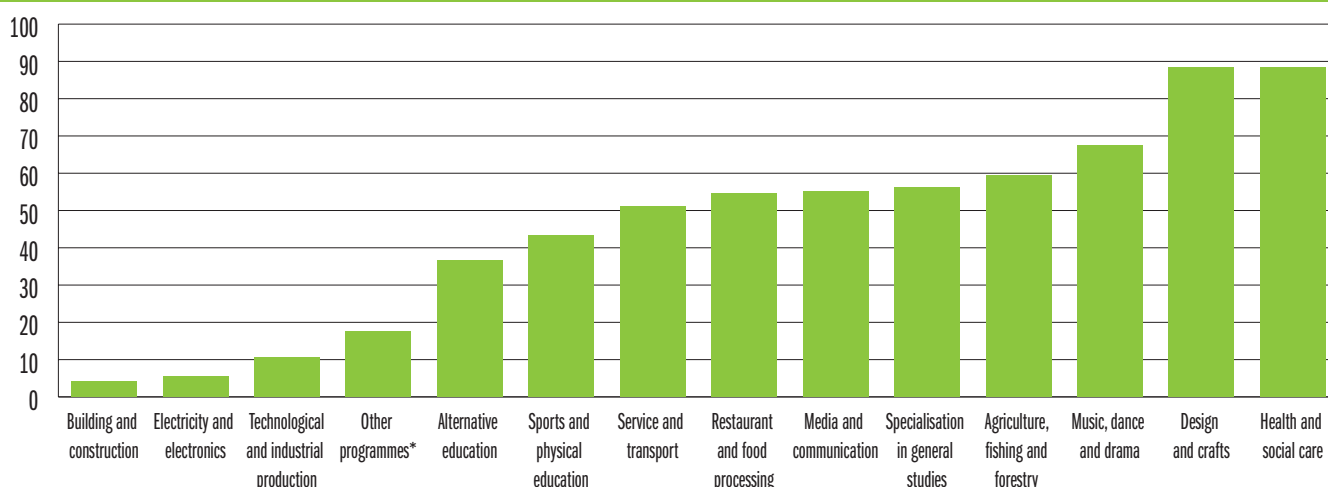
It is a stated political goal that as many as possible should start and complete upper secondary education and training after completing primary and lower secondary education. A number of strategies have been implemented to stop pupils from dropping out³. However, a relatively high and constant proportion of pupils do not complete upper secondary education and training within a period of five years.

Completion rates among pupil groups

Approximately 57 per cent of all pupils who started upper secondary education/training in 2001 have completed within the regular time frame (Statistics Norway). If we consider completion rates after five years, the proportion increases to 70 per cent, while 18 per cent of the pupils/apprentices dropped out of the education or training.

Figure 5.2 shows the completion status for the year classes of pupils who started in 1998 through 2001, distributed according to general studies and vocational programmes. There is little difference between the year classes when it comes to the proportion of pupils/apprentices who qualify for higher

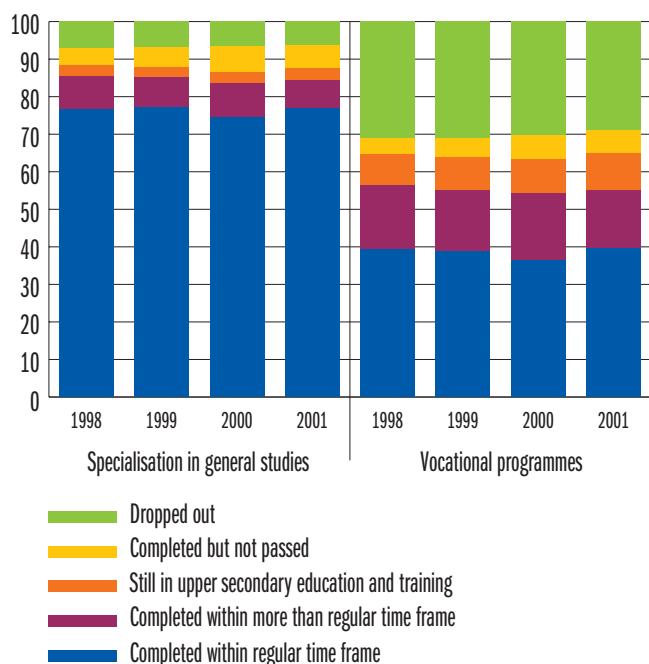
Figure 5.1: The proportion of girls among applicants to Vg1 as of 1 March 2007, according to education programme.



Source: Norwegian Directorate for Education and Training.

³ The following national efforts can be mentioned as recent efforts: "Nasjonale føringer for kvalitet i fag- og yrkesopplæringen" (National guidelines for quality in education and training) (the Norwegian Directorate for Education and Training 2006), "Satsing mot frafall" (Efforts against dropping out) (Buland and Havn 2007), "Rett førstevalg" (The correct primary choice) (Vibe 2006) and "Tiltak for bedre gjennomføring i videregående opplæring" (Measures for improved completion rates in upper secondary education and training) (the Ministry of Education and Research 2006). There are also a number of county strategies focusing on such things as the follow-up service, better guidance and programmes to improve cooperation between schools and companies for pupils and apprentices in education and training.

Figure 5.2: Status five years after start of school for pupils in general studies and vocational programmes for the years 1998, 1999, 2000 and 2001.



Source: Norwegian Directorate for Education and Training.

education or vocational competence within the normal duration of education/training or within five years. The proportion that completes among pupils in programmes for specialisation in general studies is, however, higher among the pupils who started in 2001 than in the preceding years. The proportion of pupils in programmes for specialisation in general studies who have dropped out is slightly lower for pupils starting in 2001 than previous years.

There are in part large differences when it comes to completion rates and progress between pupils in programmes for specialisation in general studies and vocational programmes. The figure shows that pupils in vocational programmes spend more time for completion than pupils in programmes for specialisation in general studies. Between 74 and 77 per cent of pupils in specialisation in general studies completed within the regular duration of studies, and a further seven to nine per cent have completed upper secondary education and training within the youth-right period of five years.

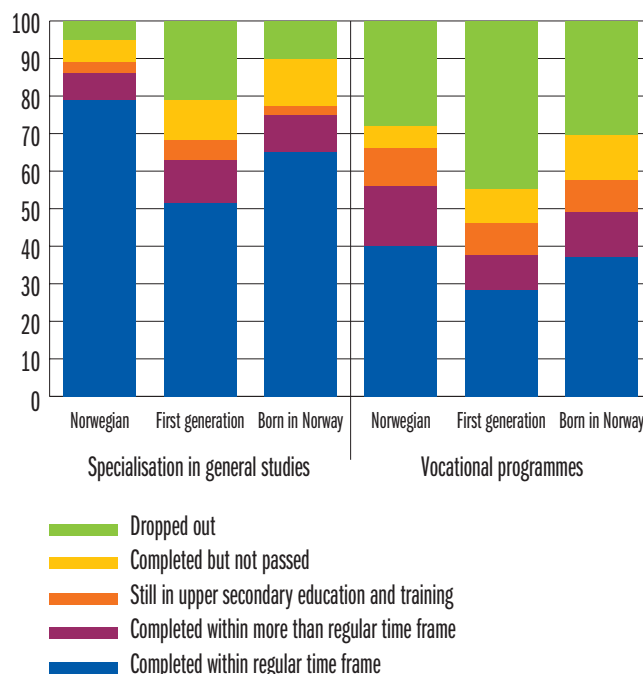
Between 38 and 40 per cent of the pupils in vocational programmes completed within the regular time frame, while between 15 and 17 per cent have completed within the period allotted for the "youth-right". The greatest difference between pupils in programmes for specialisation in general studies and vocational programmes is found in the proportion that has dropped out of upper secondary education and training. The proportion of pupils in vocational programmes that drop out of upper secondary education/training varies from 35 to 38 per

cent, while this applies to 12 to 15 per cent of pupils in programmes for general studies.

Figure 5.3 shows the completion rates for pupils in general studies and vocational programmes distributed according to pupils with Norwegian backgrounds, first-generation immigrants and pupils born in Norway of two parents born abroad⁴.

Of the three groups, first-generation immigrants stand out with lower completion rates in upper secondary education and training. This applies especially to pupils taking vocational programmes. The proportion completing within normal duration of training (37–40 per cent) and the proportion dropping out (28–30 per cent) are approximately the same as for pupils with Norwegian backgrounds and Norwegian-born pupils with immigrant backgrounds. However, a larger proportion of Norwegian-born immigrant pupils have completed upper secondary education and training without passing. First-generation immigrants taking vocational programmes have a higher level of dropping out from upper secondary education and training and do not complete within regular time frame to the same degree as pupils with Norwegian backgrounds and pupils born in Norway of two parents born abroad.

Figure 5.3: Status five years after start of school for pupils in general studies and vocational programmes for the 2001 year group according to immigrant background.



* The table includes pupils with Norwegian background and pupils with non-Western background divided on first-generation immigrants and persons born in Norway of two foreign-born parents.

Source: Norwegian Directorate for Education and Training.

4 Only immigrants with non-Western backgrounds have been included (due to the very low number of Western immigrants).

There are also differences between these three groups among pupils taking general studies programmes. First-generation immigrants have a lower completion rate than pupils with Norwegian backgrounds and second-generation immigrant pupils, and they also have a higher drop-out rate. If we compare Norwegian pupils and Norwegian-born immigrants, the completion rate within the regular time frame is lower among pupils in the immigrant group, and the number of those completing without passing is higher.

The development from the year class that started in 1998 to the class that started in 2001 shows that there has been a small drop in the number of immigrant pupils who have completed upper secondary education and training. The proportion dropping out has, however, declined slightly among immigrants with non-Western backgrounds (both first-generation immigrants and persons born in Norway in total). There is a higher degree of completion without passing than previously.

Even if first-generation immigrants have a lower rate of completion in upper secondary education and training compared to the majority population and descendants, this does not mean that they do not qualify for vocational competence or admission to higher education. The amount of time that one has lived in Norway is of great importance.

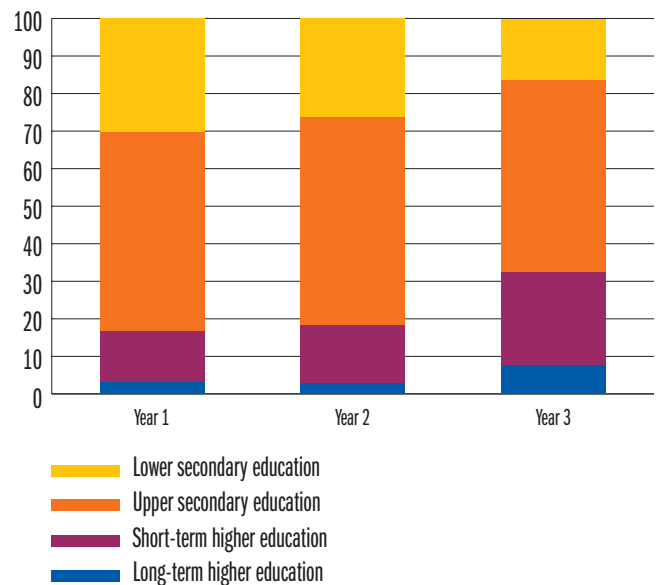
Among those who came to Norway at the age of 13, but are now 20 years of age, only 21 per cent have completed and passed upper secondary education and training within the normal duration of education/training. ("Handlingsplan for integrering og inkludering av innvandrere-befolkningen – styrket innsats 2008" – Action plan for integration of the immigrant population – reinforced efforts in 2008). In contrast, 60 per cent of those who are 27 years of age (and who came to Norway when 13 years old) have completed and passed. We see the same pattern for those who came to Norway when they were 16 years of age. Only 5 per cent of those who are now 20 years of age have completed and passed upper secondary education and training, while 57 per cent of 27-year olds who came to Norway as 16-year olds have completed upper secondary education and training. Thus the figures show that a large proportion of immigrants arriving when 13 and 16 achieve competence of the upper secondary education and training level, but at a significantly later time than the majority population.

How do we explain the differences in completion and passing rates?

As shown in the section above, approximately one of five pupils drop out of upper secondary education and training, when we measure five years after starting upper secondary school. There are in part large differences in advancement for those taking vocational programmes and those taking programmes for specialisation in general studies.

The point in time when pupils drop out of upper secondary education and training varies according to their parents' education backgrounds.

Figure 5.4: Pupils who have dropped out of upper secondary education according to parents' education background.



Source: Norwegian Directorate for Education and Training.

Figure 5.4 shows pupils registered in, respectively, GK (foundation course, old structure), VK1 (advanced course I, old structure) or VK2 (advanced course II, old structure) in the autumn of 2005, and who then dropped out during the school year without being registered in upper secondary education and training in the autumn of 2006 or the autumn of 2007.

Almost 30 per cent of the pupils who dropped out from the first year of upper secondary education and training had parents with education from primary and lower secondary school. A total of 53 per cent had parents with education from the upper secondary level, and 17 per cent had parents with higher education.

Of the pupils who dropped out after starting VK2 (the third year of upper secondary school according to the pre-reform system), more than 30 per cent had parents with higher education, while the proportion who had parents with education from primary and lower secondary school was 17 per cent. It may thus appear that pupils whose parents have little education drop out at an earlier point in time than pupils whose parents have higher education.

The report "Frafall i videregående opplæring: Betydning av grunnskolekarakterer, studieretninger og fylke" (Dropping out of upper secondary education and training: The importance of grades from primary and lower secondary education, areas of study and counties) (Byrhagen et al. 2006) deals with completion rates in upper secondary education and training.

Average grades from primary and lower secondary school are important in satisfying an applicant's primary choice for the

type of upper secondary education and training, while grades also reflect the academic skills and aptitudes of pupils. In the report, the researchers examine whether the average grade has any significance for the lack of progression in upper secondary education and training. Byrhagen et al. also examine whether there are systematic differences in the propensity for deviation from normal progression between areas of study and counties, and whether social background can explain the lack of progression.

The analyses show that the grade level from lower secondary school is important for explaining drop-outs from upper secondary education and training. The results show that an increase in the average grades of one grade point reduces the probability of deviating from the normal study progression at the start of the third year of upper secondary school by as much as 20 percentage points. Byrhagen et al. believe that one of the main reasons for dropping out of upper secondary education and training is related to the pupils' knowledge and skill levels from lower secondary education.

The researchers also find large differences in the drop-out rate between different areas of study. These differences may generally be explained by differences in the average grades in each area. Family background has less impact. The difference between areas of study thus shows that pupils have quite different skill levels depending on the area of study. When comparing pupils with the same academic point of departure and family background and then adjusting for county effects, we are left with five areas of study where the probability is substantially higher that pupils will deviate from the normal progression of studies. These are wood processing, restaurant and food processing, metalworking, electricity and electronics and service and transport.

The results show that the drop-out problem is particularly prominent in the three northernmost counties, even when adjusting for socio-economic background and grade level from lower secondary school. The drop-out rate is particularly high in the vocational education programmes, while the drop-out rate in general studies programmes is as in other counties.

Family background is important primarily because this factor influences the grades in lower secondary school. Youths who live with both parents have a lower probability of dropping out than pupils who live with only one parent.

Non-Western immigrants have a slightly lower probability for dropping out adjusted for social background and grades. This differs from the results reported by Markussen et al. (NIFU STEP 2006). The fact that non-Western youths on average have higher drop-out rates is therefore due to the fact that they more often have poorer grades in lower secondary school, but

even more important is the fact that their parents have lower education levels.

NIFU STEP's last report from the project "Bortvalg og kompetanse" (Dropping out and competence)⁵ (Markussen, Frøseth, Lødding and Sandberg 2008) confirms previous findings relating to the importance of social background for the choice of either general studies programmes or vocational programmes. The probability of choosing a general studies programme increases if a youth grows up with both parents and both parents are interested in education and general studies competence that qualify the pupil for higher education. Parental education levels indirectly affect the choice of study programme through the ambitions, interests and achievements of the young people. Those planning long-term education choose programmes for specialisation in general studies, while those who would like an early start to their working life, are practically inclined or base their choice on interests select a vocational programme. Regardless of skills, boys and non-Western immigrants have higher probabilities for applying for programmes for specialisation in general studies than others.

Of those who qualify for higher education or vocational competence, the majority go through their schooling without disruption or deviation. The probability for achieving qualifications for higher education or vocational competence increases if at least one of the pupil's parents has higher education, if the pupil is a girl, a majority youth, has grown up with both mother and father, his or her primary wish for schooling has been granted, general studies programmes have been chosen, the pupil has little absenteeism from school in Year 10, or has good grades from lower secondary school. The variable with the strongest importance for the completion rate, drop out rate and achievement of competence is grades.

Of those who become apprentices, 70.9 per cent achieve qualification for higher education or vocational competence five years after starting in upper secondary education and training. This is explained by the fact that apprentices are a selected group with good grades and low absenteeism rates.

After interviewing 29 youths who dropped out of their apprenticeship, the report concludes that common reasons for dropping out are inadequate teaching, injuries, allergies and inflammations arising from the physical work. Other important reasons are that many feel they have little opportunity to influence their own learning situation, they have a poor relation to their instructor and/or they feel the apprenticeship company's supervision and follow-up is poor. There are large variations, and often poor experiences are gained from the coordination of responsibilities for the instruction, feedback procedures and facilitation of workloads and the content of the work tasks.

⁵ On assignment from seven counties in eastern Norway (Østfold, Akershus, Oslo, Hedmark, Buskerud, Vestfold and Telemark counties), NIFU STEP has followed 9749 youths from leaving Year 10 of lower secondary school in the spring of 2002 and for five years. The aim has been to determine and explain completion rates, drop-out rates and competence achievement.

The report concludes that 15- and 16-year-olds come to upper secondary education and training with so different aptitudes and experiences that many lack the necessary background required to achieve qualifications for higher education or vocational competence. These differences are primarily expressed through grades.

The follow-up service

The county authorities have a follow-up service for youths with "youth right" who are not in upper secondary education and training.

The purpose of the follow-up service is to give these youths an offer of education, employment or other activity, but where the primary aim is to offer them a programme to achieve competence (section 13.1 of the Education Act). The follow-up service is also responsible for reducing the drop-out rate in upper secondary education and training through close cooperation with the counselling service.

Table 5.11 shows that as of December 2007 a total of 41 114 persons were registered by the follow-up service. This figure does not include youths in Sør-Trøndelag and Nord-Trøndelag counties, as these two county administrations did not submit data before the deadline.

The number of youths registered by the follow-up service is slightly lower than in 2006, even allowing for the absence of the above-mentioned two counties. There is, however, a large degree of uncertainty in connection with the statistics, and it is difficult to ascertain whether the changes are real or the expression of an unstable data basis.

The registered figures show that 18 per cent of the youths with "youth right" were registered by the follow-up service at the end of 2007. There are large differences from one county to the next when it comes to the proportion of youths registered with the follow-up service. It is difficult to ascertain whether this is due to real differences or differences in reporting practices from one county to the next.

Among the more than 41 000 pupils who have been registered with the follow-up service, around 11 000 have returned to school or obtained an apprenticeship. Approximately 11 000 youths attend programmes arranged by the follow-up service, while almost 4000 youths have been registered as not requiring any programmes. Cases are pending for around 30 per cent of the youths registered by the follow-up service.

The data basis for the follow-up service needs to be developed and quality assured.

5.4 Natural science in upper secondary education

The authorities have a long history of trying to improve recruitment to natural science subjects. "Realfag naturligvis – strategi for styrking av realfagene 2002–2007" (Natural science naturally – strategy for strengthening natural science subjects

Table 5.11: Youths with youth right registered with the follow-up service as of 31 December 2006 and 2007, by county.

	2006		2007	
	Proportion	Number	Proportion	Number
Total	21	44661	18	41114
Østfold	25	2670	22	2478
Akershus	21	5000	14	3550
Oslo	24	4209	26	4698
Hedmark	20	1690	19	1721
Oppland	22	1567	21	1543
Buskerud	20	2219	21	2525
Vestfold	15	1658	20	2285
Telemark	22	1841	21	1763
Aust-Agder	25	1294	21	1129
Vest-Agder	21	1655	13	1115
Rogaland	23	4679	24	4928
Hordaland	22	4869	16	3724
Sogn og Fjordane	19	996	18	995
Møre og Romsdal	22	2665	19	2494
Sør-Trøndelag	9	1147	-	-
Nord-Trøndelag	5	302	-	-
Nordland	25	3042	24	3045
Troms	25	1854	25	2023
Finnmark	34	1304	28	1098

* The figures includes everyone that are registered in The follow-up service, also those that have dropped out and returned to upper secondary education, are registered in The follow-up service by mistake, or with unknown status.

Source: Norwegian Directorate for Education and Training.

2002–2007) and "Et felles løft for realfagene 2006–2009" (A common lift for natural science subjects 2006–2009) are two strategies intended to provide initiatives that will improve recruitment.

In connection with the focus on natural science, the authorities wanted a better overview of pupils' natural science choices in upper secondary school, and also to ascertain how many people are applying for natural science subjects in higher education. A study carried out by Statistics Norway has examined the natural-sciences choices in upper secondary school from 2004 to 2006 and the applicant rate to higher education in the natural sciences for the period 2000–2006.

The study shows that the choice of natural sciences in upper secondary education has remained stable in recent years (Hægeland et al. 2007). There are in part large gender differences in the choice of natural science subjects in upper secondary education. Boys apply more often than girls to take the "core" natural science subjects, while girls more often choose biology and the "easier" mathematics courses. Parents' education levels and incomes also appear to impact whether the young people choose natural science. Youths whose parents have higher education and high incomes more often choose the natural sciences than other pupils. Non-Western

immigrants also choose natural sciences more often than other pupils.

There was a decreasing trend in the number of students who applied to be admitted to natural science studies during the period 2001–2006. There were also large gender differences in the number of applicants to natural science studies on higher levels. More boys than girls choose to study natural science subjects. Non-Western youths also choose natural sciences in

higher education more often than youths with a Norwegian background.

On assignment from the Norwegian Directorate for Education and Training, Rambøll Management carried out an evaluation of the strategy plan "Realfag – naturligvis" (Natural science – naturally). The evaluation found flawed results in the area of continuing and further education for teachers. More detailed reference is made to this evaluation in Chapter 6.

6 Quality development



Much of the social debate in the spring of 2008 has focused on Norwegian primary and lower secondary education. The debate was fuelled by the publication of the results from the national tests and from international studies that showed that Norwegian pupils have poorer basic skills than there is reason to expect.

One of the issues in the debate is how we can make school better. The continuous efforts to make school better are often referred to as quality development.

Responsibility for the quality of primary, lower secondary and upper secondary education is in the hands of the local and county authorities. The central authorities have developed a number of tools designed to facilitate the efforts of the school owners to develop the quality of schools. Public funding is also granted to support competence development and development projects.

This chapter focuses on some of the key measures the Norwegian Directorate for Education and Training use to develop quality. The section on the national quality-assessment system

describes how the system works today. National strategies have been key measures for quality development in priority areas and for supporting schools during the introduction of the Knowledge Promotion reform. The section on national strategies discusses the evaluations of three of the national strategies: "Gi rom for lesing!" (Make Space for Reading!), "Realfag, naturligvis!" (Natural science, naturally!) and "Kompetanse for utvikling" (Competence for Development). The chapter also deals with the project "Kunnskapsløftet – fra ord til handling" (K-FOTH) (Programme for School Development), which has funded development projects to initiate changes on the school level. The project is now in a phase focusing on presenting knowledge and sharing experiences. The idea of using school leadership as a measure for improving schools has had a very modest place on the agenda so far. The section on school leadership gives insight into some of the knowledge we currently have on this theme.

6.1 National quality assessment system

Schools and school owners are obliged to follow up results from the local and national assessments, cf. section 13-10 of the Education Act. A national quality assessment system in key

areas is more effective and should provide higher quality data than if each local authority were to design its own system. In the spring of 2003 Stortinget (Norwegian Parliament) therefore decided to establish a national quality assessment system.

The overriding aim of the national quality assessment system (Norwegian abbreviation NKVS) is to promote quality development in all levels of primary, lower and upper secondary education and training with special focus on adapted teaching and greater learning outcomes for each pupil. The quality assessment system must also

- contribute to open attitudes, insight and dialogue on activities in school
- provide information to the education sector which will serve as the basis for decisions, providing documented knowledge on conditions at the local and national levels
- form the basis for local assessment and development activities by having school owners and administrators responsible for facilitating assessment and follow-up of results

The evaluation of the national quality assessment system shows that there are systematic differences between quality assessment activities in schools (Kvåle et al. 2008), and as the study reveals, this is due to the dominant school culture. Schools that may be characterised as collectively oriented are better at using results from evaluations and other quality-assessment tools. Schools that are more individually oriented are less focused on change and development. One part of the definition of collectively oriented schools is that there is more cooperation between teachers and between teachers and the administration than in individually oriented schools.¹

PricewaterhouseCoopers (PWC) also arrived at similar results² which on assignment from KS (the Norwegian Association of Local and Regional Authorities) examined what characterises the school owners with the best pupil results. The study examines results from national tests and the Pupil Survey. It is difficult to draw unequivocal conclusions from the study, but it is interesting to consider some common characteristics of the "good" school owners:

- The school owner follows up results in dialogue with the individual schools
- The school owners or individual schools have launched systematic development measures to achieve better results.

Supervision

Supervision of school owners is another crucial element in ensuring the rights of pupils to high-quality education and training. The primary approach in supervision is to check that the school owners comply with the Education Act and the Private Schools Act. This is the responsibility of the county governors, who observe and then point out any deviations from the legislation and give instructions as to how to rectify the problem. On a more overriding level, the aim of the supervision

is to increase compliance with the rules and regulations, and to this aim the national supervisory authorities include an evaluation of the key measures used in this sector. Supervision is a vital element in the national quality assessment system.

In recent years, the focus of supervision has been on the school owner's obligation to maintain an adequate system to ensure that the provisions and requirements in the Education Act and the Private Schools act are satisfied.

National tests

The national tests are an important element in the national quality assessment system. The tests in 2004 and 2005 came under criticism for lacking common frameworks for their design, and that the mission and purpose of the tests were unclear (Lie et al. 2004, Lie et al. 2005). The experiences from the two years the tests have been given show that national tests may still be a useful tool for assessing the quality of the teaching at each school, both for school owners and national authorities. Based on the experiences from 2004 and 2005, the Government decided that as of the autumn of 2007, national tests would also be held in mathematics and in reading in Norwegian and English, both in Year 5 and Year 8. In September 2006, the Ministry of Education and Research established the framework for the national tests.

In September 2007, the national tests were held for Year 5 and Year 8 in mathematics and reading in Norwegian and English. The purpose of the tests is to determine whether the basic skills of pupils match up to the objectives of the national curriculum. The national tests will provide information to teachers and school owners and to the local, regional and central school authorities, which will then serve as the basis for improvement and development activities. All in all, the information from the national tests and other test and evaluation forms in the national quality assessment system, such as survey tests and tests to support grading and learning, will give a good picture of the competence of pupils.

On assignment from the Ministry of Education and Research, in the autumn of 2007 Synovate, a polling and marketing-research company, conducted a questionnaire study of school administrators, teachers, pupils and parents/guardians on their experiences with national tests (Synovate 2008). The report indicates in general that the autumn 2007 tests were received far more positively than was the case in 2005. This particularly applies to the information provided and the follow-up of the test results.

The report shows that the information about the national tests has reached all the user groups. A large majority of school leaders and teachers find that the information material is of very good or fairly good quality. There is substantial improvement compared to the implementation of national tests in 2005.

1 The distinction between collectively and individually oriented schools was presented first in "Evaluering av kvalitetsutvikling i grunnskolen 2000-2003" (Evaluation of quality development in primary and secondary education and training 2000-2003) (Dahl et al. 2004).

2 [http://ks.no/templates\(page.apx?id=49224..](http://ks.no/templates(page.apx?id=49224..)

Three of four pupils had received feedback on their test results when the study was carried out. Most parents/guardians responded that they had received feedback about the results for their child. In 2005, a relatively large proportion of the pupils did not receive feedback on their national-test results.

Most school owners and teachers believe that the tests only provide a little bit of information about the pupils that they did not already know. A small minority (2 per cent) of school administrators also respond that they are not planning to follow up the results. A higher number of school administrators and teachers in 2007 than in 2005 feel that the national tests provide information about what should be strengthened in the teaching for each pupil and the pupil group (Synovate 2007).

Skoleporten (the School Portal)

The Norwegian Directorate for Education and Training launched a new version of the School Portal in December 2007. The aim of the School Portal is to give schools and school owners easy access to relevant and reliable information for their local quality assessment activities, cf. section 13-10 of the Education Act and the regulations relating to activity-based assessment. The School Portal is a vital element in the national quality assessment system. Pupils, parents/guardians and other interested parties may also access the School Portal to view key figures relating to primary and lower and upper secondary education and training in Norway.

The School Portal contains data relating to learning dividends (with national tests and grades), the learning environment (with the compulsory section of the Pupil Survey), completion rates in upper secondary education and training, resources and school facts. The four areas learning dividends, learning environment, completion rates in upper secondary education and training and resources are called assessment areas. This is because they offer relevant information for local assessment activities. School facts are factual information about the schools.

The School Portal has an open section accessible to everyone, and a closed section requiring a user name and password. Most of what the School Portal offers is accessible to everyone. One exception is figures that refer to only a few pupils. Such figures are not published in the open section in order to protect personal privacy. The closed section generally provides access to data on particular schools to the involved schools and school owners. The closed section also makes it possible to adapt the tools for personal use.

The School Portal was initially launched in 2004. The new version of the School Portal is an integral element of the website www.utdanningsdirektoratet.no with modified and improved functionality. The School Portal will be improved in 2008, and it will then be possible for schools and school owners to prepare their own reports. The School Portal will then also be designed to assist the county governors in their tasks.

6.2 School leadership

The education sector has attached less importance to leadership than many other sectors in Norway, and here Norway lags behind most other leading OECD countries (OECD 2008). However, there is no longer any doubt that school leadership is important for the pupils' learning outcome. The relation is mostly indirect, as administrators generally work through others; school leaders can influence events, situations and organisation factors, such as teachers, classroom practices and the school climate (Leithwood 2004, Leithwood 2006, OECD 2008).

In recent years, leadership has made its way on to the education sector agenda. In competence development for leaders, the trend is now to concentrate more on knowledge of the school field, for example research findings, and to look more across boundaries to learn, including national borders, and sector and subject boundaries. There is also a stronger focus on the national provisions and requirements, and on local needs. The document entitled "Strategi for kompetanseutvikling 2005-2008" (Competence for development strategy 2005-2008) states: "For the reform to succeed, professional interaction is required between school owners and school leaders, in addition to developmentally oriented and competent leaders at each school." Participation in further and continuing education in school administration has been broad in municipalities and counties, not least due to the competence development strategy. However, relatively little is known about relevance and effect.

There are several reasons for the greater focus on school leadership. First, the school leader role has become far more comprehensive. This applies not least in dual-level municipalities, where the school owner in practice has now been given much of the owner and employer responsibility. A school leader often has too little support, and the role of school administrator has changed to more of an administrator than a pedagogical leader (NIFU-STEP 2007).

Norway has participated in the OECD programme "Improving School Leadership" together with 21 other member countries. School leadership is becoming a prioritised area within education policy in the OECD. Norway submitted its "Country Background Report" in January 2007 (OECD 2007b).

One of the challenges the OECD pointed out for Norway is the difficulty in recruiting school leaders. Taking on the leadership of a school is not considered an attractive option. It is a very demanding job, and many feel they have too little assistance and rather too much criticism, and the work does not have very much prestige or legitimacy (OECD 2008).

The OECD's complete report, tabled in March 2008, made these recommendations:

- Redefine the roles and responsibilities of the school leader
- Develop knowledge and skills relating to school leadership through training and development
- Make school leadership an attractive career choice

- Invite many people to take part in leadership tasks
- Open school to the surrounding world, cooperate with others and learn from them
- Work on both management and leadership, and make academic leadership, personnel management and administration an integrated whole

There are major differences between countries when it comes to national cultures, political conditions, resources, framework conditions, leadership roles, views on leadership and management, the role of the national authorities etc. It has been very useful and important for Norway to be part of this cooperation. Many of the themes and challenges are the same across national borders, even if the solutions may differ.

6.3 Evaluation of national strategies

The Norwegian Directorate for Education and Training has recently received the final reports from two large national strategies, "Gi rom for lesing!" (Make room for reading!) and "Realfag, naturligvis!" (Natural science, naturally!). A new report has also been submitted from the evaluation of "Competence for development". This section presents the strategies and the main conclusions from the evaluations.

"Gi rom for lesing!" (Make Space for Reading!)

The programme "Make Space for Reading!" was launched on 23 April 2003 and a revised version was presented in the spring of 2005. It was designed and initiated by the Ministry of Education and Research in 2003, and was completed in 2007. The reason for the plan was the documented need to improve reading proficiency, as national and international studies have shown that the reading skills of the tested pupils were inadequate.

The main goals of the strategy are to

- strengthen reading skills and motivation for reading of children and young people
- increase the competence of teachers when it comes to teaching reading, presenting literature and using the school library
- generate greater understanding of reading as the basis for other learning, cultural competence, quality of life, participation in working life and a democratic society

The strategy plan defines measurable targets, including the goal that it should be possible to measure pupils' improved reading skills within 2008. Each target has several measures.

A total of 876 projects have been initiated under this programme, most in primary and lower secondary school. Only 20 per cent of the projects apply to upper secondary schools. Many of the local projects are operated in collaboration with other actors: libraries are particularly popular cooperation partners for schools. Few projects have been launched in cooperation with universities and colleges.

The evaluation of this programme shows that many of the projects have vaguely defined goals. In a substantial number of

cases the goals have only been descriptions of processes and have not provided measurable targets and objectives.

The programme was structured so that many of the projects could be locally initiated and designed. This would ensure a local base, and for this reason the strategy plan generally has been given a bottom-up profile.

As there were so many projects and measures under the programme umbrella, none of them received a large amount of funding. However, what was granted triggered a great deal of activity and local funds were also made available. The funding from the central authorities has thus served as encouragement and support for the local activities. "The programme has played an important role as a beacon. The strategy has provided support and focus to the people who have been working on this locally. So the programme has become an important supporting player for much local work, and has also functioned as a guide for many, an overriding strategy pointing the way to go." (Buland et al. 2007)

The evaluation finds that the local basis has been important for the implementation of the strategy. Because decisions have been made locally, measures have taken local experiences and a local understanding of problems into consideration, and this has given stakeholders a sense of ownership.

The evaluation also shows that having the support of dedicated school owners, leaders and teachers has meant that the programme has not been an isolated event but has rather had impact on the entire organisation (Buland et al. 2008).

"Realfag, naturligvis!" (Natural science, naturally!)

The strategy plan "Natural science, naturally – strategy for strengthening the natural sciences 2002–2007" was produced to strengthen the teaching of natural sciences in Norwegian schools. One important reason for introducing this is the results of the international studies PISA and TIMSS, which showed that Norwegian pupils performed relatively weakly in mathematics and natural sciences compared to other countries. The PISA study from 2003 showed that Norwegian pupils scored significantly lower than pupils from the other Nordic countries in mathematics (Kjærnsli et al. 2004). National studies, such as the annual studies undertaken by the Norwegian Mathematical Council, confirm these results. They show a declining trend in the mathematics skills of students admitted to higher education (KD 2006). On the heels of the evaluation came the new PISA results for 2006. The PISA report showed an even steeper decline in the results for mathematics and natural science, cf. Chapter 3.

Concern has also been expressed that the group of new natural science teachers with higher education has decreased dramatically in school, and that compared to teachers in other countries, their Norwegian counterparts have little further and continuing education in mathematics and natural science (Grønmo et al. 2004).

The strategy plan "Natural science, naturally!" was initiated by the Ministry of Education and Research, which is also responsible for the plan. Responsibility for implementation and follow-up is placed with the principal actors carrying out the strategy. The Ministry of Education and Research, for example, is responsible for implementing activities in primary and lower secondary schools. Other key actors are the Research Council of Norway and Vox (the Norwegian Institute for Adult Learning).

The strategy has three overriding aims: raising competence, recruiting to the subject and improving the attitudes to natural science of pupils, teachers and the general public. Five target areas that cover different aspects of the main objectives of the strategy plan have been defined. More specific sub-goals have been defined in each target area with measures and projects relating to the goals. The strategy thus has four levels: main objectives, target areas, sub-goals and measures.

Main objectives, target areas and sub-goals are not completely separate categories. An effort under sub-goal 3 may, for example, also impact other sub-goals and indirectly all the main objectives (Rambøll Management 2007). In general, there are few specific expectations as to what the efforts should yield beyond the overriding effects defined in the main aims of the strategy. The local goals do not lend themselves particularly well to measurement of results. "Summing up, we can say that on both the programme and measure side, resources have been allocated and activities carried out which are expected to give effects without any assessment of results" (Rambøll Management 2007).

The organisation structure of the strategy makes the distance to the target group (groups) too long and complex. The many levels of the organisation structure function as a kind of filter that may be hard to penetrate.

The evaluation of the strategy plan "Natural science, naturally!" attaches importance to the fact that it is difficult to measure effects when there is little in the way of documentation. Most measures in the plan lack defined expectations both for output data and results.

"Kompetanse for utvikling" (Competence for Development)

Kompetanse for utvikling – Strategi for kompetanseutvikling i grunnopplæringen 2005–2008 (Competence for Development Competence Development Strategy in Basic Education 2005–2008) aims to give the teaching staff in primary, lower and upper secondary school the competence to give pupils and apprentices adapted teaching and training to enable the development of abilities and talents in accordance with the general section of the national curriculum, the Learning Poster and the subject curricula. The strategy sets clear priorities for the main areas of competence development. This includes competence development of school administrators, reform-related competence development of the teaching staff and further education in key areas.

The third sub-report from the evaluation of the strategy describes the type of competence development measures that have been implemented during the strategy period and a preliminary analysis of the effects these measures have had on the competence and practice in schools (Hagen et al. 2008). The report also deals with the role of the universities and state colleges in the project.

FAFO (the Institute for Labour and Social Research) finds that up until now there has been a comprehensive focus on competence development of school administrators, both in primary/lower secondary school and upper secondary education and training. They assess the courses as good and practical. In upper secondary education and training the researchers find flawed or lacking instruction in some areas of study.

Many principals in primary, lower secondary and upper secondary school have been offered further education in school administration. Teachers are also offered further education, particularly in connection with foreign languages and natural science, where funds have been earmarked for further education.

The strategy has led to closer cooperation and dialogue between school owners and the university colleges on developing courses. This has also led to substantial competence raising of staff at the university colleges.

The evaluation's final report will be published in the spring of 2009.

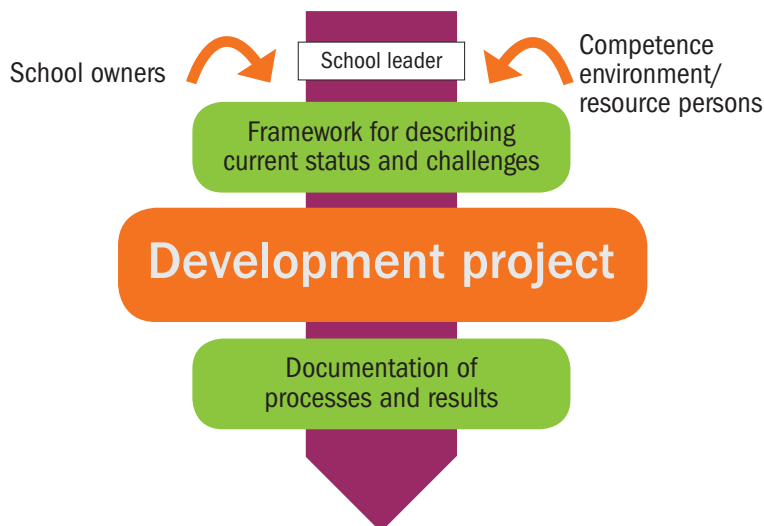
6.4 From word to deed

"Kunnskapsløftet – fra ord til handling" (Programme for School Development) is a programme allocating funding to comprehensive development projects where school owners and schools cooperate with external experts on creating better learning environments and learning for pupils and apprentices. These projects deal with two areas: organisational change and changing day-to-day teaching and learning practices. The programme will initiate quality development in the school sector and collect and disseminate new knowledge on what functions well.

Background

The Programme for School Development was established in 2005 as a four-year development programme with a total financial budget of NOK 100 million. The programme is part of the focus the central authorities have on the Knowledge Promotion reform. In the autumn of 2006 the programme was expanded to include follow up of the Report to Storting no. 16 (2006–2007) "... and none was left behind," and the total funding was also increased to NOK 155 million. An external programme board was appointed to ensure that decisions are based on wide support in the sector and independent assessment of applications.

Schools and other key actors around the pupil



The overriding aim of the programme is to enable more schools to improve pupils' learning and the learning environment by focusing more on school as an organization. The main goal for the programme is that the participating schools shall undertake focused and systematic development activities and develop in accordance with the ideal of learning organisations.

These sub-goals have been established for the project:

- 1 Participating schools and school owners shall improve their ability to assess the practices and results of school systematically by applying available quality data and local observations
- 2 Participating schools and school owners shall improve their ability to undertake comprehensive development projects in cooperation with external cooperation partners to achieve better learning environments and learning for the pupils.
- 3 Development projects shall promote knowledge development and skills in practical school development in external competence environments after the programme has been completed.
- 4 Development projects shall produce knowledge-based and useful tools (as procedures, models and guides) for use on holistic school development.

These sub-goals have been established for the entire programme:

- 1 The programme shall make the tools and knowledge on using them available through established websites and arenas where knowledge can be generated.
- 2 The programme shall build and disseminate knowledge on various techniques for quality assessment in school with relevance for future school policies.

One aim is that the programme should have greater diversity of participants than those who on their own initiative apply to take part in state programmes. This can be accomplished through targeted recruitment and guidance of selected applicants. As all schools can apply for funding, broad sector involvement and a wide range of good project applications are

guaranteed. The idea is that the focus on schools needing more follow-up through guidance will even out the differences between schools.

The programme gives selected schools and school owners practical assistance in implementing the required changes in the classroom, the entire school and in the interaction with others. The sector will also receive more knowledge on comprehensive quality development.

Programme content

Figure 6.1 illustrates the relation between key actors in the programme and the project phases. One important underpinning is the idea that the school owner, the school and the research environment together shall run the development project. The project must be anchored in each school. The school (schools) that have joined the project have undertaken to work systematically over time to improve the way the organisation works and the school's total performance. The school administration is responsible for the development project at each school, while the school owner is the responsible applicant. The idea is that the school owner will take responsibility for sharing the experiences from the project with other schools in this area of responsibility.

The projects will establish links with external research environments and resource centres. In this context "research environments" means university colleges, research institutions, research companies, competence centres, consultancies and local competence in this sector. These will contribute expertise on pupil learning and/or the learning environment and organisation development. One project may cooperate with several competence environments to obtain all the expertise required. An important programme sub-goal is to develop competence in practical school development in the research environments.

Table 6.1: Project topics.

	2006	2007
Early intervention in language learning/basic skills	14	0
Improved performance	9	1
Improved learning outcomes	11	7
Pupil assessment	8	0
Adapted teaching and digital competence	5	10
Learning environment	0	3
Other	0	7
In all	47	28

Source: "Fra ord til handling"/Programme for School Development.

Project portfolio

Table 6.1 provides an overview of topics covered by the programme projects. In 2006, most projects dealt with early efforts in language learning or basic skills and greater learning dividends. In 2007, a number of the projects dealt with adapted teaching and digital competence.

Table 6.2 shows that 92 schools had joined the programme in 2006. Most were primary schools and/or lower secondary schools. In 2007, 129 schools and early childhood centres and one apprenticeship company were taking part. A total of 222 schools, early childhood centres and apprenticeship companies have taken part in the programme.

Phase 1: Recruitment and project launch

Applications to the programme

Project funding has been announced three times, in 2006, 2007 and 2008.

- In 2006, there was one topic: Introduction of the Knowledge Promotion reform
- In 2007, the programme was expanded, having two new topics to follow up the intentions in Report to Storting no. 16 (2006–2007). These were: 1. The introduction of the Knowledge Promotion reform, 2. Early effort to strengthen basic skills, and 3. Increased completion rates in upper secondary education and training.
- In 2008, the topics have been: 1. "Tidleg innsats for livslang læring, ikkje meir vente og sjå!" (Early effort for lifelong learning, no more wait and see!) and 2. "Auka gjennomføring – lære meir, gjennomføre og bestå!" (Increased completion rates – learn more, complete and pass!).

Table 6.2: Number of schools/day-care centres/ apprenticeship companies participating in the programme.

	2006	2007
Day-care centres	0	18
Primary schools (1-7)	49	47
Combined (1-10)	11	23
Lower secondary schools	23	26
Upper secondary schools	9	15
Apprenticeship company	0	1
In all	92	130

Source: "Fra ord til handling"/Programme for School Development.

Table 6.2 provides an overview of the number of projects that have received funding. In 2006, funding for 250 projects was applied for. Of these, 28 projects with a total of 92 schools were granted funding. In 2007, funding for 114 projects was applied for, and 47 projects with a total of 130 schools and early childhood centres had their applications granted. In 2008, funding for 72 projects was applied for, and 23 projects with a total of 72 schools and early childhood centres were granted funding.

Open and guided application round

There are two ways into the programme, guided and open announcements of project funding. The aim is to recruit schools and school owners with varying experience from such work. The idea is to have a broad and varied background for the knowledge that will be brought in, as this will best guarantee success in school development.

The open announcements for funding in 2006 and 2007 allowed all school owners to apply for project funding. In 2008, only school owners in upper secondary education and training have been allowed to do this.

Guided applications have been used by the county governor to recruit school owners to apply for project funding. The point has to get schools or local authorities that have not already applied to join, either because they are not accustomed to applying for project funding or because they are unaccustomed to working with projects or in terms of school development in general.

For both groups of applicants the school owner is the responsible applicant. In addition to schools, early childhood centres, apprenticeship companies and other business, the Norwegian Labour and Welfare Organisation, the Practical-Pedagogical Service and child welfare services may take part in the projects.

The application process is demanding and comprehensive. Participants must carry out a quality assessment of the status of the school to document the basis for the project and to obtain a rationale for the issue they wish to raise. A special tool has been developed for this, a status analysis. There is also a special application form with a template for the project description, where the applicant must provide grounds for the objectives and goals, and explain the choice of activities to satisfy these goals. More is stated about this below.

Applicants to the programme have been offered guidance to the application process through 1. Guidance material on the web, 2. Regional guidance meetings and 3. Guidance in writing the application.

A total of 55 per cent of applicants in 2007 attended regional meetings. Approximately 80 school owners accepted help in writing the application. In 2008, approximately 50 received help in writing the application.

Rambøll Management evaluated the effect of the guidance activities in 2007 using interviews and questionnaires. The study gave good feedback on these activities. A total of 76 per cent of all respondents agree fully or in part that the application process has helped the schools work in a better manner with comprehensive school development. The study also showed that 85 per cent of those who did not receive funding felt that the work with the application had been generally useful or very useful. A total of 82 per cent of project managers agreed fully or in part that the application process had helped their school see the value of discussing which fields should receive attention for improvement. An important programme goal is to mobilise for quality development in the sector, and these are findings that indicate that the guidance activities in the programme have found their target group (Rambøll Management 2008).

The status analysis

All schools that apply for funding must carry out a status analysis as part of the application process. The status analysis is a process tool where the whole staff is involved in assessing the school's practices and the results achieved. The tool also supports choosing one or two areas the schools wish to give priority to for improvement during the next period.

The tool includes selected data from the national quality-assessment system and self-assessment of the work with the pupils, the school's learning environment and the pupils' academic and social learning. As part of the self-assessment, the staff members assess the school's practices in relation to an ideal situation. After the school has completed the study of the staff, data files with the complete status analysis are generated. A similar status analysis has been prepared for early childhood centres taking part in the project.

The status analysis builds on research-based knowledge on systematic quality activities in knowledge organisations. It includes a guide which demonstrates how the tool should be used in accordance with the intentions. Indicators used for the

quality assessment are based on the Education Act and guidelines in the Knowledge Promotion reform. The tool has been tested and adjusted in accordance with user feedback. Systematic collection of feedback from the sector is planned in 2009.

The status analysis is a reflection tool to be used as the point of departure for planning and anchoring quality development in individual schools. The school owner may access an electronic base to see which schools have carried out the status analysis. The tool does not give an objective picture of a school's strong and weak sides and cannot be used to compare schools in a municipality. The reason is that the result builds on self-appraisals of a school's practice compared to what the school staff would consider ideal.

Schools and early childhood centres that have joined the programme carry out the status analysis as a part of the application process. The tool is available to all schools and early childhood centres. A school owner can log on by using the username and password from the Pupil Survey, and can open for the staff to log on using their username and password from the Pupil Survey. Early childhood centres must order a username and password from the Norwegian Directorate for Education and Training's website. Several municipalities have now completed the status analysis for all their schools.

The Norwegian Directorate for Education and Training has prepared a brochure on the status analysis, which is available to everyone.

The organisation analysis

After the projects have been granted funding, the participating schools carry out the organisation analysis. This is done digitally to determine what the school is like as an organisation and a workplace. The study attempts to pinpoint aspects of the organisation that impact the employees' work situation, and which we know impact pupils' learning and learning environment. The topics have been selected and the questions have

Table 6.3 Scope of applications.

Incoming applications	2006		2007		2008	
	Total	%	Total	%	Total	%
Total number of applications	250	-	114	-	72	-
Total amount applied for (MNOK)	400	-	157	-	58	-
Number of applications, open round	212	85 %	71	62 %	16	22 %
Number of applications, guided round	38	15 %	43	38 %	56	78 %
Status after preliminary evaluation						
Total number of projects carried further	128	36 %	84	74 %	-	-
Total amount applied for, projects carried further (MNOK)	273	68 %	122	78 %	-	-
Number of projects carried further, guided round	39	100 %	32	74 %	-	-
Total amount applied for, for projects carried further, guided round (MNOK)	21	-	33	-	-	-
Number of projects carried further, open round	89	42 %	52	73 %	-	-
Total amount applied for, for projects carried further, open round (MNOK)	252	-	90	-	-	-
Whereof granted support						
Available financial framework project support	Ca 40	Ca. 10 %	Ca. 50	ca. 32%	Ca. 20	Ca. 35 %
Granted projects	28	11 %	47	41 %	-	-

Source: "Fra ord til handling"/Programme for School Development

been designed in collaboration with research environments and build on previous research. The main aim of the tool is still development activities in school. Primarily, it is most suitable for pointing out main patterns and simulating discussion on areas that might be improved.

Schools carry out the analysis when their development project commences. Teachers, school administrators and other employees take part. The aim of the analysis is confirmed while employees discuss how the results should be used in the endeavour to make the school better.

So far the organisation analysis is available to schools that have been granted funding from Programme for School Development. When the survey quality is improved and there are fewer questions, other schools may also use the organisation analysis.

Phase 2: implementation and follow-up of projects

When projects have had their applications granted they become part of the programme.

Launch process and school assessment

Selected schools in the programme are offered a launch process based on a school assessment method drawn up by Kompetanseregion Hardanger/Voss and developed under the auspices of the programme. The method aims to ensure that the project activities get off to a good start. Experienced school assessors are present at the school for four or five days to deal with the topic the school is to work with in the project. The school's practice is assessed in comparison with an ideal picture based on written documentation, observation and interviews with pupils, parents and employees. The school assessment is carried out in cooperation with the research environment the school has chosen, and the school receives the report on the final day of the assessment week. A workbook for the school assessment method will be finished in the spring of 2008.

The Directorate of Immigration is following up all the projects. Obligatory meetings are arranged and reports and documentation requirements have been set, and participants are encouraged to share the tools, knowledge and experiences locally, regionally and nationally. The projects also receive necessary assistance and guidance. Follow-up is also a way of ensuring that experience, knowledge and tools are spread from the programme to others.

Phase 3: Collecting and disseminating new knowledge

An important part of the programme objectives is to make tools and knowledge developed in the programme available through established arenas. There are therefore continuous activities in the project to document practices and results, while the Norwegian Directorate for Education and Training is documenting the entire programme and the individual processes in it, and implementing distribution/communication measures.

Programme for School Development will be evaluated with a view to extracting knowledge that can be used to develop the programme and help design school policy. FAFO has been given the task of evaluating the entire programme, and individual assignments have also been given to evaluate several elements and processes within the programme.

The Norwegian Directorate for Education and Training is working on distributing the experiences gained from the programme through conferences, the internet and the media. The programme is on the internet: www.skolenettet.no/fraordtilhandling, and brochures explaining the programme and its elements have been published. In the spring of 2008 the Norwegian Directorate for Education and Training has announced funding for project distribution measures. The aim of this is to stimulate participants to share and distribute experiences, knowledge and tools from the projects..

Reference list

Arbeids og inkluderingsdepartementet (2008):

Handlingsplan for integrering og inkludering av innvandrerbefolkningen – styrket innsats 2008. Vedlegg til St.prp. nr. 1 (2007–2008) – Statsbudsjettet 2008.

Arnseth, Hans Christian, Ove Hatlevik, Vibeke Kløvstad,

Tove Kristiansen og Geir Ottestad (2007):

ITU Monitor 2007. Forsknings- og kompetansenettverk for IT i Utdanning (ITU).

Bonesrønning, Hans, Lars-Erik Borge, Marianne Haraldsvik og

Bjarne Strøm (2008):

Ressurser og resultater i grunnopplæringen. Forprosjekt. Rapport nr. 4/08. Senter for økonomisk forskning (SØF), Trondheim.

Bonesrønning, Hans og Per Tovmo (2008):

Arbeidsnotat. Foreløpige analyser av nasjonale prøver 2007. Senter for økonomisk forskning (SØF), Trondheim

Buland, Trond og Vidar Havn (2007):

Intet menneske er en øy. Rapport fra evalueringen av tiltak i satsing mot frafall. SINTEF Teknologi og samfunn. Gruppe for skole- og utdanningsforskning. Trondheim.

Buland, Trond, Liv Finbak, Kristianne V. Ervik og Trine Stene (2007):

Lokal grunnmur gir nasjonalt byggverk? Evaluering av tiltaksplanen "Gi rom for lesing!" – Delrapport 3. SINTEF, Trondheim.

Buland, Trond, Thomas Dahl, Liv Finbak og Vidar Havn (2008):

Det er nå det begynner! Sluttrapport fra evalueringen av tiltaksplanen "Gi rom for lesing!" SINTEF, Trondheim.

Byrhagen Karen N, Torberg Falch og Bjarne Strøm (2006):

Frafall i videregående opplæring: Betydning av grunnskolekarakterer, studieretninger og fylke. SØF – Rapport nr. 08/06. Senter for økonomisk forskning (SØF), Trondheim.

Daal, Victor van, Ragnar Gees Solheim, Nina Nøttaasen Gabrielsen og Anne Charlotte Begum (2007):

Norske elevers leseinnsett og leseferdigheter. Resultater fra fjerde og femte trinn i den internasjonale studien PIRLS 2006. Lesesenteret, Universitetet i Stavanger.

Dahl, Thomas, Lars Klewe og Poul Skov (2004):

En skole i bevægelese. Evaluering af satsning på kvalitetsudvikling i den norske grundskole. Danmarks Pædagogiske Universitets Forlag. København.

Deichman-Sørensen, Trine (2007):

Mot en ny infrastruktur for læring og kontroll. Kvalitetsvurdering i fag- og yrkesopplæring. Rapport fra evaluering av Nasjonalt kvalitetsvurderingssystem i grunnopplæringen. Arbeidsforskningsinstituttet: AFI-rapport 3/2007.

Engen, Liv, Ragnar Gees Solheim og Anne Charlotte Begnum (2005):

Leseferdighet på 2. årstrinn våren 2005. Delrapport. Nasjonalt Senter for leseopplæring og leseforskning. Universitetet i Stavanger.

Engen, Liv, Anne Charlotte Begnum Thorstein Heyen og Ragnar Gees Solheim (2007):

Leseferdighet på 2. årstrinn våren 2007. Delrapport. Nasjonalt Senter for leseopplæring og leseforskning. Universitetet i Stavanger.

Furre, Harald, Inger-Johanne Danielsen, Karl Skaar og Einar M.

Skaalvik (2007):

De viktigste få. Analyse av Elevundersøkelsen 2007. Kristiansand: Oxford Research AS.

Gabrielsen, E., Haslund J. og B.O. Lagerstrøm (2005):

Lese og mestringskompetanse i den norske voksenalderbefolkningen: Resultater fra "Adult Literacy and Life Skills" (ALL) Stavanger: Nasjonalt senter for leseopplæring og leseforskning, Universitetet i Stavanger.

Gravaas, Bente Christine, Hægeland, Torbjørn, Lars J. Kirkebøen og

Kjartan Steffensen (2008):

Skoleresultater 2007. En kartlegging av karakterer fra grunn- og videregående skoler i Norge. SSB-notat 2008. Statistisk sentralbyrå.

Grønmo, Liv S., Ole K. Bergem, Marit Kjærnsli, Svein Lie og Are Turmo (2004):

Hva i all verden har skjedd i realfagene? Norske elever prestasjoner i matematikk og naturfag i TIMSS 2003. Rapport 5/2004. Institutt for lærerutdanning og skoleutvikling, Universitetet i Oslo.

Hagen, Anna, Torgeir Nyen og Marjan Nadim (2008):

Evaluering av "Kompetanse for utvikling. Strategi for kompetanseutvikling i grunnopplæringen 2005–2008" Delrapport 3. Fafo-notat 2008:13.

Hallås, Hilde A. (2007):

Utdanning: Kvinner dominerer på nesten alle nivåer. Samfunnsspeilet nr.5–6, 2007.

Haugsbakken, Halvard og Trond Buland (2007):

Leksehjelp – hjelp til dem som trenger det? Delrapport 2 fra evalueringen av Prosjekt leksehjelp. SINTEF Teknologi og samfunn, Trondheim.

Hægeland, Torbjørn og Lars J. Kirkebøen (2007):

Skoleresultater 2006. En kartlegging av karakterer fra grunn- og videregående skoler i Norge. SSB-notat 2007/29. Statistisk sentralbyrå.

Hægeland, Torbjørn, Lars J. Kirkebøen og Jens Fredrik Baumgarten

Skogstrøm (2007):

Realfagskompetansen fra videregående opplæring og søkning til høyere utdanning. Rapport 2007/30. Statistikk Sentralbyrå (SSB).

Hægeland, Torbjørn, Lars J. Kirkebøen og Oddbjørn Raaum (2008):

Ressurser i grunnskolen og videregående opplæring i Norge 2003–2007. Rapport 3/2008 Frischsenteret. Oslo.

- Hølleland, Halvard (red.) (2007):
På vei mot Kunnskapsløftet. Begrensninger, løsninger og utfordringer. Cappelen akademiske forlag AS, Oslo.
- Kavli, Hanne C. (2006):
"Med rett til å lære. Det offentlige kvalifiseringsregimet for innvandrere og flyktingar." I Anne Britt Djuve, Hanne Cecilie Kavli og Monica Lund (red.): *Integreringskart 2006. På vei mot en kunnskapsstatus ved etableringen av Integrerings og mangfoldsdirektoratet.* IMDi Rapport 1/2006. Integrerings- og mangfoldsdirektoratet.
http://www.imdi.no/upload/Integreringskart_2006.pdf
- Kavli, Håkon (2008):
Nasjonale prøver 2007 – Brukerens evaluering av gjennomføringen. Synovate, Research reinvented. Oslo.
- Kjærnsli, Marit, Svein Lie, Rolf V. Olsen, Astrid Roe og Are Turmo (2004):
Rett spor eller ville veier? Norske elevers prestasjoner i matematikk, naturfag og lesing i PISA 2003. Universitetsforlaget, Oslo.
- Kjærnsli, Marit, Svein Lie, Rolf Vegar Olsen og Astrid Roe (2007):
Tid for tunge løft. Norske elevers kompetanse i naturfag, lesing og matematikk i PISA 2006. Oslo: Universitetsforlaget, Oslo.
- Klette, Kirsti, Lie, Svein., Ødegaard, Marianne, Anmarksrud, Øystein, Arnesen, Nina, Bergem, Ole K. og Astrid Roe. (2007):
Rapport om forskningsprosjektet PISA+. Norges forskningsråd. Oslo.
- Kunnskapsdepartementet (2006):
Et felles løft for realfagene. Strategi for styrking av realfagene 2006-2009.
- Kunnskapsdepartementet (2006):
Læreplanverket for Kunnskapsløftet.
- Kunnskapsdepartementet (2006):
Tiltak for bedre gjennomføring i videregående opplæring. Rapport fra arbeidsgruppe nedsatt av Kunnskapsdepartementet.
- Kunnskapsdepartementet (2008):
KD-aktuelt nr.3/08. Nyhetsbrev fra Kunnskapsdepartementet april 2008.
http://www.regjeringen.no/nb/dep/kd/dok/tidsskrift_nyhetsbrev/Forsiden-KD-aktuelt2/kd-aktuelt-nr-3-2008.html?id=506767
- Kvåle, Gro, Gjert Langfeldt og Paul Skov. *Under publisering.* 2008
- Lagerstrøm, Bengt Oscar (2007):
Kompetanse i grunnskolen. Hovedresultater 2005/2006. Rapport 2007/21. Statistisk sentralbyrå (SSB). Oslo.
- Lauglo, Jon (2008):
Familiestruktur og skoleprestasjoner. Tidsskrift for ungdomsforskning 2008, 8 (1):3-29.
- Leithwood, Kenneth, Karen Seashore Louis, Stephen Anderson and Kyla Wahlstrom (2004):
Review of research. How leadership influences student learning. New York, NY: The Wallace Foundation, Center for Applied Research and Educational Improvement and Ontario Institute for Studies in Education.
- Leithwood, Kenneth, Christopher Day, Pam Sammons, Alma Harris and David Hopkins (2006):
Seven strong claims about successful school leadership. National College for School Leadership. England: NCSL.
- Lie, Svein, Marit Kjærnsli, Astrid Roe og Are Turmo (1997):
Hva i all verden skjer i realfagene? Internasjonalt lys på trettenåringers kunnskaper, holdninger og undervisning i norsk skole. Oslo: Institutt for lærerutdanning og skoleutvikling, Universitetet i Oslo.
- Lie, Svein., M. Kjærnsli, A. Roe og A. Turmo (2001):
Godt rustet mot framtida? Norske 15. åringers kompetanse i lesing og realfag i et internasjonalt perspektiv. Acta Didactica 4/2001. Institutt for lærerutdanning og skoleutvikling, Universitetet i Oslo.
- Lie, Svein, Marion Caspersen og Julius K. Björnsson (2004):
Nasjonale prøver på prøve. Rapport fra en utvalgsundersøkelse for å analysere og vurdere kvaliteten på oppgaver og resultater til nasjonale prøver for våren 2004. Institutt for lærerutdanning og skoleutvikling, Universitetet i Oslo. Educational Testing Institute, Reykjavik.
- Lie, Svein, Therese N. Hopfenbeck, Elisabeth Ibsen og Are Turmo (2005):
Nasjonale prøver på ny prøve. Rapport fra en utvalgsundersøkelse for å analysere og vurdere kvaliteten på oppgaver og resultater til nasjonale prøver for våren 2005. Institutt for lærerutdanning og skoleutvikling, Universitetet i Oslo.
- Markussen, Eifred, Berit Lødding, Nina Sandberg og Nils Vibe (2006):
Forskjell på folk – hva gjør skolen? Valg, bortvalg og kompetanseoppnåelse i videregående opplæring blant 9749 ungdommer som gikk ut av grunnskolen i Østlandet våren 2002. Hovedfunn, konklusjoner og implikasjoner tre og et halvt år etter, NIFU STEP rapport 3/2006, Oslo.
- Markussen, Eifred, Mari Wigum Frøseth, Berit Lødding og Nina Sandberg (2008):
Bortvalg og kompetanse. NIFU STEP rapport 13/2008. Oslo.
- Mullis, Ina V.S. og Michael O. Martin, Ann M. Kenny og Pierre Foy (2007):
PIRLS 2006 International Report. IEA's Progress in International Reading Literacy Study in Primary Schools in 40 Countries. TIMSS & PIRLS International Study Center. Lynch School of Education, Boston College.
- Nordahl, Thomas, Øystein Gravrok, Hege Knudsmoen, Torill M.B. Larsen og Karin Rørnes (red.) (2006):
Forebyggende innsats i skolen. Rapport fra forskergrupper oppnevnt av Utdanningsdirektoratet og Sosial- og helsedirektoratet om problematferd, rusforebyggende arbeid, læreren som leder og implementeringsstrategier. Sosial- og helsedirektoratet. Utdanningsdirektoratet.

- OECD (2001):
Knowledge and Skills for Life. First Results from PISA 2000. Programme for International Student Assessment. OECD, Paris.
- OECD (2004):
Learning for Tomorrow's Word. First Results from PISA 2003. Programme for International Student Assessment. OECD, Paris.
- OECD (2007a):
Education at a Glance. OECD Indicators 2007. Paris.
- OECD (2007b):
Improving School Leadership. Country Background Report from Norway. Paris.
- OECD (2007):
PISA 2006. Science Competencies for Tomorrow's Word. Programme for International Student Assessment. OECD, Paris.
- OECD (2008):
Improving School Leadership. Paris.
- Ogle, Larry, Anne Charlotte Begnum og Elois Scott (2008):
Comparisons of Home and School Characteristics of Language Minority and Language Majority Fourth-graders: PIRLS Results from Three Nordic Countries. Paper at the annual meeting in the Comparative and International Education Society. March, 2008. New York.
- Ottestad, Geir (2008):
IEA SITES 2006. Visjoner og realiteter – Bruk av IKT i matematikk og naturfag på åttende trinn. Forsknings- og kompetansenettverk for IT i Utdanning (ITU).
- Rambøll Management (2007):
Evaluering av strategiplanen 'Realfag, naturligvis'. Sluttrapport. Rambøll Management, Oslo.
- Riksrevisjonen 3:13 (2004–2005):
Riksrevisjonens undersøkelse av kommunenes ansvar for skolebygninger.
- Roe, Astrid og Ragnar Gees Solheim (2007):
PISA og PIRLS. Om norske elevers leseresultater. Paper til Fagkonferanse om PISA og PIRLS 10. desember 2007. Utdanningsdirektoratet.
- Roe, Astrid og Karin Taube (2003):
"Reading achievement and gender differences". I S. Lie mfl. (red.), *Northern Lights on PISA.* Oslo: Institutt for lærerutdanning og skoleutvikling. Universitetet i Oslo.
- Schanke, Tuva og Asgeir Skålholt (2008):
Kunnskapsstatus om skolebygg – en kartlegging av forskning på sammenhenger mellom skolebyggs utforming og elevenes læringsutbytte. Notat nr. 02/2008. Østlandsforskning,
- Skolverket (2007):
PIRLS 2006. Läsförmågan hos elever i årskurs 4 – i Sverige och i världen. Rapport 305/2007. Skolverket. Stockholm.
- SSB (2007):
"Færre velger yrkesfag etter reformen". Finnes på <http://www.ssb.no/emner/04/02/30/vgu/>
- SSB (2008a):
Fakta om utdanning 2008 – nøkkeltall fra 2006. Oslo: Statistisk sentralbyrå.
<http://www.ssb.no/emner/04/02/fakta/>
- SSB (2008b):
Færre velger yrkesfag etter reformen. Artikkel 14.02.2008. Statistisk sentralbyrå.
<http://www.ssb.no/emner/04/02/30/vgu>
- Stortingsmelding nr 16 (2006/2007):
... og ingen stod igjen. Tidlig innsats for livslang læring.
- TNS Gallup (2008):
Status for godkjenning av skoler i Norge per 12.02.08. Rapport for Utdanningsdirektoratet.
- Turmo, Are og Per Olaf Aamodt (2007):
Pedagogisk og faglig kompetanse blant lærere i videregående skole: En kartlegging. Rapport 29/2007. NIFU STEP.
- Utdannings- og forskningsdepartementet (2005):
Realfag Naturligvis- strategi for styrking av realfagene 2002–2007.
- Utdanningsdirektoratet (2006):
Nasjonale føringer for kvalitet i fag- og yrkesopplæringen.
- Vibe, Nils (2006):
Bedre grunnlag for valg. Evaluering av prosjektet Rett førstevalg. Arbeidsnotat 28/2006. NIFU STEP. Oslo.
- Vox (2006):
Basis! Voksnes læring 2006 – tilstand, utfordringer, anbefalinger.
http://www.vox.no/upload/5458/Basis_tilweb.pdf
- Vox (2007):
Basis! Voksnes læring 2006 – tilstand, utfordringer, anbefalinger.
<http://www.vox.no/upload/26/Basisnettversjon.pdf>
- Wargocki, P. og D.P. Wyon (2006):
Improving classroom air quality and reducing even quite moderately elevated classroom temperatures can help children to perform better in school. ASHRAE Journal.

List of tables and figures

Tables

1 Facts about primary lower and upper secondary education

Table 1.1: The distribution of adults according to different types of primary and lower secondary education, with figures for the percentages of language minorities and women 2002-2003 to 2007-2008.

Table 1.2: Development in the number of persons receiving schooling in Norwegian and social studies with the percentage of women, 2002-2003 to 2007-2008.

Table 1.3: Teachers and administrators in municipal and county primary and lower secondary schools, according to qualifications and gender. 2006. Percentage

Table 1.4: Teachers and administrators in municipal and county primary and lower secondary schools by age groups. 2006. Percentage.

Table 1.5: Distribution of pupils according to education programme and levels in upper secondary school, 2001-2002 to 2007-2008. Preliminary figures for all the years.

Table 1.6: Contract partners and apprentices as of 1 November 2007. Preliminary figures.

Table 1.7: Adults who apply and adults participating in programmes for adults, by county of residence and in total. 2007.

Table 1.8: Teachers and administrators in upper secondary school, by qualifications and gender. 2006. Percentage.

Table 1.9: Teachers and administrators in upper secondary school, by age groups. 2006. Percentage.

Table 1.10: The highest education level in the population. Persons 16 years old or older by education level and age. 2006. Percentage.

2 Resources

Table 2.1: Adjusted gross operating expenditures per pupil in primary and lower secondary education by type of expense, 2003 to 2007. Continuous prices and permanent 2007 prices (in italics).

Table 2.2: Characteristics of the 25 municipalities with lowest or highest operating expenditures in 2006.

Table 2.3: Proportion in percentage of teacher hours for special language instruction for minorities, of the total number of teacher hours.

Table 2.4: Percentage of pupils receiving special teaching and proportion with special teaching in Norwegian.

Table 2.5: Proportion in percentage of full-time equivalents worked by assistants, of the total number of teaching full-time equivalents.

Table 2.6: Extra teaching hours per pupil.

Table 2.7: Pupils per form teacher distributed by the proportion of pupils and schools for 2007-2008.

Table 2.8: Adjusted gross operating expenditures per pupil in upper secondary education and training according to type of expenditure, 2004 to 2007. Continuous prices.

Table 2.9: Characteristics of the three counties with highest or lowest operating expenditures in 2006.

Table 2.10: Proportion in percentage of pupils with special teaching in 2006.

Table 2.11: Pupils per PC in primary and lower secondary education 2007-2008, with and without internet connection.

3 Learning outcomes

Table 3.1: Results of reading tests in Year 2 in 2000, 2006 and 2007.

Table 3.2: Average reading score for pupils in Year 4* and proportion of pupils on the different competence levels in PIRLS 2006.

Table 3.3: Average reading score for majority and minority pupils in PIRLS 2006.

Table 3.4: Pupils in Year 5 in national tests in 2007, by mastering levels 1 to 3. Per cent.

Table 3.5: Distribution of pupils in Year 8 in national tests in 2007, by mastering levels 1 to 5. Per cent.

Table 3.6: Norwegian average scores in the PISA studies in 2000, 2003 and 2006 in reading, mathematics and natural science compared to the OECD average.

Table 3.7: Average reading scores for 15-year olds and proportions on the different mastering levels in the PISA study in 2006.

Table 3.8: Average natural science scores for 15-year olds and proportions on the different levels in the PISA study in 2006.

Table 3.9: Average mathematics score for 15-year olds and proportions on the different levels in the PISA study in 2006.

Table 3.10: Average overall achievement grades for pupils leaving lower secondary school, 2002 to 2007, by subject.

Table 3.11: Average grades on written final examinations in lower secondary school, 2002 to 2007, by subject.

Table 3.12: Average lower secondary school points, 2002 to 2007. All. Girls and boys.

Table 3.13: Lower secondary school points achieved in 2007, according to gender, parents' education and immigrant background.

Table 3.14: Average overall achievement grades in selected subjects in programmes for specialisation in general studies in Vg1. 2007. All. Girls and boys.

Table 3.15: Average overall achievement grades in selected vocational subjects in Vg1. 2007. All. Girls and boys.

Table 3.16: Average overall achievement grades and examination grades in selected subjects in the third year of upper secondary school from areas of study qualifying for higher education (the old VK2), 2005 to 2007.

Table 3.17: Average examination grades in selected subjects in the third year of upper secondary school from areas of study qualifying for higher education (the old VK2), 2005 to 2007. Girls and boys.

Table 3.18: Average overall achievement grades in Norwegian first-choice language in the third year of upper secondary school (the old VK2) in areas of study qualifying for higher education, according to gender, parents' education and immigrant background 2007.

Table 3.19: Percentage that passed the journeyman's and craft certificate examinations in 2007, by county.

Table 3.20: Journeyman's and craft certificate examinations and the proportion that passed in percentage of those sitting for examinations in 2007.

Table 3.21: Journeyman's and craft certificate examinations 2001 to 2007, and the proportion that passed in percentage of those who sat for examinations by gender.

Table 3.22: Journeyman's and craft certificate examinations in 2007, by area of study and gender.

Table 3.23: Pupils, apprentices and trainees that passed the journeyman's and craft certificate examinations in 2007. All. Girls and boys.

4 The Learning environment

Table 4.1: Motivation - indicator in the new School Portal

5 The Numbers of pupils and completion rates in upper secondary education and training

Table 5.1: The number of applicants to Vg1 as of 1 March 2006, 2007 and 2008, in total and proportion with youth right.

Table 5.2: The number of applicants to Vg2 as of 1 March 2007 and 2008, in total and proportion with youth right.

Table 5.3: The number of applicants to VK2 in school as of 1 March 2007, in total and the proportion with youth right.

Table 5.4: The number of applicants to Vg3 in school as of 1 March 2008, in total and proportion with youth right.

Table 5.5: The number of applicants to an apprenticeship as of 1 March 2007, and proportion with youth right.

Table 5.6: The number of applicants to an apprenticeship as of 1 March 2008, and proportion with youth right.

Table 5.7: The number of pupils in Vg1 as of 1 October 2007, according to education programme and proportion with youth right.

Table 5.8: The number of pupils in Vg2 as of 1 October 2007, according to education programme and proportion with youth right.

Table 5.9: The number of pupils in VK2 in school as of 1 October 2005 and 2007, according to education programme and proportion with youth right.

Table 5.10: The number of apprenticeship contracts in force as of 1 October 2005, 2006 and 2007, according to course of studies and the proportion with youth right.

Table 5.11: Youths with youth right registered with the follow-up service as of 31 December 2006 and 2007, by county.

6 Quality development

Table 6.1 Project topics

Table 6.2. Number of schools/day-care centres/apprenticeship companies participating in the programme

Table 6.3: Scope of applications

Figures

1 Facts about primary and secondary education and training

Figure 1.1: Developments in the relative distribution of pupils in primary school and lower secondary school in the period 1997-1998 to 2007-2008.

Figure 1.2: The distribution of small, medium-sized and large ordinary primary and lower secondary schools in percentage, 1997-1998 to 2007-2008.

Figure 1.3: The distribution of pupils in small, medium-sized and large ordinary primary and lower secondary schools in percentage, 1997-1998 to 2007-2008.

Figure 1.4: Ordinary primary and lower secondary schools with "bokmål", "nynorsk" and Saami as the first-choice language, by county, 2007-2008. Percentage.

Figure 1.5: Apprenticeship contracts as of 1 October 2000 to 2007. Preliminary figures.

Figure 1.6: The highest education level of the population in OECD countries in the 25-64 age group, ranked by the proportion with higher education. 2005. Percentage.

2 Resources

Figure 2.1: Distribution of municipalities according to real operating expenditures and operating expenditures adjusted for cost structure per pupil in 2006.

Figure 2.2: Development of teacher hours per pupil (Years 1-4, 5-7 and 8-10) over time.

Figure 2.3: Hours for special teaching, proportion of teacher hours in total per year.

Figure 2.4: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 1-4.

Figure 2.5: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 5-7.

Figure 2.6: Development in teacher density, teacher hours, pupil hours and the number of pupils over time for Years 8-10.

Figure 2.7: Development in the number of pupils per form teacher by year.

Figure 2.8: Expenditures per pupil in programmes for specialisation in general studies, 2006 and 2007.

Figure 2.9: Expenditures per pupil in vocational education programmes, 2006 and 2007.

Figure 2.10: Percentage of net operating expenditures for upper secondary education allocated to vocational education.

Figure 2.11: Proportion in percentage of expenditures on education in relation to GNP and the total of public expenditures 2003 to 2007.

Figure 2.12: Expenditures per pupil in OECD countries, measured in USD.

3 Learning outcomes

Figure 3.1: Reading understanding in tests for Year 4 in PIRLS 2006. Nordic countries.

Figure 3.2: Pupils in Year 5 in national tests 2007, by mastering level and county. Per cent.

Figure 3.3: Standardised national test results from 2007 in Year 5 in reading, mathematics and English in total, according to size of municipality measured in the number of inhabitants.

Figure 3.4: Standardised national test results from 2007 in Year 5 according to immigrant background.

Figure 3.5: Standardised national test results from 2007 in Year 8 according to immigrant background.

Figure 3.6: Distribution of lower secondary school points by immigrant background.

4 The learning environment

Figure 4.1: Bullying. All pupils.

Figure 4.2: Adapted education. Lower secondary school and upper secondary education.

Figure 4.3: The value of performance reviews. All pupils.

Figure 4.4: The value of subject achievement feedback. Lower secondary school and upper secondary education.

Figure 4.5 Disruption and unrest. All pupils.

5 The number of pupils and completion rates in upper secondary education and training

Figure 5.1: The proportion of girls among applicants to Vg1 as of 1 March 2007, according to education programme.

Figure 5.2: Status five years after start of school for pupils in general studies and vocational programmes for the years 1998, 1999, 2000 and 2001.

Figure 5.3: Status five years after start of school for pupils in general studies and vocational programmes for the 2001 year group according to immigrant background.

Figure 5.4: Pupils who have dropped out of upper secondary education according to parents' education background.

Attachments

Attachment Table 1.1 to Figure 1.1: Development of the relative distribution of pupils in primary school and lower secondary school in the period 1997–1998 to 2007–2008.

	Primary school	Lower secondary school	Primary and lower secondary school
1997-1998	0,00	0,00	0,00
1998-1999	2,46	0,18	1,87
1999-2000	4,52	2,04	3,94
2000-2001	6,18	4,47	5,77
2001-2002	6,92	8,37	7,38
2002-2003	7,71	12,90	9,32
2003-2004	7,65	17,29	10,64
2004-2005	6,99	19,83	10,76
2005-2006	7,00	21,26	11,14
2006-2007	7,38	21,53	11,03
2007-2008	6,93	21,03	10,60

Attachment Table 1.2 to Figure 1.2: The distribution of small, medium-sized and large ordinary primary and lower secondary schools by percent, 1997–1998 to 2007–2008.

	Less than 100 pupils	100-299 pupils	300 pupils or more
1997-1998	39,5	41,6	18,9
1998-1999	38,4	41,9	19,7
1999-2000	37,9	41,1	21,0
2000-2001	37,2	40,8	22,0
2001-2002	36,3	40,6	23,2
2002-2003	35,8	40,3	23,9
2003-2004	35,0	39,7	25,3
2004-2005	35,3	39,0	25,7
2005-2006	35,6	38,7	25,7
2006-2007	34,6	39,8	25,6
2007-2008	34,4	39,4	26,2

Attachment Table 1.3 to Figure 1.3: The distribution of pupils in small, medium-sized and large ordinary primary and lower secondary schools by percent, 1997–1998 to 2007–2008.

	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
2007-2008	8,3	38,2	53,5

Attachment Table 1.4 to Figure 1.4: Ordinary primary and lower secondary schools with "bokmål", "nynorsk" and Saami as the first-choice Norwegian language, by county. 2007–2008. Percentage.

	"Bokmål"	"Nynorsk"	Saami
Norway	86	14	0
Vestfold	100	0	0
Østfold	100	0	0
Hedmark	100	0	0
Nordland	100	0	0
Sør-Trøndelag	100	0	0
Nord-Trøndelag	100	0	0
Akershus	100	0	0
Troms	100	0	0
Oslo	99	0	0
Buskerud	97	3	0
Vest-Agder	97	3	0
Aust-Agder	93	7	0
Finnmark	92	0	8
Telemark	86	14	0
Oppland	80	20	0
Rogaland	74	26	0
Hordaland	59	41	0
Møre og Romsdal	46	54	0
Sogn og Fjordane	3	97	0

Attachment Table 1.5 to Figure 1.5: Apprenticeship contracts as of 1 October 2000 to 2007. Preliminary figures.

	With youth right	Without 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
2007	26 138	11 551	37 689

Attachment Table 1.6 to Figure 1.6: The highest education level of the population in OECD countries in the 25-64 age group, ranked by the proportion with higher education. 2005. Percentage.

	University/College	Upper secondary	Primary and lower secondary
Turkey	10	18	73
Italy	12	38	49
Portugal	13	14	74
Czech Republic	13	77	10
Slovakia	13	72	14
Mexico	15	6	79
Hungary	17	59	24
Poland	17	68	15
Austria	18	63	19
Greece	21	38	40
Germany	25	59	17
France	25	41	34
Luxembourg	27	45	28
New Zealand	27	52	21
Spain	28	20	51
Ireland	29	35	35
Switzerland	29	58	13
Great Britain	30	56	14
Sweden	30	54	16
Netherlands	30	42	28
Iceland	31	39	30
Belgium	31	35	34
South Korea	32	44	24
Australia	32	33	35
Norway	33	45	22
Denmark	33	49	17
Finland	35	44	21
USA	39	49	12
Japan	40	50	10
Canada	46	39	15

Attachment Table 2.1 to Figure 2.1: Distribution of municipalities according to real operating expenditures and operating expenditures adjusted for cost structure per pupil for 2006.

Gross operating expenditures per pupil in NOK 1000.	Number of municipalities. Adjusted gross operating expenditures	Number of municipalities. Operating expenditures adjusted for structure
50-55	3	1
55-60	13	2
60-65	43	9
65-70	65	23
70-75	63	54
75-80	52	112
80-85	48	100
85-90	38	72
90-95	22	27
95-100	19	16
100-105	11	7
105-110	18	5
110-115	12	1
115-120	9	0
120-125	2	0
125-130	4	0
130-135	2	1
135-140	3	0
150-155	1	0
155-160	1	0
170-175	1	0

Attachment Table 2.2 to Figure 2.2: Development of teacher hours per pupil (Years 1-4, Years 5-7 and Years 8-10) over time.

	All years	Years 1-4	Years 5-7	Years 8-10
2003-2004	52,8	46,5	58,6	57,5
2004-2005	53,5	48,4	58,2	57,3
2005-2006	53,6	49,2	57,7	56,7
2006-2007	54,2	49,9	57,3	56,8
2007-2008	54,8	50,7	57,7	57,1

Attachment Table 2.3 to Figure 2.3: Hours for special teaching, proportion of teacher hours in total per year.

	All years	Years 1-4	Years 5-7	Years 8-10
2003-2004	13,6	10,3	14,9	15,9
2004-2005	13,4	10,1	14,4	15,8
2005-2006	13,5	10,3	14,3	16,2
2006-2007	14,0	10,8	14,7	16,7
2007-2008	14,7	11,6	15,5	17,5

Attachment Table 2.4 to Figure 2.4: Development of teacher density, teacher hours, pupil hours and the number of pupils over time for Years 1-4.

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-2001	1	1	1	1
2001-2002	0,994	0,993	1,002	0,995
2002-2003	1,005	1,029	0,976	1,000
2003-2004	0,941	1,008	0,932	1,002
2004-2005	0,973	1,058	0,919	0,994
2005-2006	0,985	1,094	0,901	0,989
2006-2007	0,992	1,089	0,912	0,981
2007-2008	1,001	1,082	0,927	0,970

Attachment Table 2.5 to Figure 2.5: Development of teacher density, teacher hours, pupil hours and the number of pupils over time for Years 5-7.

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-2001	1	1	1	1
2001-2002	1,013	1,019	0,994	1,020
2002-2003	1,018	1,030	0,986	1,031
2003-2004	1,063	1,025	1,038	1,028
2004-2005	1,048	1,016	1,033	1,020
2005-2006	1,038	1,014	1,025	1,018
2006-2007	1,042	1,024	1,021	1,027
2007-2008	1,055	1,027	1,031	1,030

Attachment Table 2.6 to Figure 2.6: Development of teacher density, teacher hours, pupil hours and the number of pupils over time for Years 8-10.

	Teacher hours	Pupil hours	Teacher density	Pupils
2000-2001	1	1	1	1
2001-2002	1,023	1,034	0,991	1,036
2002-2003	1,046	1,081	0,968	1,079
2003-2004	1,073	1,120	0,959	1,122
2004-2005	1,090	1,142	0,956	1,144
2005-2006	1,088	1,149	0,949	1,152
2006-2007	1,089	1,145	0,953	1,147
2007-2008	1,092	1,142	0,959	1,141

Attachment Table 2.7 to Figure 2.7: Development of the number of pupils per form teacher by year.

	Years 1-4	Years 5-7	Years 8-10
2003-2004	17,8	18,4	18,0
2004-2005	16,2	16,3	15,5
2005-2006	16,2	16,2	15,2
2006-2007	16,2	16,3	15,2
2007-2008	16,1	16,1	15,0

Attachment Table 2.8 to Figure 2.8: Expenditures per pupil in programmes for specialisation in general studies, 2006 and 2007.

	2006	2007
Østfold	87	94
Akershus	83	87
Oslo	98	116
Hedmark	92	96
Oppland	100	94
Buskerud	84	86
Vestfold	84	89
Telemark	83	93
Aust-Agder	92	96
Vest-Agder	82	89
Rogaland	79	91
Hordaland	86	96
Sogn og Fjordane	108	115
Møre og Romsdal	86	91
Sør-Trøndelag	90	95
Nord-Trøndelag	102	104
Nordland	97	101
Troms	108	111
Finnmark	113	123

Attachment Table 2.9. for Figure 2.9: Expenditures per pupil in vocational education programmes, 2006 and 2007.

	2006	2007
Østfold	118	126
Akershus	109	115
Oslo	115	136
Hedmark	119	124
Oppland	110	109
Buskerud	100	112
Vestfold	109	113
Telemark	104	113
Aust-Agder	116	120
Vest-Agder	100	115
Rogaland	104	117
Hordaland	113	127
Sogn og Fjordane	127	134
Møre og Romsdal	114	117
Sør-Trøndelag	109	114
Nord-Trøndelag	121	133
Nordland	127	132
Troms	136	142
Finnmark	127	140

Attachment Table 2.10 to Figure 2.10: Percentage of net operating expenditures for upper secondary education allocated to vocational education.

	2004	2005	2006	2007
Andel	7	7,1	7,3	7,7

Attachment Table 2.11 to Figure 2.11: Proportion in per cent of expenditures on education in relation to GNP and total public expenditures, 2003 to 2007.

	2003	2004	2005	2006	2007
Proportion of total public expenditures spent on primary and lower secondary school	5,97	6,00	6,20	5,99	5,92
Proportion of total public expenditures spent on upper secondary education and training	3,12	3,30	3,00	2,98	2,94
Proportion of total public expenditures spent on other education	4,94	4,63	4,92	4,71	4,61
Proportion of mainland Norway GNP spent on primary and lower secondary education	3,39	3,26	3,16	3,15	3,02
Proportion of mainland Norway GNP spent on upper secondary education and training	1,77	1,81	1,57	1,57	1,50
Proportion of mainland Norway GNP spent on other education	2,81	2,54	2,61	2,47	2,35

Attachment Table 2.12 to Figure 2.12: Expenditures per pupil in OECD countries, measured in USD.

	Years 1-7	Years 8-10	Upper secondary education and training
Luxembourg	13 548	18 036	17 731
USA	8 805	9 490	10 468
Switzerland	8 570	9 197	15 368
Norway	8 533	9 476	12 498
Iceland	8 434	8 284	7 330
Denmark	8 081	8 224	9 466
Austria	7 669	8 969	9 962
Sweden	7 469	7 836	8 218
Italy	7 390	7 657	7 971
Japan	6 551	7 325	7 883
Netherlands	6 222	7 948	7 037
Australia	5 776	7 747	10 250
Finland	5 581	8 919	6 555
Ireland	5 422	6 943	7 309
New Zealand	5 190	5 334	7 424
France	5 082	7 837	9 883
Germany	4 948	6 082	10 459
Portugal	4 681	6 359	5 962
Korea	4 490	6 057	7 485
Hungary	3 841	3 433	3 968
Poland	3 130	2 822	2 949
Czech Republic	2 791	4 769	4 790
Slovakia	2 073	2 389	3 155
Mexico	1 694	1 602	2 564
OECD average	5 832	6 909	7 884

Attachment Table 3.1 to the graph in Table 3.2: Percentage pupils on different competence levels in reading in Year 4 and Year 5 in participant countries in PIRLS 2006.

Country / Regions	Under level 1	Level 1	Level 2	Level 3	Level 4
Russia	2	8	29	42	19
Hong Kong	1	7	30	47	15
Canada, Alberta	1	10	32	40	17
Singapore	3	11	28	39	19
Canada, British Col.	2	10	32	40	16
Luxembourg	1	10	33	41	15
Canada, Ontario	2	11	33	38	16
Italy	2	11	35	38	14
Hungary	3	11	33	39	14
Iceland Year 5	2	11	34	43	10
Sweden	2	10	35	42	11
Germany	3	10	35	41	11
Netherlands	1	8	42	43	6
Belgium, Flemish	1	9	41	42	7
Bulgaria	5	13	30	36	16
Denmark	3	12	33	41	11
Canada, Nova Scotia	4	14	34	35	13
Latvia	2	12	40	38	8
Norway Year 5	2	13	39	38	8
USA	4	14	35	35	12
England	7	15	30	33	15
Austria	2	14	39	37	8
Lithuania	1	13	43	38	5
Chinese Taipei	3	13	41	36	7
Canada, Quebec	3	14	42	35	6
New Zealand	8	16	31	32	13
Slovakia	6	14	37	35	8
Scotland	7	16	37	30	10
France	4	20	41	30	5
Slovenia	6	18	39	31	6
Poland	7	20	37	29	7
Spain	6	22	41	26	5
Israel	15	15	30	30	10
Iceland Year 4	7	21	43	26	3
PIRLS average	6	18	35	34	7
Moldova	9	24	44	20	3
Belgium, French	8	26	43	20	3
Norway Year 4	8	25	45	20	2
Romania	16	23	34	23	4
Georgia	18	32	35	14	1
Macedonia	34	26	25	13	2
Trinidad and Tobago	36	26	25	11	2
Iran	40	30	22	7	1
Indonesia	46	35	17	2	0
Qatar	67	22	10	1	0
Kuwait	72	18	8	2	0
Morocco	74	17	8	1	0
South Africa	78	9	7	4	2

Attachment Table 3.2 to Figure 3.1: Reading understanding in tests for Year 4 in PIRLS 2006. Nordic countries.

	Sweden	Denmark	Iceland	Norway
Finding information	550	551	516	502
Assessment	546	542	503	495

Source: Solheim and Roe 2007

Attachment Table 3.3 to Figure 3.2: Pupils in Year 5 in national tests 2007, by mastering level and county. Per cent.

Reading Year 5	Mastering level 3	Mastering level 2	Mastering level 1
Oslo	31,5	47,2	21,3
Akershus	28,0	50,8	21,1
Troms	24,1	50,5	25,4
Sør-Trøndelag	23,8	50,6	25,6
Hordaland	23,2	49,6	27,3
Rogaland	23,2	50,1	26,7
Buskerud	22,6	50,4	27,0
Vestfold	22,4	50,9	26,8
Møre og Romsdal	22,3	50,9	26,8
Sogn og Fjordane	21,8	52,9	25,3
Hedmark	21,0	48,9	30,0
Østfold	20,8	51,0	28,2
Oppland	20,6	52,4	27,0
Nordland	20,4	47,1	32,4
Nord-Trøndelag	20,3	49,4	30,3
Telemark	19,9	50,0	30,1
Finnmark	18,6	50,4	31,1
Aust-Agder	17,4	52,0	30,5
Vest-Agder	17,3	50,9	31,8

Source: The Norwegian Directorate for Education and Training

Attachment Table 3.4 to Figure 3.3: Standardised national test results from 2007 in Year 5 in reading, mathematics and English in total, by size of municipality measured by the number of inhabitants.

<2500	-0,16
2500-5000	-0,13
5000-10000	-0,09
10000-15000	-0,03
15000-25000	-0,03
25000-50000	-0,01
>50000 u/Oslo	0,15
Oslo	0,33

Source: Bonesrønning et al. 2007

Attachment Table 3.5 to the Graph in Table 3.7: Percentage 15-year olds pupils on different competence levels in reading in the PISA study in 2006. Countries are sorted according to average score.

Country/Regions	Under level 1	Level 1	Level 2	Level 3	Level 4	Level 5
Korea	1,4	4,3	12,5	27,2	32,7	21,7
Finland	0,8	4,0	15,5	31,2	31,8	16,7
Canada	3,4	7,6	18,0	29,4	27,2	14,5
New Zealand	4,7	9,9	18,7	26,4	24,5	15,9
Ireland	3,2	9,0	20,9	30,2	25,1	11,7
Australia	3,8	9,6	21,0	30,1	24,9	10,6
Poland	5,0	11,2	21,5	27,5	23,1	11,6
Sweden	5,0	10,3	21,9	28,9	23,3	10,6
Netherlands	5,2	9,9	21,3	28,9	25,6	9,1
Belgium	8,6	10,8	18,9	26,0	24,4	11,3
Switzerland	5,3	11,1	22,9	30,4	22,6	7,7
Japan	6,7	11,7	22,0	28,7	21,5	9,4
Great Britain	6,8	12,2	22,7	28,7	20,5	9,0
Germany	8,3	11,8	20,3	27,3	22,5	9,9
Denmark	4,5	11,5	25,7	31,8	20,7	5,9
OECD average	7,4	12,7	22,7	27,8	20,7	8,6
Austria	8,4	13,1	22,0	26,2	21,3	9,0
France	8,5	13,3	21,3	27,9	21,8	7,3
Iceland	7,1	13,4	25,1	29,6	18,9	6,0
Norway	8,4	14,0	23,3	27,6	19,0	7,7
Czech Republic	9,9	14,9	22,3	24,5	19,3	9,2
Hungary	6,6	14,0	25,3	30,6	18,8	4,7
Luxembourg	8,6	14,2	24,6	27,9	19,0	5,6
Portugal	9,3	15,6	25,5	28,2	16,8	4,6
Italy	11,4	15,0	24,5	26,4	17,5	5,2
Slovakia	11,2	16,6	25,1	25,9	15,8	5,4
Spain	8,7	17,0	30,2	29,7	12,6	1,8
Greece	11,9	15,8	26,6	27,9	14,3	3,5
Turkey	10,8	21,4	31,0	24,5	10,3	2,1
Mexico	21,0	26,0	28,9	18,2	5,3	0,6

Source: Kjærnsli et al. 2007

Attachment Table 3.6 to the graph in Table 3.8:
Table 3.8: Percentage 15-year olds pupils on different competence level in science the PISA study in 2006.
Countries are sorted according to average score.

Country	Under level 1	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Finland	0,5	3,6	13,6	29,1	32,2	17,0	3,9
Canada	2,2	7,8	19,1	28,8	27,7	12,0	2,4
Japan	3,2	8,9	18,5	27,5	27,0	12,4	2,6
New Zealand	4,0	9,7	19,7	25,1	23,9	13,6	4,0
Australia	3,0	9,8	20,2	27,7	24,6	11,8	2,8
Netherlands	2,3	10,7	21,1	26,9	25,8	11,5	1,7
Korea	2,5	8,7	21,2	31,8	25,5	9,2	1,1
Germany	4,1	11,3	21,4	27,9	23,6	10,0	1,8
Great Britain	4,8	11,9	21,8	25,9	21,8	10,9	2,9
Czech Republic	3,5	12,1	23,4	27,8	21,7	9,8	1,8
Switzerland	4,5	11,6	21,8	28,2	23,5	9,1	1,4
Austria	4,3	12,0	21,8	28,3	23,6	8,8	1,2
Belgium	4,8	12,2	20,8	27,6	24,5	9,1	1,0
Ireland	3,5	12,0	24,0	29,7	21,4	8,3	1,1
Hungary	2,7	12,3	26,0	31,1	21,0	6,2	0,6
Sweden	3,8	12,6	25,2	29,5	21,1	6,8	1,1
OECD average	5,2	14,1	24,0	27,4	20,3	7,7	1,3
Poland	3,2	13,8	27,5	29,4	19,3	6,1	0,7
Denmark	4,3	14,1	26,0	29,3	19,5	6,1	0,7
France	6,6	14,5	22,8	27,2	20,9	7,2	0,8
Iceland	5,8	14,7	25,9	28,3	19,0	5,6	0,7
USA	7,6	16,8	24,2	24,0	18,3	7,5	1,5
Slovakia	5,2	15,0	28,0	28,1	17,9	5,2	0,6
Spain	4,7	14,9	27,4	30,2	17,9	4,5	0,3
Norway	5,9	15,2	27,3	28,5	17,1	5,5	0,6
Luxembourg	6,5	15,6	25,4	28,6	18,1	5,4	0,5
Italy	7,3	18,0	27,6	27,4	15,1	4,2	0,4
Portugal	5,8	18,7	28,8	28,8	14,7	3,0	0,1
Greece	7,2	16,9	28,9	29,4	14,2	3,2	0,2
Turkey	12,9	33,7	31,3	15,1	6,2	0,9	0,0
Mexico	18,2	32,8	30,8	14,8	3,2	0,3	0,0

Attachment Table 3.7 to the graph in Table 3.9:
Percentage 15-year olds pupils on different competence level in mathematics in the PISA study in 2006.
Countries are sorted according to average score.

Country	Under level 1	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Finland	1,1	4,8	14,4	27,2	28,1	18,1	6,3
Korea	2,3	6,5	15,2	23,5	25,5	18,0	9,1
Netherlands	2,4	9,1	18,9	24,3	24,1	15,8	5,4
Switzerland	4,6	9,0	17,4	23,2	23,2	15,9	6,8
Canada	2,8	8,0	18,6	27,5	25,1	13,6	4,4
Japan	3,9	9,1	18,9	26,1	23,7	13,5	4,8
New Zealand	4,0	10,0	19,5	25,5	22,1	13,2	5,7
Belgium	7,1	10,2	17,0	21,4	21,9	16,0	6,4
Australia	3,3	9,7	20,5	26,9	23,2	12,1	4,3
Denmark	3,6	10,0	21,4	28,8	22,5	10,9	2,8
Czech Republic	7,2	11,9	20,5	23,0	19,1	12,3	6,0
Iceland	5,1	11,7	22,3	26,6	21,7	10,1	2,5
Austria	7,5	12,5	19,5	23,3	21,3	12,3	3,5
Germany	7,3	12,5	21,2	24,0	19,4	11,0	4,5
Sweden	5,4	12,9	23,0	26,0	20,1	9,7	2,9
Ireland	4,1	12,3	24,1	28,6	20,6	8,6	1,6
OECD average	7,7	13,6	21,9	24,3	19,1	10,0	3,3
France	8,4	13,9	21,4	24,2	19,6	9,9	2,6
Great Britain	5,9	13,8	24,7	26,3	18,1	8,7	2,5
Poland	5,7	14,2	24,7	26,2	18,6	8,6	2,0
Slovakia	8,1	12,8	24,1	25,3	18,8	8,6	2,4
Hungary	6,7	14,5	25,1	26,5	16,9	7,7	2,6
Luxembourg	8,3	14,5	23,2	25,2	18,2	8,2	2,3
Norway	7,3	14,9	24,3	25,6	17,4	8,3	2,1
Spain	8,6	16,1	25,2	26,2	16,8	6,1	1,2
USA	9,9	18,2	26,1	23,1	15,1	6,4	1,3
Portugal	12,0	18,7	25,1	24,0	14,4	4,9	0,8
Italy	13,5	19,3	25,5	22,1	13,3	5,0	1,3
Greece	13,3	19,0	26,8	23,2	12,6	4,2	0,9
Turkey	24,0	28,1	24,3	12,8	6,7	3,0	1,2
Mexico	28,4	28,1	25,2	13,1	4,3	0,8	0,1

Source: Kjærnsli et al. 2007

Attachment Table 3.8 to Figure 3.6 Figure 3.6: Distribution of lower secondary school points according to immigrant background.

New lower secondary points	Norwegian	Immigrant	Descendants	New lower secondary points	Norwegian	Immigrant	Descendants
9,88	0,000	0,000	0,000	37,40	0,040	0,039	0,039
10,74	0,000	0,000	0,000	38,26	0,039	0,038	0,040
11,60	0,000	0,000	0,000	39,12	0,043	0,036	0,041
12,46	0,000	0,000	0,000	39,98	0,043	0,034	0,041
13,32	0,000	0,000	0,000	40,84	0,044	0,033	0,040
14,18	0,000	0,001	0,000	41,70	0,043	0,031	0,039
15,04	0,000	0,002	0,001	42,56	0,043	0,029	0,038
15,90	0,001	0,003	0,001	43,42	0,042	0,029	0,038
16,76	0,001	0,004	0,001	44,28	0,042	0,029	0,039
17,62	0,001	0,005	0,001	45,14	0,043	0,028	0,039
18,48	0,002	0,006	0,002	46,00	0,040	0,024	0,039
19,34	0,002	0,006	0,004	46,86	0,044	0,021	0,037
20,20	0,003	0,008	0,005	47,72	0,040	0,020	0,033
21,06	0,005	0,011	0,006	48,58	0,038	0,019	0,028
21,92	0,006	0,014	0,007	49,44	0,035	0,017	0,024
22,78	0,008	0,018	0,011	50,30	0,030	0,014	0,022
23,64	0,010	0,022	0,014	51,16	0,026	0,011	0,019
24,50	0,011	0,026	0,015	52,02	0,020	0,009	0,017
25,36	0,013	0,030	0,016	52,88	0,016	0,007	0,014
26,22	0,014	0,033	0,017	53,74	0,012	0,006	0,010
27,08	0,018	0,034	0,020	54,60	0,009	0,004	0,008
27,94	0,019	0,034	0,024	55,46	0,007	0,003	0,006
28,80	0,022	0,036	0,028	56,32	0,004	0,002	0,004
29,66	0,024	0,040	0,031	57,18	0,003	0,001	0,002
30,52	0,026	0,043	0,035	58,04	0,002	0,001	0,000
31,38	0,028	0,046	0,036	58,90	0,001	0,000	0,000
32,24	0,029	0,045	0,035	59,76	0,000	0,000	0,000
33,10	0,031	0,043	0,036	60,62	0,000	0,000	0,000
33,96	0,031	0,042	0,038	61,48	0,000	0,000	0,000
34,82	0,034	0,042	0,041	62,34	0,000	0,000	0,000
35,68	0,035	0,042	0,042	63,20	0,000	0,000	0,000
36,54	0,038	0,041	0,041				

Attachment Table 4.1 to Figure 4.5: Disruption and unrest. All pupils.

	Very often or always	Often	Occasionally	Rarely	Never	
Do the pupils in your group arrive too late for class? (N=283 677)	10,30 %	22,20 %	46,80 %	17,50 %	3,20 %	100,00 %
Must teachers spend much time to make the class quiet? (N=284 445)	14,90 %	25,70 %	39,50 %	16,50 %	3,50 %	100,10 %
Do other pupils disturb you during work sessions? (N=284 493)	11,20 %	18,80 %	38,20 %	23,80 %	8,00 %	100,00 %
Do you disturb other pupils when working? (N=283 740)	4,70 %	5,30 %	24,20 %	47,50 %	18,30 %	100,00 %

Attachment Table 5.1: Old and new designations in upper secondary education and training.

Programmes for general studies in Vg1 (Year 1 in upper secondary school)	Areas of studies in GK (Year 1) (previous programme)
Programmes for general studies	General, business/administration area of study
Programme for sports and physical education	Sports
Programme for music, dance and drama	Music, dance and drama
Vocational education programmes	
Programme for building and construction	Construction, technical building and woodworking
Programme for design, art and crafts	Arts and design*
Programme for electricity and electronics	Electrical subjects
Programme for health and social care	Health and social care
Programme for media and communication	Media and communication
Programme for agriculture, forestry and fishing	Agriculture, forestry and fishing
Programme for restaurant and food processing	Hotel and catering
Programme for service and transport	Sales and service, but also includes transport
Programme for technical and industrial production	Chemical and processing industry and metalworking without transport

* The education programme for design, arts and crafts to some extent corresponds to the design studies, but it is also possible to take the programme for specialisation in general studies with design as a programme subject.

Source: The Norwegian Directorate for Education and Training

Attachment Table 5.2 to Figure 5.1: Proportion of girls among applicants to Vg1 as of 1 March 2007, according to education programme.

Education programme	Number of girls	Proportion of girls
Building and construction	235	4,2
Electricity and electronics	252	5,5
Technical and industrial production	698	10,7
Other programmes*	44	17,7
Alternative education	751	36,6
Sports and physical education	1 732	43,3
Service and transport	1 695	51,1
Restaurant and food processing	1 537	54,6
Media and communication	1 798	55,1
Programme for specialisation in general studies	14 828	56,3
Agriculture, fishing and forestry	1 004	59,5
Music, dance and drama	1 508	67,4
Design, arts and crafts	2 996	88,3
Health and social care	6 576	88,4

Attachment Table 5.3 to Figure 5.2: Status five years after start of school for pupils in general studies and vocational programmes for the years 1998, 1999, 2000 and 2001.

	General studies				Vocational programmes			
	1998	1999	2000	2001	1998	1999	2000	2001
Completed within regular time frame	19 989	19 680	18 844	18 410	9 470	9 027	8 746	10 296
Completed within more than regular time frame	2 315	2 034	2 240	1 780	4 103	3 779	4 283	4 053
Still in upper secondary education	743	647	781	739	1 995	1 982	2 209	2 589
Completed but not passed	1 211	1 370	1 753	1 478	1 050	1 223	1 514	1 629
Dropped out	1 838	1 752	1 651	1 522	7 473	7 210	7 262	7 528

Attachment Table 5.4 to Figure 5.3: Status five years after start of school for pupils in general studies and vocational programmes for the 2001 year group according to immigrant background.

		Completed within regular time frame	Completed within more than regular time frame	Still in upper secondary education	Completed but not passed	Dropped out
General studies	Norwegian	17278	1565	653	1255	1138
	First generation	737	161	75	155	300
	Born in Norway	331	50	11	64	52
Vocational programmes	Norwegian	9812	3900	2457	1484	6851
	First generation	348	113	103	111	549
	Born in Norway	107	34	25	34	88

Attachment Table 5.5 to Figure 5.4: Pupils who have dropped out of upper secondary education according to parents' education background.

	Long-term higher education	Short-term higher education	Upper secondary education	Lower secondary education
Foundation course (old system)	139	646	2 489	1 423
VK1 (old system)	177	970	3 508	1 662
VK2 (old system)	675	2 215	4 524	1 466