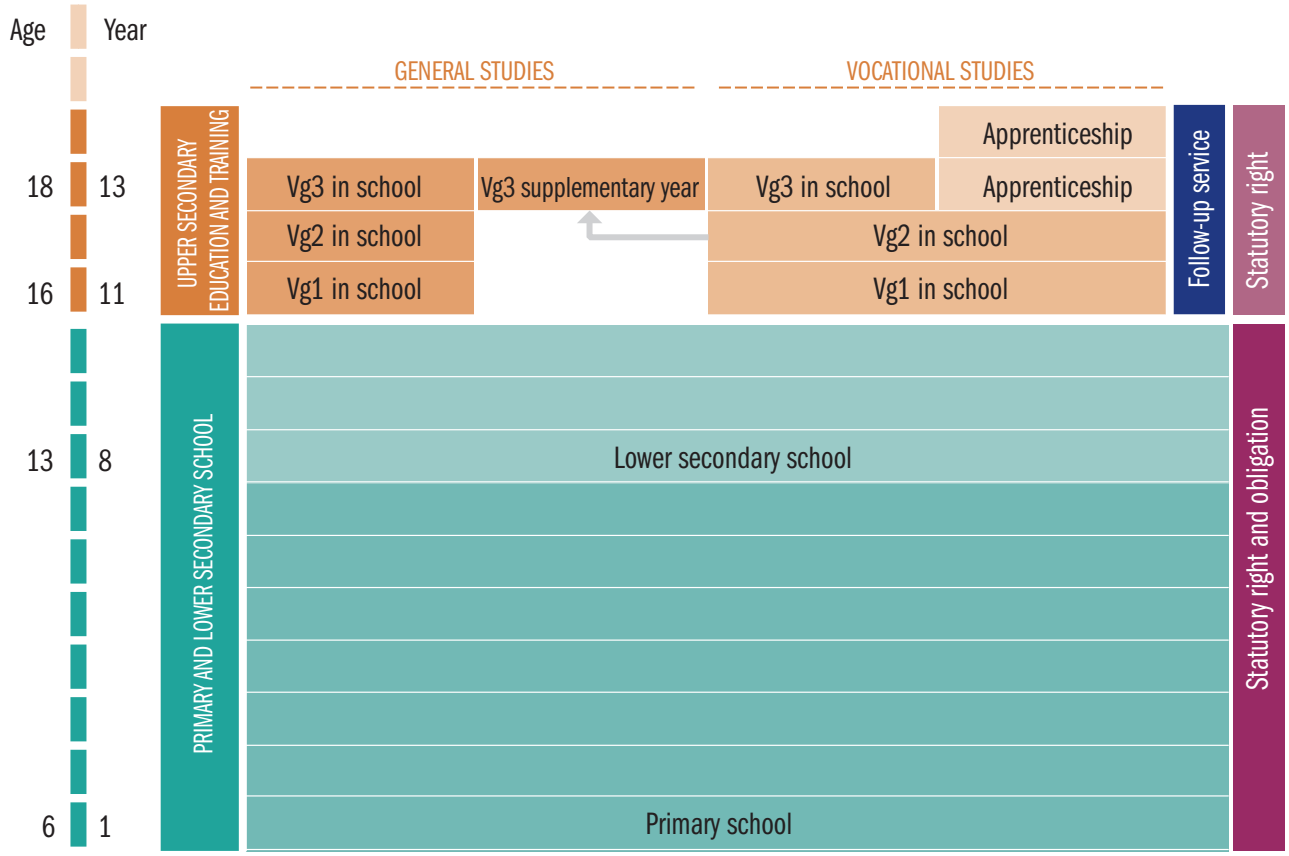
The Norwegian Directorate for Education and Training

The Education Mirror 2008

Analysis of primary and secondary education and training in Norway

Primary and secondary education and training in Norway



First edition / First printing run

ISBN 82-486-1074-8

Design, illustration and production: 07 Gruppen AS, Oslo

Preface

This year's edition of The Education Mirror shows that the situation is stable in many areas in Norwegian schools. This stability is positive, as it means that planning will have predictable outcomes. However, stability may also be a sign that necessary changes do not occur as fast as we could wish. In The Pupil Survey, for example, we can see that the figures for bullying are not improving. We can also see that schools which commit to consistently improving the learning environment achieve better learning outcomes.

The implementation of the Knowledge Promotion has taken place gradually since the autumn of 2006 and The Norwegian Directorate for Education and Training is following up the reform through a comprehensive evaluation. In this way, we can measure the effects of the reform and implement changes as we go along. So far, the reports show that many school owners have found it difficult to set good local curricula for the reform. The Norwegian Directorate for Education and Training has therefore started preparing curricular guides to help them in this work.

Two important international studies were published in 2008: *Trends in International Mathematics and Science Study* (TIMSS 2007) and *Teaching and Learning International Survey* (TALIS 2008). The results from TIMSS show definite improvements in Norwegian pupils' academic achievements, although mathematics and natural science achievements in Years 4 and 8 are still weak from an international point of view.

The results from TALIS show that most Norwegian teachers are satisfied with their jobs and have good relations with their pupils. This is a positive basis for improved learning outcomes and for increased recruitment of new teachers.

The Knowledge Promotion reform has so far changed the curriculum and framework for education and training, and now the focus turns to the people in the school system. The largest recruitment campaign for teachers is now under way. All interested parties who influence education and the teaching profession have joined forces in a committing partnership, which will ensure a close, involving, goal-oriented and insisting follow-up. We are already seeing results. In the spring of 2009 there are almost 35 per cent more applicants to the general teacher training programme and a 16 per cent increase to the vocational teacher training programmes compared to last year. We believe this to be the start of an increased status for the teaching profession.

The Education Mirror is the Directorate's most important total contribution to the dissemination of statistics and research in education and training. I am confident that this year's edition will also be an important contribution to development work in schools.

Happy reading!

Petter Skarheim

Petter Skarheim
Director
The Norwegian Directorate for Education and Training

Content

Some glimpses into the Education Mirror

Structured commitment

Surveys point to a lack of a systematic assessment practice in Norwegian schools. In the municipality of Førde, school owners, school administrators and teachers have joined forces to establish a more subject-specific and fairer assessment of pupils.

Evaluation of Reform 97 showed that feedback on pupils' performance in Norwegian schools was far from systematic, especially at primary level. Also, analyses of recent years' pupil surveys have referred to findings that indicate that many pupils do not receive academically relevant feedback that would give them information about what they could do to improve. This applies to most subjects.

Joint development in the municipality of Førde

In recent years, a number of national measures have been initiated, the intention of which is to systematise the practice of assessment in Norwegian schools. One of these measures is the *Bedre vurderingspraksis* (Better Assessment Practice) project. Four primary schools in Førde have participated in the project. The schools have tried out some ready-made examples of criteria of high goal achievement in the subjects Norwegian, food and health, mathematics and social sciences. The local authority's project manager, Turid Hatlem, explains that the challenge to begin with was to understand the defined criteria that the schools were to work with.

"While the competence goals tell us something about what should be achieved, the criteria describe the extent to which pupils master the competence goals. Partly to clarify this, we chose to organise a start up meeting for the teachers who took part in the project. The teachers were instructed to bring along a pupil's work that they had already assessed and at the seminar we assessed the work against the predefined criteria," says Hatlem.

Through their participation in the project, the schools have created a fellowship around the assessment work. The project participants consistently rate this as positive.

"One of the most important results we have achieved is that the schools have worked together on the project work. This has given us an extended collegium of teachers and school administrators who jointly contribute to school development, which can only benefit pupils in the municipality," says Hatlem.

Hatlem is an active and committed motivator, who visits the schools as often as she can. Joint meetings for the project schools are organised five times a year. These are used to review the various tasks the teachers must complete between meetings.

"These meetings are important because they give us an arena for all the schools to share interpretation and exchange ideas and experiences. I believe this organisation has been a good strategy for keeping the project alive for all those involved. We also chose to use the head teachers to chair the meetings for the first six months. This meant that both attending the meetings and carrying out assigned tasks became more of a commitment for everyone. The head teachers still take part in the meetings, but do not chair them," says Hatlem.

Clearer feedback

Two of the Førde schools, Flatene and Halbrend, are located in beautiful natural surroundings, some ten minutes' walk from the centre of Førde. Pupils in Year 4 at Flatene school are in the process of completing a project in which pairs of students

The Better Assessment Practice project

The Better Assessment Practice project *(Bedre vurderingspraksis)* has worked from the spring of 2007 to the spring of 2009 to establish clearer regulations on assessment, increased competence in assessment and a more relevant and fairer assessment of the pupils' work.

In order to realise this, a trial of criteria of goal achievement in a selection of subjects was set in motion. In all 33 school owners and 77 educational institutions in all counties have participated, so as to advise the Directorate on whether national criteria for goal achievement in subjects should be introduced. The trial has embraced four different models.

On the basis of experience from these educational institutions and from research carried out by the University of Oslo, the Norwegian Directorate for Education and Training gave a recommendation to the Ministry of Education in June 2009 regarding further work on a subject-specific and fairer assessment practice.

Read more about Better Assessment Practice in chapter 6.

Turid Hatlem, project manager Municipality of Førde

Cedrik Fonn Skåre, pupil Halbrend school

Helge Sæterdal, municipal and development coordinator, municipality of Førde

have produced a film from their own drawings on computers. The groups are now assessing themselves against preset goals. The pupils then get feedback about their own assessments from the teacher.

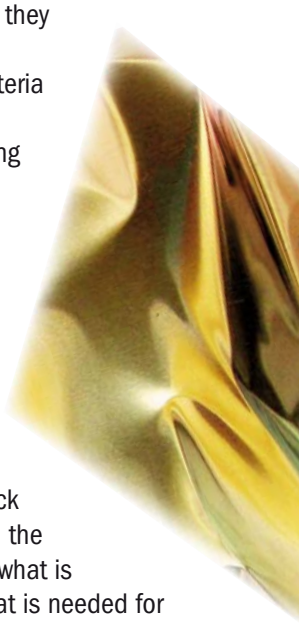
"Part of this project work is about the pupils practising assessing their own work. This makes it easier for the pupils to see the relationship between what they can do and what they need to do more work on. In addition to this, we give clear progress reports, which are intended to emphasise what is already good and what the pupils can do to be even better," says contact teacher Dagunn Karin Kjøsnes.

At Halbrend school, pupils in Year 7 are having their goals period. They sit quietly at their desks and concentrate on everything from adverbs to how to write an application for a summer job. The previous week, meetings with parents were organised at which pupil, parents and contact teacher made an assessment of the pupil's day to day work and how the pupil fared in relation to the competence goals in the subjects. Jointly, they decided on what the pupil should prioritise for further work in this week's goals period.

"I get on well at school and I feel we have good teachers."

"I get on well at school and I think the teachers are clever. They have been good at giving us feedback about what we are doing, and that has made it easier for us to learn more. The goals are on the timetable, so we know what we will be assessed on and what is expected of us. When we are going to have a test, we know that if we reach the goals we will automatically get good feedback from the test. That motivates me," says Cedrik Fonn Skåre, a pupil in 7A.

"We had some experience of pupil assessment before the project began, but the project has put an even closer focus on this topic. I think we have become better at giving the pupils continuous feedback about where they stand in relation to the competence goals. However we have chosen not to make the criteria known to the pupils; instead we have broken them down into understandable goals showing what pupils should be able to master," says teacher Lisbeth Rasmussen.



Both Rasmussen and colleague Urd Sjursen Takle agree that the project has worked. This is confirmed in the way the methods from the project have crossed over into the other subjects they teach.

"It has become simpler to offer clear feedback and we can put requirements more clearly to the pupils. Because the pupils know in advance what is expected of them. The pupils get to know what is needed for things to go well and that makes it easier for them to stretch their learning even further," says Sjursen Takle.

Commitment from the school owner

In the associated research to the Better Assessment Practice project, researchers asked school administrators about the school owner's role in the projects. At schools where the teachers are positive about the use of criteria, school administrators are also happy with the school owner's commitment. In Førde, the school owner shows great commitment to formative education.

Since the 1990s, the municipality of Førde has been systematically working at developing plans, reporting systems and dialogue arenas for the assessment and follow up of its schools. At the centre of this process is municipal and development coordinator for schools and kindergartens, Helge Sæterdal.

"Once the evaluation of Reform 97 had been completed, the conclusions were thoroughly discussed. The local authority

Lisbeth Rasmussen and Urd Sjursen Takle, teachers, Halbrend school

wanted the individual teacher's choice of method to be the result of the values and the teaching approach the teachers had arrived at in joint discussion. Taking this as a basis, a model for holistic school development was devised. Our work on local curricula showed that the schools had a need for a tool for devising plans for pupils' work and for assessment of goal achievement," says Helge Sæterdal.

Sæterdal had no doubts therefore when the local authority received an offer from the county governor to participate in the Better Assessment Practice project. Sæterdal believed that a clearer system of assessment and a good system for feedback was something that was missing from teaching. The schools of Førde needed it if they were to make progress.

"Erling Lars Dale, professor of education science at the University of Oslo, has said that we can forget the goals of the Knowledge Promotion if we don't introduce a new assessment system. I am in complete agreement with this. In this municipality, we had been working on pupil assessment for some time, so in fact everything was in place for the project," says Sæterdal.

Associated research points to the school owners' participation as a vital factor for teachers. The teachers' positive perception of the benefits of working with criteria goes hand in hand with the school owner having regular meetings with teachers and organising collaboration between the project schools. These findings may be an indication that the school owner's commitment has been decisive to the success of the project in individual schools.

"Getting a feedback structure into day to day work has clearly been a challenge. We decided to talk about the systematic implementation of a tool, without focusing on the fact that this is a project. But a motivator is needed and that has been my job, together with the head teachers and project manager Turid Hatlem. And it must be emphasised that in this municipality we have a fantastic number of skilled teachers and that they are the ones doing the job. What characterises Førde however is that we set requirements for the schools and follow them up systematically. We give the schools the tools and we demand results," continues Sæterdal.

This systematic work on the part of the school owner has brought clear results. Learning results in the municipality of Førde are among the best in the country. The results in last year's national tests were straight out of the top drawer and pupils at Sunde school were top in wellbeing in The Pupil Survey 2008.

"This has been about creating a culture of change in which we emphasise the quality in all the work we do in school. It has been a long process, but I am quite sure that nobody would now choose to go back to the old school," concludes Sæterdal.

Assessment and completion

Working with criteria for goal achievement when assessing pupils' competence in subjects can increase the commitment and motivation of pupils in upper secondary education. At Strømmen upper secondary school in Akershus, the pupils believe they now have a fairer assessment practice and that this provides the motivation to complete their education.

The national statistics on completing education show whether pupils and apprentices complete their upper secondary education within the standard time, or within the period in which they have the right to such education. The statistics are based on the status five years after the commencement of programmes for general studies and six years after the commencement of vocational education and training programmes. There are considerable differences between programmes for general studies and vocational education and training programmes, in terms of both the numbers who complete and pass the course and the time taken to do so in relation to the standard course length. This trend has been seen for some time and is the basis for a number of analyses and projects in the school sector.

Satisfied pupils

One of the participants in the Better Assessment Practice project is Strømmen upper secondary school in Akershus. Three upper secondary schools from Akershus are taking part in the project. The task is to develop criteria for goal achievement for subjects at levels with competence goals. Strømmen, which is in the municipality of Skedsmo, has participated by devising criteria for goal achievement in the subjects mathematics, Norwegian, technical and industrial production, as well as in health and social care. The development and testing of criteria has been an issue in all programme areas and the work of assessment has been a focus area for all the school's subject teams. The results have been documented in a final report which points to a significant increase in the proportion of pupils who say they are aware of the goals in the curriculum, from a third during the period 2004-2006 to well over half in 2007-2009. The school has come out of the project with "a unanimous opinion among teachers that national criteria for goal achievement in the subjects that have taken part in the project should be introduced," as stated in the final report. Science teachers have found that the use of criteria makes it easier to substantiate their marking and is a useful aid when devising tests. They also believe that the use of criteria will make dealing with appeals easier. Teachers of Norwegian believe that criteria can facilitate changing schools, for both pupils and teachers, and point out that a practically identical system has been practised in guidance for external examiners for years.

"We spend a lot of time developing tasks with criteria for goal achievement."

The motivation for the school's participation in the project was clear:
"We agreed to take part because we wanted to raise the teachers' level of expertise. We also wanted to look at the school's entire assessment practice and we therefore invited all the educational programmes in, with a contact person from each programme. Some had their criteria clear at the beginning of the school year and made many changes along the way, while others have kept to what they had developed before the school year started. We can see that the work in different programmes has moved in different directions, but regardless of that, the experience is equally valuable for us," says Ingeborg Lundsvoll, development coordinator and project manager at Strømmen upper secondary school.

"What do companies expect of the pupils when they leave school?"

She explains that there has been good feedback on the project work from pupils.

"In our experience, the pupils become very committed. We have had lots of positive feedback from the pupil participation in assessment. They report that they are happy that so much work is being done with criteria and that it creates a common understanding of criteria for goal achievement that can, for example, be linked with each exercise that is given. They are also positive about the development of a fellowship of interpretation. We can see that teachers are sitting down and talking to the pupils about how the assessment will be done and that a better collaboration on development of tasks is evolving. This leads to a better and fairer assessment practice," says Lundsvoll.

Progress

There are five teachers of hairdressing at Strømmen. "Before we started this project, the pupils found that we teachers sometimes worked completely individually when it came to assessing the pupils' achievement of expertise in the subjects. The same answers and solutions to exercises were assessed differently by different teachers and the pupils felt this to be

very unfair. We therefore saw that there was a need for a new strategy for individual assessment and when participation in the Better Assessment Practice project was offered, we saw this as a solution," says Vg2 hairdressing teacher Anne Eide.

She believes the work has been demanding, but necessary. "We made a few mistakes to begin with, emphasising too much theory instead of practice for example. And we had not prepared the pupils well enough in what it was like to work with criteria. But that only made us more determined to succeed," says Eide.

The teachers sat down and asked themselves the question: What do companies expect of the pupils when they leave school? And how do we relate this competence to assessment and marking – what should the pupil be able to do to reach a mark of 2, or a mark of 5?

"It took us a couple of months to discuss our way to a common interpretation of final competence when you complete the second year of upper secondary school in hairdressing. We were joined in this process by the two other schools in the county taking part, as well as two schools in Østfold which teach hairdressing, and worked our way towards a common understanding of criteria at various levels. We then discussed various possible solutions before finally deciding to use the template we had worked out at Strømmen. When we finished, we had a common understanding of what the final competence should be and we could work to the same template," says Eide.

"This is not a theoretical subject, so we thought it necessary to break the competence goals down into what the pupil should have mastered at different stages. First we define the criteria for competence achieved after, for example, six months and then work to this goal. Then we develop criteria for every single exercise at every single level that tell us something about competence or qualifications. This means we are looking for a progression towards summer compared with what the pupil could do at Christmas. Now we are also testing the use of the same exercises before and after Christmas, but with different competence requirements," says Eide.

Involving the pupils

Some of the pupils have also been involved in interpreting what the characteristics are really about and with understanding them. That is an important part of the fellowship of interpretation.

"We spend a lot of time developing tasks with criteria for goal achievement that are clear enough for everyone to understand them in the same way. We always read through the exercises with the pupils in advance and ensure that everyone understands what is needed to achieve a certain mark. Now we can see that the pupils are beginning to get used to this; one clear sign is that we never have discussions about assessment of the pupils afterwards any more. That is real progress," says Eide.

"Assessment and feedback are very important, because then you always know where you stand and can make changes. With better assessment practice, we know exactly what we must do in order to get a certain mark. For those of us who are new to a subject like hairdressing, it makes it much easier to understand what we will be assessed on and what we must include in our exercises. It's all written down very clearly, so we can read it and don't have to guess," says Strømmen pupil June Mari Sennerud (17).

"Some of the pupils have also been involved in interpreting what the criteria are really about."

Her fellow pupil Dafina Fetahu (17) agrees:
"The assessment criteria are there on every practical and written exercise, with a clear description of what we must do to get a specific mark. We always get clear feedback about what we have done right and what we should have done differently. The teachers are also bound by the criteria when it comes to their personal opinions. That means the assessments are fairer," says Fetahu.

A fellowship of interpretation and better assessment interviews

We are absolutely convinced that better assessment has a connection with completing upper secondary education. It is too early to show figures from our project to prove this, but we are quite certain that we achieve a clearer interaction between teacher and pupil which means fewer misunderstandings about assessment and marking," says assistant county director Hilde Kløvfjell of the Department of Education and Community Services at Akershus county council.

Three upper secondary schools from Akershus – Lillestrøm, Rælingen and Strømmen – are taking part in the project. The teachers at the schools have developed and tested criteria for goal achievement in subjects. This has contributed to a common assessment practice that has ensured more precise feedback to the pupils and relevant subject-specific feedback

for further development. Fairer assessment and marking is central to this.

"A mark of 4 should mean the same in Akershus as in Finnmark. This demands detailed criteria that function at the national level," says Hilde Kløvfjell. She sees clear benefits from the efforts their school has made in assessment.

"A mark of 4 should mean the same in Akershus as in Finnmark."

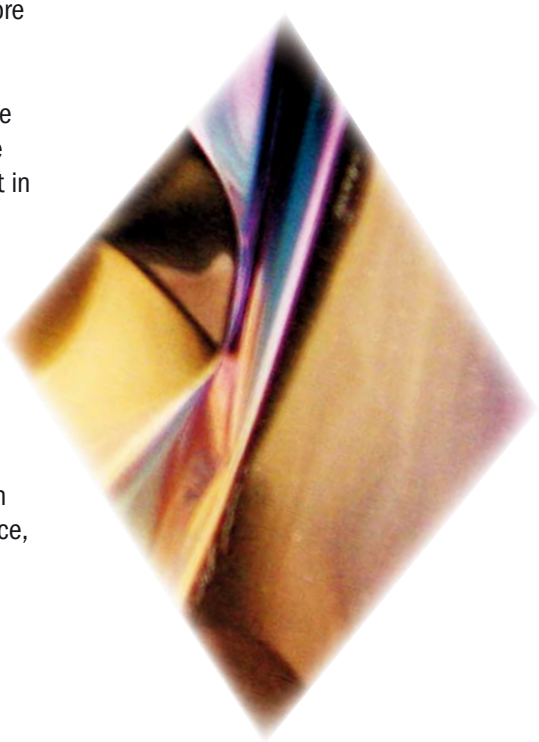
"Discussions between teacher and pupil have improved, during both pupil and development interviews. We believe implicitly that this must influence the pupils' motivation and thereby their completion of the course. Even though this is only a hypothesis at the moment, we are supported in this by those who have taken part out in the schools. This is a project we really believe in and we believe this is the right way to go in order to get more pupils through upper secondary education," says Kløvfjell.

The schools have systematically broken down the competence goals and have found the words that can be used in dialogue with the pupils. The feedback is that working with assessment in this way has been extremely useful.

"When we speak about a fellowship of interpretation, we talk of not only the benefits for assessment, but also that we can speak about our subject. This work has fostered discussions that perhaps teachers would not have found time for otherwise. In subjects like Norwegian and mathematics, we have held subject meetings between the schools at which teachers have been able to discuss how to work with criteria in various teaching situations, and exchange experience, tips and advice. This is something we can take with us in our work with other schools in the county," says Kløvfjell.

Consultant Jeanette Gabrielsson of the Department of Education and Community Services at Akershus county council believes it was important for the teachers to have a central role in the project.

"This is the schools' project and the teachers have worked independently in their subject groups, with close dialogue and follow up from the administration at their own schools. We have created a forum of experience around the assessment of pupils, in which the driving force behind the work should come from the teachers upwards. It is the experience of the teachers which is important and we have had meetings between the schools so as to discuss how to devise criteria, how the criteria work in practice and how we ensure pupil participation. The feedback from the schools has been very positive and we believe a lot of this is due to the time that has been taken to discuss and to create a fellowship of interpretation. We have found that the project work has been useful and educational, both for the schools and for the school owner," concludes Gabrielsson.



Arena for a fellowship of interpretation

Clear learning goals, pupil participation and constructive feedback are important elements in the assessment of learning. It is the goal of Kopperud school in the municipality of Gjøvik to develop a better assessment practice, so as to improve the pupils' learning outcome. They are collaborating in this with Lillehammer University College.

The Ministry of Education's increased focus on individual assessment in recent years coincides with the findings of Norwegian research centres. These findings show that assessment practice in Norwegian schools has potential for improvement in several areas.

Stephen Dobson, professor of education science at Lillehammer University College, believes there is more competence in assessment in Norwegian schools than many would have you believe.

"Some people claim that Norwegian teachers lack competence in pupil assessment. I disagree with this strongly. I believe there is a great deal of competence in assessment in Norwegian schools, but that we have not been good enough at talking to each other about it. I believe the key to success is for the schools to create a regular meeting point at which people can talk about how to work with assessment in the classroom," says Dobson.

Collaboration between school and resource centre

Kopperud school in Gjøvik is participating in the Better Assessment Practice project. The school also took part in the pilot for the project at which time it was linked with the resource centre at Lillehammer University College. That was how Stephen Dobson came to take on a guiding role for the school.

"Giving guidance to Kopperud school has created an arena for discussion and reflection on pupil assessment and in this way the school has created a fellowship of interpretation. This has been important for the project work and for the development of their assessment practice," says Dobson.

Dobson believes that creating an arena for reflection and dialogue presents a challenge, because teachers are human beings with very different opinions and attitudes. He explains however that there has been a great deal of development in the awareness of pupil assessment among teachers at the school.

"My most important contribution has been coming to it from the outside, so that I can assess what the school does with fresh eyes. It is difficult to observe colleagues you are working with every single day. It has also been important for me to express that the school is part of a project in which it is important to try different things out. Many people might have expected that I would come in as a professional with a ready-made recipe, but I wish progress to happen through discussion. I spent some time stripping people of the idea that there are right answers. If you want to succeed, you must dare to make mistakes," explains Dobson.

"Some people claim that Norwegian teachers lack competence in pupil assessment."

The head teacher of Kopperud school, Tore Struksnes, wants his school to stand out as a dynamic organisation, characterised by educational development work. He has found the school's collaboration with Dobson to be very beneficial.

"Stephen has given us some good feedback and has created space for reflection and dialogue. This has been very important. Before every guidance session, we have given him written details of our problems and challenges, which Stephen has used as the basis for the dialogue with the teachers. I believe we have all come a long way and we have always had a fruitful dialogue about the way forward," says Struksnes.

Goal of improving learning outcome

Most other countries have carried out far more research in the field of assessment than Norway. In England for example a research group has made findings that show that assessment can have both positive and negative consequences. If results and marks are used to promote competition in school, this can be at the expense of the pupils' desire to learn. If pupils receive written feedback about where they are and where they need to go in their learning process, this can strengthen the pupils' motivation to learn. Clear learning goals, pupil participation and constructive feedback are put forward as important elements in an assessment that is designed to promote learning. There is also increasing empirical evidence that changes in assessment practice have led to better motivation and improved goal achievement among pupils.

Stephen Dobson, professor Lillehammer University College

Tore Struksnes, head teacher Kopperud school

Leif Kringlen, teacher Kopperud school

Anders Uthaug, teacher Kopperud school

Head teacher Tore Struksnes explains that the expressed goal of the school is to develop a better assessment practice so as to improve the learning outcome for the pupils.

"The project work has led to the teaching staff focusing more strongly on pupil assessment."

"We wish to develop our assessment practice in such a way that the pupils become better motivated and increase their goal achievement. The results of various tests and analyses show that we are well on our way, even though such measurement can be complex. As head teacher, I use the results of the various tests together with the teachers to work out how we can progress further. This is of course an ongoing process and we have chosen to maintain tight control over the processes," says Struksnes.

Kopperud school has pupils from years 1 to 10. During the project period, the school has tried out two of the project's models. At primary level, they have worked with predefined examples of criteria for goal achievement, while at lower secondary level they develop their own criteria and try them out on goal achievement in various subjects linked to a scale of marks. 10th year teachers Anders Uthaug and Leif Kringen believe a clear awareness of pupil assessment has emerged in the school.

"The project work has led to the teaching staff focusing more strongly on pupil assessment. In the classroom, assessment practice has led to more process-oriented work, which we believe leads to more learning for each individual pupil. I would also say that in our experience the pupils have become more motivated by having constructive feedback," says Anders Uthaug.

Clear learning goals

Experience from the Better Assessment Practice project suggests that pupils in Year 10 in the participating schools find more frequently than other pupils that the teacher talks to them about what is required in order to achieve a specific mark. This could indicate that the project has had a positive effect when it comes to knowledge of what the different marks mean and what is needed in order for 10th year pupils to achieve them.

"We have found that the criteria are clear to the pupils and that they have a concrete idea of what they must be able to master in order to get good marks. If they are in doubt, it has also become easier for us to communicate the learning goals," says Uthaug.

Pupil participation

International research literature points out that pupil participation in assessment work is important for learning. Self-assessment against goals and criteria is an example of a method that gives the pupils an overview of their own learning process. Pupils' assessment of each other appears to increase the pupils' learning. These are also priority areas of the Knowledge Promotion.

"Being able to involve the pupils more in assessment work is positive. Even though the results for Year 10 of The Pupil Survey show that we still have some way to go, I believe we have become better at involving the pupils in the day to day work in the classroom. One example is that we more frequently allow the pupils to assess each other after oral presentations. We have also tried allowing the pupils to correct their own tests, together with us. We have found that the pupils are very strict with themselves and with each other," concludes Leif Kringen.

TIMSS and trends

Norway participates in several international studies of pupils' academic performance. Unlike the Better Assessment Practice project, which focuses on individual assessment, these studies are part of system assessment. They map results and trends at national level and make comparisons at international level. TIMSS 2007 shows that the decline in Norwegian pupils' performance in mathematics and science has turned to progress. But the performance of Norwegian pupils is still weak in an international perspective.

TIMSS (Trends in International Mathematics and Science Study) is an international comparative study in mathematics and science in the 4th and 8th years of primary and lower secondary education. This survey is one of the world's most comprehensive comparative research projects in the field of education, with the participation of over 60 countries in all continents. The primary purpose from Norway's point of view is to put Norwegian pupils' knowledge of mathematics and science into an international perspective. The trends study shows developments over time and Norway has now participated three times, in 1995, 2003 and 2007. Read more about TIMSS and learning results in chapter 3.

Progress

According to TIMSS 2007, there is progress in both mathematics and natural sciences in Year 4 and in mathematics in Year 8. It reveals a continued decline for natural sciences in Year 8, though we have entered the list of countries that have made the greatest progress in mathematics performance in Year 8.

"What is new and exciting about TIMSS 2007 is that for the first time in an international science study we can see progress on Norway's part. Another main point from the survey is that we see improvements in mathematics. Generally speaking, we saw a marked decline between 1995 and 2003, when Norway and Sweden were the two countries with the greatest decline in Year 8. PISA also showed the declining tendency between 2000 and 2003 and that created a strong focus in society," says Liv Sissel Grønmo, national research coordinator for TIMSS and an associate of the Department of Teacher Education and School Development at the University of Oslo.

Better basic skills

Grønmo believes that participation in international surveys has created focus and debate, which has contributed in turn to important changes.

"The conclusion from the survey of 2003 was that we don't have sufficient training in basic skills. After our data showed this, a new curriculum was introduced emphasising that pupils need more practice in basic skills. This led to extra resources being made available, especially for mathematics at the primary stage, to more emphasis on basic skills in the curriculum and to an increased focus on knowledge generally in schools. Considering the progress the new survey shows, we believe that this focus has had a positive effect on the trend. In this way, we have also fulfilled some of the intention of taking part in these studies that is not covered by national tests, namely to be able to reveal the overall tendencies and where we must introduce resources in a national perspective," says Grønmo.

Responses from both teachers and pupils point to Norway's unique focus on individual working practices. Teachers respond that much of the teaching time is taken up with pupils working on exercises on their own, without guidance from the teacher.

"Today the pupils can largely choose for themselves what they want to focus on and there may not necessarily be a mathematics teacher on hand when they choose to do their maths exercises. This is a way of toning down the role of the teacher and transferring responsibility to the pupil that we believe is very unfortunate," says Grønmo.

The authorities have stepped in to strengthen science teaching in line with documentation from international surveys such as TIMSS. With the introduction of the LK06 curriculum, mathematics was strengthened with the addition of 85 extra teaching hours a year at primary level. National centres, the purpose of which is to help strengthen the teaching of and recruitment to science education, have also been established.

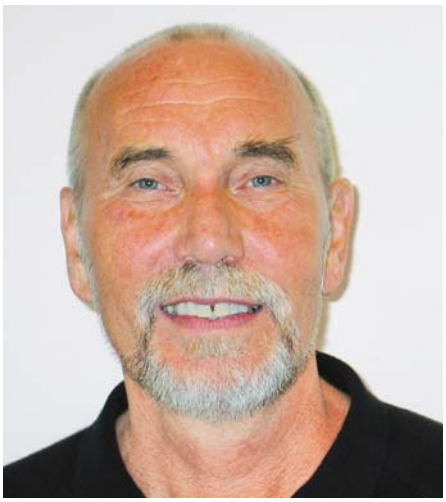
"Today the pupils can largely choose for themselves what they want to focus on."

"The new TIMSS report indicates that there has been political agreement on the need to focus on knowledge in schools. Pupils are happy in Norwegian schools and that is good, but it does not prevent an increased focus on knowledge and high academic content," says Grønmo.

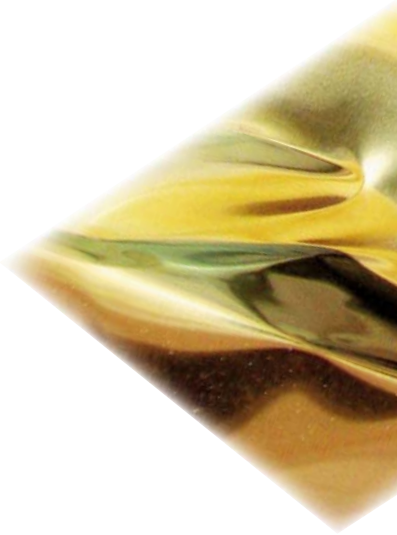
More perspectives

TIMSS fulfils its role and together with other surveys on education it has an influence on the direction taken in Norwegian schools, Grønmo maintains.

Liv S. Grønmo, research coordinator for TIMSS, University of Oslo



Anders Isnes, manager Norwegian Centre for Science Education



Different types of studies give different perspectives and the researchers want to see if these are pointing in the same direction. Liv Sissel Grønmo therefore believes it is important to also have national tests so that we can consider these surveys in context and identify the strengths of the respective studies.

"The same applies in mathematics as in sport or music: basic skills must become practised and automatic."

"TIMSS gives us an opportunity to point to different areas of the curriculum. We can still see in this survey that basic skills that are trained by means of memorising, learning by heart and preparing for automation have not been emphasised in Norwegian schools. The same applies in mathematics as in sport or music: basic skills must become practised and automatic. In the same way as a pianist practices scales until she doesn't need to think about where she puts her fingers when she plays, the multiplication table must become automatic. Unless simple skills are practised until they become automatic, pupils will waste a disproportionate amount of their brain capacity on simple things and that will get in the way of creative thinking and problem solving," says Grønmo.

Promoting natural sciences

The Norwegian Centre for Science Education at the Faculty of Mathematics and Natural Sciences at the University of Oslo is a national resource centre for the natural sciences in education. Its main task is to strengthen competence in and motivation for the natural sciences among pupils and teachers, as well as to contribute to measures for increasing recruitment to the natural sciences.

The Centre's manager, Anders Isnes, believes the level of Norwegian pupils' performance is still disturbingly low.

"We are not happy to see that we are still well below the standardised average in science and have not managed to turn the trend around at lower secondary level. International surveys reveal that Norwegian pupils are not as good at the process elements of science, that is to say what goes beyond just repeating facts. We have decided to do something about this in the new curriculum, especially through the *Forskerspiren* (Budding Researcher) area," says Isnes.

"The positive side is that we have a significant improvement in Year 4 and there are several reasons for this. One is that science has attracted a lot of attention and that awareness among teachers increases when the authorities put such a sharp focus on the science subjects as they have in recent years. It is clear however that it is mathematics that has received the most attention and that science has been in its shadow. This trend is now starting to turn and the minister is talking more clearly about science as an area we must focus on more. We hope that increased focus on science will have a positive effect. This applies not least to budget allocations and declared focus areas, so that teachers can also see that there is much work to be done here," says Anders Isnes.

Isnes believes that there is great improvement potential for Norway when it comes to developing higher teacher competence and that several international surveys underline that the teacher is the key factor for achieving improvements.

"Teacher competence is a significant factor in pupils' learning and we know that the focus on science in teacher training over the last 20 to 30 years has been too weak. The competence that has been supplied to Norwegian schools is too weak and that is not the teachers' fault, that is the fault of the system. This is now in the

process of changing, with the emphasis on more subject orientation in teacher training. In science, using practical exercises and experiments in a teaching context is especially important and that demands competence and confidence in the subject. Norwegian teachers are very good at creating activity and using a variety of learning arenas. We believe this is positive for science teaching, but this is of little use if there is no focus on learning," says Isnes.

Isnes believes we still have great potential for making improvements, but underlines that doing better in TIMSS is not a goal in itself.

"The study reveals areas we must get a grip on. At the Centre for Science Education, we wish to use this knowledge to strengthen awareness of the use of practical work and what that means for teaching. We want to develop materials, Internet resources and periodicals and to implement activities that put this in a learning perspective. We believe it is possible to do something about the decline we still see at lower secondary level by means of the new curriculum. But in order to do that, we must put real force into raising competence," concludes Anders Isnes.

1 Facts about primary and secondary education and training

The basic education in Norway consists of primary, lower and upper secondary school and training. The ten-year compulsory education is divided into primary school and lower secondary school. Primary school comprises Years 1 to 7 and lower secondary school Years 8 to 10. Children start primary school in the same calendar year they turn six years old. Upper secondary education and training comprises all qualifying education between lower secondary school and higher education. Upper secondary education has twelve education programmes: three programmes for general studies and nine vocational. The levels are termed Vg1 (upper secondary level 1), Vg2 (upper secondary level 2) and Vg3 (upper secondary level 3).

In the autumn of 2006, the Knowledge Promotion reform (Kunnskapsløftet, KL06) was introduced at Year 1 to 9 and for upper secondary level 1. From the autumn of 2008, the reform was introduced for all levels. The reform is both structural and curricular. Objectives and principles for primary and secondary education and training are set out in the Knowledge Promotion curriculum (LK06). The subject curricula include aims for the pupils' competence at the end of certain levels. New curricula have been introduced for all subjects, as well as a new framework regulating the distribution of periods and subjects with competence aims for Years 2, 4, 7 and 10, for Vg1, Vg2 and Vg3, and for ocational education and training. Upper secondary education and training has a new structure of available choices within education programmes, and there is greater freedom of choice regarding teaching methods, teaching materials and how the teaching is organised.

This chapter presents numbers and statistics which give an overall picture of the status of primary and upper secondary education and training in Norway. The chapter includes information on the number of pupils, apprentices, teachers and administrators, on the distribution of pupils in various education programmes and on the school structure.

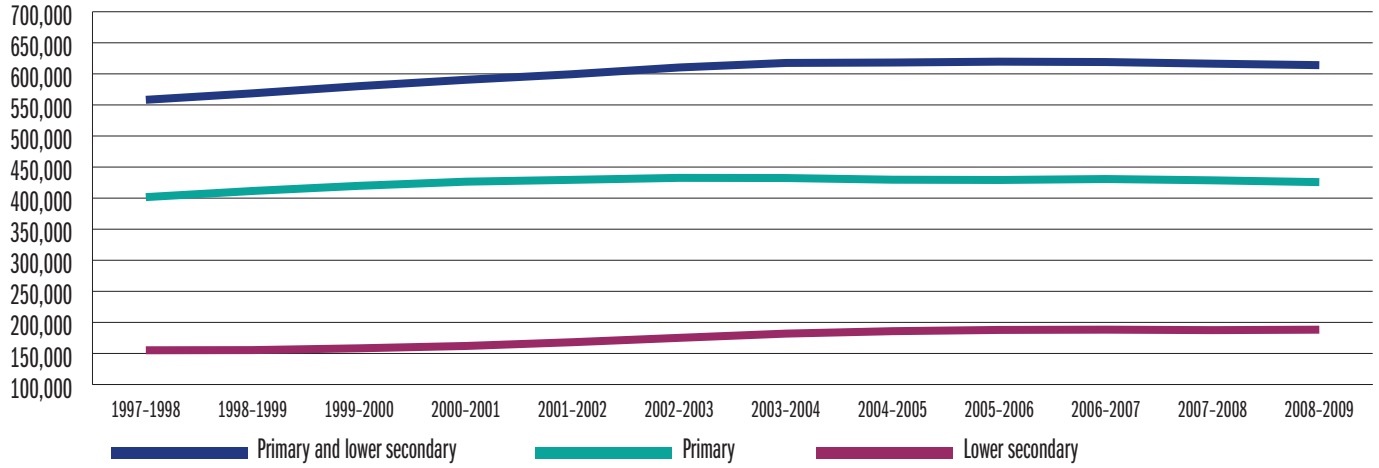
The numbers show that Norway has a high level of education. 85 per cent of women and 83 per cent of all men in the 30–39 year age group have completed upper secondary education.

There is a small reduction in the number of pupils in primary and lower secondary school, but this number is expected to rise in the time ahead. The statistics also show that Spanish is the subject most pupils choose as their second foreign language in lower secondary school, but that the proportion of pupils that choose Norwegian or English as an in-depth study is increasing.

1.1 Pupils in primary and lower secondary school

From section 2-1 of the Norwegian Education Act: right and obligation to attend primary and lower secondary education:
Children and young people are obliged to attend primary and lower secondary education, and have the right to a public primary and lower secondary education in accordance with this Act and regulations pursuant to the Act. The obligation may be met by means of publicly maintained primary and lower secondary schools or by means of other equivalent education.

Figure 1.1: Developments in the number of pupils in the period 1998–1999 to 2008–2009 for mainstream primary and lower secondary schools.

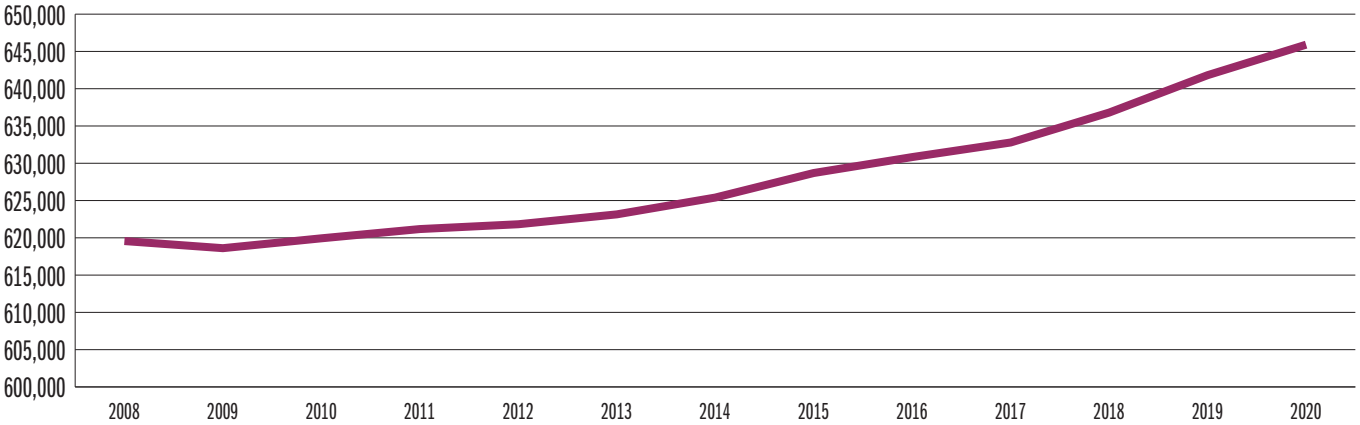


Source: GSI

For several years, there has been an increase in the number of pupils in primary and lower secondary school in Norway. From the autumn of 2007 this trend has been reversed and there has been a decline in numbers. This tendency continued in 2008. In the autumn of 2008 there were 614,033 pupils in mainstream primary and lower secondary school. This is a reduction of 2,355 pupils from last year. 69 per cent of the total number of pupils in primary and lower secondary school are in primary school and 31 per cent in lower secondary school. 2.5 per cent of all pupils attend private schools. Figure 1.1 shows the development in the number of pupils in mainstream primary and lower secondary school in the years 1997–1998 to 2008–2009 for primary school and lower secondary school. We see that the decline in the number of pupils is in primary school, while there has been a small increase in lower secondary school since last year. In addition to pupils in mainstream primary and lower secondary school, 2,074 pupils attended special schools and 789 pupils attended Norwegian schools abroad in the autumn of 2008.

There has been a small decline in the number of pupils in primary school in the past few years. However, this trend is expected to change. Figure 1.2 shows that according to prognoses made by Statistics Norway, there will be around 4 per cent more children in the 6–15 year age group in the years from now to 2020. The number of pupils will therefore rise again in this period.

Figure 1.2: Expected number of children in the 6–15 years age group as of 1 January every year. Based on prognoses from Statistics Norway, middle alternative.



Source: Statistics Norway

Special needs education

Pupils who either do not or are unable to benefit satisfactorily from ordinary teaching have the right to special needs education (SNE), pursuant to Section 5 of the Education Act and section 3-6 of the Private Education Act. In the autumn of 2008, 43,164 pupils in mainstream primary and lower secondary schools had individual decisions giving them the right to SNE, in addition to the 2,074 pupils who attended special schools. This constitutes 7.3 per cent of all pupils in mainstream primary and lower secondary school and special schools. Table 1.1 shows that 7 per cent of all pupils in mainstream primary and lower secondary school have individual decisions on SNE, which is an increase of 10.6 per cent from the 2007–2008 school year. 69.2 per cent of the pupils receiving SNE are boys. The gender difference in the proportion of children receiving SNE has been stable since 2006–2007.

Table 1.1: Proportion of pupils with individual decisions on special needs education by gender, in the period 2006-2007 to 2008-2009. Mainstream primary and lower secondary schools.

	Pupils with special needs education			Pupils with special needs education by gender	
	All pupils	Special needs education		Boys	Girls
School year	Number	Number	Per cent	Per cent	Per cent
2006-2007	619,038	36,669	5.9	69.3	30.7
2007-2008	616,388	39,028	6.3	69.2	30.8
2008-2009	614,033	43,164	7.0	69.2	30.8

Source: GSI

The proportion of pupils who attend mainstream primary and lower secondary school and who receive SNE is higher in lower secondary school (9.3 per cent) than in primary school (6.0 per cent), but has increased in both cases. 95 per cent of the pupils in mainstream primary and lower secondary school who have individual decisions on SNE receive SNE with teaching staff. Just over 50 per cent of the pupils with individual decisions on SNE have SNE taught by an assistant. Only a few have individual decisions which only include teaching by an assistant. More information on this can be found in chapter 2 on resources and in chapter 4 on adapted education and SNE.

Language minorities

According to Section 2-8, first paragraph of the Education Act, pupils in primary and lower secondary school who have a mother tongue other than Norwegian or Sami have the right to adapted education in Norwegian until they are sufficiently proficient in Norwegian to follow the normal instruction of the school. In the autumn of 2008, 41,024 pupils received adapted education in Norwegian, and 4,507 had separate teaching groups for language minorities. In addition, 22,178 pupils received mother tongue instruction and/or bilingual vocational education and training. The dominant languages among pupils who received mother tongue instruction and/or bilingual vocational education and training were Somali and Urdu.

In the autumn of 2008, there were 228 mainstream primary and lower secondary schools where between 10 and 20 per cent of the pupils received adapted education in Norwegian, and 139 schools where more than 20 per cent received adapted education in Norwegian.

From the 2007–2008 school year, a new curriculum in basic Norwegian for language minorities has been set. This curriculum can be used in primary, lower and upper secondary school. Teaching according to this curriculum shall promote adapted education pursuant to the Education Act and fulfil the needs of language minorities for adapted education in Norwegian. School owners or schools will choose whether adapted education in Norwegian shall be taught according to the curriculum in basic Norwegian for language minorities, or as adapted education within the framework of the ordinary curriculum in Norwegian.

Table 1.2: Number of pupils following the curriculum in basic Norwegian, by county and level. 2008. Mainstream primary and lower secondary schools, special schools and/or centrally in the municipality.

County	Primary	Lower secondary	Primary and lower secondary	Number of pupils in the county
Entire country	11,657	3,418	15,075	616,139
Østfold	1,279	419	1,698	34,744
Akershus	1,869	421	2,290	74,146
Oslo	16	14	30	54,875
Hedmark	401	156	557	23,186
Oppland	328	115	443	23,145
Buskerud	1,460	261	1,721	32,065
Vestfold	824	176	1,000	29,759
Telemark	694	228	922	21,004
Aust-Agder	360	81	441	14,426
Vest-Agder	669	232	901	23,322
Rogaland	758	125	883	58,829
Hordaland	950	389	1,339	62,183
Sogn og Fjordane	88	50	138	14,801
Møre og Romsdal	476	170	646	33,304
Sør-Trøndelag	496	244	740	36,398
Nord-Trøndelag	213	45	258	18,110
Nordland	449	165	614	31,290
Troms	228	99	327	20,564
Finnmark	99	28	127	9,988

Source: GSI

Table 1.2 shows an overview of the number of pupils who are following the new curriculum in basic Norwegian for language minorities. Of the total 616,139 pupils in mainstream primary and lower secondary schools, special schools and pupils taught centrally by the municipality, there were 15,175 pupils who received teaching according to this curriculum in the autumn of 2008. There are large variations between counties in the number of pupils receiving teaching according to the curriculum in basic Norwegian. This may be due to the fact that the number of language minorities varies between counties, but it can also be that schools prefer to offer pupils adapted education within the ordinary curriculum in Norwegian. One such example is Oslo, the capital, where many of the pupils are from

Table 1.3: Pupils in mainstream primary and lower secondary school by choice of foreign language in Year 8 for the school years 2006–2007, 2007–2008 and 2008–2009. Per cent.

	2006-2007		2007-2008		2008-2009	
Subject	Pupils	Per cent	Pupils	Per cent	Pupils	Per cent
German	16,991	27.4	15,661	25.1	16,786	26.6
French	10,637	17.2	9,515	15.3	8,701	13.8
Spanish	20,272	32.7	21,261	34.1	20,948	33.2
Italian	0	0.0	1	0.0	5	0.0
Russian	79	0.1	55	0.1	64	0.1
Other languages	298	0.5	109	0.2	151	0.2
In-depth study English	9,006	14.5	10,449	16.8	11,800	18.7
In-depth study Norwegian	2,173	3.5	2,780	4.5	3,234	5.1
In-depth study Sami	0	0.0	0	0.0	30	0.0
In-depth study other	301	0.5	217	0.3	125	0.2
Sum foreign languages	59,757	96.5	60,048	96.4	61,844	98.0
No foreign languages	2,194	3.5	2,273	3.6	1,249	2.0
All pupils	61,951	100	62,321	100	63,093	100

Source: GSI

language minorities. This municipality has decided not to use the curriculum in basic Norwegian for language minorities. In Oslo, only 30 pupils follow the curriculum in basic Norwegian, and they all attend the same private school.

In the spring of 2008, 1,274 asylum seekers of school age attended primary and lower secondary school, and these pupils received on average four months of teaching.

Foreign languages and in-depth language studies

According to Circular F-12/2008b, pupils in Years 8 to 10 shall either study a foreign language or choose an in-depth study in English, Norwegian or Sami. Foreign language studies and in-depth studies in English, Norwegian or Sami shall be considered equal subjects and shall therefore be equally demanding to the pupils. School owners shall offer foreign language teaching in at least one of the following four languages: German, French, Spanish or Russian, according to the curriculum in foreign languages at level I. In addition, teaching in other languages can be offered, including non-European languages, according to the same curriculum. The optional in-depth study in English, Norwegian or Sami is an alternative for pupils who wish to increase their competence in one of these languages instead of starting a new foreign language (Ministry of Education and Research, 2008a).

Table 1.3 shows optional second foreign languages for pupils in Year 8 for the school years 2006–2007 to 2008–2009. In the past three years, Spanish has been the foreign language with the largest proportion of pupils, followed by German. In the autumn of 2008, 33.2 per cent of all pupils in Year 8 studied Spanish as a foreign language. The proportion that chooses French is declining, and was at 13.8 per cent in 2008–2009. The proportion of pupils who choose an in-depth study in Norwegian or English has increased from 2006–2007 to 2008–2009, and in the autumn of 2008, 18.7 per cent of all pupils in Year 8 had chosen an in-depth study in English. Some pupils have exemptions from foreign languages and in-depth language studies pursuant to their individual

Table 1.4: Pupils by choice of foreign language in Years 8, 9 and 10 for pupils who started Year 8 in mainstream lower secondary school in the school year 2006–2007. Per cent.

	Year 8 in 2006-2007		Year 9 in 2007-2008		Year 10 in 2008-2009	
Subject	Pupils	Per cent	Pupils	Per cent	Pupils	Per cent
German	16,991	27.4	15,421	24.8	14,695	23.5
French	10,637	17.2	9,627	15.5	9,079	14.5
Spanish	20,272	32.7	18,357	29.5	16,799	26.9
Italian	0	0.0	2	0.0	65	0.1
Russian	79	0.1	70	0.1	59	0.1
Other languages	298	0.5	45	0.1	50	0.1
In-depth study English	9,006	14.5	12,342	19.8	14,721	23.6
In-depth study Norwegian	2,173	3.5	3,954	6.4	5,353	8.6
In-depth study Sami	0	0.0	0	0.0	17	0.0
In-depth study other	301	0.5	225	0.4	139	0.2
Sum foreign language/in-depth study	59,757	96.5	60,043	96.6	60,977	97.6
No foreign language/in-depth study	2,194	3.5	2,145	3.4	1,485	2.4
All pupils	61,951	100	62,188	100	62,462	100

Source: GSI

decisions. In 2008-2009, the proportion of such pupils was 2 per cent of all pupils in Years 8-10.

However, the pupils' choice of foreign language seems to change from Year 8 to Year 10. In the course of the first semester in Year 8, pupils may change their mind in consultation with their school (Ministry of Education and Research 2008a). Under particular conditions, school owners can also endorse changing to a different language at a later date. Table 1.4 shows foreign language choice for the age cohort starting Year 8 in the 2006–2007 school year. We can see that the proportion choosing a foreign language has declined from Year 8 to Year 9 and from Year 9 to Year 10. The proportion of pupils choosing in-depth studies in English and Norwegian has increased correspondingly. This shows that the pupils start out choosing a foreign language at the start of lower secondary school, but change from a foreign language study to an in-depth study in English or Norwegian in the course of their three years in lower secondary school.

1.2 Adults in primary and lower secondary school

From section 4A-1 of the Norwegian Education Act: the right to primary and lower secondary school for adults:
Persons above compulsory school age who require primary and lower secondary education have the right to such education unless they have the right to upper secondary education and training pursuant to section 3-1. The right to education normally includes the subjects required for the certificate of completed primary and lower secondary education for adults. The education shall be adapted to individual needs.

In the autumn of 2008, 3,879 adults attended mainstream primary and lower secondary education. In addition, 5,479 adults received primary and lower secondary education in the form of special needs education (SNE). Table 1.5 shows that the total number of adults in primary and lower secondary school has decreased somewhat in the past few years. There has also been a change in who attends this type of education. The table shows that an increasing proportion of adults who receive primary and lower secondary education are from a language minority. While just under every fourth adult participant was from a language minority in 2002, this group today comprises every third participant. A whopping 73.4 per cent of the adults in mainstream teaching are from a language minority, while this group only makes up 8.4 per cent of the adults in SNE. In other words, there are several types of groups that receive primary and lower secondary education for adults. Of the adults in mainstream primary and lower secondary education, a large proportion is from language minorities. In the group of adults receiving SNE, only a small proportion is from language minorities.

There is also a gender difference among those who participate in adult education. Around 58 per cent of the participants in mainstream teaching are women. In contrast, slightly more men than women receive SNE.

Teaching Norwegian and civic life to adult immigrants

Recent arrivals, with the exception of labour immigrants who have been granted permits pursuant to EEA regulations, have the right and obligation to complete 300 hours of teaching in Norwegian and civic life, pursuant to the Introduction Act. The 300 hours are divided into 250 hours of Norwegian lessons and 50 hours of civic life 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. Completing the teaching in accordance with the introductory programme is a requirement for being granted residence and citizenship. Immigrants in the 55–67 year age group have the right but not the obligation to attend.

Table 1.6: Development in number of persons being taught Norwegian and civic life, with proportion of women in per cent, 2002–2003 to 2008–2009.

	Persons	Per cent womenr
2002-2003	30,433	52.1
2003-2004	29,317	59.0
2004-2005	25,733	60.8
2005-2006	24,151	61.6
2006-2007	21,982	63.9
2007-2008	22,823	62.4
2008-2009	26,292	61.3

Source: GSI

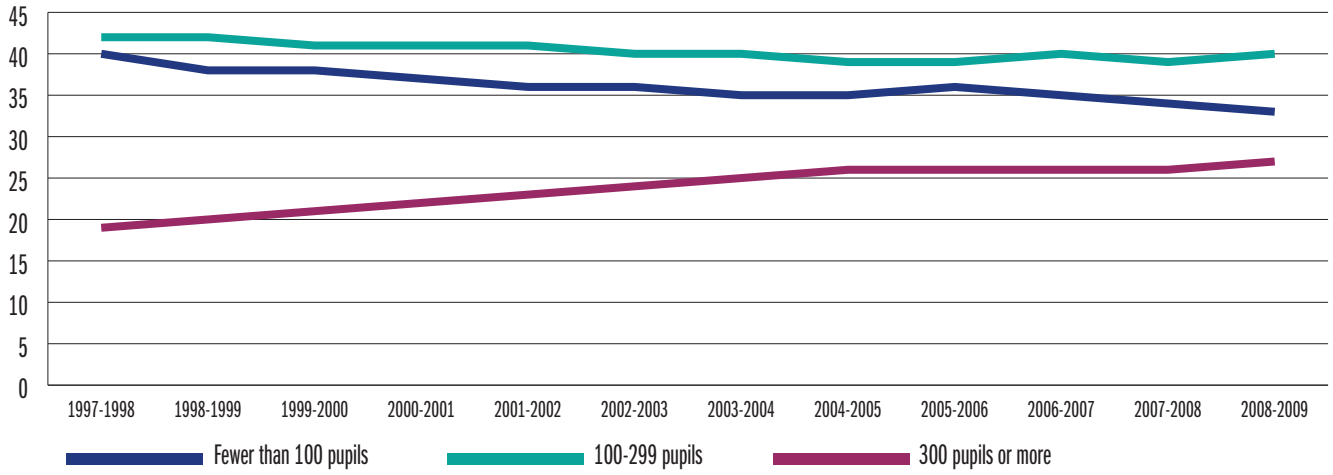
In the autumn of 2008, 26,292 persons received teaching in Norwegian and civic life studies. Table 1.6 shows that the

Table 1.5: Distribution of adults in primary and lower secondary education, with percentages for language minorities and women, 2002–2003 to 2008–2009.

Year	Mainstream teaching			Special needs education			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	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	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	6,575	5.5	47.1	10,938	32	51
2006-2007	4,268	72.8	58	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
2008-2009	3,879	73.4	57.6	5,479	8.4	47.6	9,358	35.3	51.7

Source: GSI

Figure 1.3: Distribution of small, medium-sized and large mainstream primary and lower secondary schools in per cent, 1997–1998 to 2008–2009.



Source: GSI

number of persons receiving such teaching has increased since 2006–2007, after a decline in the years before. The proportion of women increased from 2002–2003 to 2006–2007, and has decreased since. The proportion of women in the autumn of 2008 was 61.3 per cent. Of the participants, 2,111 lived in asylum reception centres, and 905 persons also received primary and lower secondary education for adults pursuant to Section 4A-1 of the Norwegian Education Act.

1.3 Primary and lower secondary school

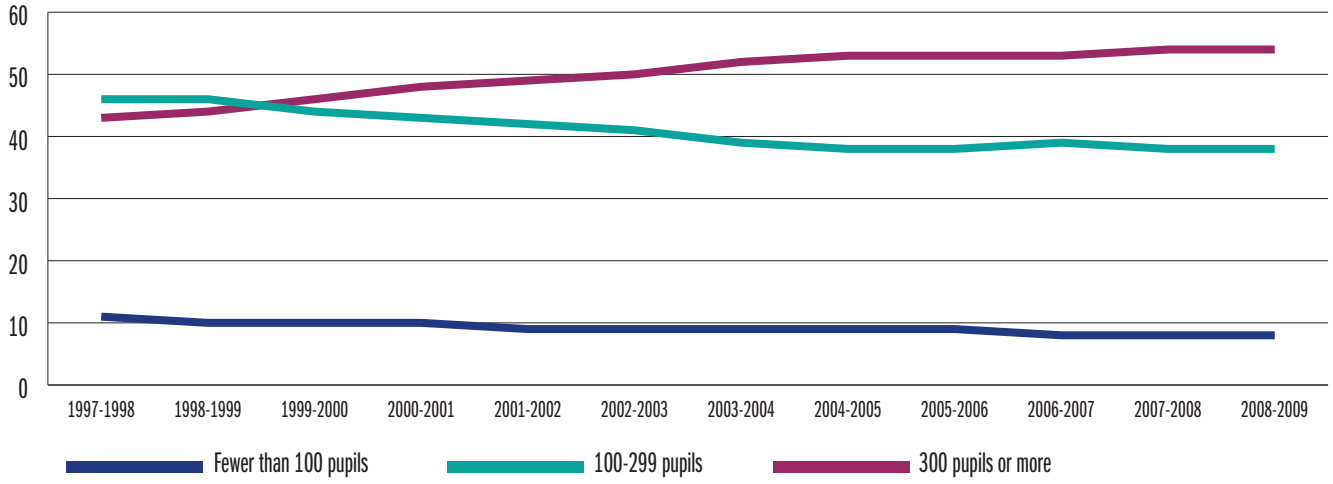
In the autumn of 2008, there were 3,059 mainstream primary and lower secondary schools in Norway. Of these, 2,899 were municipal, 3 were inter-municipal, 1 was county administered, 1 state administered and there were 155 private schools. In addition, there were 14 private schools abroad. In the same school year, there were 86 special schools in Norway. Of these, 48 were municipal, 8 were inter-municipal, 18 were county administered, 6 state administered and there were 6 private special schools.

From the 2007–2008 school year to 2008–2009, 53 mainstream primary and lower secondary schools were closed down. Of these, 48 were municipal and 5 private. 12 new mainstream primary and lower secondary schools were established, of which 10 were municipal and 2 private. Two new special schools were established while 7 special schools were closed down.

Figure 1.3 shows the proportion of small, medium-sized and large mainstream primary and lower secondary schools. There is a tendency towards fewer primary and lower secondary schools with fewer than 100 pupils, while there are more and more schools with more than 300 pupils. In the autumn of 2008, 33 per cent of schools had fewer than 100 pupils while 27 per cent had more than 300 pupils.

In accordance with this development, figure 1.4 shows that the proportion of pupils attending large schools has increased, while the proportion attending small and medium-sized schools has decreased. 54 per cent of the pupils attended schools with more than 300 pupils in the 2008–2009 school

Figure 1.4: Distribution of pupils in small, medium-sized and large mainstream primary and lower secondary schools in per cent, 1997–1998 to 2008–2009.



Source: GSI

year, while only 8 per cent attended schools with fewer than 100 pupils. In comparison, only 43 per cent of pupils attended schools with more than 300 pupils in the 1997–1998 school year. Since the 2002–2003 school year, more than 50 per cent of the pupils have attended large schools.

Private schools

Private schools:
Private schools are privately owned schools approved pursuant to the Private Education Act. These schools receive state funding corresponding to 85 per cent of operating expenses in public schools. Schools must be run in accordance with the Private Education Act, regulations pursuant to this act and decisions of approval (Ministry of Education and Research 2007a).

In the 2008–2009 school year, there are 154 mainstream private primary and lower secondary schools and 6 private special schools. There are three fewer mainstream private primary and lower secondary schools compared to last year. The number of private primary and lower secondary schools increased rapidly from 2000–2001 (89 private schools) to 2005-2006 (150 private schools). Since 2005–2006, the number of private schools has been stable. The increase in private primary and lower secondary schools from the 2001–2002 school year to 2008–2009 is 74 per cent.

A relatively increasing proportion of primary and lower secondary schools are private schools. While 2.7 per cent of primary and lower secondary schools were private in the 2000–2001 school year, 5.1 per cent of schools are private today. However, only 2.5 per cent of pupils attend private schools. The number of pupils in individual private school is on average lower compared to public schools. In the past few years, a number of new private primary and lower secondary schools have been established in rural areas, and these are often small schools with few pupils. This is expressed as the relative proportion of private schools being higher than the proportion of pupils attending private schools.

Language of choice

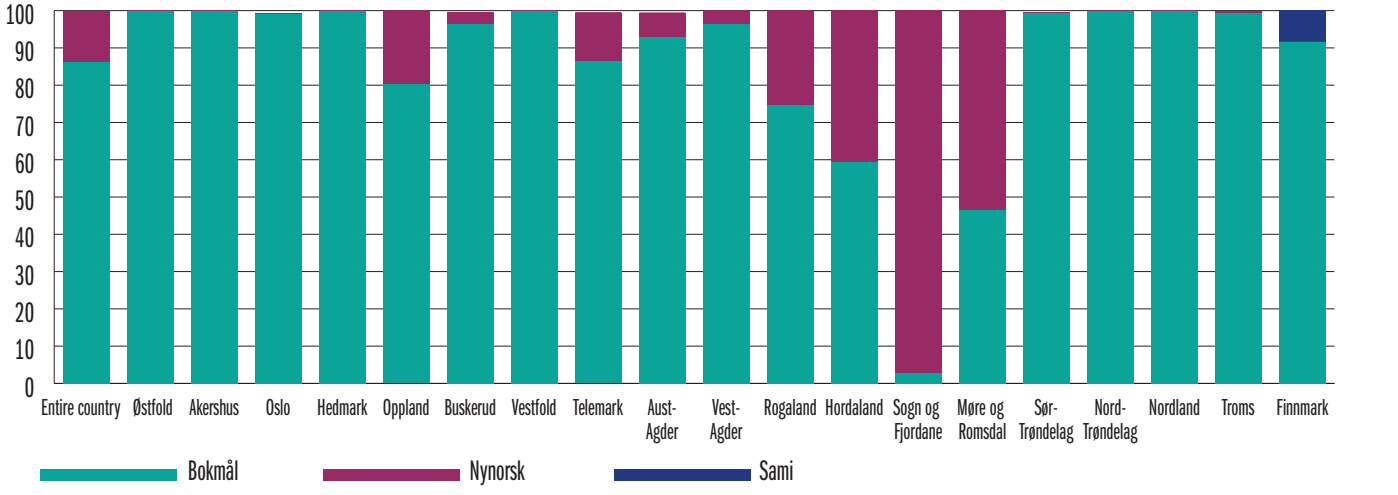
A clear majority of the pupils in primary and lower secondary school, around 86 per cent, received their schooling in Bokmål, one of the two official forms of the Norwegian language, in the autumn of 2008. The proportion of pupils taught in Bokmål has increased by just over 2 percentage points over the past ten years. 13.4 per cent of pupils were taught in Nynorsk, the other official form of the Norwegian language, in the autumn of 2008. Figure 1.5 shows that the county with the largest proportion of Nynorsk is Sogn og Fjordane, where 97 per cent of the pupils have Nynorsk as their first-choice form of Norwegian. The counties of Møre og Romsdal and Sogn og Fjordane are the only two counties where a majority of pupils have Nynorsk as the teaching language. In the county of Finnmark, around 8 per cent of the pupils are taught in the Sami language.

1.4 Pupils and apprentices in upper secondary education and training

From Section 3-1 of the Norwegian Education Act: right to upper secondary education and training for young people:
Young people who have completed primary and lower secondary school or the equivalent have, on application, the right to three years' full-time upper secondary education and training.
In subjects where the curriculum requires a period of instruction that is longer than three years, such young people have the right to education in accordance with the period of instruction determined in the subject curriculum. Pupils, apprentices and training candidates have the right to education and training in accordance with this Act and regulations issued pursuant to the Act.

Young people who have completed primary and lower secondary school or the equivalent have the right to three years' continuous upper secondary education and training. In some subjects the period of instruction is longer than three years. In such cases, the right is extended to the period of instruction determined for that subject. This right is often called "the

Figure 1.5: Pupils in mainstream primary and lower secondary school with Bokmål, Nynorsk and Sami as first-choice form of Norwegian, by county 2008-2009. Per cent.



Source: GSI

Table 1.7: Distribution of pupils by education programme and level in upper secondary education, 2005–2006 to 2008–2009. Revised data.

	First year/Vg1		VK1/Vg2		VK2/Vg3	
Year	General studies	Vocational	General studies	Vocational	General studies	Vocational
2005-2006	32,378	41,911	26,709	34,626	36,371	9,805
2006-2007	34,061	39,483	29,068	35,165	39,381	10,501
2007-2008	34,318	39,071	29,683	33,871	41,067	10,187
2008-2009	33,359	38,821	30,236	33,812	41,345	5,947

Source: Statistics Norway

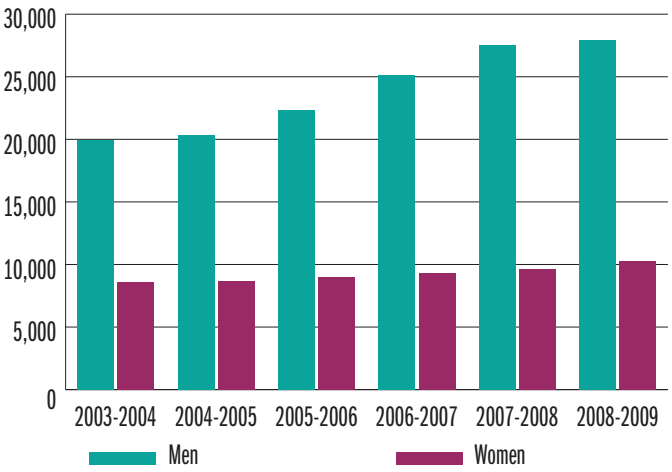
youth right", and must normally be claimed during a continuous period of five years, or six years if the training is provided at a training establishment. In addition, the right must be fully claimed before the end of the year in which the person concerned reaches the age of 24 (Section 3-1 of the Norwegian Education Act).

Preliminary figures from KOSTRA (the municipal-state report) 2008 show that around 90.5 per cent of all 16–18-year-olds claimed this right and took part in upper secondary education and training during the autumn of 2008. There is reason to believe that this number is somewhat low. Due to the Knowledge Promotion reform, the approval process in some counties has been somewhat delayed. Some apprentices were therefore not included in the preliminary figures from KOSTRA for 2008.

In the autumn of 2008, 186,821 pupils took part in upper secondary education and training (Statistics Norway). Of these, 3,301 pupils received alternative education. Table 1.7 shows that there was a decline in the number of pupils from 2007–2008 to 2008–2009 for Vg1, while there was an increase for Vg2. 46 per cent of the pupils who started Vg1 in the autumn of 2008 started a programme for general studies. Table 1.7 also shows that the number of pupils who choose a programme for general studies increases at Vg3. One reason for this is that many pupils in vocational education programmes choose to take a supplementary year that qualifies for higher education after Vg2. The number of pupils taking vocational education programmes is significantly reduced from Vg2 to Vg3 as most of the pupils taking vocational programmes either start as apprentices or take the supplementary year that qualifies for higher education after having completed Vg2.

In the autumn of 2008, 38,168 apprentices and 1,016 training candidates took upper secondary education and training. Figure 1.6 shows an overview of the number of apprentices in the period 2003–2004 to 2008–2009. This shows that the number of apprentices in upper secondary education and training has increased since 2003–2004. There is a definite majority of men among the apprentices and it is also among men we find the greatest increase in the number of apprentices. Chapter 5 gives a broader overview of pupils and apprentices in upper secondary education and training.

Figure 1.6: Number of apprentices, by gender. Revised data.



Source: Statistics Norway

1.5 Adults in upper secondary education and training

Pursuant to Section 4A-3 of the Norwegian Education Act,

Table 1.8: Adults registered as applicants for education and adults who have started teaching adapted to adults, by county of residence and total number. 2008. Preliminary figures from KOSTRA.

County	Registered as applicants	Started teaching	Per cent offered admission
Østfold	1,063	845	79.5
Akershus	874	858	98.2
Oslo	313	286	91.4
Hedmark	519	298	57.4
Oppland	211	204	96.7
Buskerud	574	564	98.3
Vestfold	705	370	52.5
Telemark	775	691	89.2
Aust-Agder	377	271	71.9
Vest-Agder	990	639	64.5
Rogaland	749	368	49.1
Hordaland	1,271	1,001	78.8
Sogn og Fjordane	108	107	99.1
Møre og Romsdal	172	156	90.7
Sør-Trøndelag	736	501	68.1
Nord-Trøndelag	479	459	95.8
Nordland	593	500	84.3
Troms	313	233	74.4
Finnmark	137	134	97.8
Total	10,959	8,485	77.4

Source: Statistics Norway

adults who have completed primary and lower secondary education, but not upper secondary education or the equivalent, have the right to upper secondary education. Until 1 August 2008, this right concerned adults born before 1978, but from the autumn of 2008 this was changed to apply to adults as of the year they become 25 years of age. The education shall be adapted to individual needs.

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 individual admission based on assessed non-formal competence. This alternative is often called the adult learning way, and entails an application 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 2006). Most of the education is given at the upper secondary schools. Adult learning associations do not normally arrange such courses for adults.

Table 1.8 shows the number of adults registered as applicants and the number of adults who have started education adapted to adults. The table shows that there are large variations from one county to the next in the proportion of applicants that have been offered admission to school. This suggests that the adult education programme varies to a large extent according to where one is resident in Norway. The fact that the national average for the proportion receiving education is not higher than 77.4 per cent indicates that, in general, demand is larger than supply. At the same time, the supply is also quite good in some counties.

1.6 Upper secondary schools

In the autumn of 2008, there were 463 upper secondary schools in Norway. Of these, 371 were county schools, 89 were private schools and three were state schools (Statistics Norway). Since 2001, there are 34 fewer upper secondary schools in Norway. The number of private schools has increased by 25 during the same period.

Pupils with immigrant backgrounds

Table 1.9 shows that in the 2008–2009 school year, 88 upper secondary schools have a proportion of pupils with immigrant backgrounds of 11 per cent or more. This constitutes 19 per cent of all upper secondary schools. There is great variation between counties. The proportion of schools where at least 11 per cent of the pupils have immigrant backgrounds is 68 per cent in Oslo, 42 per cent in Østfold and 33 per cent in Akershus. In Oslo there were six upper secondary schools where more than half of the pupils had immigrant backgrounds in the 2008–2009 school year (Statistics Norway). Oslo also had three upper secondary schools where more than 60 per cent of the pupils had immigrant backgrounds and one with a proportion of over 80 per cent. Telemark had one upper secondary school where more than half of the pupils had immigrant backgrounds.

Table 1.9: Number of county and private upper secondary schools by proportion of pupils with immigrant background. 1 October 2008, preliminary figures.

	Number of schools	Number of schools with at least 11 per cent pupils with immigrant background
Entire country	460	88
Østfold	19	8
Akershus	36	12
Oslo	41	28
Hedmark	21	2
Oppland	18	1
Buskerud	18	6
Vestfold	15	3
Telemark	18	5
Aust-Agder	13	2
Vest-Agder	19	1
Rogaland	41	6
Hordaland	56	8
Sogn og Fjordane	15	1
Møre og Romsdal	29	0
Sør-Trøndelag	31	2
Nord-Trøndelag	13	0
Nordland	24	1
Troms	20	0
Finnmark	11	2
Not stated	2	0

Source: Statistics Norway

1.7 Assistants, teachers and administrators

Assistants, teachers and administrators in primary and lower secondary school

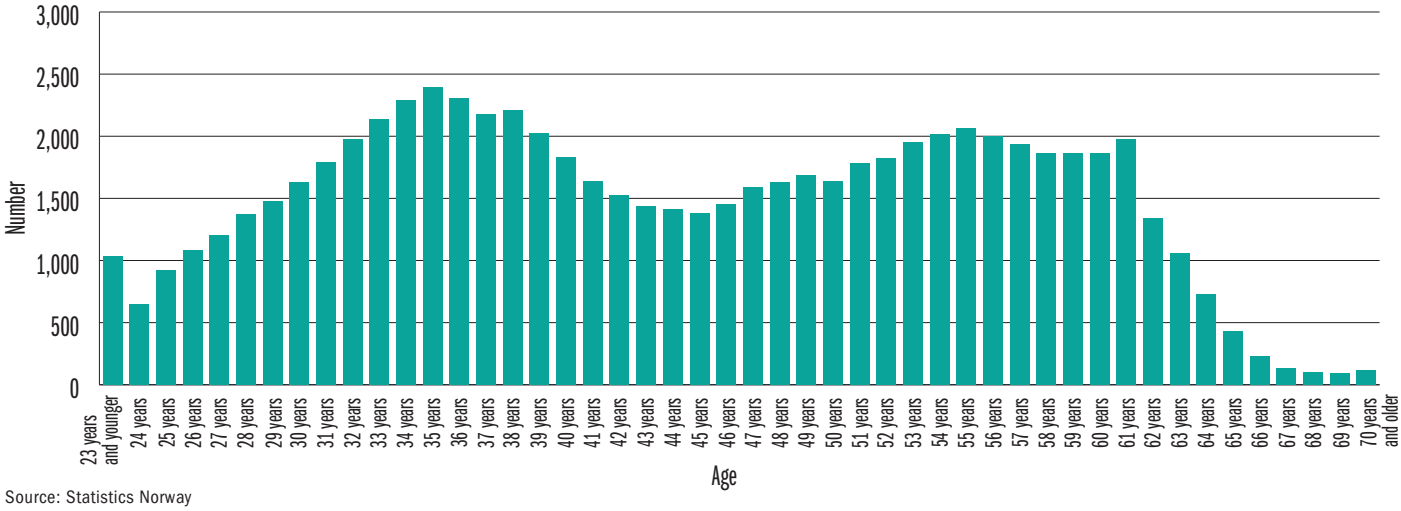
Table 1.10 shows an overview of the number of assistants, teachers and administrators in municipal and county primary and lower secondary schools, divided by qualifications and gender. In the autumn of 2007, 12,356 assistants worked in

Table 1.10: Assistants, teachers and administrators in primary and lower secondary school, by qualifications and gender. Fourth quarter 2007. Per cent.

Assistants	Total	Men	Women
Total number of assistants	12,356	1,674	10,682
Child and youth welfare worker	16	6.8	17.5
Teachers	**Total**	**Men**	**Women**
Total number of teachers	66,306	17,400	48,906
Higher university or college degree with teacher training	3.3	4.7	2.8
Higher university or college degree without teacher training	0.9	1.5	0.6
Lower university or college degree with teacher training	85.1	81.5	86.4
Lower university or college degree without teacher training	4.3	5.6	3.8
Upper secondary or lower without teacher training	6.4	6.7	6.3
Administrators	**Total**	**Men**	**Women**
Total number of administrators	4,955	2,277	2,678
Higher university or college degree with teacher training	5.3	6.1	4.6
Lower university or college degree with teacher training	88.8	87.6	89.8
Administrators without teacher training	5.9	6.4	5.5

Source: Statistics Norway

Figure 1.7: Age distribution of teachers and administrators in primary and lower secondary school. Fourth quarter 2007.



Source: Statistics Norway

primary and lower secondary school, and 86 per cent of them were women. 17.5 per cent of the female and 6.8 per cent of the male assistants have degrees as child and youth welfare workers. There were 66,306 teachers in primary and lower secondary school, and 85.1 per cent of them had a lower university or college degree with teacher training. 3.3 per cent of teachers had a higher university or college degree with teacher training; 5.2 per cent had a university or college degree without teacher training and 6.4 per had only completed upper secondary school or less without teacher training. 74 per cent of the teachers in primary and lower secondary school were women. The gender difference is more even among administrators in primary and lower secondary school, with 54 per cent women. 88.8 per cent of administrators had a lower university or college degree with teacher training and 5.3 per cent had a higher university or college degree with teacher training. 5.9 per cent of administrators in primary and lower secondary school did not have teacher training.

Figure 1.7 shows the age distribution among teachers and administrators in municipal and county primary and lower secondary schools. The age of teachers and administrators in primary and lower secondary school has a curve with two peaks.

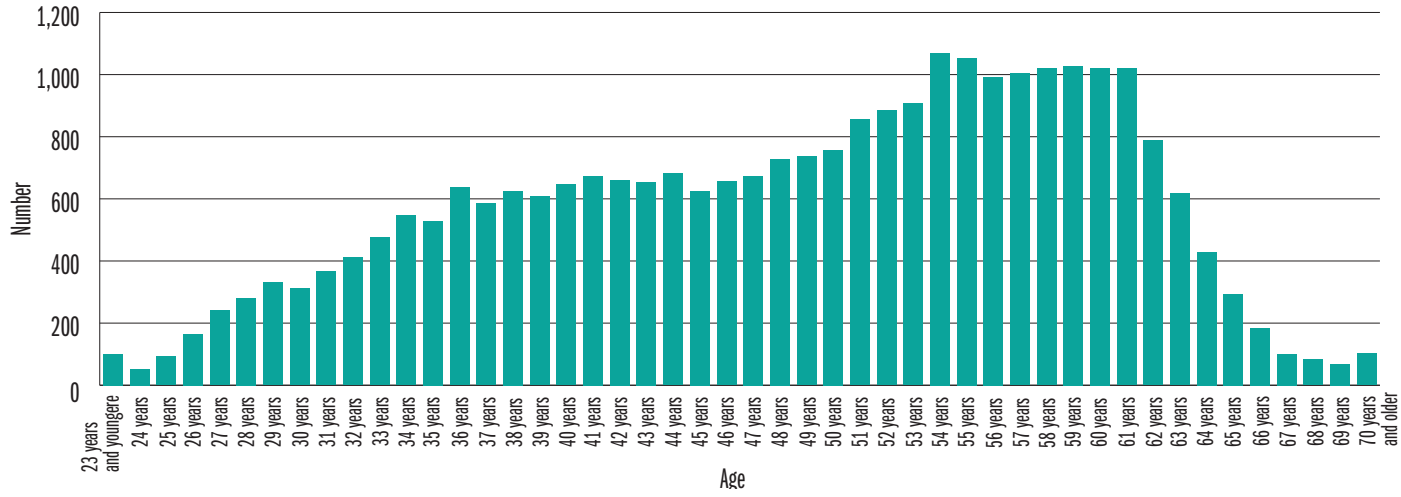
Table 1.11: Teachers and administrators in upper secondary education, by qualifications and gender. Fourth quarter 2007. Per cent.

Teachers	Total	Men	Women
Total number of teachers	24,661	12,548	12,113
Higher university or college degree with teacher training	20.1	20.3	19.8
Higher university or college degree without teacher training	7.5	8.4	6.5
Lower university or college degree with teacher training	55.7	51.8	59.6
Lower university or college degree without teacher training	9.4	8.9	9.9
Upper secondary or lower without teacher training	7.4	10.6	4.1
Administrators	**Total**	**Men**	**Women**
Total number of administrators	2,711	1,510	1,201
Administrators with higher university or college degree with teacher training	22.2	22.6	21.6
Administrators with lower university or college degree with teacher training	53.3	54.2	52.1
Administrators without teacher training	24.5	23.1	26.2

Source: Statistics Norway

Most teachers and administrators are between 33 and 39 years, but another large proportion is between 50 and 60 years. In other words, many teachers and administrators are nearing

Figure 1.8: Age distribution of teachers and administrators in upper secondary education. Fourth quarter 2007.



Source: Statistics Norway

the age of retirement, but a number of younger teachers have also started working in primary and lower secondary school.

Teachers and administrators in upper secondary education

Table 1.11 shows an overview of the number of teachers and administrators in upper secondary education, divided by qualifications and gender. In the autumn of 2007, 24,661 teachers worked in upper secondary education, and 49 per cent of them were women. 75.8 per cent of teachers had a university or college degree with teacher training; 16.9 per cent had a university or college degree without teacher training and 7.4 per had only completed upper secondary school or less, without teacher training. In the autumn of 2007, there were 2,711 administrators in upper secondary education. 44 per cent of them were women. The proportion of administrators who did not have teacher training was 24.5 per cent. 53.3 per cent of administrators had a lower university or college degree while 22.2 per cent had a higher university or college degree.

These data also include shorter and longer temporary positions. The proportion of teachers without teacher training is therefore relatively high.

Figure 1.8 shows the age distribution among teachers and administrators in upper secondary education in the autumn 2007. Teachers and administrators in upper secondary education are in general older than in primary and lower secondary school. 73 per cent of the teachers in upper secondary education were above 45 years, and 31 per cent were above 55 years. Among the administrators, 81 per cent were above 45 years and 44 per cent above 55 years. As opposed to primary and lower secondary school, new teachers are recruited to upper secondary education from all age groups. 15 per cent of the teachers in upper secondary education were below 36 years.

Teacher training

The numbers in table 1.12 for the groups from western countries and from other countries include first generation immigrants, second generation immigrants (born in Norway to immigrant parents) and the rest of the population. The table shows that a not insignificant number of first and second generation immigrants are currently taking teacher training. We can also see that a far larger proportion of women than men are taking teacher training, and that this applies whether a person's background is from Norway or from another country. Comparing the group from western countries to the group from other countries, the proportion taking teacher training is about the same.

Table 1.12: Number of students in Norway who have started teacher training 1 October 2007 by degree, country of origin and gender.

	Norway		Western countries		Other countries		
Degree	Women	Men	Women	Men	Women	Men	Total
General teacher	5,096	2,000	255	98	159	74	7,682
Tertiary vocational teacher	976	451	84	31	139	85	1,766
One-year undergraduate							
teacher	1,464	995	141	86	76	37	2,799
Master university degree	624	322	56	35	49	31	1,117
Undergraduate							
pre-school teacher	4,786	670	324	49	297	74	6,200
Sum	12,946	4,438	860	299	720	301	19,564

Source: Statistics Norway

Table 1.13: Highest level of education in the population. Persons aged 16 and older by level of education, gender and age. Per cent.

Women			University or college degree		
Age	Lower secondary	Upper secondary	Lower level	Higher level	Not stated or no completed education
All	30.5	39.1	22.0	4.2	4.2
16-19 years	83.5	13.7	0.0	0.0	2.8
20-24 years	24.3	49.2	20.2	0.3	6.0
25-29 years	16.3	29.0	36.6	7.3	10.9
30-39 years	15.1	34.5	34.0	9.0	7.4
40-49 years	24.8	37.6	28.1	5.7	3.8
50-59 years	21.8	48.6	23.5	3.9	2.1
60-66 years	28.2	50.2	17.2	2.7	1.6
67 years and above	48.4	40.3	8.9	0.9	1.4
Men			University or college degree		
Age	Lower secondary	Upper secondary	Lower level	Higher level	Not stated or no completed education
All	28.7	43.5	16.0	7.3	4.6
16-19 years	88.3	8.8	0.0	0.0	2.9
20-24 years	35.1	49.5	10.6	0.2	4.6
25-29 years	22.9	39.3	21.9	6.8	9.1
30-39 years	16.8	43.5	21.5	10.0	8.2
40-49 years	23.3	44.8	18.2	8.4	5.1
50-59 years	19.2	50.8	18.2	9.2	2.7
60-66 years	23.2	49.8	16.3	9.2	1.5
67 years and above	36.4	45.0	10.7	6.5	1.4

Source: Statistics Norway

In order to improve the quality of Norwegian schools, there is a need for more excellent teachers. This is why *GNIST – den store lærersatsingen (GNIST – the great teacher commitment)* was launched in the spring of 2009 (Ministry of Education and Research 2009 b). GNIST is one of the largest ever recruitment campaigns in the Norwegian public sector. The aim of the campaign is to get more qualified applicants to take teacher training and thus increase the status of the teaching profession. Data from the Universities and Colleges Admission Service show that in the spring of 2009, the number of applicants had increased by an impressive 34.7 per cent compared to last year. Application to the various professional teacher training courses had increased by 16 per cent (the Universities and Colleges Admission Service 2009). In comparison, there was an increase of 9.7 per cent in applicants to higher education in general. The increased focus on teacher training thus seems to have contributed to increased application to teacher training.

1.8 The education level in Norway

Table 1.13 shows that Norway has a high level of education. 85 per cent of women and 83 per cent of all men in the 30–39 year age group have completed upper secondary education. Completed upper secondary education is here understood as completing three or four year upper secondary education (Statistics Norway 2006), ie. completing upper secondary level 3 or passing a craft examination. Persons who have not completed upper secondary education are defined as having completed lower secondary school. Table 1.13 also shows that the level of education varies between men and women in various age groups. Among the women, the 25 to 39 year age group has the highest level of education; around 40 per cent have higher education. Among the men in the same age group, around 30 per cent have higher education. Not unexpectedly, the level of education is lower in the older age categories for both women and men. Among the women, there is a higher proportion with a lower university or college degree, but more men than women have university or college degrees. Chapter 5 offers more information on recruiting, implementation and competence achievement.

2 Resources

This chapter presents resource allocation indicators in primary and secondary education and training. Indicators focus on various forms of resource allocation such as expenses of school operations, teacher density and the use of special needs education. There is a relatively large variation between municipalities and counties in how much resources they spend on primary and lower secondary school on the one hand and on upper secondary education and training on the other. This chapter analyses the extent of this variation and possible causes. The chapter will look at the development in spending at the municipal, county and national level and also compares spending in Norway with other countries.

The data on which the indicators presented in this chapter are based are largely collected from GSI, the information system for primary and lower secondary school, and from the municipal-state report (KOSTRA) in Statistics Norway. The tables and figures explain which schools are covered by the indicators. In KOSTRA, key figures or indicators for spending have been developed and these make it possible to compare municipalities and counties. The 2008 figures are based on unrevised (preliminary) numbers from KOSTRA. The revised (final) numbers from KOSTRA are published in the middle of June each year. Some municipalities are missing from the unrevised accounts from KOSTRA. How much this may constitute in relation to the final figures depends on which municipalities have not handed in their accounts as basis for the preliminary figures.

The analyses of municipal variation in resource allocation in primary and lower secondary school are based on preliminary figures from GSI. Experience shows that there are relatively minor differences between the preliminary and the final figures from GSI. The group size indicator tends to change somewhat when the figures are revised after supervision is introduced in the period between the preliminary and the final GSI figures. However, the changes are not of such an extent that they affect development trends and conclusions.

The amount of resources used per pupil in primary and lower secondary school varies significantly between municipalities. When assessing whether some municipalities spend too little resources, a number of factors must be taken into account, such as the number of pupils, school structure and settlement patterns. For instance, it is more expensive to operate schools in municipalities with widespread settlements and few pupils per level than in municipalities with more geographically concentrated settlements and more pupils. Another factor that leads to differences in spending is variations in the need for special needs education. Structural adjustment makes it possible to take such differences between municipalities and counties into account. In this chapter we present comparisons between the municipalities with the highest and the lowest resource allocation after such structural adjustment.

In short, there is a large variation at the municipal level in the resource input in primary and lower secondary school, while there is less variation at county level for upper secondary education and training. The variations are stable over time, however.

2.1 Measurements of resource input in primary and secondary education and training

Several types of indicators can be used in order to assess the level of resource input in primary and secondary education and training. One indicator that may be used to outline the resource input in municipalities or counties is cost per pupil. Other indicators presented here include teacher hours per pupil and teacher hours per pupil hours, which indicate teacher allocation and teacher density.

In addition to showing resource input and productivity, it is important that indicators provide a fair and equal basis for comparison between schools or school owners. For instance, an indicator must not be affected by differences in the way the school owners organise internal school operations. Therefore, when comparing counties, we have decided to use accounting figures from *adjusted gross operating expenses, including the purchase of services from own enterprises and intermunicipal enterprises (IKS)*, (see text box for a detailed description) to calculate costs per pupil for upper secondary education and training, instead of adjusted gross operating expenses as used previously. Thus, costs per pupil are more easily comparable between counties. However, the comparison between counties is still not completely fair, since it does not take into account whether school owners organise operating duties externally, i.e. as private enterprises. This cost model has still not been implemented for primary and lower secondary school.

Another interesting aspect to look into is how much school owners spend on education compared to the resources available for this purpose. This indicates how priorities are made in primary and secondary education and training, whether at national, county or municipal level.

Definition of resource input indicators:

Adjusted gross operating expenses shows municipal costs for statutory responsibilities. This indicator includes operating expenses for the municipality's own service production, plus VAT expenses and depreciations, minus double entries caused by the distribution of expenses, in-house purchases etc. per pupil. It shows the municipalities' own service production of primary and lower secondary school, school buildings and transportation by user.

Adjusted gross operating expenses, including purchases from own enterprises and intermunicipal enterprises (IKS), shows municipal costs for the operation of statutory responsibilities, regardless of internal organisation. Therefore, this indicator includes purchases from intermunicipal enterprises (IKS) where the municipality itself is a participant, and purchases from enterprises and companies in one's own municipality which keep separate accounts. This indicator also provides an idea of the expenses of the municipality's own educational measures.

Teacher hours per pupil is the total number of hours a teacher is obliged to teach (i.e. the number of minutes a teacher is in a teaching situation with pupils, divided by 60, divided by the total number of pupils). The indicators for teacher density do not include mother tongue and Finnish.

Teacher hours per pupil hours is the number of hours a teacher is obliged to teach divided by the number of hours pupils are taught. From the 2007–2008 school year, all teaching hours per year are registered as 60 minute units.

2.2 Municipal expenses for primary and lower secondary school

Cost per pupil

IA total of 401 municipalities have submitted accounting figures for 2008. Adjusted gross operating expenses of primary and lower secondary school in 2008 were NOK 77,997 per pupil. Measured in permanent 2008 prices, this is an increase of around 1.4 per cent since 2007. The increase is somewhat lower than in the two preceding years. The figures for 2008 are here compared with the figures for all municipalities for 2007 (revised figures). Permanent 2008 prices are obtained through an index for municipal wage growth in the school sector (Ministry of Labour and Social Inclusion 2009). Payroll expenses constitute 79 per cent of total operating expenses. As

Table 2.1: Adjusted gross operating expenses per pupil in primary and lower secondary school by type of expense, 2004-2008. Continuous prices and permanent 2007 prices (in italics). All municipal and intermunicipal primary and lower secondary schools.

Year	Total	Payroll	Fixtures and equipment	Teaching materials	Other
2004	64,949 (*72,834*)	49,901 (*55,959*)	623 (*699*)	1,158 (*1,299*)	13,267 (*14,878*)
2005	65,021 (*71,067*)	51,979 (*56,812*)	655 (*716*)	1,101 (*1,203*)	11,286 (*12,335*)
2006	68,743 (*72,524*)	54,398 (*57,390*)	819 (*864*)	1,361 (*1,436*)	12,165 (*12,834*)
2007	72,933 (*76,944*)	57,023 (*60,159*)	901 (*951*)	1,777 (*1,875*)	13,232 (*13,960*)
2008	77,997	61,683	723	1,787	13,804

Source: KOSTRA (preliminary figures)

payroll expenses constitute such a large proportion, changes in wages greatly affect total resource development. Payroll developments have been chosen as an index due to this large proportion. The number of pupils varies greatly between municipalities. It is therefore useful to weight the expenses for each municipality with the number of pupils in the municipality. This will give a better picture of the resource situation for an average pupil.

Wage increases measured in permanent prices were 2.8 per cent from 2007, and this is somewhat higher than the increase in operating expenses. Expenses on fixtures and equipment and on teaching materials decreased by 24.0 and 4.6 per cent respectively from 2007. The decrease in expenses on teaching materials is probably related to the fact that the period when the municipalities had to purchase new teaching materials in connection with the introduction of the Knowledge Promotion reform is now over.

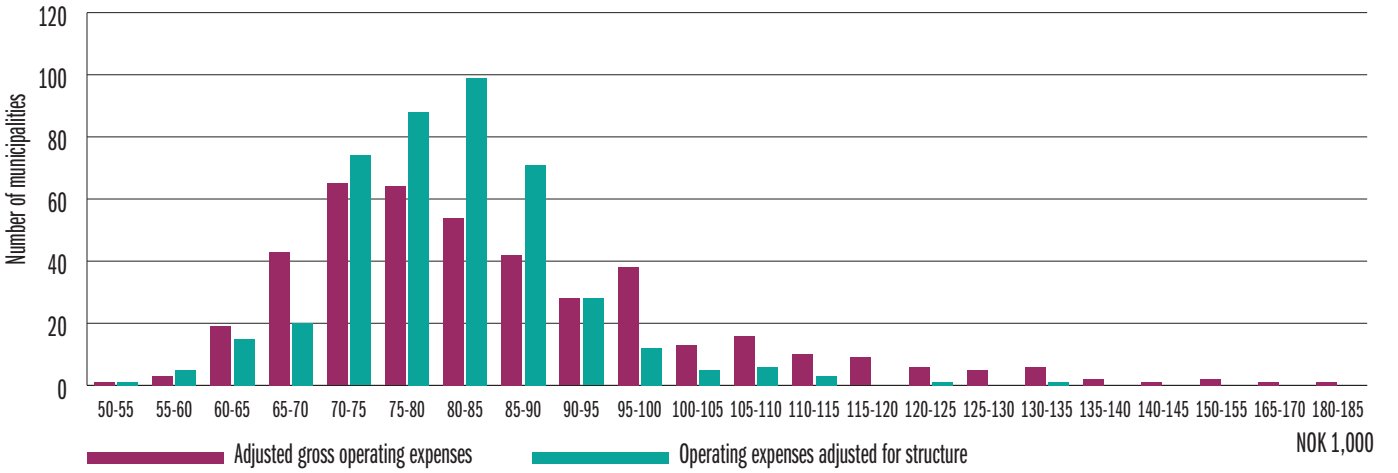
Structural adjustment

School operations are not equally expensive for all municipalities. Municipalities with a widespread population have more and smaller schools in order to achieve an acceptable travel distance for the pupils. Small schools with a low number of pupils produce higher regular administration, transportation, operation and other common costs. Finally, few pupils at each level leads to more teaching in small groups, and thus higher teacher wage costs per pupil. Part of the municipal costs should therefore be regarded as operating expenses beyond the municipality's control, and for which adjustments should be made.

Structural adjustment of expenses:
This method is explained in earlier reports on school resources from the Centre for Economic Research at NTNU, Falch and Tovmo (2007) and Borge and Naper (2006). A cost index is first designed based on variations between municipalities in factors that affect necessary school related expenses. Then the actual costs are divided by this cost index (Hægeland et al. 2009).

Figure 2.1 shows that far more municipalities end up around the average after adjustments for variations in settlement patterns etc. have been made. The differences between municipalities that have lower costs increased somewhat more from 2007 to 2008 than from 2006 to 2007, but the main impression is still that the differences between municipalities is relatively stable. Several factors that determine the costs, such as travel distances and number of pupils, change little from year to year. Around 75 per cent of the variation between municipalities regarding the amount of money spent on schools can be explained through differences in cost structure. Free income in the form of revenues from property taxes and income from electrical power stations has a definite effect on the level of costs. Municipalities with higher incomes, primarily municipalities with municipal hydroelectric power stations, spend more money on schools. The rest of the differences between municipalities may be attributed to several factors. Variation in the number of pupils, and thus a variation in the need for extra measures such as assistants, special needs education and/or equipment, may be one possible cause. The differences in school expenses can also be due to varying political priorities between municipalities.

Figure 2.1: Municipalities distributed by real operating expenses and operating expenses adjusted for cost structure per pupil for 2007 measured in NOK 1,000. All mainstream municipal and intermunicipal primary and lower secondary schools.



Source: Hægeland et al. 2009.

Common features of municipalities with particularly low and high resource input

Table 2.2 shows the percentage by which the average of the 25 municipalities with the lowest and highest operating expenses per pupil in 2007 deviates from the average for selected cost factors. Such a comparison may suggest which indicators are most important for municipal operating expenses.

There are large differences in the number of pupils and in travel distances between the municipalities with the highest and the lowest operating expenses. Densely populated municipalities in central regions have substantial advantages due to large-scale operations and spend almost 30 per cent less than the national average on primary and lower secondary school. 21 per cent of pupils attend schools in the 25 municipalities with the lowest costs. In comparison, only 0.7 per cent of pupils attend schools in the 25 municipalities with highest costs. Travel distances and travel times are far higher in the municipalities with high operating expenses. The municipalities with higher costs also have more free income. Municipalities with lower costs in general have more pupils and less free income. They also have a larger proportion of immigrant inhabitants. There are no electrical power municipalities among the 25 municipalities with the lowest expenses in primary and lower secondary school.

Table 2.2: Characteristics of the 25 municipalities with lowest or highest unadjusted operating expenses in 2007. All mainstream municipal and intermunicipal primary and lower secondary schools.

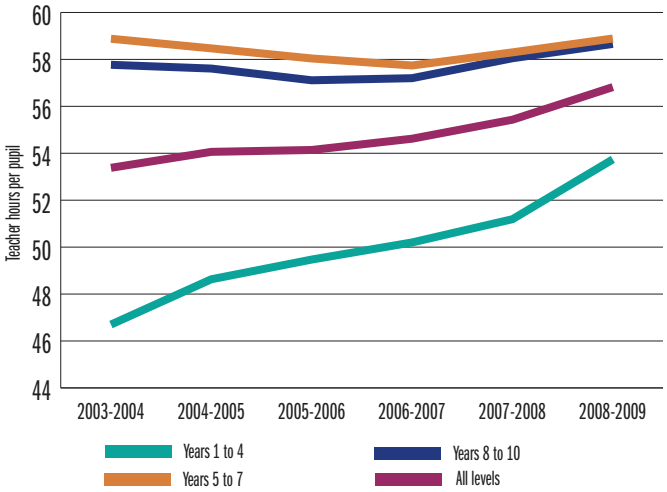
	Difference in percentage from the average for all municipalities	
	25 with lowest operating expenses	25 with highest operating expenses
Number of pupils (Years 1 to 10)	21.2*	0.7*
Operating expenses per pupil, unadjusted (NOK 1,000)	-28	56
Operating expenses per pupil, adjusted (NOK 1,000)	-11	15
Travel time for pupils	-32	76
Travel distance to centre of zone	-67	73
Travel distances to next district	-59	96
Pupils per computer	26	-38
Extra teacher hours per pupil	-29	17
SNE pursuant to individual decisions	-19	12
Full-time eq. by assistants	0	-20
Immigrants 0-16 years	86	-24
Family background index	2	-2
Free income (index, 100, ex. property taxes)	-7	29
Free income (index, 100)	-12	49

*Percentage of pupils
Source: Hægeland et al. 2009

Teacher hours

Teacher hours are the hours a teacher spends teaching. Figure 2.2 shows the development in the number of teacher hours per pupil, for primary and lower secondary school in total and for primary school, Years 5 to 7 and Years 8 to 10 separately. The average number of teacher hours per pupil is 56.8 in 2008–2009 for primary and lower secondary school in total, 53.7 for primary school, 58.9 for Years 5 to 7 and 58.7 for Years 8 to 10. From 2007–2008 to 2008–2009 there has been an increase in teacher input at all levels. The increase is greatest in primary school, where the statutory lowest amount of hours was increased for the 2008–2009 school year. From the 2008–2009 school year, the statutory lowest amount of hours for Years 1 to 4 was increased by 190 hours in the subjects Norwegian, English and Mathematics. This increase will apply fully only for pupils that start Year 1 in the 2008–2009 school year. In primary school there has been an increase in teacher hours per pupil every year since 2004. This is probably due to the number of pupil hours increasing in 2004–2005. Teacher hours per pupil in primary school is 15.1 per cent higher in 2009 than in 2004. For Years 5 to 7 and Years 8 to 10, the increase in 2007–2008 continues in 2008–2009, thus breaking the falling trend in teacher hours per pupil up to 2005–2006. Teacher hours per pupil is now at the same level as in 2003–2004. The increase in the number of teacher hours per pupil in Years 5 to 7 and in Years 8 to 10 must be seen in relation to the increase in special needs education.

Figure 2.2: Development of teacher hours per pupil over time. All mainstream public and private primary and lower secondary schools.



Source: GSI

There is a relatively large variation between municipalities in the number of teacher hours per pupil, and the variation measured by standard deviation and relative dispersion has increased slightly from 2007–2008 to 2008–2009. There are no clear signs of changes in this variation over time (Hægeland et al. 2009).

Teacher hours for language minorities

Section 2–8 of the Education Act defines the right to adapted language education for language minority pupils. Pupils who have a mother tongue other than Norwegian or Sami have the right to adapted education in Norwegian until they are sufficiently proficient in Norwegian to follow the normal instruction of the school. If necessary, such pupils are also entitled to mother tongue instruction, bilingual subject teaching or both.

The percentage of teacher hours spent on mother tongue instruction for language minorities is stable. At municipality

Table 2.3: Teacher hours for adapted language education for language minority pupils, as proportion of total teacher hours. All mainstream public and private primary and lower secondary schools. Per cent.

School year	Average percentage
2003-2004	6.5
2004-2005	6.4
2005-2006	6.5
2006-2007	6.7
2007-2008	6.3
2008-2009	6.2

Source: GSI

level, there is a large variation in the percentage of hours spent on mother tongue instruction as there are large variations in the proportion of language minority pupils (Hægeland et al. 2009).

Teacher hours for special needs education

Table 2.4 shows that the percentage of pupils given special needs education has increased since 2005–2006. The extent of special needs education, measured as a percentage of total teacher hours, has increased since 2004–2005. Just over 15 per cent of all teacher hours in primary and lower secondary school in 2008–2009 are defined as hours for special needs education, cf. figure 2.3.

A stronger focus on early intervention has led to an interest in spreading special needs education across levels. The increase from 2008 to 2009 is somewhat lower for the youngest pupils than in the two preceding years. For the other levels, the increase was higher. This indicator does not indicate that a higher priority is given to the youngest pupils regarding special needs education.

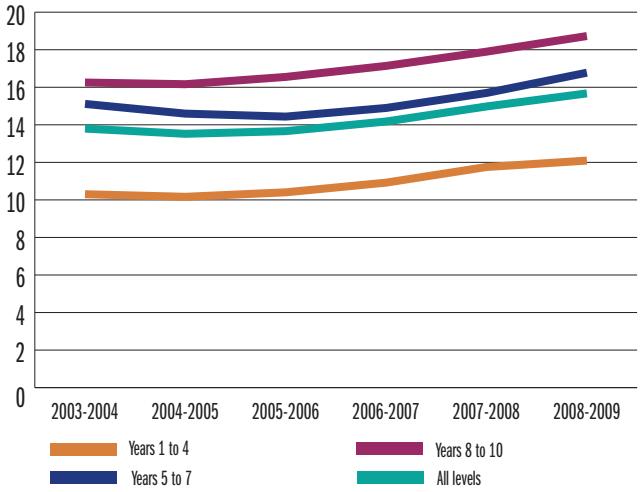
At the same time as the use of special needs education has increased, the differences between municipalities has also increased somewhat in the same area. In municipalities with a high level of special needs education, this constitutes 21.4 per cent of all teacher hours in 2009, while it constitutes 10.8 per cent in the municipalities that use little special needs education (Hægeland et al. 2009).

Table 2.4: Pupils with SNE and adapted education in Norwegian. All mainstream public and private primary and lower secondary schools. Per cent.

School year	Percentage special needs education	Percentage adapted education in Norwegian
2003-2004	5.7	5.7
2004-2005	5.7	5.8
2005-2006	5.7	6.0
2006-2007	5.9	6.5
2007-2008	6.3	6.5
2008-2009	7.0	6.7

Source: GSI

Figure 2.3: Teacher hours for SNE, as proportion of total teacher hours. All mainstream public and private primary and lower secondary schools. Per cent.



Source: GSI

The percentage of pupils with adapted education in Norwegian has also largely increased since 2003–2004. There is a large variation between municipalities regarding teacher hours in adapted education in Norwegian, as there are large differences in the proportion of foreign language pupils.

Assistant hours

Table 2.5: Full-time eq. for assistants, as proportion of total full-time eq. for teaching staff. All mainstream public and private primary and lower secondary schools. Per cent.

School year	Percentage
2003-2004	9.9
2004-2005	10.2
2005-2006	10.8
2006-2007	11.5
2007-2008	13.1
2008-2009	13.9

Kjelde: GSI

Table 2.5 shows that the use of assistants, measured as the proportion of full-time equivalents carried out by assistants in relation to full-time equivalents for teaching staff, continues to increase. The increase from 2007–2008 to 2008–2009 is less than in the previous year, but at the same level as the increase in earlier years. In 2009, there was on average one full-time equivalent carried out by assistants per 7.2 full-time equivalents for teaching staff. There is somewhat larger variation between municipalities in 2008–2009 than in previous years.

The use of extra teaching hours

Another way of comparing the resource input in municipalities is to examine how many extra teaching hours are allocated per pupil. This gives a measure of teacher input beyond a minimum level where only one teacher is present in a group of pupils. One can also consider how the extra teaching hours are distributed between hours for mainstream teaching and hours for special needs education.

Definition of basic resources and extra resources:
Basic resources are calculated according to the number of pupil hours per level, the number of pupils per level, previous class division rules and the presupposition of using one teacher per class per hour. The old class division rules meant that 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. The number of pupil hours is largely determined by the number of teaching hours stipulated by the minimum requirements of the Education Act.

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

Total extra teaching hours are defined as the difference between the total number of teaching hours given – including teaching hours for special needs education and adapted Norwegian and mother tongue education to language minorities – and the calculated basic resources.

In most cases the calculated extra teaching hours will exceed basic resources and result in positive values. For some schools, however, the calculated basic resources will exceed the number of ordinary teacher hours. This can have several causes. Schools with mixed age groups, for instance, often end up with negative extra resources. For this reason, extra teaching hours are only calculated for schools with a higher average than 12 pupils per level. Removing the class division rule has given schools greater flexibility and the option of structuring teaching in other ways than before. A primary school with 30 pupils per level will thus have high calculated basic resources because the class division rule means two classes per level. If the school opts to have a substantial portion of teaching take place in only one group per level while supplementing with special needs education and/or assistants, this may easily lead to fewer ordinary teaching hours than calculated basic resources.

Table 2.6: Extra teaching hours per pupil. All mainstream municipal and intermunicipal primary and lower secondary schools. Average number of hours.

School year	Extra ordinary teaching hours	Extra teaching hours in total
2003-2004	7.5	18.4
2004-2005	7.5	14.4
2005-2006	7.0	18.0
2006-2007	6.7	18.2
2007-2008	6.8	18.7
2008-2009	6.6	19.2

Source: Hægeland et al. 2008

Extra teaching hours per pupil decreased somewhat in 2009 following an increase in the previous year. 2008 is the exception in a trend of declining extra teaching hours since 2005. The increased flexibility after the class division rule was removed seems to have led to fewer extra ordinary teacher hours and more hours of special needs education and/or assistants. It can also reflect the lack of qualified teachers and not necessarily a desired change of organisation. The *total number of extra teaching hours* includes special needs education and Norwegian and mother tongue instruction for language minorities. In 2008–2009, the total number of extra teaching hours was 19.2 hours per pupil and there has been a clear increase since 2005–2006. The total number of extra hours fell until 2006, but has increased afterwards and therefore is following a somewhat different pattern than the total number of teacher hours, which has increased throughout the entire period (Hægeland et al. 2009).

The variation from municipality to municipality is greater for extra hours than for the total number of teacher hours and increased somewhat from 2007–2008 to 2008–2009.

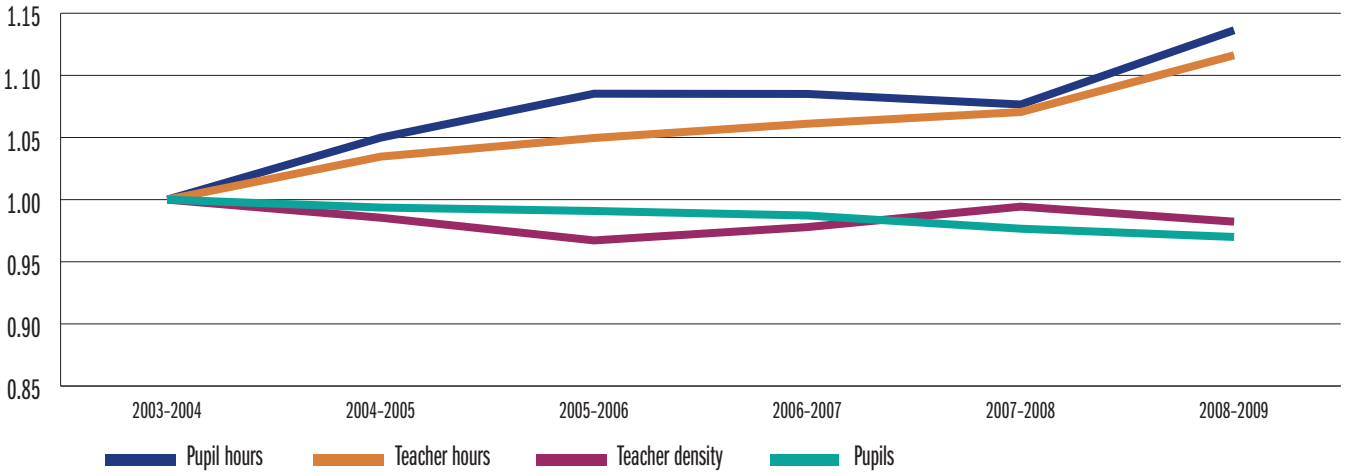
The relationship between extra teaching hours and special needs education

With the exception of 2007–2008, there has been a decrease in extra teaching hours from 2005–2006 to the present, while the use of special needs education and assistants has increased. Hægeland et al. (2008) carried out a regression analysis of the relationship between extra teaching hours and the use of special needs education. The analysis showed a great degree of substitution between extra teaching hours and the use of special needs education. This regression analysis has also been carried out this year, and the result is about the same. When the number of extra teaching hours is reduced by 1 hour per pupil, the hours for special needs education increase by 0.17 per pupil. Hence there is a trend where municipalities allocating relatively few extra teaching hours allocate more hours to special needs education with teaching staff and assistants than the municipalities that allocate many extra teaching hours per pupil. An increased input in the form of special needs education is also connected with compensating resource input in municipalities where pupils have a less fortunate family background and/or where a larger proportion of the pupils receive basic benefit (grunnstønad) and attendance benefit (hjelpestønad). Municipalities with a healthy financial basis in the form of increased free income have also increased the use of special needs education (Hægeland et al. 2009).

Teacher density in primary and lower secondary school

Teacher density is used as an indicator of teacher input. Teacher density or group size can be calculated in several ways, for instance by dividing the total number of teacher hours by the total number of pupil hours. This definition includes all hours, also those in special needs education and adapted education in Norwegian for language minorities. Pupils receiving special needs education and adapted education in Norwegian for language minorities are often physically separated from the other pupils. By including these pupils when calculating teacher

Figure 2.4: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 1 to 4. All mainstream public and private primary and lower secondary schools.



Source: GSI

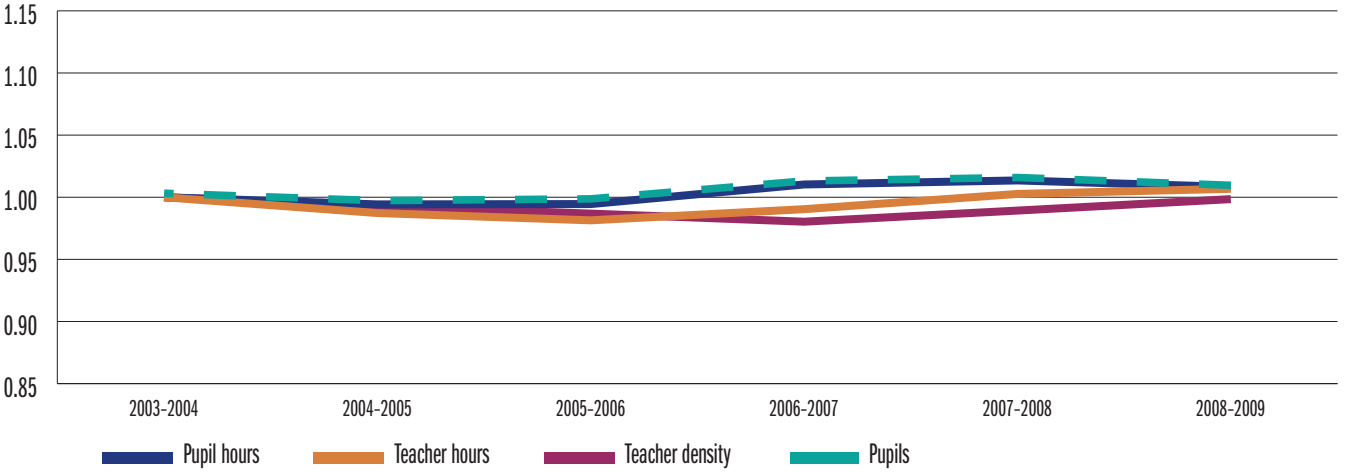
density, an impression is created that the group size is smaller than it actually is.

Another way of calculating teacher density is to exclude hours for special needs education and adapted education in Norwegian for language minorities from both teacher hours and pupil hours. This is called *group size 2*. This indicator is not as suitable for the measurement of changes in resource input over time as *group size 1*, as changes in the practice related to special needs education and adapted education in Norwegian can affect the indicator. Figures 2.4–2.6 use the first definition.

Figures 2.4–2.6 present the relative development over time for the number of pupils, teacher hours, pupil hours and teacher density. The 2003–2004 school year is used as a comparison. Figure 2.4 shows that the teacher density for Years 1 to 4 decreased until 2005–2006. The cause was a proportionate increase in pupil hours over teacher hours up until that time, although they both increased in the period from 2003–2004 to 2005–2006. From 2005–2006 to 2007–2008, teacher hours increased while pupil hours decreased. This led to an increase in teacher density. In the past year, both pupil hours and teacher hours have increased again, pupil hours somewhat more than teacher hours. This must be seen in relation to the fact that the statutory minimum number of hours for Years 1 to 4 increased with effect from the 2008–2009 school year.

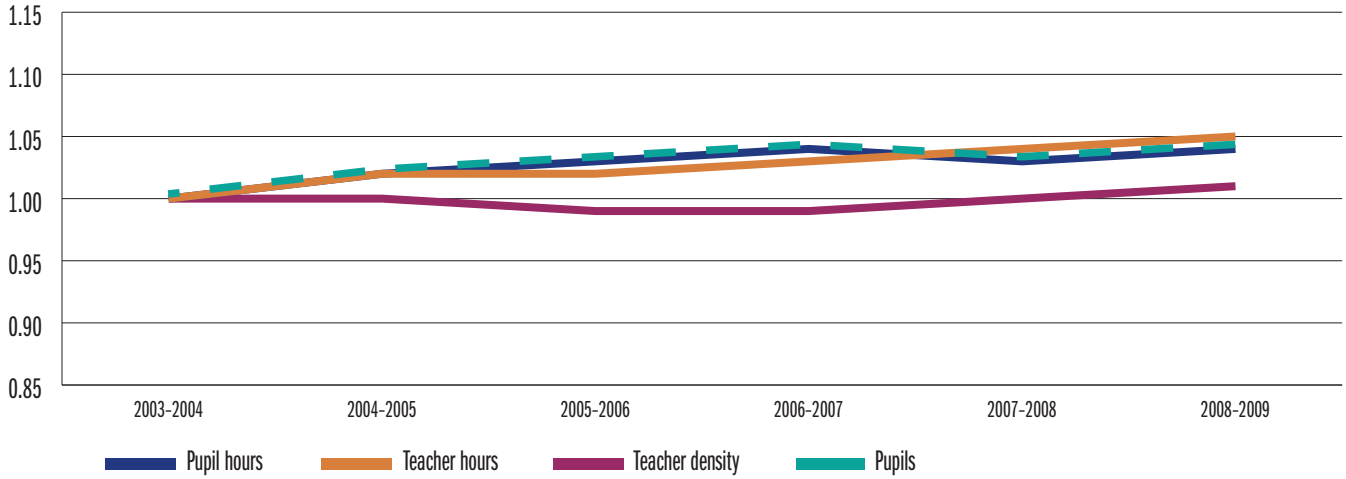
Figure 2.5 shows that for Years 5 to 7, the number of teacher hours and pupil hours have had a near parallel development. The cause is that there have been few changes in the number of pupils and the number of pupil hours in recent years.

Figure 2.5: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 5 to 7. All mainstream public and private primary and lower secondary schools.



Source: GSI

Figure 2.6: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 8 to 10 All mainstream public and private primary and lower secondary schools.



Source: GSI

Figure 2.6 shows that teacher density and teacher hours in Years 8 to 10 has increased since 2005–2006. The increase in teacher hours and teacher density in lower secondary school is caused by an increase in teacher hours for special needs education.

Group size may be defined as the total number of pupil hours divided by the total number of teacher hours. The average group size expresses how many pupils have to share one teacher in an average teaching situation for one pupil. Section 8-2 of the Education Act states that pupils may be divided into groups as necessary, but that the groups must not be larger than justifiable in relation to pedagogy and security. Average group size was stable from 2008 to 2009, and is now 13.7 pupils for primary and lower secondary school. This is a small decline from the previous year. The reduction in group size in primary school has stopped, while there are still minor reductions at the higher levels, cf. figures 2.4–2.6.

Full-time equivalents in teaching

In the past year there has been a small increase in the number of teaching full-time equivalents. This must also be seen in relation to the increase in hours in Years 1 to 4 with effect from the 2008-2009 school year, as explained earlier in this chapter. The percentage of teaching staff without approved degrees for the levels they teach at has increased from 2.7 per cent of all teaching full-time equivalents in the previous school year to 3.7 per cent in 2008–2009.

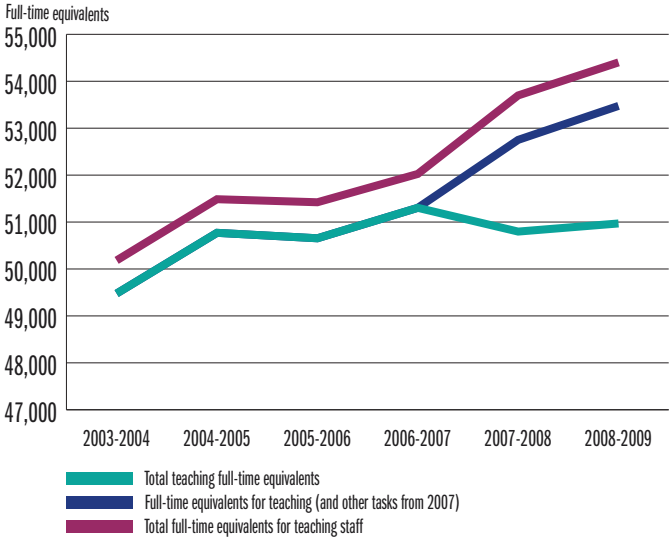
There has been a break in the sequence for teaching full-time equivalents due to the fact that from 2007–2008 teaching full-time equivalents and full-time equivalents for tasks other than teaching were seen separately. The numbers for 2007–2008 are still uncertain as they probably vary according to the tasks that have been transferred. In order to study developments in full-time equivalents, the sum of full-time equivalents should be considered. A new sequence for teaching full-time equivalents starts in 2008–2009.

Pupils per contact teacher in primary and lower secondary school

Section 8-2 of the Education Act specifies that each pupil should be attached to a contact teacher with specific responsibility for the practical, administrative and social educational tasks concerning the pupil. The purpose of this arrangement is a closer and more individual follow-up of the pupil. Normally, the tasks of a contact teacher consist of giving the pupil necessary information, ensuring professional and personal follow-up of the pupil (through pupil interviews) and contact with parents or guardians, counselling services and the educational and psychological counselling service (PPT).

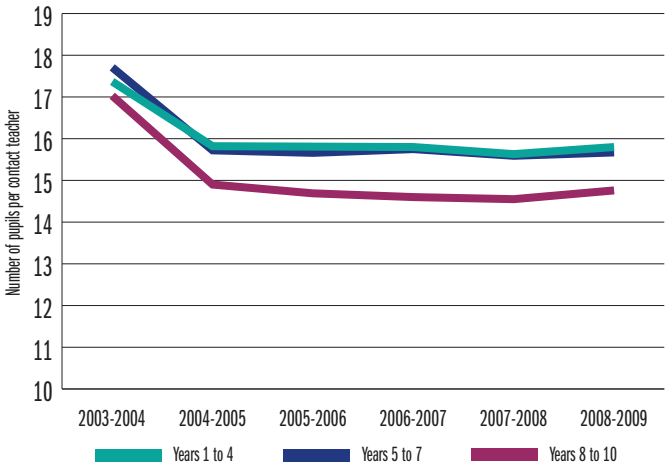
The number of pupils per contact teacher has stayed relatively stable after having been strongly reduced from 2003–2004 to 2004–2005, probably related to the removal of the class division rule in the autumn of 2003 (for the 2004 calendar year) and the introduction of contact teachers. In the past school

Figure 2.7: Full-time equivalents for teaching, teaching and other tasks and total teaching full-time equivalents. All mainstream public and private primary and lower secondary schools.



Source: Hægeland et al. 2008

Figure 2.8: Pupils per contact teacher. All mainstream public and private primary and lower secondary schools.



Source: Hægeland et al. 2009

year, however, there has been a small increase at every level. The average number of pupils per contact teacher in 2009 is just below 16 in Years 1 to 4 and in Years 5 to 7, and 15 in Years 8 to 10.

Table 2.7 shows that very few pupils have a contact teacher who is responsible for fewer than 10 pupils. More than half of the pupils have a contact teacher with more than 15 pupils. From 2007–2008 to 2008–2009 the number of pupils with a contact teacher responsible for many pupils (> 20) increased. This is connected to the increase in the number of pupils in large schools.

Table 2.7: Pupils per contact teacher, 2007–2008 and 2008–2009.

Pupils per contact teacher	Per cent pupils	Per cent schools
< 5	< 1	< 1
5-10	2	11
10-15	39	48
15-20	41	31
More than 20	18	10

Source: Hægeland et al. 2009

ICT resources

Table 2.8 shows that that the computer density has increased every year. In 2008–2009 there are on average 3.7 pupils per computer in primary and lower secondary school. The computer density is thus more than twice as high in 2009 as four years previously. In this area there are also significant variations between municipalities. The computer density in municipalities with a low density in 2009 is still significantly higher than it was in municipalities with a high computer density in 2004.

Table 2.9 shows that in around 15 per cent of schools there are fewer than two pupils per computer. These schools, however, are smaller than the average and have around 6 per cent of all pupils. In other words, the top computer density occurs

Table 2.8: Pupils per computer in primary and lower secondary school, 2004–2009. All mainstream municipal and intermunicipal primary and lower secondary schools.

Year	Average
2004	8.40
2005	7.04
2006	5.77
2007	5.05
2008	4.30
2009	3.72

Source: Hægeland et al. 2009

Table 2.9: Pupils per computer in primary and lower secondary school, 2008–2009, with and without Internet connection. All mainstream municipal and intermunicipal primary and lower secondary schools.

	Without Internet connection 2008		With Internet connection 2009	
Number of pupils	Per cent pupils	Per cent schools	Per cent pupils	Per cent schools
< 2	6.5	15.5	5.9	13.8
2-3	21.0	25.1	19.5	23.4
3-4	28.4	24.4	26.2	22.7
4-5	18.6	15.2	19.5	16.5
5-6	10.5	8.4	10.5	8.5
6-7	6.2	4.6	5.9	4.9
7-8	2.9	2.3	4.0	3.4
8-9	2.1	1.4	2.5	1.8
9-10	2.8	2.1	4.8	3.7
More than 10	0.9	0.9	1.2	1.3

Source: Hægeland et al. 2009

in relatively small schools. Four out of five schools have fewer than five pupils per computer. These schools have three quarters of all pupils.

2.3 County costs in upper secondary education and training

Cost per pupil

County expenses per pupil in upper secondary education and training are calculated from adjusted gross operating expenses, including purchases from own enterprises and intermunicipal enterprises (IKS), distributed by general studies and vocational education programmes. Additional costs are school premises, boarding schools, administration costs, pedagogical administration and pedagogical joint expenses, as well as settlements for guest pupils (functions 510, 515 and 520 in KOSTRA). These numbers were previously calculated in KOSTRA *as per full-year equivalent*, ie. the number of pupils in upper secondary education and training was translated into full-time pupils. From the spring of 2009, the costs per pupil are calculated instead, without regard to how many teaching hours the pupil actually receives. This calculation has now been implemented on key figures in KOSTRA back to 2005. This change entails

Table 2.10: Cost per pupil in upper secondary education and training by type of expense, 2007 and 2008. Continuous prices in NOK, permanent 2008 prices in parentheses.

	General studies			Vocational		
Year	Total	Payroll	Operating exp.	Total	Payroll	Operating exp.
2007	92,661 (97,757)	58.9%	41.1%	116,691 (123,109)	63.4%	36.6%
2008	100,129 (100,129)	59.8%	40.2%	123,541 (123,541)	64.0%	36.0%

Source: Hægeland et al. 2009

that the level of expenses seems somewhat lower than before, as they are spread over more units. However, there are no changes in the total level of expenses due to this change, only in cost per pupil.

Table 2.10 shows that the total cost per pupil in general studies and vocational education programmes has increased by 8.1 and 5.9 per cent respectively in continuous prices from 2007 to 2008. This change can also be calculated in permanent 2008 prices, ie. the numbers from previous years are adjusted in relation to wage developments in the school sector in the municipalities (Ministry of Labour and Social Inclusion 2009). For general studies education programmes, the increase in permanent prices has been 2.4 per cent from 2007 to 2008. This is higher than for previous years, where there was almost no change. The corresponding increase for vocational programmes is 0.4 per cent, about the same level as in previous years (Hægeland et al. 2009).

The distribution between payroll and other operating expenses is relatively stable. Higher wage costs per pupil is the main reason why the total costs per pupil are higher for vocational than for general studies programmes, as the statutory requirement for the maximum amount of pupils per teacher is lower in vocational programmes.

Differences in county authority expenses

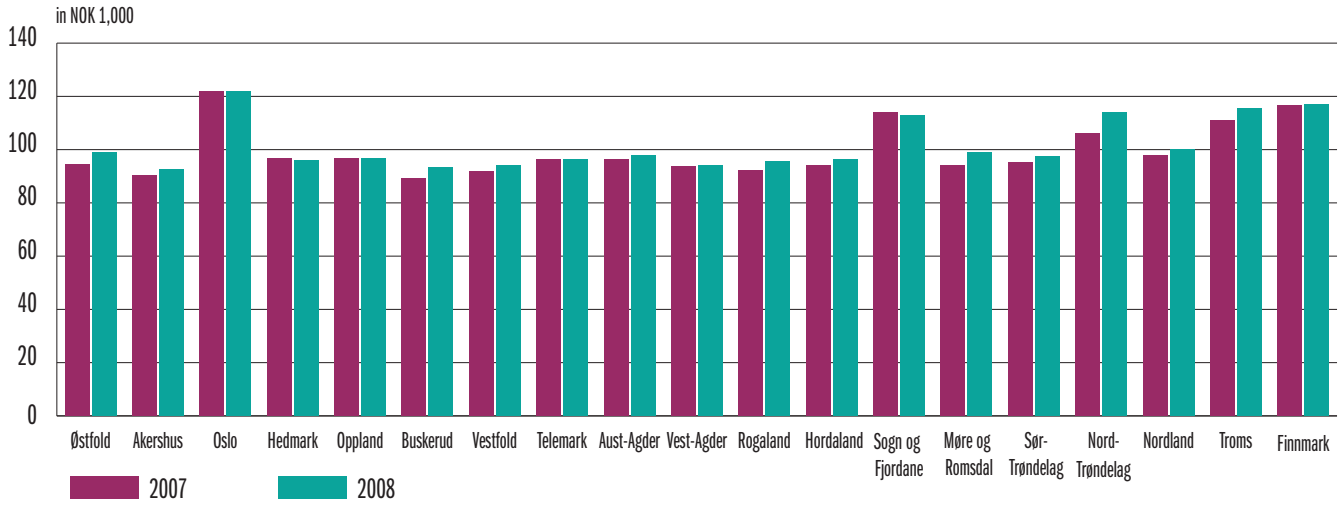
Figure 2.9 and figure 2.10 show resource allocation for upper secondary education and training by county. The variation in resource allocation from one county to the next is not as large as from one municipality to the next, but is still significant.

An analysis of differences between counties carried out by Hægeland et al. (2009) is adjusted for conditions that determine costs and that are beyond the county's control, as done for the municipalities (structural adjustment, cf. point 2.2). For the counties, structural adjustment consists in adjusting for the number of 16–18-year-olds in the county and the number of applicants for vocational education programmes. However, the structural adjustment does not really explain the variation in operating expenses per pupil between the counties (less than 1 per cent explained for 2007). The differences between counties regarding pupils' parent background or immigrant background do not have any systematic effect on operating expenses either. Free income has the greatest impact on resource allocation, and explains between 40 and 50 per cent of the variation (Hægeland et al. 2009).

Settlement patterns are another factor. Operating expenses per pupil correspond to how widespread the population in a county is. A widespread population requires many small schools in order to reduce travel distances between home and school, and small schools are expensive as they entail disadvantages due to small-scale operations (Bonesrønning et al. 2008).

There are exceptions to the rule of economies of scale. Oslo is one of the municipalities with the highest cost per pupil, in spite of not having a widespread population. A closer inspection reveals that Oslo has lower wages than the average for all counties, but higher operating expenses. The costs of school premises are notably higher. This may indicate that Oslo has a different accounting system from the other counties.

Figure 2.9: Cost per pupil in general studies for 2007 and 2008, in NOK 1,000. Permanent 2008 prices.



Source: KOSTRA level 2, preliminary figures for 2008

Figure 2.10: Cost per pupil in vocational programmes for 2007 and 2008, in NOK 1,000. Permanent 2008 prices.

Source: KOSTRA level 2, preliminary figures for 2008

Counties with particularly low or high resource allocation

Table 2.11: Characteristics of the three counties with lowest or highest operating expenses for upper secondary education and training in 2007. Per cent.

	Difference from the average for all counties	
Variable	Three lowest	Three highest
Proportion of all pupils in the country	23	14
Operating expenses per pupil	-8	+13
Operating expenses per pupil (adjusted)	-6	+17
Immigrants 16-18 years	-4	+72
Free income	-4	+7

Source: Hægeland et al. 2009

Table 2.11 shows that the three counties with the lowest resource allocation spend 8 per cent less per pupil than the average for all counties. There are small differences between actual costs and structurally adjusted costs. This indicates that structural issues don't sufficiently explain the differences between counties (Hægeland et al. 2009). The three counties with the lowest operating expenses per pupil have relatively many pupils, 23 per cent of all pupils in the country in total. At the same time, Oslo, which has a relatively high number of pupils, is one of the three counties with the highest resource allocation in 2007. The immigrant proportion is higher in counties with a high resource allocation, especially since Oslo is one of these counties.

Free income has a large effect on resource allocation. The three counties with the lowest operating expenses per pupil are 4 per cent below the national average in free income, while counties with high expenses have free income 7 per cent above the national average.

Resources for special needs education in upper secondary education and training

Pupils who do not or are unable to benefit satisfactorily from ordinary teaching have the right to special needs education (SNE). NIFU STEP have prepared an evaluation report on special needs education in upper secondary education and training after the implementation of the Knowledge Promotion (Markussen et al. 2009). The figures in the report are not representative for the whole country. The report contains selected data from four counties, from the education programmes for General Studies, Restaurant and Food Processing, Health and Social Care, and Technical and Industrial Production. The researchers found that the proportion of pupils who receive special needs education pursuant to individual decisions is significantly lower in the general studies programme than in the three vocational programmes, 1 per cent and 10–12 per cent respectively. The norm was to receive special needs education or extra help and support in one subject, and most pupils received this in groups. A substantial amount of the help was given outside the mainstream classroom, between a fifth and a third, depending on the subject.

Hægeland et al. (2009) have looked into the differences between counties regarding the number of pupils who receive special needs education.

Free income:
Free income in the municipal sector consists of framework allocations and tax income, and constitutes just under 70 per cent of the total income in the municipal sector. Municipalities and counties may freely dispose of such means without state interference other than statutory legislation and regulations. Free income is distributed between counties through the revenues system. The overall purpose of the revenues system is to even out the counties' ability to provide equal services to their inhabitants. The distribution of framework allocations takes structural differences in the counties' costs (levelling the costs) and differences in tax income (levelling income) into account. The revenues system also entails subsidies based on regional political aims. A discretionary subsidy is also allocated that adjusts for conditions not sufficiently identified by the distribution system.
Source: Ministry of Local Government and Regional Development (2009a)

Table 2.12: Pupils in upper secondary education and training with SNE 2006–2007 and 2007–2008, by county. Per cent.

	2006-2007		2007-2008	
County	Excluding minorities	Including minorities	Excluding minorities	Including minorities
Østfold	1.1	1.3	1.1	1.2
Troms	1.4	1.4	1.5	1.5
Oppland	2.2	3.0	2.3	2.8
Vestfold	1.7	1.9	2.4	3.0
Hordaland	2.9	3.4	3.1	3.3
Møre og Romsdal	3.3	3.9	3.4	4.0
Nordland	3.9	5.8	3.8	5.2
Sør-Trøndelag	3.6	4.6	4.0	5.0
Nord-Trøndelag	2.1	2.9	4.2	5.7
Finnmark	3.2	3.3	4.3	4.5
Sogn og Fjordane	0.8	0.8	4.5	4.5
Rogaland	3.8	4.9	4.7	5.5
Oslo	5.5	6.4	5.2	5.6
Vest-Agder	6.5	6.5	5.4	10.2
Akershus	5.0	6.4	5.7	6.2
Hedmark	4.9	5.1	5.8	5.9
Telemark	4.9	6.4	5.9	6.1
Buskerud	7.0	8.2	6.2	7.6
Aust-Agder	5.3	5.3	8.4	8.5

Source: Hægeland et al. 2009

Table 2.12 shows how many per cent of the pupils in upper secondary education and training receive at least one form of special needs education. The data provided on special needs education include adapted courses, planned competence at a lower level and SNE pursuant to individual decisions. Special needs education for immigrants and language minorities is also included in the table.

Table 2.12 shows that there are large differences between counties regarding special needs education. For the 2007–2008 school year, the proportion of pupils who receive special needs education, including language minorities, varies from 1.2 per cent in Østfold to 10.2 per cent in Vest-Agder. Hægeland et al. (2009) have analysed the variation between counties, but cannot find any characteristics that give a satisfactory explanation of the variation in the extent of extra input for individual pupils. The variation may be caused by differences in the use of special needs education, ie. that the counties adapt in different ways to similar conditions (number of pupils, available resources). The numbers still indicate that the counties have different reporting practices, and they must therefore be interpreted with caution. Now that the Knowledge Promotion reform has been implemented, it will be easier to identify SNE and ensure the same reporting practice between counties. This will make a better analysis of the factors that explain the differences in the use of special needs education in counties possible.

Table 2.12 distinguishes between special needs education including language minority pupils and special needs education that does not include them. The differences between these two percentages varies from county to county. Some of the variation is caused by differences in the proportion of language minority pupils. Another contributing factor is that these pupils also often receive other types of SNE as well, and they are therefore counted twice. The differences can also be due to different reporting practices between the counties.

Resources for vocational education programmes

Costs for vocational training covered by counties mainly consist of subsidies to training establishments, administrative costs and theory expenses (teaching materials, payroll) for apprentices and training candidates. The proportion of the net operating expenses of upper secondary education and training spent on vocational training in working life has increased somewhat in the past years, from 7.0 per cent in 2004 to 7.9 per cent in 2008.

2.4 Resources for competence development

The purpose of *Competence for Development – Strategic Plan for Competence Development in Primary and Secondary Education and Training 2005–2008* (Kompetanse for utvikling – Strategi for kompetanseutvikling i grunnopplæringen 2005–2008) is to ensure that employees in primary and secondary education and training have the necessary competence to ensure that pupils and apprentices receive adapted education and training so that they can develop their abilities and talents in accordance with the general part of the curriculum, the Learning Poster and subject curricula. The strategy clearly states the priorities for the main areas of competence development: competence development for school administrators, reform related competence development for teaching staff and further education in central subjects. Through this strategy, school owners received more than NOK 1.4 billion in additional resources earmarked for competence development in primary and secondary education and training in this period.

FAFO (the Institute for Labour and Social Research) has analysed activity reports for 2008 from municipalities, counties, private school owners and schools abroad in connection with the Competence for Development strategy (Jorfald and Nyen 2009). They find that there has been a 4 per cent reduction in the total resources spent on competence development in primary and lower secondary school from 2007 to 2008, while the total resources for competence development in upper secondary education and training remain unchanged. In primary and lower secondary school around NOK 405 million and in upper secondary education and training around NOK 236 million was spent in 2008. This includes both the earmarked state subsidies in connection with the strategy and own free resources added by the municipalities and counties. The earmarked state resources comprised 52 per cent of the resources for competence development in primary and lower secondary school and 47 per cent in upper secondary school. The state resource proportion of total resources remains unchanged both in primary and lower secondary school and in upper secondary school compared to 2007. The decrease in primary and lower secondary school thus applies equally to state subsidies as to own resources.

State financing of competence development was significantly higher in primary and lower secondary school than in upper

secondary education and training in the beginning of the 2005–2008 period, but the differences were gradually evened out, although primary and lower secondary school still had a somewhat higher share financed by the state in 2008. Private schools add a higher proportion of their own resources than public schools. In 2008, state resources comprised 38 per cent of the resources spent on competence development in private primary and lower secondary schools, and 45 per cent in private upper secondary schools. However, many private schools do not report their figures and this makes the data uncertain.

In primary and lower secondary school, there was a clear increase in the proportion of resources spent on further education between 2005 and 2008, from 16 to 24 per cent, while this proportion was stable at around 10 per cent in upper secondary school. Most of the resources are still spent on in-service training and other developmental work. Further education is not a common method for competence development in vocational training in training establishments, and was only used in a few counties. In-service training is the most commonly reported educational form in vocational training, followed by networking between training establishments. However, the data for vocational training are uncertain.

The final report for the evaluation of the competence development strategy shows that the proportion of teachers that take further education increased from 10 per cent in 1998 to 16 per cent in 2003 (Hagen and Nyen 2009). In the 2003–2008 period, participation was 13–17 per cent. In 2008, this corresponded to around 18,000 people. Participation has not increased in the 2005–2008 strategy period. In this period, 30 per cent of teachers have taken some form of formal further education. Further education is to a large extent initiated by individual teachers and is carried out in addition to a full-time position. Teachers are rarely given paid leave in order to take further education.

Between 66 and 76 per cent of teachers have taken part in courses and other forms of education and training in the 2003–2008 period. This proportion has been stable, but there may have been an increase in the number of measures individual teachers take part in and the extent of such measures. Educational measures that do not give formal competence are far better adapted to teachers and school administrators than further education. From 2003 to 2008, measures have been somewhat more tailored, in particular in the vocational field. Courses and other education and training usually take place during working hours, are financed by employers and often initiated by employers (Hagen and Nyen 2009).

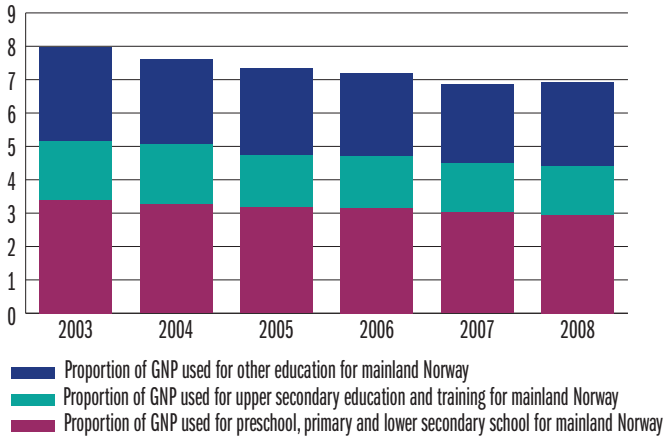
There is less emphasis than previously on further education and more emphasis on informal learning processes and learning through activities other than education and training. Shorter courses and large get-togethers no longer dominate education activities. In spite of additional resources, the number of teachers taking part in competence development has not increased. The resource increase may have been spent on additional hours spent on competence development, professional networks and other measures not characterised as education and training, but which may have led to the teachers feeling that the conditions for informal education and training are better than before. Some may also have been spent on developing relevant programmes. Training establishments too have seen no increase in the proportion taking part in further education or courses, but the content of the programmes has changed from general training to more subject specific and company directed training.

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

National priorities for education

The proportion of the gross national product (GNP) or proportion of public costs spent on education can be used as a national measure of priorities in education.

Figure 2.11: Education costs as per cent of GNP, 2003–2008.

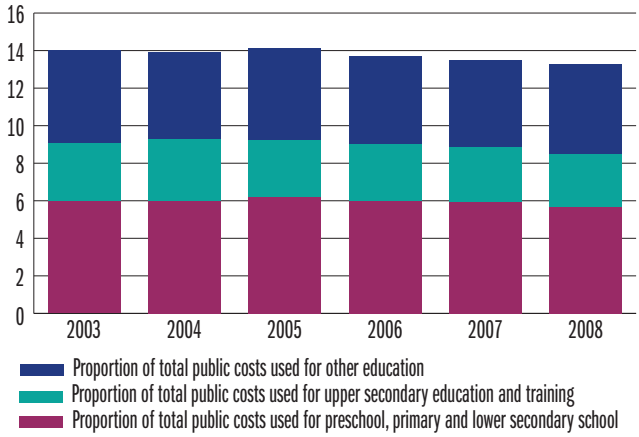


Source: Statistics Norway

The proportion of GNP used for education in mainland Norway has decreased since the peak of 8.0 per cent in 2003 to 6.9 per cent in 2008. Figure 2.11 shows that the proportion spent on primary and lower secondary school in this period decreased from 3.4 to 2.9 per cent. For upper secondary education and training the decline was from 1.8 to 1.5 per cent. From 2003 to 2008 the GNP for mainland Norway has increased by 45 per cent, from just below NOK 1,275 billion to around NOK 1,842 billion. This means that the resources have still increased, both to primary and lower secondary school and to upper secondary education and training, measured in current NOK, but the increase in total GNP has been higher than the increase in education resources.

The proportion of total public costs spent on education has decreased from 2005 to 2008, from 14.1 to 13.3 per cent. In this period, the proportion spent on primary and lower secondary school has decreased from 6.2 to 5.7 per cent, while the proportion spent on upper secondary education and training decreased from 3.0 to 2.8 per cent. Total public costs have increased from 2005 to 2008 by 25 per cent, from just below NOK 770 billion to just below NOK 960 billion. Measured in NOK there has thus been a total increase in resources to primary and secondary education and training, as in GNP.

Figure 2.12: Education costs as proportion of total public costs, 2003–2008. Per cent.



Source: Statistics Norway

Norway's use of resources compared to other OECD countries

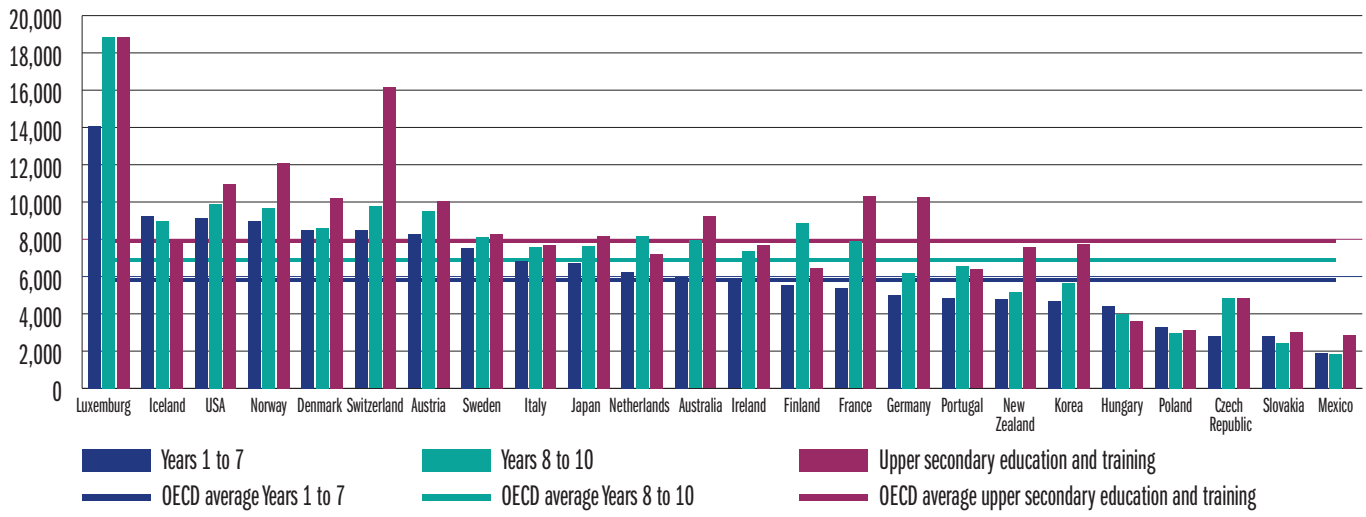
Since 2001 the OECD has published a comparison of resource allocation in member countries, *Education at a Glance. Education at a Glance 2008* is based on figures from 2005 and confirms the tendencies stated in previous editions. The report shows that Norway still spends a lot of resources on primary and secondary education and training, as do countries like Denmark, Austria, Switzerland and the USA. Norway is in fourth place when ranked by resource allocation to Years 1 to 7 or Years 8 to 10, and third for upper secondary education and training. Compared to the OECD average, Norway spends 44 per cent more per pupil in Years 1 to 7, 30 per cent more in Years 8 to 10 and 45 per cent more per pupil in upper secondary education and training. 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 spending is included.

The other Nordic countries are close behind Norway in their resource allocations. The exception is Finland, which spends slightly below the OECD average on Years 1 to 7 and on upper secondary education and training. Finland is also an exception concerning the distribution of costs by school level. In Finland, a relatively larger proportion is spent on Years 8 to 10 than on Years 1 to 7 and upper secondary education and training. In the other Nordic countries, and in most OECD countries, the level of expenses generally rises with school level.

Cost per pupil spent on education compared to GNP per inhabitant says something about a country's priority given to education. In such comparisons, Norway is just below the OECD average, which is 21, 24 and 27 per cent respectively for the three school levels. However, Norway has the highest GNP of the countries compared and thus spends more resources on most sectors, including education, than less wealthy countries. In addition, it is Norway's total GNP, including petroleum revenues, that is used as a basis for comparison with OECD countries.

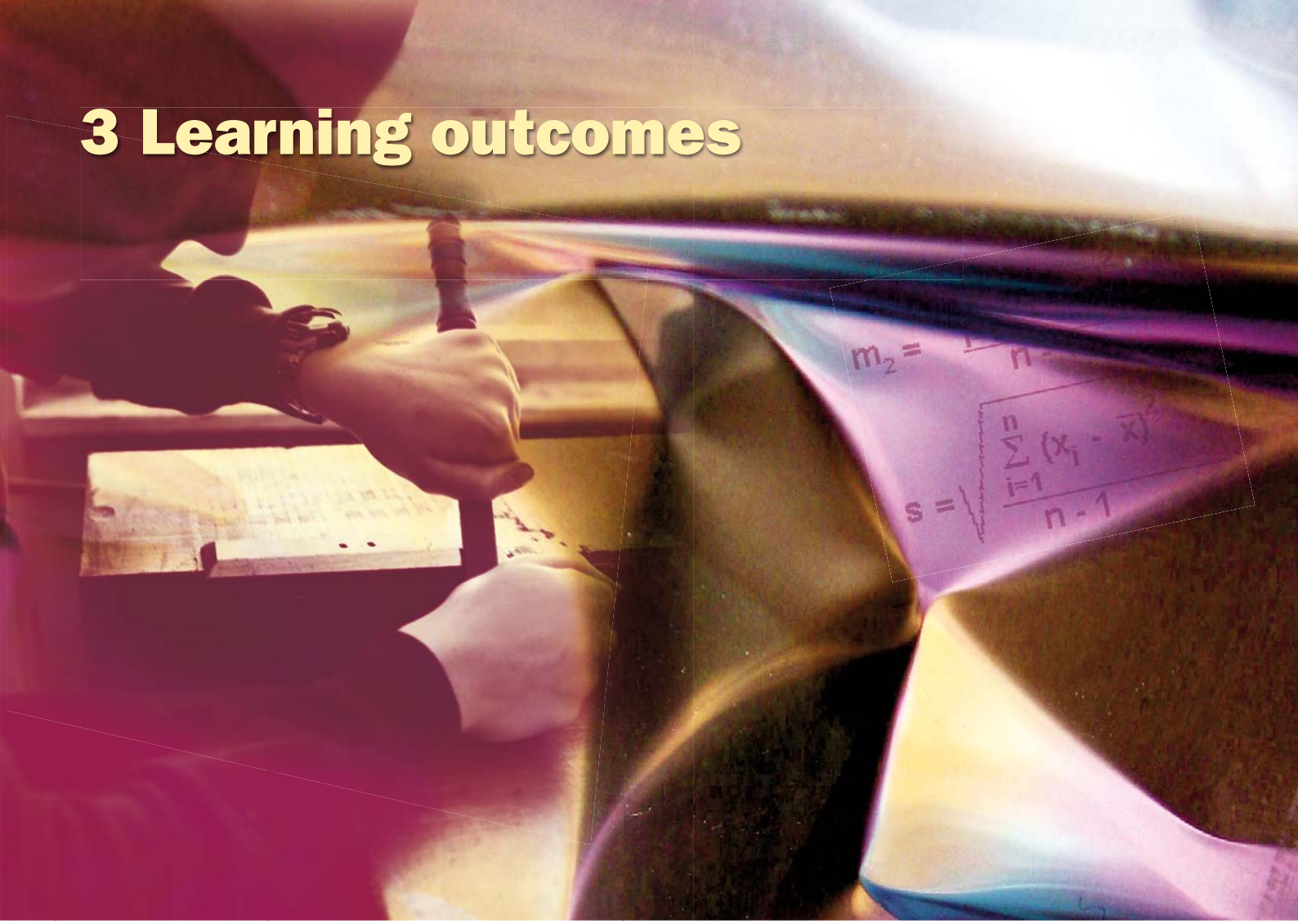
Norway is one of the OECD countries with the lowest number of pupils per teacher. Norway has about 33 per cent fewer pupils per teacher than the OECD average in primary school, and 23 per cent fewer in lower and upper secondary school. In addition, the number of teaching hours of Norwegian teachers is 8–9 per cent lower than the OECD average for primary and lower secondary school. In upper secondary school, Norway and Denmark have the fewest teaching hours of all OECD countries. Both the high teacher density and the low amount of teaching hours contributes to the higher cost per pupil in Norway than the OECD average. Other factors frequently mentioned in connection with the large resource allocation per pupil in Norway include the widespread settlement patterns and inclusion of pupils with special education needs. Bonesrønning et al. (2008) have, based on data on school sizes and number of pupils per level, calculated that Norwegian resource allocation could be reduced by 5–6 per cent if settlements were less widespread, the number of primary and lower secondary schools were halved and the average school size increased to 400 pupils. Costs for inclusion of pupils with special education needs explain little of the high spending, since costs for these pupils are included in total costs regardless of whether the pupils attend special schools or are included in mainstream schools or classes.

Figure 2.13: Cost per pupil in OECD countries, measured in USD. Adjusted for differences in purchasing power.



Source: OECD 2008a

3 Learning outcomes



This chapter is about the learning outcomes of pupils and apprentices. What competence do Norwegian pupils achieve in mathematics and natural sciences compared to pupils from other countries? What marks do pupils with selected individual characteristics such as gender and family background achieve? How do schools contribute to pupils' learning? What proportion of the pupils who take craft and journeyman's examinations pass the test?

For the first time, the results from an international comparative survey show a definite improvement in the academic results of Norwegian pupils in mathematics and partly in natural sciences. Such are the results of TIMSS 2007 (Trends in International Mathematics and Science Study). However, Norwegian pupils' competence in mathematics and natural sciences remains weak from an international point of view.

National tests show a relatively large variation between counties and municipalities in pupils' basic skills in reading, mathematics and reading in English. Girls had higher scores than boys in the reading test for Year 8, and boys higher than girls in the mathematics test for Year 5, both in 2007 and 2008. In English there is little variation between the boys' and the girls' test results for both levels. About half of the pupils, whose parents have only completed lower secondary school, have weak results on the national tests in reading in Year 5 in 2008.

On a national level, marks statistics for Year 10 pupils show little change from previous years. The greatest change in pupils' marks is between pupils with different social backgrounds, ie. their parents' level of education. However, there are also consistent gender gaps and variations between pupils with non-western immigrant backgrounds and other pupils.

In upper secondary school, girls get better overall achievement marks than boys in English and mathematics at Vg1 (upper secondary level 1) and Vg2 (upper secondary level 2). There are also no or minor differences between boys' and girls' exam results in English and mathematics. The proportion failing mathematics is significantly lower in theoretical than in practical mathematics. The differences between general studies and vocational studies in the proportion failing are particularly high regarding the overall achievement mark in English. Girls have a better result than boys in both mathematics courses for upper secondary level 3, 3MX (theoretical) and 3MZ (practical). In physics (3FY), the girls had better results than the boys in 2006 and 2007, but the difference is smaller in 2008.

Completion rates for vocational programmes are far lower than for programmes in general studies, but when apprentices have reached the stage where they are to sit for their craft or journeyman's examinations, 91.5 per cent pass. This is a decline of 1.6 percentage points in the proportion passing. On the other hand, the number of apprentices sitting for exams, both with and without the so-called youth right, has increased. 1,948 more persons took their craft and journeyman's examinations in 2008 than in 2007.

3.1 Results from TIMSS 2007

One important reason why Norway participates in international comparative studies is to be able to compare national results with results in other countries, but also to measure national development over time.

Norway has participated in TIMSS in 1995, 2003 and 2007, in PIRLS in 2001 and 2006 and in PISA in 2000, 2003 and 2006. Together, these three studies measure pupils' reading competence at Year 4 and for 15-year-old pupils, and mathematics and natural science competence in Years 4 and 8 and for 15-year-old pupils. The results from PIRLS and PISA 2006 were presented in The Education Mirror 2007. This year's edition presents the results from TIMSS 2007.

TIMSS (Trends in International Mathematics and Science Study) is an international comparative study of pupil results and school systems in many countries. TIMSS measures the pupils' skills in mathematics and science at Years 4 and 8 in primary and lower secondary school. In 2007, the study included pupils from more than 60 countries. Among the Nordic countries, Denmark took part in TIMSS 2007 with Year 4 pupils and Sweden and Norway with Year 4 and 5 pupils.

What is TIMSS?

Content

- Assesses pupils' knowledge in mathematics and science in Years 4 and 8 in primary and lower secondary school.
- Studies how pupil achievements interrelate with various factors such as gender, self-confidence in learning and attitudes.
- Studies the background characteristics of teachers and how subjects are implemented and taught.
- Compares results from different countries.
- Studies development over time (trends studies).
- Tries to identify both national and international factors that promote good learning and positive development in mathematics and science in schools.

Method

- 72 minute test in mathematics and science at Year 4.
- 90 minute test in mathematics and science at Year 8.
- Questionnaire to pupils on their self-confidence in learning, motivation, teaching, work methods, well-being in school, gender, number of books in the home, residence time in the country etc.
- Questionnaire to teachers on their education, teaching and attitudes to the subject.
- Questionnaire to the head teacher/principal on his or her role and financial and pedagogical resources in school.

Organisation

- The study is carried out by IEA (the International Association for the Evaluation of Educational Achievement). Boston College is responsible for international implementation and coordination. Each participating country assigns a National Research Coordinator (NRC) who implements the survey in their own country.
- The Norwegian part of TIMSS is financed by the Norwegian Directorate for Education and Training, and a group of researchers at the Department of Teacher Education and School Development at the University of Oslo is in charge of implementation.

The mathematics part of TIMSS measures pupil competence and skills in number, geometry and data, as well as algebra skills for pupils in Year 8. In Norwegian schools, natural science is not a specific subject, but elements of natural science are taught in the disciplines biology, physics and chemistry. The TIMSS science test also includes earth science, which partly overlaps with natural sciences and partly with social studies (geography) in the Norwegian curriculum. The subjects "food and health" and physical education also include relevant competence aims for the questions in TIMSS.

The Norwegian pupils who participated in TIMSS 2007 have been taught according to two different curricula, L97 and LK06. Most of their schooling has been in accordance with L97. LK06 was only used during their last school year, when the test was carried out in the spring. However, the Knowledge Promotion may have affected their school culture even before LK06 was introduced, which was formally in the autumn of 2006. When researchers have gone through the questions in TIMSS to check whether they are in accordance with the Norwegian curriculum, they have taken both of these curricula into account. The mathematics questions in TIMSS 2007 were considered to be closer to the Norwegian curriculum than the science questions, and there was better correspondence between questions and curricula in Year 4 than in Year 8. This may be because there is a relatively large international homogeneity in mathematics, but greater variation between countries regarding science subjects (Grønmo and Onstad 2009).

Achievements in mathematics for Year 4 and Year 8 in TIMSS

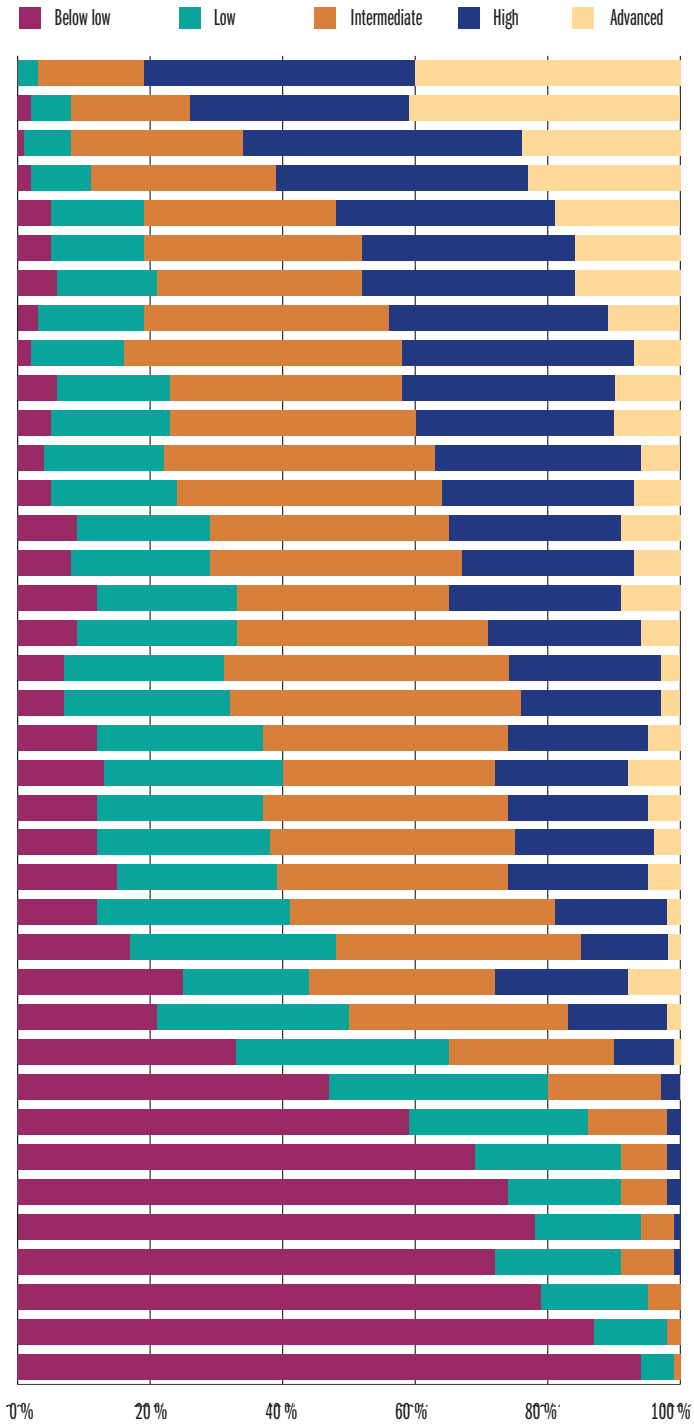
The following tables present the participating countries in TIMSS 2007 arranged by pupil achievements. The tables also state the pupils' average age, number of years in school and differences in test results. Both the number of years the pupils have attended school and their age is of importance to their achievements, as seen in previous studies where several levels and age groups have taken the same tests in the same country (for instance Daal et al. 2007).

Table 3.1 shows the average score in mathematics for Year 4 for the participating countries in TIMSS 2007. In many respects, the results correspond well with results from previous years. As shown in TIMSS 1995 and 2003, Asian countries clearly dominate the top of the list. Pupils from Hong Kong have the highest average score in mathematics with 607 points, followed by pupils from Singapore with 599 points, Chinese Taipei with 576 points and Japan with 568 points. Norway scores around the international average for participating countries, with 473 points. However, this is far below the average score for EU and OECD countries, which is 515 points.

Denmark has the best result of the Nordic countries in mathematics for Year 4 with 523 points, while Swedish pupils have achieved 503 points. Norwegian pupils are among the youngest participating in TIMSS, with an average age of 9.8 years. In comparison, the Swedish pupils are on average 10.8 years old and the Danish 11 years. The Italian pupils are of the

Table 3.1: Average achievement score and percentage of pupils at mathematics levels in Year 4, TIMSS 2007.

Country	Age	Years in school	Score
Hong Kong	10.2	4	607
Singapore	10.4	4	599
Chinese Taipei	10.2	4	576
Japan	10.5	4	568
Kazakhstan	10.6	4	549
Russian Federation	10.8	4	544
England	10.2	5	541
Latvia	11.0	4	537
Netherlands	10.2	4	535
Lithuania	10.8	4	530
USA	10.3	4	529
Germany	10.4	4	525
Denmark	11.0	4	523
Australia	9.9	4	516
EU/OECD average	**10.3**		**515**
Hungary	10.7	4	510
Italy	9.8	4	507
Austria	10.3	4	505
Sweden	10.8	4	503
Slovenia	9.8	4	502
Armenia	10.6	4	500
Slovak Republic	10.4	4	496
Scotland	9.8	5	494
New Zealand	10.0	4.5-5.5	492
Czech Republic	10.3	4	486
Norway	**9.8**	**4**	**473**
International average			**473**
Ukraine	10.3	4	469
Georgia	10.1	4	438
Iran, Islamic Rep. of	10.2	4	402
Algeria	10.2	4	378
Colombia	10.4	4	355
Morocco	10.6	4	341
El Salvador	11.0	4	330
Tunisia	10.2	4	327
Kuwait	10.2	4	316
Qatar	9.7	4	296
Yemen	11.2	4	224



Sources: The Swedish National Agency for Education 2008/ Mullis et al. 2008

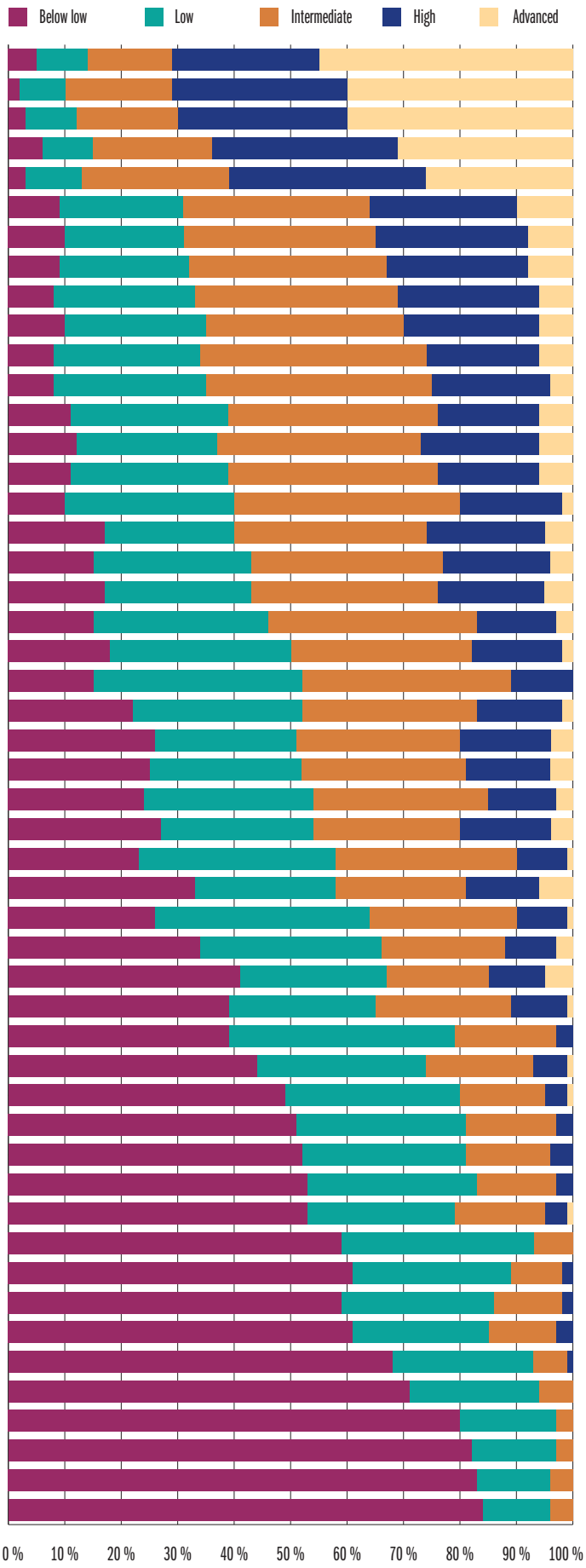
same age as the Norwegian ones, but still have a far higher mathematics score (507 points) than the Norwegian pupils (473 points).

TIMSS uses five levels of mathematics skills: Advanced (625 points), High (550 points), Intermediate (475 points) and Low (400 points). Pupils achieving less than 400 points in Year 4 are considered as not having basic skills in mathematics. Trends across the mathematics levels in Year 4 are shown in the horizontal bar graph in table 3.1.

Hong Kong and Singapore are the countries with the highest score and the highest proportion of pupils at the high or advanced level in mathematics in Year 4, with 81 and 74 per cent respectively on the high and advanced level in total. These results are remarkable. Only 15 per cent of the Norwegian pupils reach the two highest levels. In comparison, 24 per cent of the Swedish, 36 per cent of the Danish and 29 per cent of the Italian pupils reach the two highest levels. Comparing Norway to the "best country in the world", ie. Singapore in this context, we see that 41 per cent of their 4th year pupils reach the advanced level in mathematics, and only 2 per cent of the Norwegian pupils. In comparison, 3 per cent of the Swedish, 7 per cent of the Danish and 6 per cent of the Italian pupils reach the advanced level.

Table 3.2: Average achievement score and percentage of pupils at mathematics levels in Year 8, TIMSS 2007.

Country	Age	Years in school	Score
Chinese Taipei	14.2	8	598
South Korea	14.3	8	597
Singapore	14.4	8	593
Hong Kong	14.4	8	572
Japan	14.5	8	570
Hungary	14,6	8	517
England	14.2	9	513
Russian Federation	14.6	7 or 8	512
USA	14.3	8	508
Lithuania	14.9	8	506
Czech Republic	14.4	8	504
Slovenia	13.8	7 or 8	501
Armenia	14.9	8	499
EU/OECD average	**14.3**		**499**
Australia	13.9	8	496
Sweden	14.8	8	491
Malta	14.0	9	488
Scotland	13.7	9	487
Serbia	14.9	8	486
Italy	13.9	8	480
Malaysia	14.3	8	474
Norway	**13.8**	**8**	**469**
Cyprus	13.8	8	465
Bulgaria	14.9	8	464
Israel	14.0	8	463
Ukraine	14.2	8	462
Romania	15.0	8	461
Bosnia and Herzegovina	14.7	8 or 9	456
International average			**451**
Lebanon	14.4	8	449
Thailand	14.3	8	441
Turkey	14.0	8	432
Jordan	14.0	8	427
Tunisia	14.5	8	420
Georgia	14.2	8	410
Iran, Islamic Rep. of	14.2	8	403
Bahrain	14.1	8	398
Indonesia	14.3	8	397
Syrian Arab Republic	13.9	8	395
Egypt	14.1	8	391
Algeria	14.5	8	387
Colombia	14.5	8	380
Oman	14.3	8	372
Palestinian Nat'l Auth.	14.0	8	367
Botswana	14.9	8	364
Kuwait	14.4	8	354
El Salvador	15.0	8	340
Saudi Arabia	14.4	8	329
Ghana	15.8	8	309
Qatar	13.9	8	307



Sources: The Swedish National Agency for Education 2008/ Mullis et al. 2008

Compared to the international average, Norway has noticeably few pupils at the highest levels and a very high number at the intermediate and low levels. 17 per cent of the Norwegian pupils score below the low level at Year 4 in mathematics in TIMSS 2007. The corresponding figures for Denmark, Sweden and Italy are 5, 7 and 9 per cent respectively. Compared with Sweden, Denmark and Italy, Norway also has a higher proportion of pupils below the low level.

Regarding the pupils at Year 8, the Norwegians are yet again among the youngest in TIMSS 2007. However, in contrast with the Norwegian pupils who participated in TIMSS 2003 in Year 8, they have an equal amount of years in school as pupils from other countries. The Norwegian pupils who participated in TIMSS at Year 8 in 2003 had skipped Year 3 in connection with the implementation of the Norwegian education reform "Reform 97".

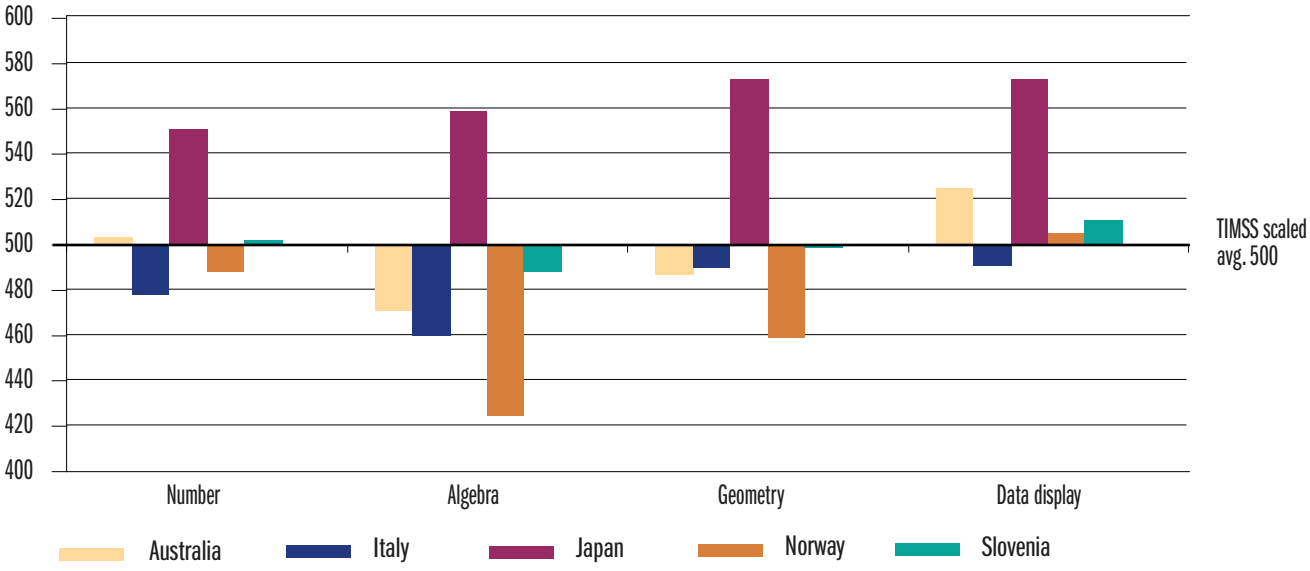
Table 3.2 shows the average score in mathematics for Year 8 in TIMSS 2007. These results too correspond well in many respects with results from previous years. Norway is in the middle between the average score for all participating countries in TIMSS and the average for participating EU and OECD countries. Five Asian countries have the highest test score in Year 8 in 2007. Chinese Taipei tops the list with 598 points, followed by South Korea with 597 points, Singapore with 593 points, Hong Kong with 572 points and Japan with 570 points. Sweden is two places below the average for EU and OECD countries with 491 points, while Norway has 469 points.

No other participating country in TIMSS 2007 has as many pupils at the low and intermediate level in mathematics in Year 8 as Norway, with 74 per cent. The proportion below the low level is 15 per cent for Norway, which is about the same as the EU/OECD average of 14 per cent. No Norwegian pupils reached the advanced level in mathematics in Year 8. The next countries on the list of average mathematics achievement that have no pupils at the advanced level are 11 places below Norway. These countries include Tunisia, Bahrain, Indonesia and some African countries as well as Palestine and El Salvador. In addition, few Norwegian pupils reach the high level, only 11 per cent. In comparison, the EU and OECD countries have 29 per cent at the high or advanced level, and the average for all participating countries in TIMSS in 2007 is 19 per cent.

TIMSS 2007 has three content domains for mathematics measured at Year 4: number, geometry and data. Pupils at Year 8 are also tested in algebra.

Figure 3.1 compares the results of Norwegian pupils in Year 8 in number, algebra, geometry and data with the results for Australia, Italy, Japan and Slovenia. The pupils from these countries are the same age as the Norwegian pupils. The Norwegian pupils in Year 8 have significantly weaker results in algebra than pupils of the same age from the reference countries. However, the Norwegian pupils in Year 8 have better results in number than the Norwegian pupils in Year 4 compared with scaled TIMSS averages of 500 and the results for Australia, Italy, Japan and Slovenia.

Figure 3.1: Achievements in mathematics domains in Year 8, TIMSS 2007. Score.



Source: Grønmo and Onstad 2009

Better achievements in mathematics in 2007 than in 2003

TIMSS 2007 marks the first time that the results of an international survey show definite improvements in Norwegian pupils' achievements in mathematics, especially for Year 4.

Figure 3.2: Trends in Norwegian pupils' mathematics achievements in Years 4 and 8. TIMSS 1995–2007.

Source: Grønmo and Onstad 2009

Figure 3.2 shows that Norwegian pupils in Year 4 did a lot better at TIMSS 2007 than in 2003. Norwegian pupils are now at approximately the same level as in 1995. Pupils in TIMSS 2003 and 2007 in Year 4 are here compared with pupils of the same age in Year 3 in 1995. In spite of the proven advance at Year 4 from 451 points in 2003 to 473 points in 2007, pupils in Year 8 still have a way to go before they perform at the same level as in 1995. However, there have been improvements in Year 8 as well, from a score of 461 in 2003 to 469 points in 2007. Pupils in Year 8 in 2007 are the same cohort who were pupils in Year 4 in 2003, and who also had very weak results in TIMSS that year.

The improvement from 2003 to 2007 of Norwegian results in Year 4 in mathematics mean that there are fewer pupils below and at the low level and more at the intermediate, high and advanced level. In Year 8 there has been a small decline from 2003 to 2007 in the percentage of pupils who score below the low level and a small increase in the percentage of pupils at the intermediate and high level. No Norwegian pupils in Year 8 reached the advanced level in 2003 or 2007, while 4 per cent reached this level in 1995.

Grønmo and Onstad (2009) mention a number of education policy principles in order to explain the Norwegian progress in pupil achievements in mathematics from 2003 to 2007. In connection with the "Strategi for styrking av realfagene 2002–2007: Realfag, naturligvis" *(Natural science naturally – strategy for strengthening natural science subjects 2002-2007)*, national centres were set up in order to fortify education in and recruitment to mathematics and natural sciences (the Ministry of Education and Research 2002). There has been an increased focus on early education in basic skills, including mathematics, in all the latest Reports to the Storting about primary and secondary education, in the Knowledge Promotion reform and in the new LK06 curriculum. In connection with the implementation of LK06 in the autumn of 2006, mathematics was also given 85 extra teaching hours in primary school (the Ministry of Education and Research 2003, 2006 and 2007a).

Science achievements in TIMSS in Years 4 and 8

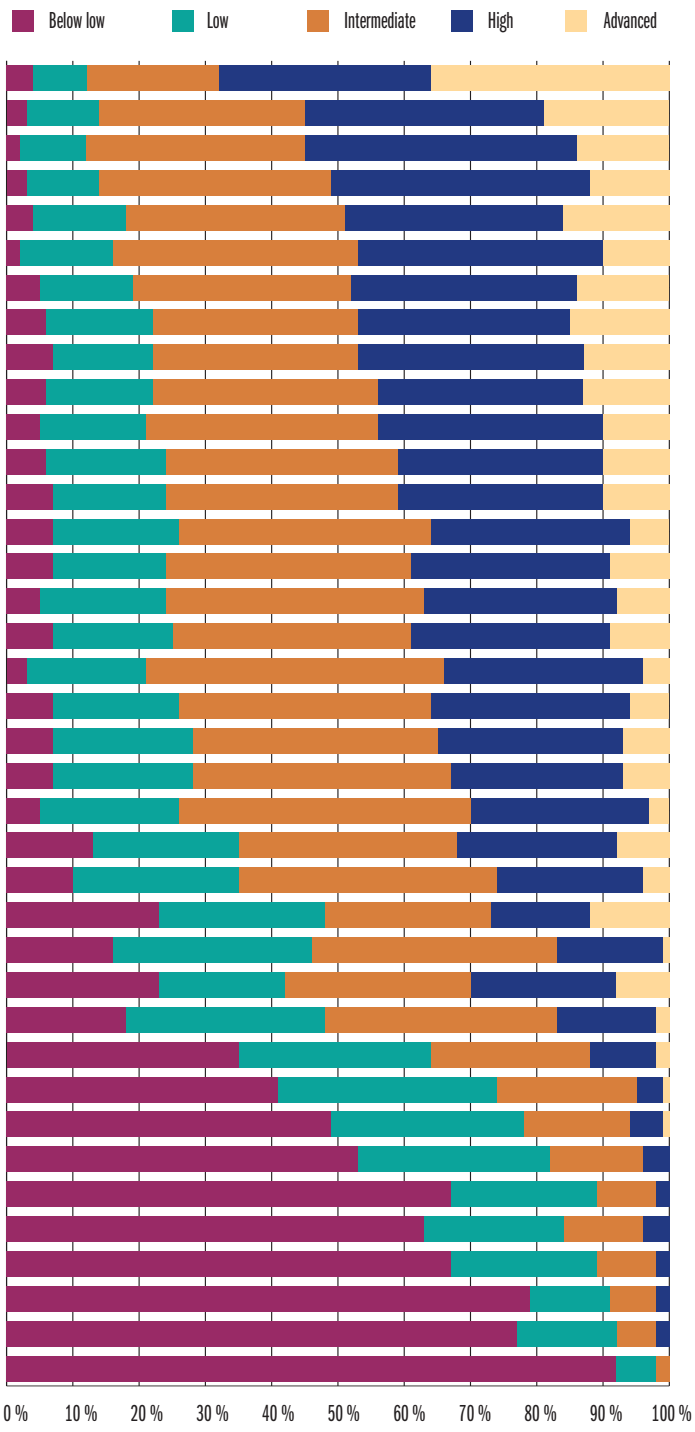
Compared to the international average, Norwegian pupils have consistently had slightly higher achievements in science than in mathematics (Grønmo and Onstad 2009).

Science achievements in Year 4 are presented in table 3.3. As in mathematics, four Asian countries top the science list. The Norwegian results are only 1 point above the average for all participating countries, and last of the EU and OECD countries.

The horizontal bar graph in table 3.3 shows that only 1 per cent of Norwegian pupils reach the advanced level in science, 16 per cent the high level, 37 per cent the intermediate, 30 per cent the low level and 16 per cent are below the low level for Year 4. No other EU or OECD countries have as many pupils below the low level and so few at the advanced level in science as Norway. In comparison, only 5 per cent of Swedish pupils are below the low level and 8 per cent are at the advanced level. However, the Swedish pupils are a year older than the Norwegian ones. The Italian pupils participating in TIMSS are the same age as the Norwegian pupils, but only 6 per cent of them are below the low level and 13 per cent are at the advanced level.

Table 3.3: Average achievement score and percentage of pupils at science levels in Year 4, TIMSS 2007.

Country	Average score	Age	Years in school
Singapore	587	10.4	4
Chinese Taipei	557	10.2	4
Hong Kong	554	10.2	4
Japan	548	10.5	4
Russian Federation	546	10.8	4
Latvia	542	11.0	4
England	542	10.2	5
United States	539	10.3	4
Hungary	536	10.7	4
Italy	535	9.8	4
Kazakhstan	533	10.6	4
Germany	528	10.4	4
Australia	527	9.9	4
Slovak Republic	526	10.4	4
Austria	526	10.3	4
Sweden	525	10.8	4
EU/OECD average 2007	**525**	**10.3**	
Netherlands	523	10.2	4
Slovenia	518	9.8	4
Denmark	517	11.0	4
Czech Republic	515	10.3	4
Lithuania	514	10.8	4
New Zealand	504	10.0	4.5-5.5
Scotland	500	9.8	5
Armenia	484	10.6	4
Norway	**477**	**9.8**	**4**
International average	**476**		
Ukraine	474	10.3	4
Iran, Islamic Rep. of	436	10.2	4
Georgia	418	10.1	4
Colombia	400	10.4	4
El Salvador	390	11.0	4
Algeria	354	10.2	4
Kuwait	348	10.2	4
Tunisia	318	10.2	4
Morocco	297	10.6	4
Qatar	294	9.7	4
Yemen	197	11.2	4



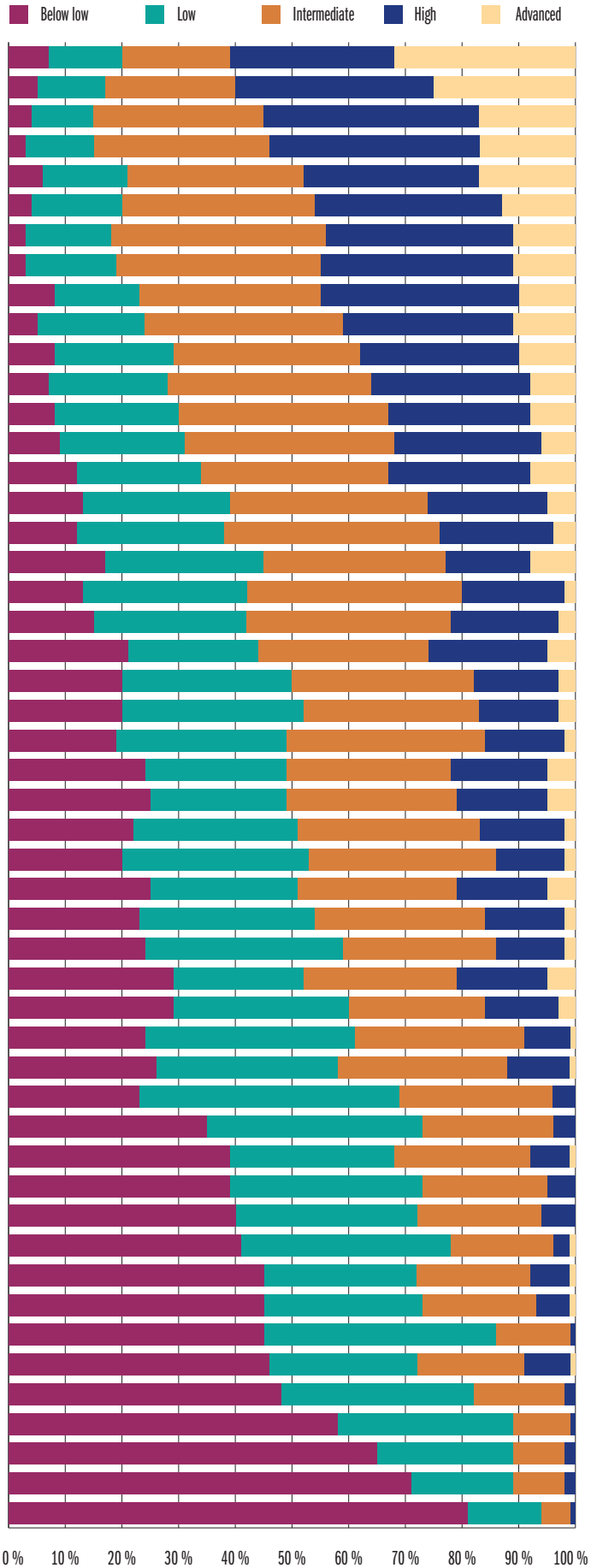
Sources: The Swedish National Agency for Education 2008/ Martin et al. 2008

Science achievements in year 8 are presented in table 3.4. As in mathematics, four Asian countries top the science list. The Norwegian results are only 19 points above the average for all participating countries, and 20 points below the average for EU and OECD countries. In other words, Norway has better results compared to the other countries participating in TIMSS in science in Year 8 than it does in mathematics in Years 4 and 8 and in science in Year 4.

In Year 8, 2 per cent of the Norwegian pupils reach the advanced level, 18 per cent the high level, 38 per cent intermediate and 29 per cent low, and 13 per cent are below the low level. The proportion of Norwegian pupils below the low level (13 per cent) is approximately the same as for EU/OECD countries (12 per cent) in total. In comparison, only 9 per cent of Swedish pupils are below the low level and 6 per cent reach the advanced level. The Italian pupils participating in TIMSS are the same age as the Norwegian pupils, but only 12 per cent of them are below the low level and 4 per cent are at the advanced level.

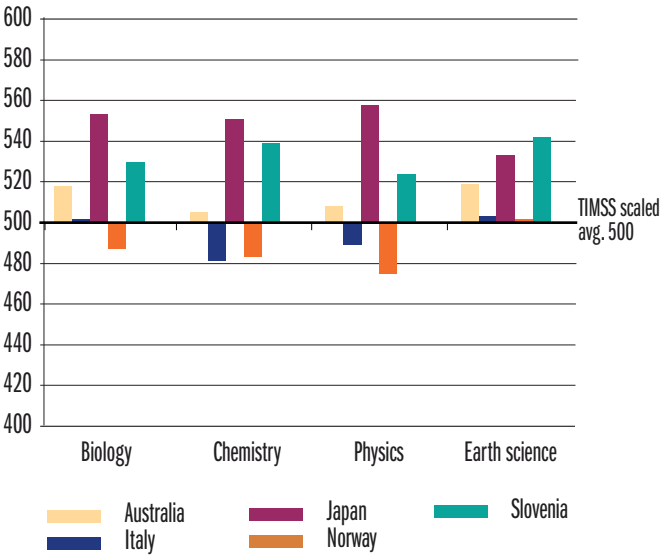
Table 3.4 Average achievement score and percentage of pupils at science levels in Year 8, TIMSS 2007.

Country	Age	Years in school	Score
Singapore	14.4	8	567
Chinese Taipei	14.2	8	561
Japan	14.5	8	554
South Korea	14.3	8	553
England	14.2	9	542
Hungary	14.6	8	539
Czech Republic	14.4	8	539
Slovenia	13.8	7 or 8	538
Hong Kong	14.4	8	530
Russian Federation	14,6	7 or 8	530
United States	14.3	8	520
Lithuania	14.9	8	519
Australia	13.9	8	515
Sweden	14.8	8	511
EU/OECD average	**14.3**		**507**
Scotland	13.7	9	496
Italy	13.9	8	495
Armenia	14.9	8	488
Norway	**13.8**	**8**	**487**
Ukraine	14.2	8	485
Jordan	14.0	8	482
Malaysia	14.3	8	471
Thailand	14.3	8	471
Serbia	14.9	8	470
Bulgaria	14.9	8	470
Israel	14.0	8	468
Bahrain	14.1	8	467
Bosnia and Herzegovina	14.7	8 or 9	466
International average			**466**
Romania	15.0	8	462
Iran, Islamic Rep. of	14.2	8	459
Malta	14.0	9	457
Turkey	14.0	8	454
Syrian Arab Republic	13.9	8	452
Cyprus	13.8	8	452
Tunisia	14.5	8	445
Indonesia	14.3	8	427
Oman	14.3	8	423
Georgia	14.2	8	421
Kuwait	14.4	8	418
Colombia	14.5	8	417
Lebanon	14.4	8	414
Egypt	14.1	8	408
Algeria	14.5	8	408
Palestinian Nat'l Auth.	14.0	8	404
Saudi Arabia	14.4	8	403
El Salvador	15.0	8	387
Botswana	14.9	8	355
Qatar	13.9	8	319
Ghana	15.8	8	303



Sources: The Swedish National Agency for Education 2008/Martin et al. 2008

Figure 3.3: Achievements in science domains in Year 8, TIMSS 2007. Score.



Source: Grønmo and Onstad 2009

Figure 3.4: Trends in Norwegian pupils' science achievements in Years 4 and 8, TIMSS 1995–2007.

Source: Grønmo and Onstad 2009

Figure 3.3 compares Norway with a number of other countries where the pupils are the same age as the Norwegian pupils in Year 8. The Norwegian pupils have significantly lower achievements than the reference countries in all domains in Year 8: biology, chemistry, physics and earth science. Earth science is the natural science where Norwegian pupils score the highest, compared to their results in biology, chemistry and physics. Norwegian pupils' achievements in science domains in Year 4 have about the same pattern as for Year 8. However, in Year 8 the Norwegian results are somewhat better in chemistry, physics and earth science than in Year 4.

Trends in science achievements in Years 4 and 8, 1995–2007

Although Norwegian pupils in Year 8 have higher scores in the TIMSS science test than in mathematics, there has been no progress in science achievements from 2003 to 2007. In Year 4, however, there is some progress in science as well. Trends in science achievements for Norwegian pupils in Years 4 and 8 in the period 1995–2007 are shown in figure 3.4. The progress in Year 4 is a clear break with a trend where several international studies have shown a decline in the science achievements of Norwegian pupils. However, even with the progress of Norwegian pupils in Year 4 in science from 2003 to 2007 in TIMSS, Norway is still about 20 points below the level of 1995.

Norway is a country with large natural resources, and competence in natural sciences is seen as important for technological and societal development and for environmental conservation. Of all the Nordic countries, Norwegian pupils have the lowest proportion of teaching hours in science for pupils from 9 to 11 years (7 per cent), and for the 12-14-year-olds, the number of hours is 10 per cent of total teaching hours. In Sweden, teaching hours in science constitutes 12 per cent and in Finland 17 per cent of total teaching hours. The average for OECD countries is 11 per cent (OECD 2008a).

Gender differences and self-confidence in learning in science and mathematics

Many countries face significant challenges in evening out the differences in achievements between boys and girls in science and mathematics in primary and lower secondary school. Norway is an exception. Norwegian schools seem to be well on the way to achieving the goal of gender equality in these subject areas, as indicated by results from Years 4 and 8 in TIMSS 2007. The only difference between boys' and girls' achievements in TIMSS is in Year 4 mathematics. The result is in accordance with conclusions from previous years' research, which has shown that boys in Norway have a tendency to perform slightly better than girls in mathematics at the lowest school levels, but that this difference evens out in lower secondary school (Grønmo and Onstad 2009).

Several of the countries which have the highest results in the achievements part of TIMSS have low scores in self-confidence in learning in mathematics and science. This is particularly noticeable in Year 8, but is also the case for Year 4. Several Nordic and English-speaking countries with lower achievement scores have relatively high scores in self-confidence in learning, Norwegian pupils among them. Both Norwegian boys and girls have high self-confidence in learning, but there is a gender gap in self-confidence in learning and in attitudes to mathematics and science among the Norwegian pupils in favour of the boys in Year 8 and in mathematics in Year 4. In Year 4, however, there is little difference between boys and girls in mathematics and a difference in the girls' favour in science (Grønmo and Onstad 2009).

3.2 Norwegian pupils' performance in and attitudes to environmental issues – results from PISA 2006

The OECD (2009) has analysed the results from PISA 2006 concerning attitudes to and performance in environmental science and geoscience. Knowledge about how we can

conserve the Earth and prevent pollution is important to future generations.

The science tests in PISA measure the competence of pupils in applying science theories, models and concepts. They must also demonstrate that they are able to interpret, assess and comment on science texts.

Considering all OECD countries together, 16 per cent of all 15-year-olds lack basic proficiency in environmental science and 15 per cent in geoscience. For Norwegian pupils, the corresponding proportion is 16 per cent for environmental science and 17 per cent for geoscience. Norwegian pupils (36 per cent) are more or less at OECD level (38 per cent) in the proportion of pupils who score at the two highest levels in geoscience. In environmental science, 35 per cent of Norwegian pupils are at the two highest performance levels while OECD countries as a total are at 41 per cent. The Norwegian pupils' results are in other words close to the average for OECD countries (OECD 2009).

Norwegian pupils with immigrant backgrounds have lower performance in environmental science than pupils with a Norwegian background. Gender differences are minor and the pupils' social background of less importance to their performance in environmental science in Norway than in most other OECD countries (OECD 2009).

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 and 2008 for all pupils in Years 5 and 8.

The purpose of national tests is to collect information about pupils' basic skills and to be 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. Level 1 is the lowest. The test administrative system (PAS) provides descriptions of the skills of a typical pupil at each level for all the three subjects that are tested in the national tests for Years 5 and 8.

According to the evaluation carried out by the research teams responsible for the respective national tests, the tests have worked well both in 2007 and 2008. 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 Norwegian Directorate for Education and Training 2008c, 2009).

In 2007 the percentage distribution across scale levels was determined based on the skills descriptions and statistical analyses at national level. In 2008, the boundaries between scale levels are determined so that they will give approximately the same average and distribution by level as in 2007 at a national level. The distribution of pupils across levels is based on their total test score. The determined percentage at the various levels will vary somewhat depending on partial test scores and total score.

Mastering levels in mathematics for Year 5

Mastering levels for a typical pupil at the various predefined levels:

Mastering level 1
- Solve simple mathematical problems with whole numbers
- Compare numbers and sizes
- Perform simple time calculations
- Find information in tables, read and produce simple diagrams

Mastering level 2
- Solve simple mathematical problems with whole numbers
- Solve simple mathematical problems with decimals and fractions
- Read scales and calculate intervals
- Find and process information from tables and diagrams

Mastering level 3
- Choose the correct form and method of calculation to solve problems with a practical context
- Perform conversions between measuring units
- Present and interpret numerical material in tables and diagrams
- Perform estimates and be able to assess the reasonability of their own answers
- Solve complex mathematical problems

Source: The Norwegian Directorate for Education and Training/PAS

Tables 3.5 and 3.6 give an overview of the predetermined scales at national level and participation rates in national tests. Almost all pupils have participated in the tests, and the proportion exempted from tests or who have not taken the test for other reasons is small. The reading skills test has the largest proportion of non-participants, and this applies equally to Years 5 and 8. However, only 3.5 per cent of the pupils have been exempted or have not attended the reading skills tests.

The tests are made in such a way as to enable schools, municipalities and counties to assess their own test results by comparing their distribution across mastering levels, average scores and standard deviation with national levels. It is also possible to compare the average of one's own group with the average determined at national level, and to identify trends from year to year. In this way it is possible to assess whether a school or municipality has had a positive or negative development compared to the national average, which is kept as a constant from year to year. Schools and municipalities have the best qualifications to perform these assessments with their knowledge of local conditions.

In addition to providing useful information for local administrative decisions, national test results are used in research and analysis of learning outcomes of national interest. In this context, results from national tests should be considered in relation to other background information about the pupils. Such information may include differences between schools and

Table 3.5: Distribution of pupils by mastering level in reading in English, reading in Norwegian and mathematics national tests, Year 5, 2007–2008. Per cent.

	Level 1		Level 2		Level 3		Participated		Exempted		Not participated	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Reading in English	27.5	25.6	47.5	48.8	25.0	25.6	98.1	97.8	1.5	1.7	0.4	0.5
Reading in Norwegian	26.5	24.5	50.1	48.9	23.3	26.5	96.9	96.5	2.2	2.6	0.9	0.9
Mathematics	26.6	26.8	47.2	48.8	26.2	24.4	97.1	96.8	2.0	2.4	1.0	0.8

Source: The Norwegian Directorate for Education and Training

Table 3.6: Distribution of pupils by mastering level in reading in English, reading in Norwegian and mathematics national tests, Year 8, 2007–2008. Per cent.

	Level 1		Level 2		Level 3		Level 4		Level 5		Participated		Exempted		Other absence	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Reading in English	8.5	8.3	19.5	20	43.4	42.8	20.9	20.4	7.8	8.5	98.9	97.8	0.7	1.7	0.5	0.5
Reading in Norwegian	7.5	7.9	17.5	19.2	41.3	38.2	20.9	23.2	12.8	11.5	97.3	96.5	1.3	2.6	1.4	0.9
Mathematics	6.7	6.0	18.9	19.3	43.2	42.4	20.4	21.4	10.8	10.9	97.0	96.8	1.2	2.4	1.8	0.8,

Source: The Norwegian Directorate for Education and Training

municipalities, between social groups, between genders and between pupils with immigrant backgrounds and pupils with a Norwegian background.

Gender differences in national tests

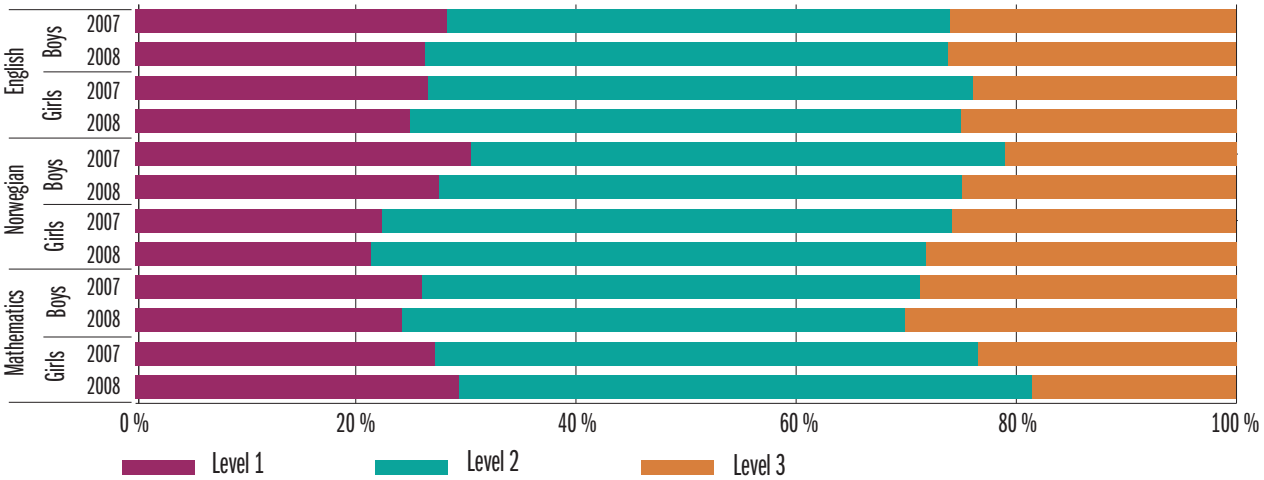
The girls score significantly higher than the boys in reading in Year 8, while the boys have a higher score than girls in mathematics in Year 5 in the national tests from 2008. In English (both levels) there are only minor differences between boys and girls. Common for all national tests is that the spread in results is greater among boys than girls.

Gender differences measured at national level rarely change much from one year to another. However, it is still interesting to investigate whether the tests have had different results by gender in 2008 compared with the previous year. Both test content and test form tend to influence the achievements of boys and girls. The English test was performed on a computer, and research shows that multiple choice and tests on a computer favour the boys. In some areas of reading, English and mathematics, the boys also show higher competence than the girls and vice versa (cf. Kjærnsli et al. 2007).

There is not much change in gender differences in all of the three national tests for Year 8 from 2007 to 2008.

The difference between boys' and girls' mathematics scores in Year 5 has increased from 2007 to 2008. This is due to the test content, according to the National Centre for Mathematics Education. In 2007, the mathematics test in Year 5 consisted of problems that were solved equally well by boys as by girls. The 2007 test contained 24 per cent measuring problems, while the 2008 test contained 34 per cent problems of this type. This is the area with the greatest difference between girls and boys. An average of 59.4 per cent of all boys solved these problems in the 2008 test, but an average of only 46.2 per cent of the girls.

Figure 3.5: Distribution by gender by mastering level in reading in English, reading in Norwegian and mathematics national tests, Year 5, 2007-2008. Per cent.

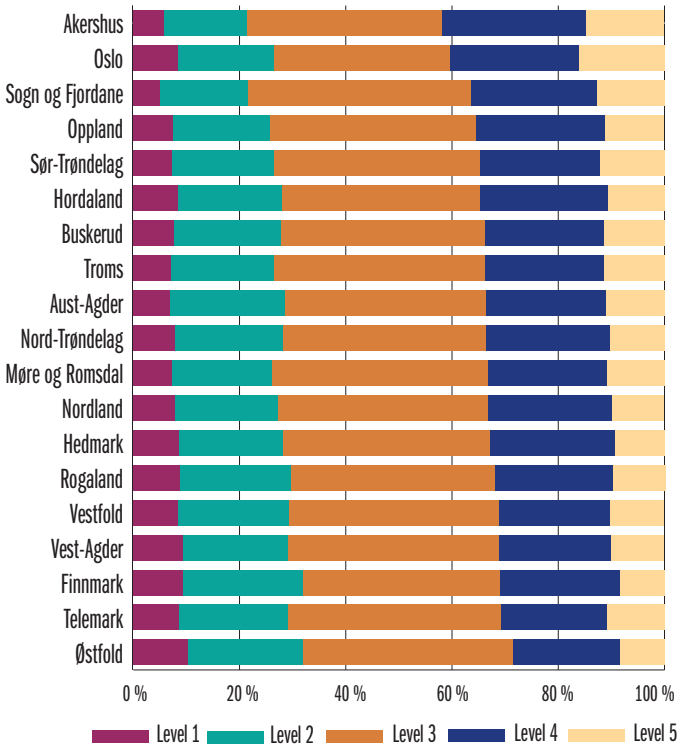


Source: Statistics Norway 2009

Regional differences

Even though the majority of the pupils within each municipality and school 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 3.6: Results in reading in Norwegian, Year 8, national tests 2008, by county. Per cent.



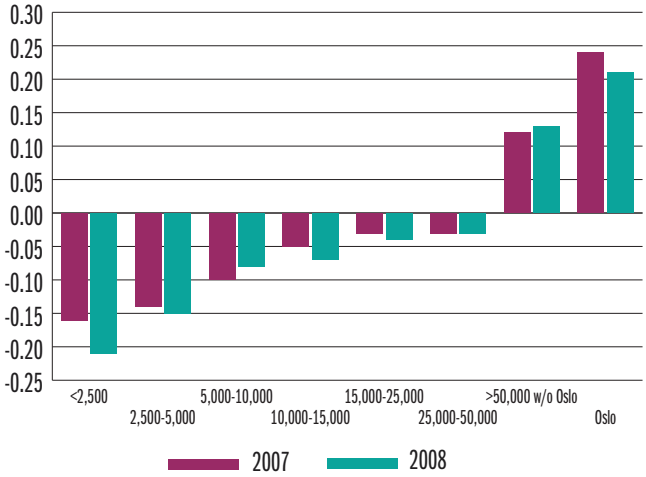
Sources: Statistics Norway 2009

Figure 3.6 is sorted by county with the largest proportion of pupils at level 4 and 5 of the national tests in reading in Year 8, measured by the pupils' mastering level on a scale from 1 to 5, where 5 is the top mastering level. Akershus has the greatest proportion of pupils at level 4 and 5 of all counties. Oslo is the county with the greatest proportion of pupils at level 5 in national tests for both Years 5 and 8 in 2008, but Akershus, Sør-Trøndelag and Sogn og Fjordane also have a high proportion of pupils at the highest mastering level on the reading test in Norwegian in 2008. Akershus and Sogn og Fjordane are also the counties with the lowest proportion of pupils with the weakest results (level 1) in Year 8 in 2008.

The Centre for Economic Research at NTNU have analysed municipal variation in the national tests from 2007 and 2008. The analyses have taken the pupils' total score and standardised it (scores have been standardised with average 0 and standard deviation 1). Test results from reading in English, reading in Norwegian and mathematics have been added up. The test results have been standardised because the tests have different scales for different subjects and all the test types are included as measurable targets in the analyses. The municipalities have been arranged by number of inhabitants.

Figure 3.7 shows that achievements are below average in all

Figure 3.7: Standardised national test results from 2007 and 2008, Year 5, reading, mathematics and English in total, by size of municipality measured in number of inhabitants.



Source: Bonesrønning and Vaag Iversen 2008, 2009

types of municipalities with fewer than 50,000 inhabitants, and above the average in types of municipalities with more than 50,000 inhabitants, both in 2007 and in 2008 (Bonesrønning et al. 2008 and 2009). Figure 3.7 shows average achievements in the various categories of municipalities. The variation in achievements between municipalities within each of the categories is also considerable.

Results from the analyses of national tests in 2007 and 2008 show, in other words, that smaller municipalities tend to have weaker achievements than large, urban municipalities. The smallest municipalities (<2,500 inhabitants) generally tend to have the weakest results. On average, their results are weaker in 2008 than in 2007. Municipalities with 5,000-10,000 inhabitants or more and the larger cities – excluding Oslo – have somewhat better results. Once again in 2008, the results from Oslo clearly differ from the others with results far above the average. The distance between Oslo and the other larger cities is however smaller in 2008 than in 2007 (Bonesrønning and Vaag Iversen 2008, 2009).

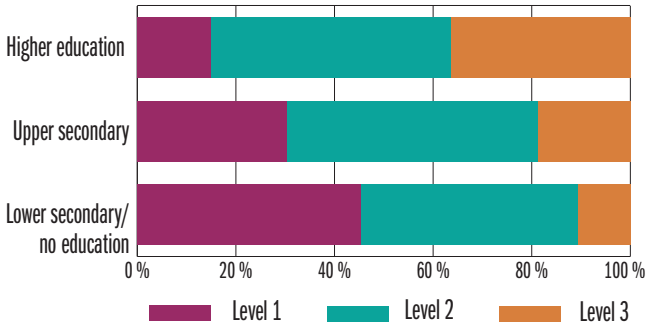
Social differences

All education in Norway is reported from education institutions to Statistics Norway (SSB), while immigrant education abroad is regularly collected by means of questionnaires. Parents' level of education from the Education Database of Statistics Norway is connected to the pupils who carried out the national tests in 2007 and 2008, and can be found in the statistics data bank of Statistics Norway.

Figure 3.8 shows that around half of the pupils whose parents have only completed lower secondary school have weak results (mastering level 1) on the national tests in Year 5 in 2008. Corresponding figures for pupils whose parents have upper secondary education or higher education (university or college) are 32 per cent and 15 per cent respectively.

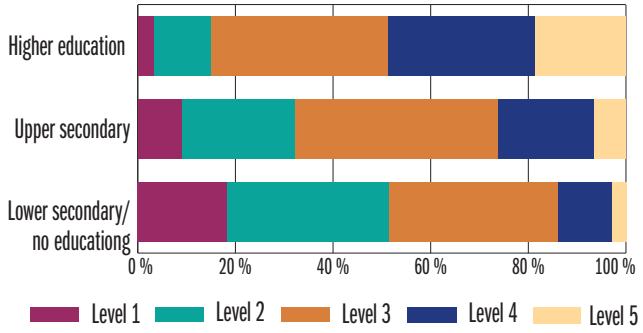
The relation between pupils' test score and social background (measured by parents' level of education) shows the same tendencies in English and mathematics. The differences between the various social groups are, however, greatest in reading in Norwegian.

Figure 3.8: Pupils by mastering level in reading in Norwegian, Year 5, national tests 2008, by parents' level of education. Per cent.



Source: Statistics Norway 2009

Figure 3.9: Pupils by mastering level in reading in Norwegian, year 8, national tests 2008, by parents' level of education. Per cent.



Source: Statistics Norway 2009

Figure 3.9. shows that 45 per cent of the pupils whose parents only have lower secondary school have the weakest results on national tests (mastering levels 1 and 2) in Year 8. Corresponding figures for pupils whose parents have upper secondary education or higher education are 32 per cent and 15 per cent respectively. Comparing the results in figures 3.8 and 3.9 we see that the difference between the social groups has increased somewhat from Year 5 to Year 8. The results from the national tests in 2007 showed the same (Bonerønning and Vaag Iversen 2008).

3.4 Marks statistics for Year 10

The pupils who completed Year 10 in 2008 are the first ones to be educated according to the new Knowledge Promotion reform (LK06) for the two last years in lower secondary school. National marks statistics from primary and lower secondary school are only collected at the end of Year 10. Subjects in lower secondary school are assessed starting in Year 8 using a scale of marks from 1 to 6, where six is the best mark.

Overall achievement marks in lower secondary school

At the end of Year 10, pupils are awarded overall achievement marks in 13 subjects. Overall achievement marks are given at the end of teaching in subjects only taught in lower secondary school. The overall achievement marks are given by the pupils' teachers in the respective subjects, and are meant to give a general reflection of the pupils' competence in the subject at the end of lower secondary school.

Section 3-7 of the regulations pursuant to the Education Act: the basis for evaluation using marks in subjects

The basis for evaluation using marks is the competence aims in the subject curricula as set down in the Knowledge Promotion curriculum. The marks should express the competence achieved by the pupil at the time the assessment is given and what should be expected at this time. Individual pupils' aptitudes are irrelevant, except in the subject physical education. The mark in physical education should reflect both the pupil's achieved competence and the individual pupil's aptitudes. Evaluations in order and conduct should not affect subject assessments.

Section 3-8. Subject marks

A numerical scale with marks from 1 to 6 should be used. Only whole numbers should be used as marks.

Individual marks express the following content:

a) The mark 1 expresses that the pupil has very low competence in the subject.

b) The mark 2 expresses that the pupil has low competence in the subject.

c) The mark 3 expresses that the pupil has acceptable competence in the subject.

d) The mark 4 expresses that the pupil has a good competence in the subject.

e) The mark 5 expresses that the pupil has very good competence in the subject.

f) The mark 6 expresses that the pupil has excellent competence in the subject.

Figure 3.10 shows that there are clear differences between girls' and boys' overall achievement marks in Year 10. Girls on average receive better overall achievement marks than boys in all subjects apart from physical education. These gender differences have existed as long as we have had national marks statistics in Norway, from 2002.

Examination marks in lower secondary school

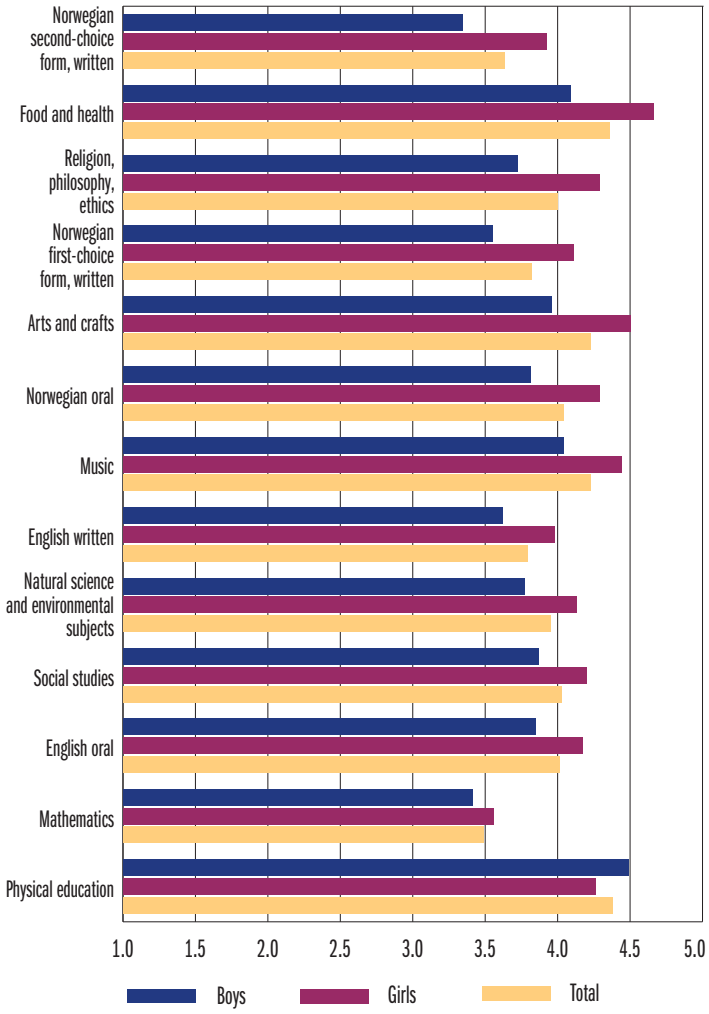
In some subjects, the pupils take a written examination which is the same for all pupils in the country. The Norwegian Directorate for Education and Training determines how the examination in individual subjects is to be organised, the exam paper itself, the dates for each examination, date for selection of written or oral exams and examiners. The municipality is responsible for selecting whether exams should be oral or written, for which pupils are to be tested in which subjects, and for the practical implementation of the examination.

As opposed to the overall achievement marks, the written examination represents an evaluation of a single written product from the pupil, produced in a limited amount of time.

Table 3.7 shows that the average mark in written exams is in general somewhat lower than the overall achievement mark, as shown in figure 3.13. The marks level in exams is relatively stable at national level from year to year. Gender differences in pupils' written examination marks follow the same pattern as the overall achievement marks.

With the Knowledge Promotion reform, pupils only receive one examination assessment in Norwegian, where both their first-choice and second-choice form of Norwegian is included for most pupils. Language minority pupils may be exempted from the second-choice form.

Figure 3.10: Average overall achievement marks by subject for Year 10, 2008. Boys, girls and in total.



* Marks: 1–6. The subjects are sorted by gender gap.
Source: The Norwegian Directorate for Education and Training/VIGO

Table 3.7: Average mark at written examination after Year 10, 2002–2008.

Subject	2005	2006	2007	2008 Total	2008 Boys	2008 Girls
First-choice form and first language, written	3.6	3.6	3.6	3.4	3.1	3.7
Second-choice form and second language, written	3.3	3.3	3.4			
English written	3.6	3.6	3.6	3.7	3.6	3.9
Mathematics, written	3.1	3.1	3.1	3.2	3.2	3.2

Source: The Norwegian Directorate for Education and Training/VIGO

Oral examinations are local and the municipality is responsible for the implementation of all local exams. The subject teacher is obliged to prepare suggestions for two exam papers. The examination can be organised in two parts, where the first is a preparatory part and the second the exam itself. The preparatory part can last for up to two days and is not assessed. Local oral examinations should normally last up to 30 minutes per pupil.

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 his or her answers.

Marks awarded at oral final examinations are typically higher than overall achievement marks. Table 3.8 shows that pupils achieve better marks at oral final examinations than their

Table 3.8: Average mark at oral examination after Year 10, 2002–2008.

Subject	2005	2006	2007	2008		
				Total	Boys	Girls
Norwegian oral	4.4	4.4	4.4	4.4	4.1	4.6
Mathematics oral	4.1	4.0	4.0	4.1	3.9	4.2
English oral	4.4	4.3	4.3	4.3	4.2	4.5
Social studies	4.3	4.3	4.3	4.3	4.1	4.5
Natural science and environmental subjects	4.3	4.3	4.3	4.3	4.2	4.5
Religion, philosophy, ethics	4.4	4.3	4.4	4.4	4.1	4.7

Source: The Norwegian Directorate for Education and Training/VIGO

overall achievement mark, with average marks ranging from 4.4 to 4.1. Pupils advance by 0.6 points in Norwegian and mathematics, 0.5 points in English, 0.4 in religion, philosophy and ethics, and 0.3 points in natural science and environmental subjects and in social studies from their overall achievement mark to their oral exam mark.

Lower secondary school points 2007–2008

Lower secondary school points can be seen as a total measurement of all pupils' marks at the end of Year 10. The sum is arrived at by adding all the numerical marks, dividing by the number of marks and multiplying by 10. In addition, there are some calculation rules for pupils who lack marks in some subjects.

Table 3.9: Average school points after Year 10 in 2007 and 2008, and number of pupils with 8 marks or more. All, girls and boys.

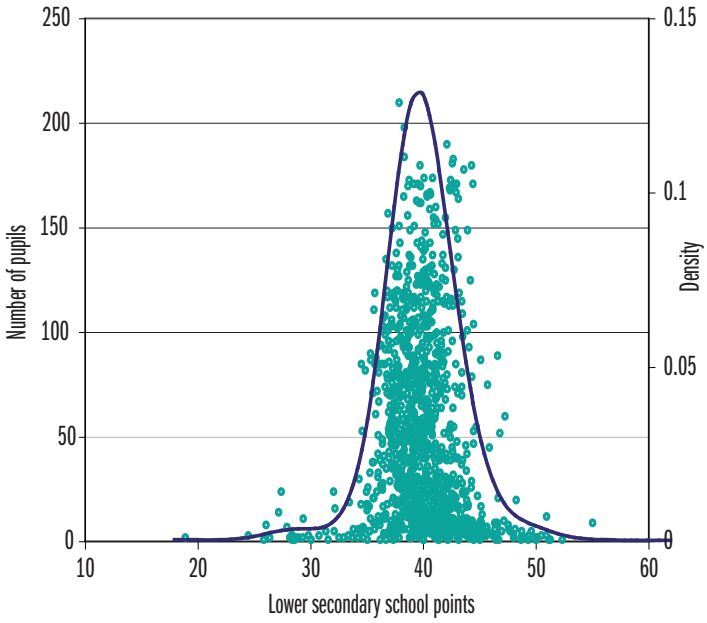
Year	All	Girls	Boys	Number of pupils	Number of girls	Number of boysr
2007	39.6	41.6	37.8	61,198	29,807	31,391
2008	39.7	41.7	37.9	60,784	29,481	31,303

Source: Steffensen and Ziade 2009

Table 3.9 shows that in 2007 pupils achieved 39.6 school points. In 2008, girls achieved an average of 3.8 more points than boys. However, the boys' school points have increased a bit more than the girls' in the period 2002–2007, cf. The Education Mirror 2007.

The number of pupils varies a lot in Norwegian schools, from a few pupils to several hundred per level. This random variation strongly contributes to the fact that the peak and the trough of the marks distribution is dominated by small schools as illustrated by figure 3.11. It is important to take this uncertainty into account when comparing results between schools. For the smallest schools, random variation plays a far larger part, and the school's results should not be assessed by focusing too much on the average marks for a single year.

Figure 3.11: Spread in average school points by school size, measured by number of pupils in 2008.



Source: Steffensen and Ziade 2009

Table 3.10: Average school points for Year 10 pupils in 2007 and 2008, by parents' level of education.

	Lower secondary school points	
Parents' level of education	2007	2008
Lower secondary school	34.1	34.0
1-2 years' upper secondary	36.9	36.7
Completed upper secondary 3-4 years	38.1	38.1
Education at intermediate level	39.4	39.8
Higher education 1-4 years	42.5	42.5
Higher education, more than 4 years	45.6	45.6

Source: Steffensen and Ziade 2009

Table 3.10 shows that the differences in school points vary according to the level of education of the pupils' parents. Pupils whose parents have more than four years' higher education have 11.6 more school points from Year 10 than pupils whose parents have only completed lower secondary school. In average, this constitutes a full mark in all subjects. This entails greater differences in the general subjects, as most pupils achieve high marks in practical and aesthetic subjects in lower secondary school. Pupils tend to have similar marks in these subjects.

Characteristics such as pupils' gender and family background play an important role for their results. The effects of individual characteristics are strong at all levels. Such characteristics include gender, social background (parents' education level, mother's and father's labour status), whether parents are from a non-western country and whether parents live together or not. These characteristics have a greater and more consistent effect than school indicators. Indicators of resource allocation, activities and learning environment in the school explain far less of the variation in pupils' results. One main conclusion drawn by Grøgaard et al. (2008) in their analysis of national tests and marks statistics in 2005 is that the indicators they used in their school analyses are not good enough to identify and explain differences between the schools' contribution to pupils' learning. Analyses of individual schools and contextual analyses are needed. This is not a surprising result, seen in the light of international research literature on the characteristics of good schools, where effects have been difficult to measure based on existing registered data.

What school a pupil attends explains less than 15 per cent of the variance in pupil achievements. In Year 10, less than 10 per cent of the total variation in achievements is between schools. Mathematics marks in Year 10 and in level 1 of upper secondary school deviate somewhat from this pattern. The differences between schools in average mathematics marks in Year 10 constitutes only 6.8 per cent of the total variation, while the school effect on mathematics marks at level 1 of upper secondary school constitutes almost 22 per cent of the variance. This is probably related to the fact that pupils are selected to the different study programmes and schools after completing lower secondary school, and that this to a large extent happens independently of pupils' results from lower secondary school (Grøgaard et al. 2008).

3.5 Marks statistics for upper secondary school

Pupils in upper secondary school receive overall achievement marks in final subjects and examination marks in some of the final subjects if they are selected for examination. Marks should express competence achievement in relation to goals in the subject-specific curricula. From the spring of 2007 on, the assessment scale has 1 as the lowest mark and 6 as the best.

Marks statistics in upper secondary education comprise the 15 areas of study within the R94 reform and the 12 study programmes within the LK06 reform. The composition of classes from one subject to the next also varies a great deal. Due to the large amount of data from upper secondary school, the marks statistics here only show results from some large subjects with final examination.

Marks in English and mathematics at Vg1 (upper secondary level 1) and Vg2 (upper secondary level 2)

Figure 3.11 shows that there are relatively large differences between the overall achievement mark and exam results in English for pupils in general studies. This difference constitutes a decline of 0.6 points from the overall achievement mark to the exam result. The decline from overall achievement mark to exam result is far smaller for mathematics, 0.2 for practical mathematics and 0.3 for theoretical mathematics respectively.

Girls get higher overall achievement marks than boys, between 0.2 and 0.4 points higher in English and in mathematics at Vg1. There are also no or minor differences between boys' and girls' exam results in English and mathematics at Vg1 in general studies.

Table 3.11: Average overall achievement marks and exam results in selected subjects at Vg1 and Vg2 in 2008, programmes for general studies. Girls and boys.

			Overall achievement mark		Exam result	
Subject	Overall achievement mark	Exam result	Boys	Girls	Boys	Girls
English Vg1	4.0	3.4	3.9	4.1	3.4	3.4
Practical mathematics	3.3	3.1	3.2	3.4	3.1	3.0
Theoretical mathematics	3.3	3.0	3.1	3.5	3.1	3.1

Source: The Norwegian Directorate for Education and Training/VIGO

Table 3.12: Average overall achievement marks and exam results in selected subjects at Vg1 and Vg2 in 2008, vocational education programmes. Girls and boys.

Subject	Overall achievement mark	Exam result	Overall achievement mark		Exam result	
			Boys	Girls	Boys	Girlsr
English Vg2	3.3	2.7	3.2	3.4	2.7	2.6
Practical mathematics	3.0	2.9	3.0	3.1	2.9	2.8
Theoretical mathematics	3.6	3.4	3.6	3.9	3.3	3.5

Source: The Norwegian Directorate for Education and Training/VIGO

English at Vg2 in vocational studies has the same curriculum and the same examination as English at Vg1 in general studies. Thus marks can be directly compared between vocational and general studies. In both education programmes, pupils have 0.6 points more in their overall achievement mark than in their exam result. However, the average exam mark is far higher in general studies (3.4) than in vocational (2.7). In English and in the two mathematics exams there are also noticeable differences in vocational programmes between boys' and girls' overall achievement marks compared to their exam results.

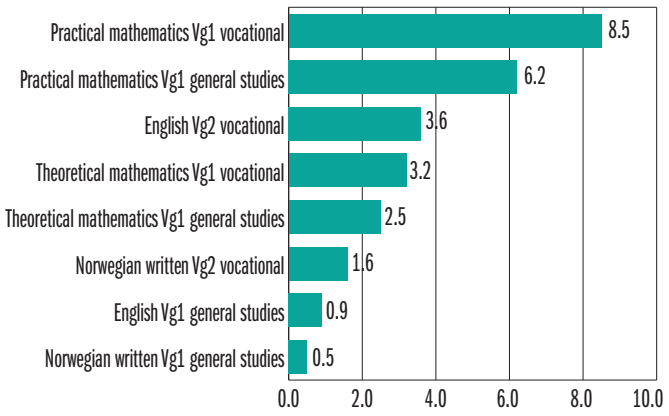
Significant differences in failure rates in Vg1 and Vg2

The presentation of pupil results has so far focused on average marks. In connection with a mapping of marks from primary and secondary schools in Norway in the 2007–2008 school year, the distribution of pupils across the marks scale in selected subjects was identified, focusing on the lowest level, the fail mark 1 (Steffensen and Ziade 2009).

Figure 3.12 shows that there are clear differences in the proportion failing in different subjects. A main trend is that the failing proportion is clearly lower in subjects in the general studies programme than in similar subjects in vocational programmes. The highest proportion of failures is in practical mathematics: 8.5 per cent in vocational education programmes and 6.2 per cent in general studies. The difference in the failing proportion between English in general studies at Vg1 and in vocational at Vg2 is particularly high in the overall achievement mark in English, where 3.6 per cent of the vocational pupils and 0.9 per cent of the general studies pupils fail.

Steffensen and Ziade (2009) show in their analysis that girls on average are less likely to fail in one or more subjects than boys. Immigrant pupils with a non-western background and descendants of non-western immigrants have a higher likelihood of failure than pupils with other backgrounds. The greatest division between failing and passing pupils is between those who have parents with a university or college education and other pupils. There are minor differences in the likelihood of failure between pupils whose parents have completed lower secondary school and those whose parents have completed upper secondary school.

Figure 3.12: Pupils with overall achievement mark 1 in selected subjects in upper secondary school. Per cent.



Source: Steffensen and Ziade 2009

Overall achievement marks and exam results for the last age cohort with R94

In 2008, the last age cohort who has been taught according to Reform 94 completed upper secondary school. From 2005 to 2008 there are small changes in overall achievement marks and exam results at Year 13 (VK2) for the programmes for general studies.

Table 3.13 shows that written exam results are lower than overall achievement marks. The subject with the largest difference between overall achievement marks and exam results is biology (3BI), where pupils received on average a 0.8 points less on their exams than their overall achievement mark. In social studies (3SK-B) the difference between overall achievement mark and exam result decreased from 0.7 points in 2007 to 0.5 in 2008. The differences between overall achievement mark and exam result are greater in mathematics 3MX (theoretical) than in mathematics 3MZ (practical), with 0.5 and 0.2 points respectively.

Table 3.14 shows slightly smaller gender differences in VK2 on the written examination in Norwegian first-choice form in general studies in 2007 than in previous years. However, this may be due to smaller variations from one year to the next. In English in VK2, there are no or small gender differences in pupil marks from 2005 to 2008. In chemistry in VK2, boys achieved

Table 3.13: Average overall achievement marks and exam results in selected subjects at VK2 from studies qualifying for higher education 2005–2008.

	Overall achievement mark				Exam result			
Subject VK2	2005	2006	2007	2008	2005	2006	2007	2008
Norwegian first-choice form, written	3.7	3.7	3.8	3.7	3.3	3.3	3.2	3.2
Norwegian second-choice form, written	3.4	3.5	3.5	3.5	3.1	3.1	3.1	3.1
English II (alt.A), written	3.9	3.9	3.9	3.9	3.3	3.2	3.3	3.4
Physics (3FY), written	4.0	4.0	4.0	4.0	3.6	3.6	3.5	3.4
Chemistry (3KJ), written	4.1	4.0	4.0	4.0	3.6	3.4	3.3	3.3
Biology (3BI), written	3.9	3.9	3.9	3.9	3.3	3.4	3.2	3.1
Social studies (3SK-A), written	3.8	3.8	3.9	3.8	3.5	3.3	3.3	3.3
Social studies (3SK-B), written	3.8	3.8	3.9	3.8	3.4	3.3	3.2	3.3
Mathematics (3MX), written	4.0	3.9	3.9	3.8	3.5	3.4	3.4	3.3
Mathematics (3MZ), written	3.6	3.5	3.6	3.5	3.2	3.1	3.2	3.3

Source: The Norwegian Directorate for Education and Training/VIGO

Table 3.14: Average exam results in selected subjects at VK2 from studies qualifying for higher education 2005-2008. Girls and boys.

	Girls				Boys			
Subject VK2	2005	2006	2007	2008	2005	2006	2007	2008
Norwegian first-choice form, written	3.4	3.4	3.2	3.3	3.2	3.1	3.1	3.1
Norwegian second-choice form, written	3.2	3.3	3.2	3.2	3.0	3.0	3.0	3.0
English II (alt.A), written	3.3	3.2	3.3	3.4	3.3	3.1	3.3	3.3
Physics (3FY), written	3.6	3.8	3.7	3.5	3.5	3.5	3.4	3.4
Chemistry 3KJ	3.7	3.4	3.2	3.3	3.6	3.4	3.4	3.3
Biology 3BI	3.3	3.4	3.3	3.1	3.2	3.2	3.0	2.9
Social studies (3SK-A)	3.5	3.4	3.4	3.3	3.4	3.1	3.2	3.2
Social studies (3SK-B)	3.5	3.4	3.4	3.4	3.1	3.1	2.9	3.0
Mathematics 3MX	3.7	3.5	3.6	3.5	3.2	3.3	3.2	3.2
Mathematics 3MZ	3.3	3.3	3.5	3.5	3.0	2.8	2.9	3.0

Source: The Norwegian Directorate for Education and Training/VIGO

a better result than girls in 2007, while both boys and girls achieved an average mark of 3.3 as their exam result in 2008.

For social studies 3SK-B there was a 0.4 point difference in 2007 between boys and girls, which is reduced to 0.1 points in 2008.

Girls have a better result than boys in both mathematics courses, 3MX and 3MZ. In physics (3FY), the girls had better results than the boys in 2006 and 2007; this difference is reduced from 0.4 points in 2006 to 0.1 in 2008. 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 have other tendencies than exam results at VK2 is probably because girls are more strongly selected than the boys in these subjects, both regarding interests and aptitude. Far more boys than girls have taken physics and mathematics at VK2 (Hægeland et al. 2007). In 2008, 2,930 boys and 1,215 girls completed physics 3FY, 4,168 boys and 2,798 girls theoretical mathematics 3MX and 1,256 boys and 1,927 girls practical mathematics 3MZ at VK2. In chemistry 3KJ the amount of boys (2,267) and girls (2,259) who completed VK2 in 2008 was about the same (Steffensen and Ziade 2009).

3.6 Results from vocational education

The state authorities are responsible for vocational education and training in all of Norway and also for setting the national framework conditions. County authorities are responsible for ensuring that individual right to upper secondary education is fulfilled and for the implementation of education and training in schools. They also approve training establishments and have a superior responsibility for ensuring that the education and training is carried out in line with the curriculum.

The results from vocational education and training mainly include pupils educated in line with Reform 94. The first apprentices to complete upper secondary education in the stipulated time under the Knowledge Promotion (LK06) will finish in 2010. 22 candidates who have followed LK06 have already sat the exam. Chapter 5 gives a more detailed description of applications, admissions and completion of upper secondary education and training.

The final test in vocational education and training is the craft or journeyman's examination. This is a test where candidates plan their work, choose their method, carry out, control and document their work and substantiate their choices. The test

Table 3.15: Number who have passed craft and journeyman's examinations 2001–2008 and percentage that has passed of those sitting examinations.

Year	Number sitting exams	Number passed	Percentage of passes
2001	20,817	19,340	92.9
2002	20,029	18,584	92.7
2003	19,165	17,736	92.5
2004	18,301	16,917	92.4
2005	18,597	17,185	92.4
2006	18,415	17,146	93.1
2007	18,996	17,694	93.1
2008	21,475	19,642	91.5

Source: Statistics Norway/VIGO

Table 3.16: Number of boys and girls who have taken craft or journeyman's examinations and percentage who achieved "very good" and "passed". 2008.

	Number sitting exams	Number passed	Proportion passed	Passed	Very good
Total	21,475	19,642	91.5	70.2	21.2
Boys	15,092	13,850	91.8	71.3	20.5
Girls	6,383	5,792	90.7	67.7	23

Source: Statistics Norway/VIGO

thus consists of three parts, planning, implementation and documentation, and all three are assessed. The duration of the test can be from two to several days, depending on the subject. The assessment is carried out by an examination board with members who have no connection with the training establishment. The test is marked as very good, passed or failed.

In 2008 a total of 21,475 craft and journeyman's examinations were taken, an increase of 2,479 compared with the previous school year. 91.5 of all those sitting the exams passed. This is the lowest proportion of passes in the period 2001–2008. On the other hand, far more candidates sat for the test. The reason for this is that there are more teenagers who have completed upper secondary education in the set time, and possibly that some adults who had not completed have returned to their training in order to sit for the craft or journeyman's examinations while it is still possible to take the test in line with the old curriculum, Reform 94.

Table 3.16 shows that 7 out of 10 apprentices who took the craft or journeyman's examinations in 2008 are boys: 13,850 boys and 5,792 girls. The boys also passed their examinations to a greater degree than the girls, but with a small difference. Girls are slightly more often assessed as "very good".

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 training establishment for practical training for two years. After completing their apprenticeship, they sit for a practical examination. Experience based trade certification enables adults with long and versatile practice to sit for a craft or journeyman's certificate examination without having been apprentices. Experience based trade certification is not a trainee scheme, but a right to sit for craft or journeyman's examinations for persons who have at least five years' relevant experience in the subject. The candidates have to pass a theoretical exam as well as the practical craft or journeyman's examination. Private education institutions offer courses leading up to experience based trade certification, but such courses are not mandatory. Candidates for experience based trade certification are exempted from the common core subjects (general subjects).

Some sit the craft and journeyman's examinations as pupils. They have followed the entire training in school as they have not secured an apprenticeship. There are also some occupations that normally have their vocational training in school, for example assistant nursing. They are not included in these tables because they complete their training with examinations and not a craft or journeyman's examination.

Table 3.17 shows that of the candidates who passed a craft or journeyman's examination in school in the 2007–2008 school year, 13,337 were apprentices, 5,933 candidates for experience based trade certification and 372 pupils in vocational education and training in school. The candidates for experience based trade certification have the highest proportion of passes to the craft or journeyman's examination (94.2 per cent), followed by apprentices (90.7 per cent) and pupils (79.1 per cent) educated and trained in school as they were unable to secure apprenticeships.

Table 3.17: Percentage of pupils, apprentices and trainees who have passed craft and journeyman's examinations in 2006–2008 of those sitting the exam. Total, girls and boys.

	Apprentices			Pupils			Trainees		
Year	2006	2007	2008	2006	2007	2008	2006	2007	2008
Total proportion	93.0	93.1	90.7	80.1	74.3	79.1	94.7	94.9	94.2
Girls	93.5	91.7	89.5	68.6	80.2	84.8	95.5	94.5	93.5
Boys	93.3	93.7	91.1	73.3	69.7	71.8	95.1	95.1	94.7
Total	11,962	11,789	13,337	733	378	372	5,725	5,527	5,933

Source: Statistics Norway/VIGO

Table 3.18: Passed craft or journeyman's examinations in 2008, by area of study and gender.

	Number sitting the exam	Percentage of passes	Percentage of girls who passed	Percentage of boys who passed
Total	21,475	91.5	90.7	91.8
General/business/administration studies	358	95.8	93.3	95.9
Health and social care	3,167	91.3	91.5	89.9
Agriculture, fishing and forestry	358	94.1	94.0	94.2
Arts and design	1,189	82.4	82.6	78.8
Hotel and catering	1,681	88.2	89.4	86.8
Construction and building	3,744	92.2	90.9	92.2
Technical construction and building	1,149	83.4	90.2	83.1
Electricity and electronics	2,976	91.2	91.9	91.2
Mechanical subjects	5,099	94.5	97.2	94.3
Chemistry and processing	143	97.2	100.0	95.7
Woodworking	195	94.4	93.5	94.5
Media and communication	172	92.4	90.5	93.9
Sales and service	1,222	95.4	96.3	92.9
New subjects from LK06	22	95.0	:	:

Source: Statistics Norway/VIGO

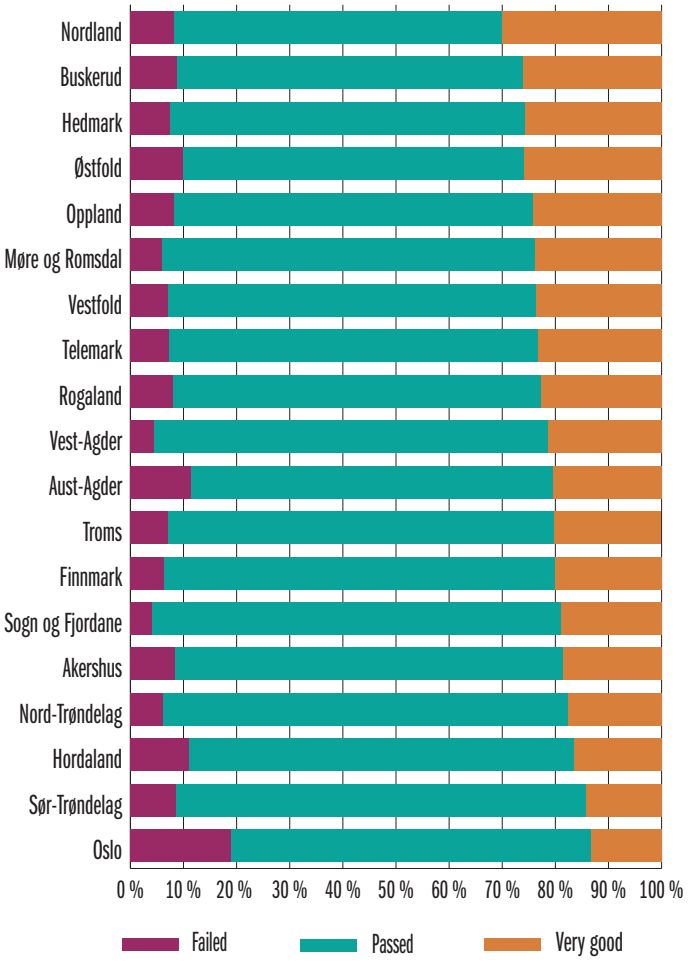
Table 3.18 shows the percentage of apprentices who sat for and passed a craft or journeyman's examination, by area of study and gender. Most examinations are taken in mechanical subjects. 94.5 of the 5,099 who sat for the examination in theses subjects passed. Other major subject areas include construction and building, health and social care and electricity and electronics, with 3,744, 3,167 and 2,976 craft or journeyman's examinations respectively, where 91–92 per cent of the apprentices passed.

Rogaland (2,522) and Hordaland (2,511) had the highest number of craft and journeyman's examinations, and Finnmark (345) and Aust-Agder (575) the lowest in 2008. This is naturally due to the number of inhabitants in the various counties, but also to other conditions. Both in Oslo and Sør-Trøndelag far fewer take vocational education and training than in Rogaland and Hordaland. In Oslo, 1,050 took craft and journeyman's examinations and in Sør-Trøndelag 1,423 in 2008.

Figure 3.13 shows that Nordland is the county that has assessed the most apprentices as "very good" in craft and journeyman's examinations with 30 per cent assessed as "very good". Nordland is followed by Buskerud, Østfold and Hedmark with 26 per cent assessed as "very good". Oslo is the county with both the largest proportion of training candidates failing the test (19 per cent) and the fewest apprentices assessed as "very good" (13 per cent).

The percentage assessed as "passed" or "very good" in their craft or journeyman's examinations is highest in Sogn og Fjordane, where 96 per cent of the training candidates passed. Møre og Romsdal, Nord-Trøndelag and Finnmark follow with 94 per cent assessed as "passed" or "very good".

Figure 3.13: Passed craft and journeyman's examinations in 2008 of those sitting the exam, by county. Per cent.



*Preliminary figures.
Source: Statistics Norway/VIGO

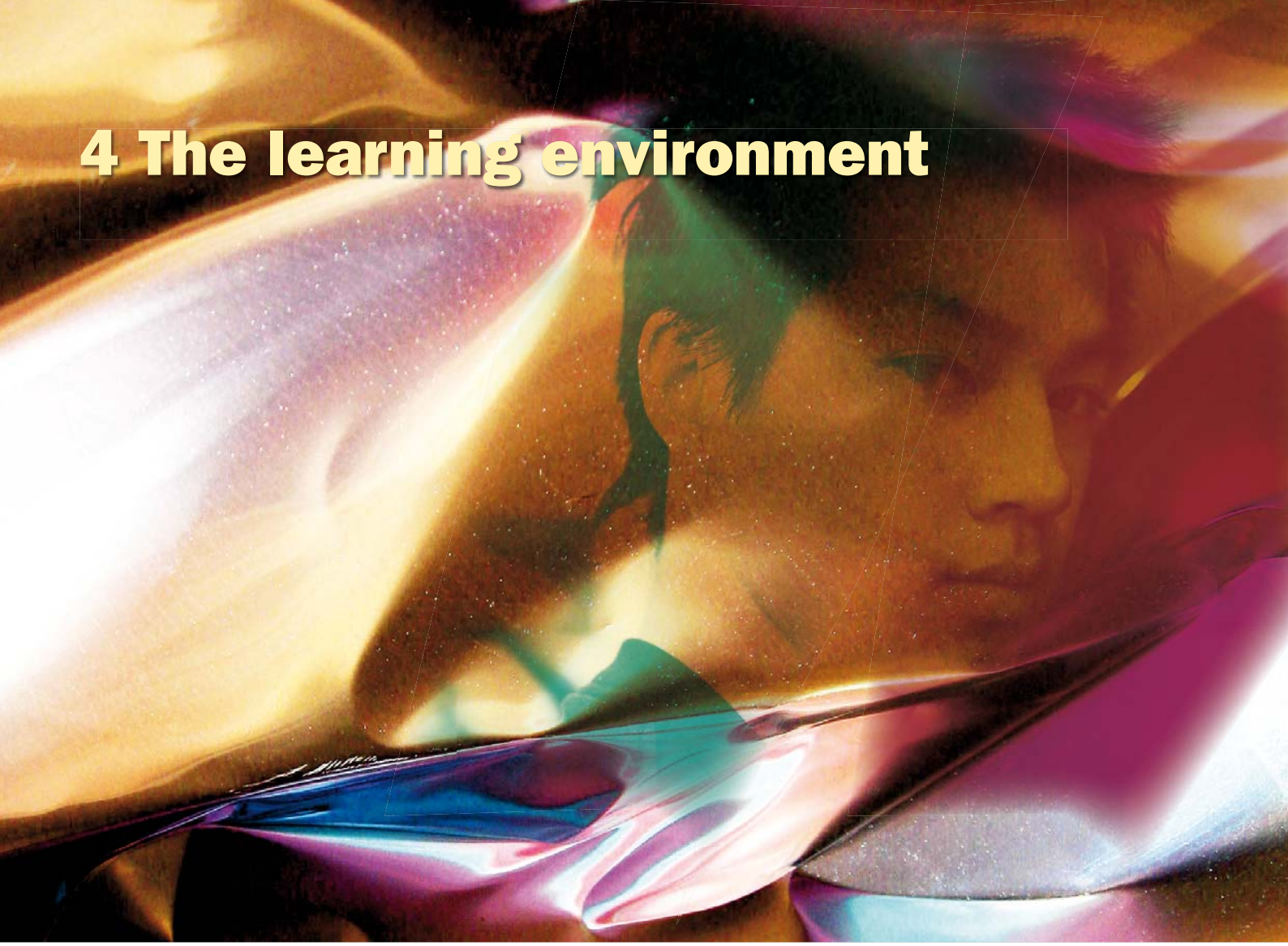
Table 3.19: Passed craft or journeyman's examinations in 2006-2008, by parents' level of education. Number and per cent.

	Number sitting exam			Number passed			Percentage of passes		
Parents' education	2006	2007	2008	2006	2007	2008	2006	2007	2008
Total	18,566	19,280	21,475	17,321	18,006	19,642	93.3	93.4	91.5
Lower secondary	3,641	3,645	3,932	3,379	3,385	3,540	92.8	92.9	90.0
Upper secondary	10,811	11,162	12,406	10,091	10,426	11,402	93.3	93.4	91.9
Higher education	3,356	3,645	4,144	3,157	3,427	3,818	94.1	94.0	92.1
Unknown	758	828	993	694	768	882	91.6	92.1	88.8

Source: Statistics Norway/VIGO

Table 3.19 shows that candidates whose parents only have lower secondary school constitute the lowest number of candidates who sat for the examinations. This is due to the candidates in this group dropping out of upper secondary school earlier, but also that they constitute a minority in the Norwegian population. Candidates whose parents have upper secondary or higher education have a proportion of 92 per cent passes in 2008. Among those whose parents have lower secondary school, 90 per cent of the candidates passed. Differences by parents' level of education regarding passed examinations are in other words far smaller for vocational training than for results in other areas of the basic education dealing with learning outcomes.

4 The learning environment



In the analysis of Elevundersøkelsen *(The Pupil Survey)*, the following definition of learning environment is used, limited to schools: the environment, atmosphere, social interaction, teaching and guidance pupils experience in school. The definition is based on the acknowledgement that the way pupils experience their learning environment will affect their motivation, effort and learning outcomes. The analysis from the spring of 2008 shows that the two main factors that affected pupils' marks were how well they felt the teaching was adapted to their needs and their own efforts.

Pupils' learning environment is normally divided into two main areas: psychosocial and physical environment. Well-being is a central concept in the psychosocial environment, and in some contexts one distinguishes between academic well-being and social well-being. The physical environment is often measured by factors such as the quality of school premises, ie. indoor climate, maintenance, the possibility of flexible organisation etc.

The analysis of The Pupil Survey 2008 is the most important source of how pupils experience their learning environment. This chapter also includes other new research which studies details of the learning environment.

This chapter summarises some of the research based knowledge about organisational measures intended to improve the learning environment, such as adapted education, the use of special needs education (SNE), longer school days, homework assistance, the use of teaching aids and cooperation between schools and home. It also includes a summary of data from The Pupil Survey 2008 on how pupils experience pupil participation and guidance. The issue of assessment will be discussed in chapter 6 on quality development.

None of the research reports upon which this chapter is based covers the entire width or all aspects of the learning environment, and the focus on various areas of the learning environment varies from year to year. The extent to which this chapter discusses various areas and the selection of these areas will naturally also vary.

We shall also look at some findings from the new international *Teaching and Learning International Survey* (TALIS 2008) from the OECD. TALIS was carried out in 2007–2008 and included lower secondary school teachers from 24 countries. NIFU STEP was in charge of implementing the Norwegian section of the survey. TALIS deals with issues concerning the professional development of teachers, teaching practices and beliefs, school leadership and appraisal and feedback to teachers in schools. Questions about how Norwegian teachers see their own involvement in pupil learning and whether they are satisfied with their job give us an additional point of view of the pupils' learning environment.

4.1 User surveys from The Norwegian Directorate for Education and Training

Five user surveys from The Norwegian Directorate for Education and Training: The Pupil Survey, The Teacher Survey, The Parent Survey, The Apprentice Survey and The Trainer Survey:

The aim of The Pupil Survey and The Apprentice Survey is to give pupils and apprentices the opportunity to express their opinions on important issues that affect learning and well-being in schools and training establishments. The results from user surveys are used by schools, school owners and state education authorities as an aid to analysing and developing the learning environment.

Pursuant to The Education Act and The Private School Act, it is mandatory for school owners and school administrators to implement The Pupil Survey each spring, between the middle of January and the end of April, for pupils in Year 7, Year 10 and upper secondary level 1. Completing the survey is optional for pupils. School owners and school administrators may also opt to implement the survey in the autumn semester. School owners and school administrators can choose whether they wish to implement The Teacher Survey and The Parent Survey both in the spring and in the autumn. Implementing The Apprentice Survey and The Trainer Survey is also optional for county administrations.

The Pupil Survey, The Teacher Survey and The Parent Survey

The Pupil Survey, The Teacher Survey and The Parent Survey were revised and adapted to the Knowledge Promotion reform in 2006 and new questionnaires were used from January 2007. The online surveys can be completed in the autumn, between October and December, and in the spring, between the middle of January and the end of April. The surveys are thematically coordinated so that answers from pupils, teachers and parents within the same themes and questions on the pupils' learning environment can be compared.

320,000 pupils from Year 5 to upper secondary level 3 answered The Pupil Survey in the spring of 2008. The analyses presented in this chapter are based on the answers from pupils from these levels.

In the spring of 2008, a qualitative analysis of six schools which had implemented all three user surveys was carried out. All schools in the analysis had a high response rate to The Parent Survey. The analysis gives a step by step presentation of how the six schools and school owners implemented the user surveys in the spring of 2008. The analysis report shows that all school owners actively encouraged schools to use the surveys, and the analysis gave school owners and school administrators many ideas on how the national level can help them in their work with the user surveys (Skaar and Stakkeland 2008a).

The Apprentice Survey and The Trainer Survey

The Apprentice Survey and The Trainer Survey were revised in 2006 and the spring of 2007, and new questionnaires were used from October 2007. This makes it possible to compare answers that apprentices and trainers give within the same themes. Counties can study the results on an online portal and check whether apprentices and trainers have the same experience of important conditions for learning and well-being.

The online portals for completing the questionnaire and presenting the results were also upgraded and brought into line with the corresponding portals for the three other user surveys. After this revision, the portal for filling out the survey opens on 1 October and closes on 30 April in the following year, as opposed to being open all year as it was previously. By implementing a restricted opening time, changes in results can be compared over time.

Today no national analyses of the replies to The Apprentice Survey are carried out. This is due to the low response rate in the counties using the survey and that some counties do not use it at all. It is therefore not possible to describe the learning environment for apprentices as extensively as for pupils in the rest of primary and secondary education.

In the 2007–2008 school year, seven counties implemented The Apprentice Survey. In the spring of 2008, a qualitative analysis of the use of The Apprentice Survey in the two counties with the highest response rate, Nord-Trøndelag (47.5 per cent) and Vestfold (45.6 per cent) was carried out. The results of the analysis show that relatively few of the apprentices have a good knowledge of the curriculum or are even aware that there is a curriculum for training in training establishments (Skaar and Stakkeland 2008b).

The Apprentice Survey can be useful even to counties where the average response rate is below 50, as a basis for local measures. Some questions always need following up, regardless of the response rate, for instance feedback on bullying in the workplace.

In the 2008–2009 school year, 11 counties have implemented the survey and Vest-Agder achieved an average response rate of 63 per cent. Response rates vary from 55 per cent for apprentices in Design, Arts and Crafts to 82 per cent in Woodworking.

Both response rates and total number of replies affect the interpretation of the user surveys:
For instance, if a school achieves a response rate of 75 per cent or higher in The Pupil Survey and the number of pupils replying is high, school administrators can assume that the answers are reliable and representative for all pupils invited to reply. In this case the statistics become a solid basis for discussion, analysis and measures.

The basis becomes less reliable if response rates fall below 75 per cent and/or few pupils have replied.

If the number of replying pupils is high and the response rate is between 50 and 75 per cent, replies can to a certain extent be assumed to be indicative of tendencies. The replies can still be used as a basis for discussion, analysis and measures, but they are more uncertain statistically and not as representative.

User surveys with a response rate below 50 per cent, regardless of how many pupils replied, are hard to interpret.

School administrators at schools with few pupils at the levels where The Pupil Survey is obligatory should consider implementing the survey at several levels in order to increase the number of answers from pupils. This will give them much more reliable and representative statistics for following up the survey.

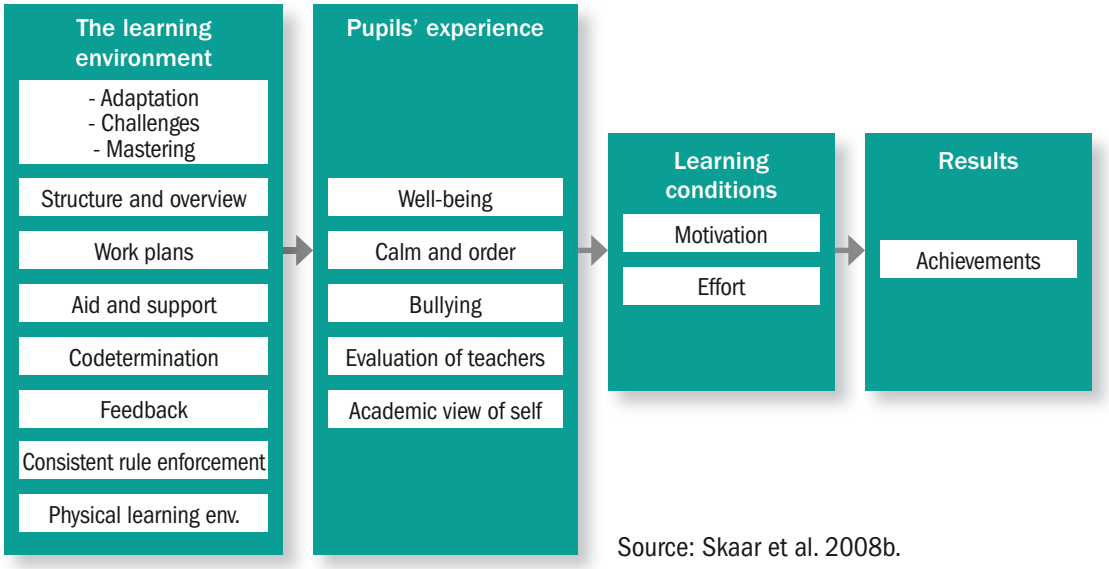
4.2 The relationship between learning environment and learning outcomes

In The Pupil Survey, pupils answer many questions. Some of the questions are grouped by theme, such as assessment and guidance, and can then be used as indicators. The indicators are based on questions in The Pupil Survey and are presented on Skoleporten (the School Portal, the web service of the Norwegian Directorate for Education and Training providing schools and school owners with data on primary and secondary education), http://www.utdanningsdirektoratet.no/skoleporten (Norwegian only).

In Report No. 31 to the Storting (2007–2008) *Kvalitet i skolen (Quality in schools)* from the Ministry of Education and Research, the government sets three goals for quality in primary and secondary education. Indicators are to be developed for each of these goals to help municipal and national authorities determine how far they have come on the way to achieving the goals. One of the goals is that all pupils and apprentices should be included and that they should all feel that they are able to master the tasks that are set. Achievement of results is measured using the indicators adapted education, challenges, feedback, well-being and bullying. In the autumn of 2008, The Norwegian Directorate for Education and Training started to develop new indicators and further development of the indicators mentioned in the Report to the Storting. Other indicators are also tested along the way (Skaar et al. 2008b).

Figure 4.1 illustrates how the work of further developing indicators is based on a theoretical understanding underlying the national analysis of The Pupil Survey (Skaar et al. 2008b). The figure shows that there is a connection between pupils' learning environment and their learning outcomes. Analyses of The Pupil Survey from the spring of 2008 show that pupils' experience of their teaching as adapted and their own efforts were the most important issues affecting their marks. Indicators of the learning environment used in The Pupil Survey explain 23 per cent of the variation in pupil achievement in Years 8 to 10 and 18 per cent of the achievement variation in upper secondary education. The achievements referred to here are the marks that pupils themselves stated at the end of 2007.

Figure 4.1: The learning environment and its effect on pupil achievements.



Source: Skaar et al. 2008b.

The analysis of The Pupil Survey 2006 also shows that the degree to which pupils felt the teaching was adapted to their aptitudes strongly affected their academic well-being. The analysis further showed that there was a positive correlation between academic well-being, effort and marks (Furre et al. 2006).

The relationship between pupils' learning environment and their learning outcomes has also been studied by NIFU STEP. In the report *Elevenes læringsutbytte: Hvor stor betydning har skolen? (Pupils' learning outcomes: How important is school?)* the researchers focused on the extent to which schools affected the marks of pupils in Year 10 in the 2004–2005 school year. The analysis contains a series of indicators from the pupils' home background, and what most affects their total marks is the level of education of their parents and whether both parents come from non-western countries. The analysis also covers the learning environment, measured as the average of schools from The Pupil Survey 2005. The following questions from The Pupil Survey affected the pupils' total marks: "Do you enjoy being with the pupils in your group/class?", "How satisfied are you with how you work?" and "Do the teachers have to spend a lot of time getting the class orderly and quiet?" Pupils' replies to questions on their own efforts and their well-being with peers were what most affected their marks and the differences between schools (Grøgaard et al. 2008).

A similar survey was carried out on the achievement level of pupils at the national test in reading among pupils in Year 7 in the 2004–2005 school year. The indicators used in The Pupil Survey have little effect. Achievements in the national test in reading appear to increase when indicators from The Pupil Survey show an increase in positive attitudes to the learning environment. The same applies when the extent of bullying is decreased, when pupils see themselves as more motivated and when they have a more positive impression of the physical learning environment at school. However, the analysis also shows that there is a definite and positive correlation between parents' average level of education and replies from pupils on the lack of bullying and on motivation for their school work. There is also a definite correlation between less bullying, motivated pupils, academic and social support from teachers, pupil participation, a good working environment and a good physical environment.

One possible interpretation is that these positive impressions are overrepresented in environments where the parents have a high level of education, and that the impressions convey the positive effects of such parental resources. In other words, it is reasonable to assume that there is a mutual effect between how well a pupil does in school and how they experience their learning environment, ie. a two-way effect. The pupils' home background has a lot to say in their learning outcomes, while which school they attend explains less than 15 per cent of the difference in achievements (Grøgaard et al. 2008).

§ From Section 9a-1 of the Education Act:
General requirements:
All pupils attending primary and secondary schools are entitled to a good physical and psychosocial environment conducive to health, well-being and learning.

4.3 Pupils' working environment

Chapter 9a of the Education Act is often called the pupils' working environment act. The Act includes both the psychosocial environment and the physical working environment.

The psychosocial working environment

The sections on pupils' psychosocial working environment in the Education Act specify that schools should make active and systematic efforts to promote a good psychosocial environment, where individual pupils can experience security and social belonging. Well-being, motivation, lack of bullying and discrimination and good cooperation between school and home are some of the factors that we partly know and partly assume affect the academic, social and personal learning outcomes of pupils in school. A national supervisory body is due to study pupils' psychosocial learning environment in 2010, comparing findings with what is laid down in chapter 9a of the Education Act.

Well-being

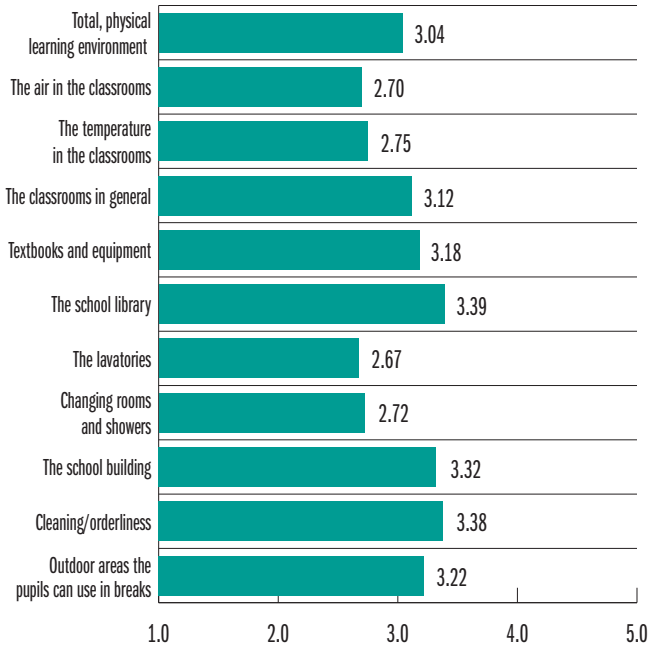
Norwegian pupils tend to experience a high level of well-being in school. This has been the trend for several years. Results from The Pupil Survey 2008 show that about 85 per cent of the pupils enjoy being at school, about 11 per cent enjoy it a little and about 4 per cent do not enjoy being at school. Although 4 per cent is a relatively small proportion, this means that about 13,000 of the 320,000 pupils who have replied to the survey do not enjoy being at school. The differences between levels are fairly small but still somewhat interesting. Pupils in Year 10 tend to enjoy being at school a little less than pupils in Years 5 and 6. The analysis distinguishes between social well-being and academic well-being. Social well-being (enjoying being with peers and breaks/free periods) appears to be higher than academic (enjoying being with teachers), at about 90 per cent and 68 per cent respectively (Skaar et al. 2008a).

Motivation

Motivation is a concept from psychology. One definition is that it says something about a condition or disposition in a person compared to a particular type of behaviour or activity. It has to do with the forces that cause and that persevere with the behavioural trait or activity (Lillemyr 2007).

In the School Portal (Skoleporten, www.utdanningsdirektoratet.no/skoleporten, the motivation indicator is made up of the following questions from The Pupil Survey: "Do you do your homework?", "Are you interested in learning at school?", "How well do you like schoolwork?" and "Do you concentrate and listen when the teachers talk?" (Skaar et al. 2008a).

Figure 4.2: The physical learning environment. Are you satisfied with the following conditions at school?



Source: Skaar et al. 2008a.

The Pupil Survey 2008 shows that, on a scale of 1 to 5, where 5 is best, pupils give an average score of about 4 points in motivation at a national level. This applies to all school levels. It is assumed that questions about interest in schoolwork and how well the pupils enjoy schoolwork measure their inner motivation. It is further assumed that inner motivation is important in order to prevent drop-out from upper secondary education and training (Skaar et al. 2008a). The analysis shows that pupils have a high interest in learning at school and enjoy their schoolwork at all levels. But how much they enjoy schoolwork varies greatly between levels and decreases from Year 5 to Year 10 and from upper secondary level 1 to upper secondary level 3 (Skaar et al. 2008a).

The physical working environment

Maintenance of municipal schools is still far behind schedule. In the autumn of 2008, a new arrangement was therefore established for investment in school buildings and swimming pools. Through this arrangement, which will be coordinated by the Housing Bank, municipal and county authorities can be granted loans for the rehabilitation of and investment in school buildings and swimming pools and have all interest paid by the state (Ministry of Education and Research 2009a, Ministry of Local Government and Regional Development 2009b).

In 2007, TNS Gallup carried out a survey mapping the school environment at all primary and secondary schools in Norway. This report, which was presented in The Education Mirror 2007, showed that many schools are still not approved pursuant to the regulations relating to environmental health in day care institutions and schools (TNS Gallup 2008).

The Pupil Survey poses ten questions on how pupils from Year 5 to upper secondary level 3 experience their physical learning environment at school. The alternative responses to these questions are on a scale from *very satisfied* (5) *to not very satisfied* (1).

Figure 4.2 shows that pupils are not particularly satisfied with the physical learning environment when considering the national total. There is some variation in the average scores between individual questions. The pupils are most satisfied with their school library (3.39) and least satisfied with the lavatories (2.67). At school level there is also a large variation in the pupils' description of their physical learning environment.

4.4 Preventing and mapping bullying

The Manifesto against bullying 2009–2010 was signed by many important parties in February 2009. Parties to the Manifesto commit to working to ensure that all children and young people have a good and inclusive childhood and learning environment, and that no one is exposed to offensive words or actions such as bullying, violence, racism, homophobia, discrimination or exclusion.

When the Manifesto was signed, a number of measures were agreed upon. One of the measures is to appoint a committee to carry out national research based inspections in order to get a better picture of what lies behind the figures from The Pupil Survey on bullying and discrimination. Another is to collect and disseminate information on how schools can create good learning environments through a programme for an inclusive childhood and learning environment.

Before pupils reply to questions on bullying in The Pupil Survey, they are presented with the following definition of bullying:

Definition of bullying from The Pupil Survey:
When talking about bullying we mean repeated negative or "malicious" behaviour from one or more persons towards a pupil who has problems defending him/herself. Repeated teasing in an unpleasant and hurtful manner is also bullying.

Pupils are given five alternative responses to the question "Have you been bullied at school during the last few months?": *Not at all – Once in a while – 2 or 3 times a month – About once a week – Several times a week*. The Pupil Survey defines the pupils who choose the responses *2 or 3 times a month, About once a week or Several times a week* as being bullied.

Relatively many pupils at national level choose the response Once in a while. The definition of bullying emphasises that bullying is repeated negative or "malicious" behaviour. Pupils who choose the response *Once in a while* are thus, by this definition, not bullied. There is, however, a reason why they chose this response, and it is only at school level that it can be revealed what actually happened and concrete measures can be implemented to avoid similar situations in the future.

MANIFESTO AGAINST BULLYING 2009–2010

– a binding cooperation for a good and inclusive childhood and learning environment

We, the Stoltenberg government, the Association of Local and Regional Authorities (KS), the Union of Education, Norwegian Union of Municipal and General Employees (NUMGE), the Norwegian Union of School Employees and the National Parents' Committee for Primary and Secondary Education, hereby commit to working for a good and inclusive childhood and learning environment for all children and young people. Children and young people should not be exposed to offensive words or actions such as bullying, violence, racism, homophobia, discrimination or exclusion. The most important measures against bullying must be implemented where the children and young people are. Therefore, we want to support and assist local and regional measures against bullying.

Objectives:

- To safeguard children's and young people's right to a physical and psychosocial environment conducive to health, well-being and learning.
- To make it possible for children and young people to practice active participation and codetermination in day care institutions, schools and in their spare time.
- Everyone will contribute to good cooperation in the best interests of children and young people and secure the participation and codetermination of parents and guardians.
- Adults must be aware that they are responsible for the inclusion of children and young people in a good childhood and learning environment.
- Adults should act as distinct adults and be positive role models to children and young people.
- All persons responsible for children and young people should have good skills in the prevention and handling of bullying.
- All persons who work with children and young people should have good skills in promoting positive values and attitudes among children, young people and adults.

In the spring of 2008, 91.4 per cent of all pupils from Year 5 to upper secondary level 3 replied that they are not bullied. 8.6 per cent are bullied two or three times a month or more. Of the 320,000 pupils who replied, 3.5 per cent replied that they were bullied several times a week.

As regards who they are bullied by, 6.6 per cent of the pupils from Year 5 to upper secondary level 3 reply that they are bullied by pupils in their own group/class and 6.3 per cent that they are bullied by other pupils at school. 4.8 per cent experience bullying by one or more teachers and 3.6 per cent by other adults at school.

A comparison of the development over time shows a slight increase in the proportion of pupils who experience bullying. The proportion of pupils who experience bullying from Year 5 to 7 is higher than the proportion from Year 8 to upper secondary level 3. These are weak trends and should be interpreted with caution. It is, however, clear that schools have not managed to decrease the extent of bullying in the period 2005–2008 (Skaar et al. 2008a).

The Centre for Behavioural Research (SAF) carried out a questionnaire based study in 2008 among pupils in Year 10 on bullying, including sexual orientation. Pupils replied to questions on bullying face to face (conventional bullying) and bullying by mobile telephone and over the Internet (digital bullying) (Roland and Auestad 2009).

The definition of bullying in this study was largely the same as the one used in The Pupil Survey, but gave more examples as to what is meant by bullying. The most important differences between the SAF survey and The Pupil Survey regarding the mapping of bullying are the way the questions are worded and the number of questions. SAF poses 23 questions on how often pupils have bullied others in various ways in the current school year. Similarly, there are 23 questions on how often the pupils have been bullied in the current school year. The Pupil Survey only contains a single question of this type: *Have you been bullied at school during the last few months?* In addition, The Pupil Survey has four questions mapping who did the bullying. Both surveys give the pupils five alternative responses, but here again the wording varies. The pupils who reply that they are bullied *2 or 3 times a month* or more were defined as being bullied in both surveys.

The pupils' sexual orientation was established by asking them whether they would prefer having a boyfriend or a girlfriend.

In their report, the researchers conclude that far more bisexual and homosexual pupils are bullied than heterosexual pupils. Considering conventional and digital bullying as a whole, 6.6 per cent of the heterosexual pupils are bullied 2–3 times a month or more. For bisexual boys this proportion is 23.8 per cent and for homosexual boys as much as 48.0 per cent.

Homophobic bullying is bullying with expressions that characterise sexual orientation. Table 4.1 shows that when including all forms of homophobic bullying, 50 per cent of the homo-

Table 4.1: Pupils who experience homophobic bullying.

	Heterosexual		Bisexual		Homosexual	
	N	Per cent	N	Per cent	N	Per cent
Boys	72	4.8	13	31	25	50
Girls	11	0.8	1	1	6	15.4
All	83	2.9	14	10	31	34.8

Source: Roland and Auestad 2009.

Table 4.2: Pupils who bully others. Conventional bullying.

	Heterosexual		Bisexual		Homosexual	
	N	Per cent	N	Per cent	N	Per cent
Boys	129	8.7	9	21.4	17	34.0
Girls	32	2.4	1	1.0	5	12.8
All	161	5.7	10	7.2	22	24.7

Source: Roland and Auestad 2009.

sexual boys report that they are bullied. 2.9 per cent of the heterosexual pupils of both genders experience the same.

Table 4.2 shows that for conventional bullying, 5.7 per cent of the heterosexual pupils bully others. In comparison, 24.7 per cent of the homosexual pupils bully others.

The mapping of conventional homophobic bullying and homophobic bullying by mobile telephone or the Internet shows the same pattern. Bisexual boys and homosexual pupils of both genders bully others to a significantly greater extent than do heterosexual pupils.

Regarding conventional bullying, 37.1 per cent of the heterosexual pupils who are bullied also bully others. For bisexual and homosexual pupils the corresponding figures are 50 per cent and 72.7 per cent respectively. A wider analysis confirms that the two roles are highly coincident in bisexual boys and homosexual pupils of both genders (Roland and Auestad 2009).

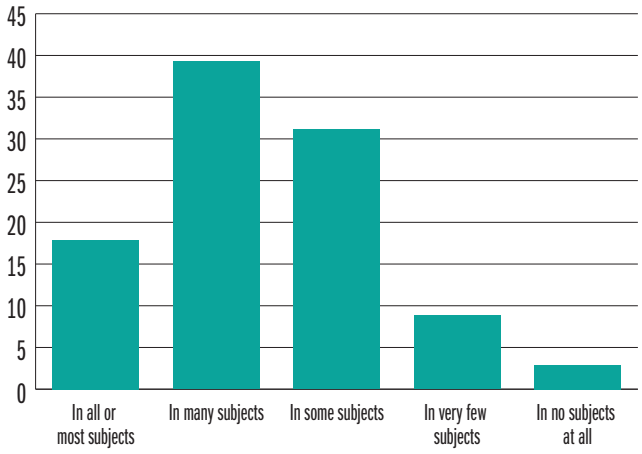
4.5 Organising the learning environment

Both *The Quality Framework in Knowledge Promotion – The Learning Poster* and the Education Act state that all pupils, apprentices and training candidates should have equal opportunities to develop their talents individually and in cooperation with others. An important focus point is the organisation of education and training and the learning environment.

Adapted education for everyone and special needs education for some

Adapted education is both a principle of education and a measure to strengthen pupils' learning. The greatest challenges with adapted education seem to be how well schools are able to develop a community that accommodates each individual, in other words: "Schools must have room for everyone – and an eye for the individual" (Dale and Wærness 2003).

Figure 4.3: In how many subjects do you find that the teaching/education has been adapted to your level?



Source: Skaar et al. 2008a.

A narrow interpretation of the concept is that some methods and ways of working are better than others in order to adapt education and that measures must be directed at smaller groups and individual pupils. The wide interpretation is that measures must be directed at the general qualities of teaching in the form of variation, systems and structure (Bachmann and Haug 2006).

The Pupil Survey 2008 shows that about 57 per cent of the pupils find teaching to be adapted to their level in all, in most or in many subjects, while about 40 per cent feel the same for some or very few subjects. About 3 per cent of all pupils find that teaching is not adapted to their level in any subject, cf. figure 4.3. These numbers have been stable in recent years (Skaar et al. 2008a).

Adapted education is often seen in relation to the use of special needs education (SNE). This is a twofold strategy: adapted education partly through mainstream teaching (for everyone), and partly through SNE (for some). On the one hand, we have the national aim of decreasing the use of SNE and replacing it with adapted education for everyone, and on the other hand the aim that schools must ensure that pupils' rights pursuant to the law are fulfilled (The Ministry of Education and Research 2003–2004).

All SNE is by definition adapted education, but only pupils who are unable to benefit satisfactorily from ordinary (adapted) teaching are entitled to SNE. Such education is based on individual decisions pursuant to Section 5-1 of the Education Act.

From section 5-1 of the Education Act: The right to special education:
Pupils who either do not or are unable to benefit satisfactorily from ordinary teaching have the right to special education.

The theme for the common national supervisory committee in 2008 was the requirement to a proper system for internal

audits, in combination with the themes adapted education and special needs education. This national supervision only considers how laws and regulations are followed, and revealed that as many as 86.1 per cent of school owners deviated from regulatory obligations. 53 per cent of these deviated from the proper wording of individual decisions on SNE. The supervision also revealed the following observations:

- School owners do not have satisfactory systems for internal audits. Head teachers at schools are largely left to themselves without follow-up from school owners. Individual decisions on SNE and expert assessments are not sufficiently precise and unambiguous. In many cases there is no clear definition of the extent, content and organisation of SNE.
- Individual decisions are lacking for pupils who receive SNE and for pupils who are not deemed in need of SNE pursuant to expert assessments from the educational and psychological counselling service (PPT).
- The time it takes from a child being referred to the educational and psychological counselling service (PPT) until a decision is made is unreasonably long.

(The Norwegian Directorate for Education and Training 2008a)

At the end of 2008, a total of 44,557 pupils in primary and lower secondary school received SNE pursuant to individual decisions. This is an increase of 3,548 pupils from the previous year (GSI 2008).

Within the programme for evaluation of the Knowledge Promotion (EvaKL), Hedmark University College and NIFU STEP have had a closer look at SNE in primary and lower secondary school on the one hand and upper secondary schools on the other, posing the following question: "What is the relationship between various inputs in SNE and the result of SNE in primary and secondary school?" The report has been important in the work of the Committee for better learning for children, young people and adults with special needs (the Midtlyng Committee).

Hedmark University College points out that there are several possible interpretations of the law that are not necessarily pursuant to the intentions of the law (Hausstätter et al. 2009). There is quite some variation between municipalities and schools concerning both the number of pupils receiving SNE, the use of segregated measures and practical solutions.

The researchers find that pupils who receive SNE generally receive poorer marks in the subjects Norwegian, mathematics and English. Assistants are used extensively in SNE, and SNE is to some degree a pragmatic tool for solving issues in mainstream teaching. There is a clear and stable majority of boys in SNE and boys are overrepresented in behavioural problems. The number of pupils receiving SNE in segregated forms has increased greatly after the Knowledge Promotion reform was implemented. The researchers find little national control over the trend towards segregation in primary and lower secondary schools. Nor do they find any definite local quality control of the competence, content and organisation of SNE.

The report concludes that the aims of the Knowledge Promotion of reducing the extent of SNE in favour of adapted education and improving the quality of SNE have not been reached. The researchers feel that there is a gap between ideology and reality in school. They claim that the political goal and the aim of creating an inclusive school still seem to be largely political and ideological rhetoric rather than practice in primary and lower secondary school (Hausstätter et al. 2009).

The results from NIFU STEP's study (Markussen et al. 2009) on SNE in upper secondary schools are identical to results from the evaluation of Reform 94, the previous education reform in Norway. In other words, no changes in SNE in upper secondary schools can so far be seen after the Knowledge Promotion reform.

The quantitative part of the study shows that pupils with SNE in separate groups with fewer pupils have significantly lower achievements at upper secondary level 1 than pupils with SNE in mainstream classes. The qualitative part of the study, however, shows a more nuanced picture concerning organisation and learning outcomes, but what counts is whether the pupil takes at least some part in a mainstream class.

In vocational studies the other pupils' achievements seem to profit from having SEN pupils in their class, but if there are too many the academic level may fall and this will affect all pupils in the class.

The researchers further point out that primary and lower secondary schools let pupils down in the sense that many pupils in the selection have left lower secondary school with weaker results than their potential. In some cases, upper secondary school has managed to compensate for the damage caused by lower secondary school, while in other cases this has not been possible.

Excerpt from the mandate to the Committee for better learning for children, young people and adults with special needs (the Midtlyng Committee):

The Committee should assess the extent to which we have a system that ensures early intervention for children with special needs and assesses measures that can ensure early intervention and lifelong learning.

The Committee should conduct a thorough assessment of how mainstream education accommodates the learning and development of individual pupils with special needs.

The Committee should thoroughly evaluate the role of SNE in Norwegian schools, including its organisation, resource allocation and results.

The Committee should, as a basis for assessment and future proposals, draw up an up-to-date knowledge base, with results from the evaluation etc.

The Committee should, based on its analyses and assessments, produce concrete proposals to improve the organisation and efficient resource allocation for a future holistic chain of measures for children, young people and adults with special education needs.

An important finding is the general lack of reflection around SNE principles. NIFU STEP cannot identify a single upper secondary school or county with basic, thorough pedagogical principles on how SNE should be carried out (Markussen et al. 2009).

The Midtlyng Committee commissioned a mapping survey in 2007 which was carried out at 104 primary and lower secondary schools from Year 5 to Year 10 on how pupils with SNE experience being at school. The survey concludes that pupils with SNE have lower well-being, worse behaviour and less motivation, effort and learning outcomes than all other types of pupils. Pupils in Year 9 receive the greatest extent of SNE. Researchers claim that these findings do not correspond to the ambition of early intervention for children and young people experiencing problems at school (Nordahl and Sunnevåg 2008).

Towards a new and more holistic school?

In the 2007–2008 school year, 34 schools in 11 municipalities carried out a trial of longer school days. The purpose of the trial was to gain experience in how longer school days can contribute to better pupil learning and counteract the proliferation of social differences at school. The target group of the trial was pupils in Years 1 to 4 in primary school. The schools chose all of the following measures, or a combination of some of them: more hours in Norwegian, mathematics and English, homework assistance, physical activities and meals served at school.

From Report No. 31 to the Storting (2007–2008) Kvalitet i skolen (Quality in schools): :
More school hours is an important element in the development towards a more holistic school day including more teaching hours, more physical activity and time for meals.

The report from the evaluation of the trial shows that many of the participating schools used employees from the day care facilities for schoolchildren (SFO) for meals and physical activities, and sometimes also for homework assistance. Schools which managed to use the potential of these employees gave teachers a better opportunity to concentrate on the teaching situation. The schools which already offered homework assistance kept up with this as an important part of the trial. Some of the schools have used the trial of longer school days to develop new methods of cooperating with parents on their children's learning (Bungum and Haugsbakken 2008).

The final reports from the trial schools conclude that extending school days has given them new experience in the use of varied types of teaching and activities. By and large it is not possible to keep up the meals to the same extent as during the trial. Many schools wish to continue using daily physical activities during the school day, also as a method of achieving competence aims in subjects. Since the trial period was so short, it has not been possible to see the effect of longer school days as a tool for social levelling. The most important result may be that more schools claim that they now have a more holistic view of pupils throughout the school day (Bungum and Haugsbakken 2008).

Homework assistance

The homework assistance project was initiated in the autumn of 2006 and ended in the spring of 2008. The project included five defined models of homework assistance based on either teachers, SFO, volunteers, parents or the Internet respectively. Two main aims for the project were for homework assistance to increase learning outcomes and contribute to social levelling among pupils. More than 30 local subprojects were evaluated.

The second partial report from SINTEF on the evaluation was described in The Education Mirror 2007. The final report of the evaluation from 2008 shows that organised homework assistance has the potential to become a good tool in the work against social differences and of increasing social levelling at school. This has several preconditions, however: one must manage to recruit the pupils with the greatest need (who are often the last ones to turn up at a voluntary programme), to destigmatise homework assistance as an extra teaching programme for the weakest pupils, to ensure that homework assistance is well endorsed in the school, that contact and cooperation with parents is sufficiently good and that the school has a conscious idea of what the pupils are given as homework and what function homework should have, and last, but not least, to recruit the right homework assistants. Homework assistance is a demanding task, and the persons responsible must have the right combination of academic competence, didactic and methodological competence and relational competence.

The evaluation shows that it is not the models in themselves that produce the effects. The decisive elements of homework assistance are content and implementation. Successful homework assistance must emphasise relations. The focus of the work must be on developing an organisation that creates the basis for a good meeting between the pupil, the homework assistant and the homework. The researchers claim that this is what determines the result, as for all other teaching (Haugsbakken and Buland 2009).

4.6 The use of teaching aids

The use of teaching aids in primary and secondary education and training can be considered a way of facilitating learning, and thus a part of the learning environment. As yet there is little research on the use of teaching aids in primary and secondary education in relation to the Knowledge Promotion reform.

Under the evaluation programme of the Knowledge Promotion reform (EvaKL), The Nordland Research Institute has conducted a preliminary and limited analysis of a few curricular books in the subjects natural sciences, Norwegian and social studies. The researchers conclude that the selected books do not have much focus on the development of the pupils' consciousness of their own learning, even though to some extent this may be implicit in them. The study shows that both the books and the curriculum in the three subjects vary in how clearly they state progress requirements related to the aims for basic skills. The curriculum

and the selected books do not particularly support the work of breaking down wider competence aims into more manageable subsidiary aims. The focus on assessment of the pupils' learning is almost absent in the social studies books included in the study. Several of the natural science books include better facilitation of self-assessment and consciousness of what the pupils have learned. In spite of the limited selection, findings from the study may give preliminary ideas of what teachers and school administrators should be aware of when assessing school books' strong and weak aspects (Rønning et al. 2008).

The OECD (2008b) focuses on some of the future challenges in school, including the digital revolution, and poses the question of how to handle the fact that computers are becoming increasingly more available and how the enormous Internet based wealth of information affects the way learning is organised. A study which answers some of these issues is the international *Second Information Technology in Education Study* (SITES) from the IEA in 2006, which collected data from 22 educational systems on this theme. One of the aims of the survey is to try to identify the relationship between activities, attitudes and framework conditions concerning the use of ICT in education.

The Norwegian part of the survey, "Visjoner og realiteter" *(Visions and realities)*, is an analysis of the use of ICT in mathematics and natural sciences in Year 8. The analysis shows that Norwegian pupils have good access to technical equipment and the Internet; more than 60 per cent of Norwegian schools had five pupils or fewer per computer in 2006. A large majority of the school administrators who were asked felt that the use of ICT is important to pupils' responsibility for and structuring of their own learning, to their ability to cooperate and organise, to meet parents' and society's expectations and to make the learning process more interesting. However, the study shows that there is a gap between reality and school administrators' visions. Analyses at several levels show that school administrators' visions do not have a directly measurable effect on teachers' pedagogical visions, teachers' use of ICT, pupils' use of ICT or teachers' ideas of the importance of ICT for pupils' learning outcomes (Ottestad 2008).

School administrators were also asked whether they could recognise certain types of *emerging pedagogies* at their school, characterised by practices where pupils develop skills in handling information, acquiring new knowledge and solving problems independently and in cooperation with others.

Table 4.3 shows that Norway has had a relatively large fall of 11 percentage points on this indicator since the previous SITES survey in 1998. A possible explanation pointed out by the Norwegian researchers is that Norwegian school administrators consider pedagogics where the pupils are active, with or without ICT, as "business as usual", ie. emerging pedagogies are becoming common in Norwegian schools today (Ottestad 2008). This is confirmed by a new survey from Synovate commissioned by The Norwegian Publishers Association, which reveals a widespread use of digital teaching aids in primary and secondary education and training in Norway. The survey included supervisors in day care institutions, teachers in primary and lower secondary school and pupils in upper secondary school. About 1,700 people replied to this survey, and all of them confirm that they use digital teaching aids in their work. The subject in which digital teaching aids are used the most is Norwegian: 84 per cent in primary and lower secondary school and 69 per cent in upper secondary school (Hansen 2009).

Table 4.3: Average score for the indicator emerging pedagogies. 1998 and 2006.

	1998	2006
Norway	37%	26%
Denmark	35%	29%
Finland	25%	24%
Lithuania	17%	36%

Source: Ottestad 2008.

4.7 Cooperation between school and home

From January 2009, The National Parents' Committee for Primary and Lower Secondary Education changed its name to The National Parents' Committee for Primary and Secondary Education. Its mandate was accordingly was expanded to include upper secondary education and training (pursuant to Section 11-9 of the Education Act). Cooperation between school and home includes both formal cooperation through mandatory public bodies and a regular, more informal cooperation. The vision of The National Parents' Committee for Primary and Secondary Education is for all parents to be accepted as a resource in cooperation with the school on their child's learning and development (http://www.fug.no, 2009).

From section 11-4 of the Education Act: Parents' councils at primary and lower secondary schools:
At each primary and lower secondary school there shall be a parents' council where all parents who have children at the school are members. The parents' council shall promote the parents' shared interests and help to ensure that pupils and parents take an active part in working to create a satisfactory school environment. The parents' council shall work to promote an atmosphere of solidarity between home and school, lay a basis for well-being and positive development for the pupils and foster contact between the school and the local community.

In the past years there has been little research into how the cooperation between school and home affects pupils' learning environment and learning outcomes. It is now well known that parents' income and level of education play an important role in pupils' learning outcomes, but how can the school and home cooperate in order to level out the differences that variations in home background seem to have today?

The purpose of cooperation between the school and home is to contribute to a good learning environment for pupils through information, dialogue and codetermination. However, researchers find that there is still a great gap between intentions and reality. The school is the professional party which in most cases has the power. Teachers consider themselves expert profession-

als, and rightly so, but 12 per cent of the parents do not wish to voice their opinions to the teachers, fearing that this could affect their children. Some teachers perceive a strong fellowship between parents, and some individual parents, as a threat (Nordahl 2007). Another mapping survey on parents' views of primary and lower secondary school has the same conclusion: even though most parents (94 per cent) express the view that their children are happy at school, more than a quarter claim that they do not dare to complain, fearing that this may affect their children (Beck and Vestre 2008).

4.8 Pupil participation and pupil democracy

Pupil participation here means the real opportunity pupils have to affect choices regarding their learning and academic development. *Pupil democracy* is limited to the more formal contact with and participation in the pupils' council at school. Other mandatory democratic bodies for pupils in upper secondary school include general meetings and the coordinating committee.

Pupil participation is covered by the following four questions on codetermination in subjects in The Pupil Survey 2008: *In how many subjects are you allowed to take part in: – making work plans for the subjects? – choosing between different types of assignments in the subjects? – choosing work methods in the subjects? May you take part in decisions on what is to be emphasised when your work is to be assessed?* The pupils gave an average score of 2.39 on the questions on codetermination on a scale of 1 to 5, where 5 is best. More than 200,000 pupils from Year 8 to upper secondary level 3 replied. The greatest variation in the replies to individual questions was in how many subjects pupils can take part in decisions when their work is to be assessed. Only about 7 per cent replied *In all or most subjects* while about 20 per cent replied *In no subjects at all* (Skaar et al. 2008a).

When asked whether they are allowed to choose between different types of assignments, 18 per cent replied that they were able to choose in all or many subjects. However, 51 per cent of the pupils replied that they were only given a choice in a few subjects, or none at all.

The issue of how well pupils feel pupil democracy works at their school is covered through questions on how well they feel the pupils' council works and on whether the school listens to suggestions from the pupils. On a scale of 1 to 5, where 5 is best, pupils gave an average score of 3.40 points. Pupils gave a somewhat higher score on how well they feel the pupils' council works (3.47 points) and a bit lower on whether the school listens to suggestions from the pupils (3.32 points). More pupils in Years 5 and 6 were satisfied than pupils in Year 10, and more pupils in upper secondary level 1 than in upper secondary level 3 (Skaar et al. 2008a).

4.9 Assessment and guidance

Assessment includes both ongoing and final assessment, but ongoing assessment is the most important to the pupil's learning environment. Chapter 6, *Quality development*, is primarily dedicated to the issue of assessment in this year's Education Mirror. The analysis of The Pupil Survey 2008 regarding this issue is therefore presented in chapter 6.

From section 11-2 of the Education Act: Pupils' councils at primary and lower secondary schools

At each primary and lower secondary school there shall be one pupils' council for grades 5–7 and one for grades 8–10 with pupil representatives. The municipality shall determine the number of pupils' representatives. (...)

The pupils' council shall promote the joint interests of the pupils at the school and work to create a good learning and school environment. The council may also express its views and present proposals in matters relating to the pupils' local environment.

From section 11-6 of the Education Act: Pupils' councils and general meetings at upper secondary schools:

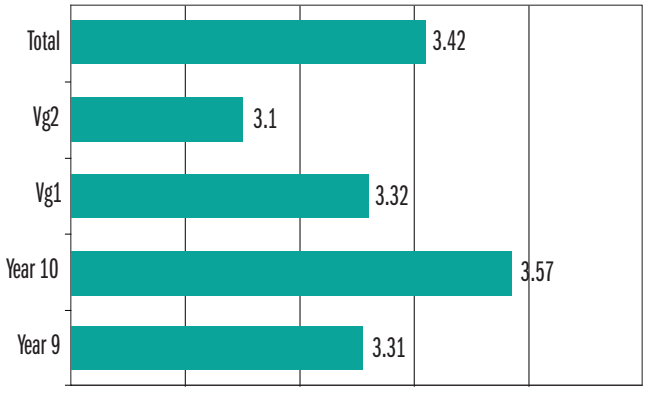
At each upper secondary school there is to be a pupils' council consisting of at least one member for every twenty pupils. The pupils' council shall be elected by written ballot. The pupils' council shall work to improve the learning environment, working conditions and promote the welfare interests of the pupils.

Career guidance and choice of education

The Pupil Survey poses two questions mapping the pupils' experience with career guidance at school. A national analysis of the survey presents replies from pupils in Years 9 to upper secondary level 2. Since the pupils' replies are fairly similarly distributed for both questions, only one question will be presented here.

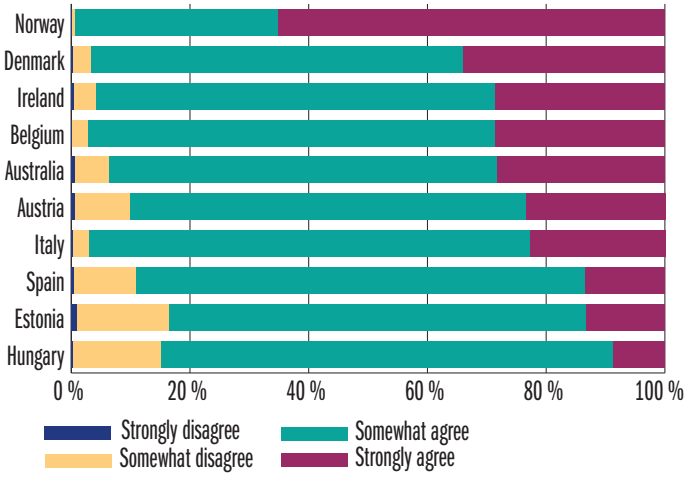
Figure 4.4 shows that the average for all pupils who replied is 3.42 on a scale of 1 to 5, where 5 is best. This means that pupils in general don't have very strong opinions on the information they have received in lower secondary school. The figure also shows that pupils in Year 10 are the most satisfied with the information they receive in lower secondary school concerning the choice of upper secondary education and training.

Figure 4.4: How satisfied are you with the information from lower secondary school when choosing the type of upper secondary education that fits you?



Source: Skaar et al. 2008a.

Figure 4.5: I feel that my teaching affects my pupils' learning.



Source: Aamodt and Vibe 2009.

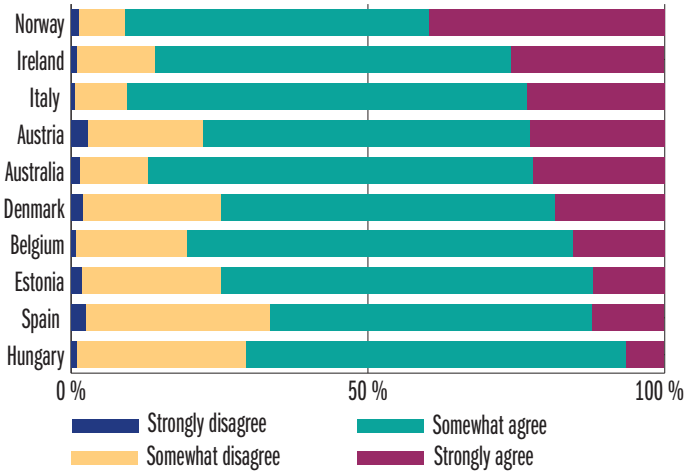
4.10 Results from TALIS 2008

Teaching practices and beliefs are important themes in TALIS 2008. Teachers' ideas about how they contribute to their pupils' learning through their teaching and about how they succeed in helping pupils with SEN have been drawn from the survey here in order to shed light on the pupil's learning environment.

Teachers in Norway were asked to consider the following statement: *I feel that my teaching affects my pupils' learning.*[1] Figure 4.5 shows replies from the ten countries that have been picked out for comparison in the Norwegian report. The alternative responses in the Norwegian version were *Strongly disagree, Somewhat Disagree, Somewhat Agree* and *Strongly agree.*[2]

In all of the countries, teachers have a positive view of how they contribute to their pupils' learning. No country has more than five respondents who disagree. The differences are therefore most evident in the proportion replying that they strongly agree. The Norwegian teachers stand out here, with 65 per cent choosing this reply. There is a large gap down to Denmark, which has the second highest frequency with only 34 per cent. Spain, Estonia and Hungary have the least positive replies (Aamodt and Vibe 2009).

Figure 4.6: If I try really hard, I can make progress with even the most difficult and unmotivated students.



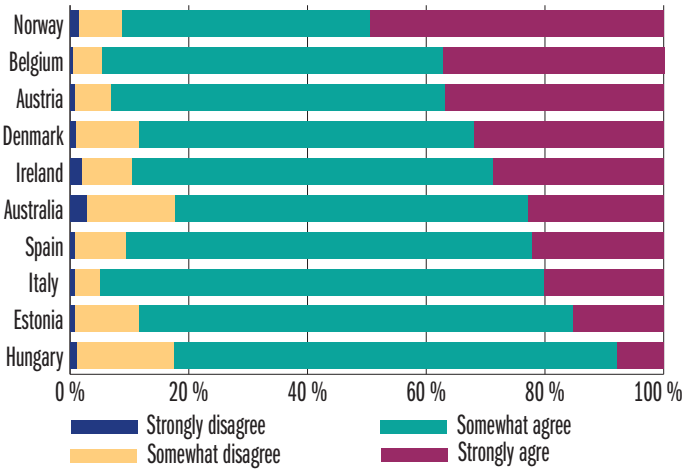
Source: Aamodt and Vibe 2009.

Teachers were also asked to consider the following statement: *If I try really hard, I can make progress with even the most difficult and unmotivated students.*

Replies to this statement (see figure 4.6) are more cautious, but Norwegian teachers stand out in a positive way here too. Norway has the highest proportion who strongly agree with the statement, 40 per cent, compared to 22–26 per cent in Ireland, Italy, Austria and Australia. Norway is also one of the countries with the lowest proportion replying that they somewhat disagree or strongly disagree (Aamodt and Vibe 2009).

In addition to these rather specific assessments of their own work, teachers were asked how satisfied they were with their job in general.

Figure 4.7: All in all, I am satisfied with my job.



Source: Aamodt and Vibe 2009.

Figure 4.7 shows that in all the selected countries, teachers are satisfied with their job. The proportion who somewhat agree or strongly agree to the statement that they are satisfied with their job is well over 80 per cent in all countries. The main variations between countries are in how many strongly agree. Norway is the country where the most teachers strongly agree that they are satisfied with their job, and fewer than 10 per cent replied that they somewhat disagree or strongly disagree (Aamodt and Vibe 2009).

These selected results from TALIS 2008 can be viewed in light of the results from The Pupil Survey 2008 on pupils' well-being and motivation. It is highly positive that most pupils and teachers enjoy Norwegian schools. Highly motivated teachers are also a good basis for facing the challenges revealed by the research on pupils' academic well-being, adapted education and pedagogical follow-up of pupils with special needs.

[1] The corresponding statement in the English version of TALIS is worded as follows: "I feel that I am making a significant educational difference in the lives of my students". This translation uses a direct translation of the Norwegian version.

[2] The corresponding alternative responses in the English version of TALIS were Strongly disagree, Disagree, Agree and Strongly agree. This translation uses the responses from the Norwegian version.

5 Recruitment, completion and competence achievement in upper secondary education and training

The 2008–2009 school year is the first year the Knowledge Promotion (KL06) reform has been implemented at all levels. The implementation of the Knowledge Promotion entails a new structure in upper secondary education and training. The number of education programmes has decreased to 12 and in upper secondary level 2 every third course has been removed. Education statistics under Reform 94 (R94) are therefore not directly comparable with education statistics under the Knowledge Promotion.

This chapter presents statistics on a number of issues in upper secondary education and training – applicants, admissions, drop-outs, completion and achieved competence among pupils, apprentices and training candidates in upper secondary education and training. Upper secondary education and training is a complex system. This chapter aims to give as complete an overview as possible but may be most suited as reference on specific issues.

For upper secondary education and training in state schools, statistics for applications to the 2009–2010 school year are included. Admission figures from the previous school year (2008–2009) are also included. Although KL06 has been implemented at all levels, there are still some applicants, pupils and apprentices who follow the R94 structure. The main reason for this is that dispensation has been given for two R94 courses. The focus in this chapter is on education under the Knowledge Promotion and applicants, pupils and apprentices under R94 are therefore not included in all of the tables and figures.

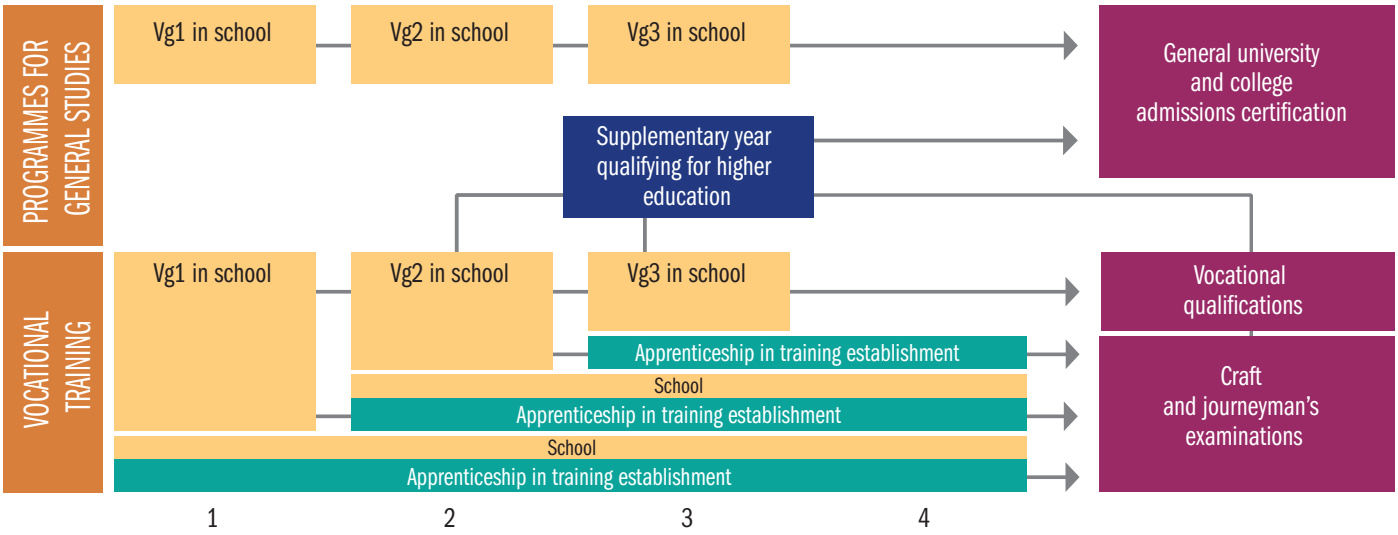
This chapter also presents statistics on transitions between levels, pauses in education, completion of upper secondary education and training and competence achievement. These statistics mainly apply to age cohorts from R94, but some age cohorts from the Knowledge Promotion are included in statistics on transitions and pauses.

Differences in background factors, such as immigrant backgrounds and social backgrounds, are commented on in relevant cases. Statistics Norway (SSB) uses the categories *immigrants* and *born in Norway to immigrant parents* to characterise the immigrant population. In this chapter the term *first generation immigrants* will be used for persons who have immigrated to Norway at some point and the term *second generation immigrants* for persons born in Norway to immigrant parents. Furthermore, only first and second generation immigrants with a non-western background (persons with a background from Asia, Africa or South and Central America) are included in tables and figures. Parents' level of education is used to measure social background. Statistics Norway uses the categories *below upper secondary level, upper secondary education, universities and colleges, lower level and universities and colleges, higher level*. Where relevant, time series are included to illustrate developments over the past few years.

Most people who commence upper secondary education and training complete the course. However, some pupils disappear from the educational system for shorter or longer periods of time. The proportion completing their education in the stipulated time is therefore far lower than the total proportion of the population taking upper secondary education and training in Norway. The reason for this is that many persons return and complete their upper secondary education and training as adults.

5.1 Educational choices

Figure 5.1: Education paths in upper secondary education and training under the Knowledge Promotion.



Source: The Norwegian Directorate for Education and Training.

Figure 5.1 shows achievable competence in upper secondary education and training within the Knowledge Promotion structure.

General university and college admissions certification qualifies for admission to universities and colleges and is mainly achieved through the three programmes for general studies: *Specialisation in General Studies, Music, Dance and Drama and Sports and Physical Education*. The programmes for general studies are three-year studies. General university and college admissions certification can also be achieved after upper secondary level 3 in school in programmes for general studies in *Agriculture, Fishing and Forestry* and in *Media and Communication*. In addition, everyone who has completed and passed upper secondary level 1 and 2 in vocational programmes in school can achieve general university and college admissions certification by taking a supplementary year that will qualify them for higher education at upper secondary level 3.

Upper secondary education and training pursuant to the Knowledge Promotion has nine vocational education programmes: Building and Construction, Design, Arts and Crafts, Electricity and Electronics, Health and Social Care, Media and Communication, Agriculture, Fishing and Forestry, Restaurant and Food Processing, Service and Transport, and Technical and Industrial Production. The programmes lead to craft certificates, journeyman's certificates or vocational qualifications. In addition, training candidates can take a competence examination, but this examination does not give them full technical expertise. A training candidate signs a training contract with a view to taking a less extensive examination than craft and journeyman's examinations (cf. section 4-1 of the Education Act). The main model for the vocational education programmes is two years in school and two years' training in a training establishment, followed by craft or journeyman's examinations.

Vocational qualifications are acquired in the education programmes *Design, Arts and Crafts, Health and Social Care, Media and Communication, Electricity and Electronics* and *Agriculture, Fishing and Forestry.* These education programmes give vocational qualifications after upper secondary level 3 without apprenticeship.

Another possibility is to choose a four-year course of study which gives both university and college admissions certification and vocational qualifications after the training is completed and passed. This is called technical general studies (TAF) and is possible in the Health and Social Care, Agriculture, Fishing and Forestry, Building and Construction, Technical and Industrial Production and Electricity and Electronics programmes. This is not a national model, but a regional or local cooperation between the school owner (county or municipal administration) and a business. In the tables and figures on applicants to upper secondary education and training, TAF applicants are grouped under "other courses". In the statistics of number of pupils, TAF pupils are not set apart but included in their respective education programmes.

Some pupils and apprentices do not follow the ordinary curriculum, and if the deviation in the curriculum is so extensive that it does not qualify for marks, the pupil or apprentice is entitled to an individual education plan (IEP). Pupils and apprentices with an individual education plan in at least one subject achieve competence at a lower level. Pupils and apprentices achieving competence at a lower level have only passed part of their education and training and do not qualify for a diploma. This is, however, a planned course of study that does not include a diploma. Pupils and apprentices who have IEPs in more than one subject are defined as receiving alternative education. Such pupils are set apart in the tables and figures on application and admissions to upper secondary education and training.

Young people who have completed lower secondary education or the equivalent have, on application, the right to three years' full-time upper secondary education and training or education in accordance with the period of instruction determined in the subject curriculum (section 3-1, first paragraph, of the Education Act). This right is often called "the youth right" and must be fully claimed during a continuous period of five years, or six years when the training is wholly or partly provided at a training establishment, and before the end of the year in which the person concerned reaches the age of 24. The pupil, apprentice or training candidate may also apply to the county authority for permission to postpone or interrupt their education or training without this resulting in the loss of the right. The right to upper secondary education and training is extended by a maximum of one school year following an application for a change of course, cf. section 3-1, fourth paragraph, of the Education Act. Previously this period started on the day the pupil completed lower secondary school, while it now starts on the day the pupil starts upper secondary school. Upper secondary education and training tailored to adults is regulated by section 4A-3 ff. of the Education Act.

County authorities are obliged to provide upper secondary education and training to everyone falling under sections 3-1 and 4A-3 of the Education Act, ie. all with the so-called youth right and adult right. In addition, counties provide funding to all training establishments who sign apprenticeship contracts with an apprentice, including apprentices not entitled to upper secondary education and training. There are also some persons who do not have the right to upper secondary education and training but who are still offered an education. The number of applicants and pupils or apprentices with the youth right is relatively stable, while the number without youth right varies from year to year.

Social backgrounds play a significant role for educational choices and for success in the educational system (Støren et al. 2007). Parents' education level can be considered an expression of the cultural and social surroundings the pupil grows up in, and the higher your parents' level of education, the better the opportunities for success in your own education.

Bakken (2003) researched language minority pupils and found that their attitude to school was more positive than the majority. They did more homework, had higher pressure from the home and higher ambitions regarding their education level than the majority. Lødding (2009) finds that recruitment to programmes for general studies is higher among minority youths with non-western backgrounds than among majority youths when comparing pupils with similar marks from lower secondary school. Among minority pupils with a non-western background there is an even stronger tendency among pupils with the poorest marks to choose vocational studies than among majority pupils.

5.2 Applicants to upper secondary education and training in state schools

NIFU STEP analyses the implementation of Knowledge Promotion in its report *Tilbudsstruktur og gjennomføring i videregående opplæring (Structure of available courses and completion in upper secondary education and training)* and can only find minor changes in the patterns of application after KL06. The observed changes are either of a limited nature or represent more prolonged trends that cannot be tied to the reform as such. One such trend is the increasing percentage choosing programmes for general studies at upper secondary level 1. The increase applies to all three education programmes which give university and college admissions certification (Frøseth et al. 2008).

Another prolonged trend is that the difference between boys and girls is increasing. This is due to the girls to an increasing degree applying to the programmes which give university and college admissions certification while the boys' application pattern has remained more stable. There is also a significant gender gap in applications to the various education programmes. The boys dominate in applications to technical education programmes such as Building and Construction, Electricity and Electronics and Technical and Industrial Production. The girls dominate the Design, Arts and Crafts, Health and Social Care and Music, Dance and Drama programmes. There is also a small majority of girls in the largest education programme, Specialisation in General Studies (Frøseth et al. 2008).

The application figures presented in tables 5.1 to 5.5 are collected on 1 March every year when the application deadline for admission to upper secondary school expires. Applicants to private upper secondary schools are not included in these statistics. Up to the first admission in July, however, applicants may change their primary choice, and some applicants are not qualified for admission. The tables in this subchapter only include applications to courses within the Knowledge Promotion structure.

By comparing the number of pupils for the 2008–2009 school year with application figures as of 1 March 2009, it is possible to see which education programmes are over or undersubscribed compared to the number of available study places. That a programme is oversubscribed means that there are more applicants to the programme than available study places, while if it is undersubscribed this means that there are fewer applicants than available places.

Applicants to Vg1 (upper secondary level 1)

Most pupils graduating from lower secondary school apply for admission to upper secondary education and training; in 2007 as many as 99.6 per cent (Frøseth et al. 2008). In addition there are applicants who have already been in upper secondary education and training in the year before they apply to upper secondary level 1.

Table 5.1: Applicants to Vg1 as of 1 March 2009, by education programme.

	Number	Proportion	Changes from 2008	Proportion with youth right
All programmes	73,582	100.0		96.4
Alternative education	1,851	2.5	-0.3	90.8
Sports and Physical Education	4,767	6.5	0.1	99.3
Music, Dance and Drama	3,057	4.2	0.1	98.8
Specialisation in General Studies	24,151	32.8	0.4	98.4
Building and Construction	4,111	5.6	-1.7	95.8
Design, Arts and Crafts	3,407	4.6	0.0	95.7
Electricity and Electronics	5,389	7.3	0.0	95.9
Health and Social Care	7,674	10.4	0.8	92.5
Media and Communication	5,314	7.2	0.1	98.4
Agriculture, Fishing and Forestry	1,486	2.0	0.1	96.4
Restaurant and Food Processing	2,286	3.1	-0.1	93.0
Service and Transport	2,759	3.7	-0.1	93.8
Technical and Industrial Production	6,728	9.1	0.5	93.8
Other courses*	602	0.8	0.0	98.0

*Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Sources: The Norwegian Directorate for Education and Training/VIGO

Table 5.2: Applicants to Vg2 as of 1 March 2009, by education programme.

	Number	Proportion	Changes from 2008	Proportion with youth right
All programmes	68,904	100.0		95.5
Alternative education	730	1.1	0.1	97.5
Sports and Physical Education	3,733	5.4	0.3	99.4
Music, Dance and Drama	2,015	2.9	-0.1	98.9
Specialisation in General Studies	23,966	34.8	-0.2	98.9
Building and Construction	5,129	7.4	-0.2	96.2
Design, Arts and Crafts	2,636	3.8	-0.2	92.8
Electricity and Electronics	4,410	6.4	0.3	94.4
Health and Social Care	7,715	11.2	0.1	89.0
Media and Communication	3,432	5.0	0.4	97.6
Agriculture, Fishing and Forestry	1,385	2.0	-0.1	92.3
Restaurant and Food Processing	2,236	3.2	-0.2	93.0
Service and Transport	4,797	7.0	0.4	90.9
Technical and Industrial Production	6,476	9.4	-0.7	92.6
Other courses*	244	0.4	0.2	99.6

*Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Sources: The Norwegian Directorate for Education and Training/VIGO

Table 5.1 shows that there is a total of 73,582 applicants to upper secondary level 1 in the spring of 2009, and that this number is somewhat lower than the corresponding figure for 2008. One reason for the decline is that the age cohorts in the population vary. There were about 500 fewer 16-year-olds as of 1 January 2009 than at the same time in 2008 (Statistics Norway). Most applicants in the spring of 2009 have chosen Specialisation in General Studies (24,151 applicants). The most popular vocational education programmes are Health and Social Care (7,674 applicants) and Technical and Industrial Production (6,728 applicants).

44.5 per cent of the applicants have applied for one of the three education programmes giving university and college admissions certification and 55.5 per cent for vocational education programmes (excluding alternative education and courses that give both vocational qualifications and university and college admissions certification). An analysis carried out by NIFU STEP of the situation before and after the Knowledge Promotion shows that fewer pupils choose vocational education programmes under the Knowledge Promotion than under R94 (Frøseth et al. 2008). This change is, however, not directly linked to the Knowledge Promotion but to a prolonged trend. In addition, the increase can be linked to the establishment of Arts, Crafts and Design Studies (replacing Arts and Crafts) in the Specialisation in General Studies programme. In view of this, application figures to Specialisation in General Studies cannot be interpreted as increasing compared to figures for the corresponding area of study before the reform (Frøseth et al. 2008).

After a declining trend the past few years, the percentage of applicants to Health and Social Care has now increased to 10.4 per cent (compared to 9.6 per cent last year), but is still somewhat lower than the 2006 level. The percentage of applicants to Building and Construction has declined compared to last year and is currently at 5.6 per cent (compared to 7.3 per cent last year). There are only minor changes for the other programmes.

Both in absolute numbers and relative to the number of pupils, the most oversubscribed education programmes are Media and Communication (1,770 applicants, 50 per cent), Sports and Physical Education (829 applicants, 21 per cent) and Music, Dance and Drama (924 applicants, 43 per cent).

In absolute numbers, the most undersubscribed programme is Specialisation in General Studies (2,805); however this only constitutes 10 per cent of the number of places. In relative terms, the most undersubscribed programmes are Building and Construction (1,508/27 per cent), Restaurant and Food Processing (381/14 per cent) and Service and Transport (458/14 per cent).

Applicants to Vg2 (upper secondary level 2)

Table 5.2 shows that there is a total of 68,904 applicants to Vg2 in the spring of 2009, ie. more than in 2008.

The highest number of applicants is for Specialisation in General Studies (23,966). The most popular vocational education programmes are Health and Social Care (7,715 applicants) and Technical and Industrial Production (6,476 applicants).

A majority of the applicants – 56.5 per cent – have applied for vocational education programmes (excluding alternative education and courses that give both vocational qualifications and university and college admissions certification). An analysis carried out by NIFU STEP shows that changes in the application

Table 5.3: Applicants to Vg3 as of 1 March 2009, by education programme.

	Number	Proportion	Changes from 2008	Proportion with youth right
All programmes	46,205	100.0		89.8
Alternative education	886	1.9	0.5	64.4
Sports and Physical Education	3,636	7.9	0.7	98.7
Music, Dance and Drama	1,885	4.1	0.4	97.6
Specialisation in General Studies	23,226	50.2	-1.2	97.1
Supplementary year qualifying for higher education	11,033	23.9	-0.7	73.4
Design, Arts and Crafts	325	0.7	-0.1	85.8
Electricity and Electronics	1,005	2.2	0.1	93.0
Health and Social Care	919	2.0	0.0	72.4
Media and Communication	2,171	4.7	-0.1	97.1
Agriculture, Fishing and Forestry	651	1.4	-0.2	80.6
Technical and Industrial Production	160	0.3	0.1	94.4
Other courses*	308	0.7	0.5	56.5

*Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Sources: The Norwegian Directorate for Education and Training/VIGO

figures for Vg2 reflect the changes in the number of pupils in Vg1 the previous year (Frøseth et al. 2008).

The percentage of applicants to Technical and Industrial Production has declined compared to last year and is currently at 9.4 per cent (compared to 10.1 per cent last year). There are only minor changes for the other programmes.

Both in absolute numbers and relative to the number of pupils, the most oversubscribed education programmes are Service and Transport (1,002 applicants/26 per cent) and Technical and Industrial Production (1,217 applicants/23 per cent).

In absolute numbers, the most undersubscribed programme is Specialisation in General Studies (636); however this only constitutes 3 per cent of the number of places. In relative terms, the most undersubscribed programmes are Agriculture, Fishing and Forestry (114/8 per cent), Restaurant and Food Processing (381/14 per cent) and Service and Transport (458/14 per cent).

The percentage of applicants with the youth right has declined somewhat from 2008 (96.1 per cent) to 2009 (95.5 per cent), in all education programmes. Health and Social Care is the education programme with the lowest percentage of applicants with the youth right. The reason is that many adults take Health and Social Care.

Applicants to Vg3 (upper secondary level 3) in school

With effect from the 2008–2009 school year, the Knowledge Promotion was implemented in the third year of upper secondary education and training. Application figures for Vg3 in school are kept separate from applicants to apprenticeship. In the education programmes Building and Construction, Restaurant and Food Processing and Service and Transport, Vg3 is not offered in school.

Table 5.3 shows that there are 46,205 applicants to Vg3 in the spring of 2009, just under 4,000 more than in 2008. Of the 46,205 applicants, 88 per cent applied to programmes for general studies or the supplementary year that qualifies for higher education (excluding alternative education and courses that give both vocational qualifications and university and college admissions certification). Specialisation in General Studies is the largest education programme with 23,226 applicants.

In the vocational programmes, most pupils become apprentices after Vg2. As table 5.3 shows, there are therefore very few applicants for vocational education in school. In some subjects in Health and Social Care, Media and Communication, Electricity and Electronics and Agriculture, Fishing and Forestry, vocational qualifications can be attained after Vg3 in school without apprenticeship. The highest number of applications to Vg3 in school is to these education programmes. Due to an insufficient number of apprenticeships, more pupils later take their training in school than shown by the application figures.

The greatest changes in applications to Vg3 are within the programmes for general studies, where the proportion of applicants to Sports and Physical Education has increased to 7.9 per cent (compared to 7.2 per cent last year) and the proportion of applicants to the supplementary year qualifying for higher education has correspondingly decreased to 23.9 per cent. There are only minor changes for the other programmes.

In absolute numbers, application to Vg3 largely corresponds to the number of available places. Compared to the number of pupils, the most oversubscribed programme is Electricity and Electronics (163 applicants/19 per cent). In some education programmes there are more pupils receiving training in school than the number of applicants. This does not necessarily mean that the number of applicants is lower than the number of available places, but is largely due to the lack of apprenticeships.

The percentage of applicants with the youth right has declined somewhat from 2008 (91.5 per cent) to 2009 (89.8 per cent). The greatest increase in applicants with the youth right is in the Health and Social Care, Agriculture, Fishing and Forestry and Technical and Industrial Production programmes.

Analyses carried out by NIFU STEP show that about 15 per cent of pupils who started vocational studies in 2004 are taking the supplementary year in general subjects in the autumn of the third year (Frøseth et al. 2008).

Table 5.4: Pupils with the youth right at Vg2 applying for the supplementary year qualifying for higher education, by education programme.

	Number of pupils at Vg2 with the youth right	Number applying for supplementary year	Percentage applying for supplementary year
Building and Construction	4,233	763	18
Design, Arts and Crafts	2,002	625	31
Electricity and Electronics	3,518	568	16
Health and Social Care	5,550	2,258	41
Media and Communication	2,545	470	18
Agriculture, Fishing and Forestry	997	149	15
Restaurant and Food Processing	1,871	344	18
Service and Transport	3,317	1,265	38
Technical and Industrial Production	4,683	384	8

Sources: The Norwegian Directorate for Education and Training/VIGO

Table 5.5: Applicants to apprenticeships as of 1 March 2009, by education programme.

	Number	Proportion	Changes from 2008	Proportion with youth right
All programmes	15,894	100.0		85.9
Alternative education	11	0.1	0.1	100.0
Building and Construction	3,158	19.9	-1.8	92.4
Design, Arts and Crafts	905	5.7	-0.2	84.2
Electricity and Electronics	2,233	14.0	2.9	89.6
Health and Social Care	2,477	15.6	-0.8	71.7
Media and Communication	108	0.7	0.0	82.4
Agriculture, Fishing and Forestry	382	2.4	-0.2	77.0
Restaurant and Food Processing	1,238	7.8	-0.9	87.2
Service and Transport	1,791	11.3	0.1	84.9
Technical and Industrial Production	3,591	22.6	0.8	89.3

Sources: The Norwegian Directorate for Education and Training/VIGO

Table 5.4 shows that just under 7,000 of the 11,033 applicants to the supplementary year that qualifies for higher education were pupils with the youth right at Vg2 in the 2008–2009 school year. Most of these applicants come from Health and Social Care with 2,258 pupils or 41 per cent at Vg2 applying for the supplementary year. There are also many applicants from Service and Transport (38 per cent) and Design, Arts and Crafts (31 per cent).

Applicants to apprenticeship

Table 5.5 shows that there are 15,894 applicants to apprenticeship in the 2009–2010 school year, ie. more than the previous year. Apprentices who have arranged for their own apprenticeship contracts with training establishments without applying are not included. However, they are included as applicants when their apprenticeship contract is approved by their county.

The Technical and Industrial Production, Building and Construction and Health and Social Care programmes have the largest number of applicants, since they are the largest education programmes. Media and Communication, Agriculture, Fishing and Forestry and Design, Arts and Crafts have the fewest applicants. For the Media and Communication and Agriculture, Fishing and Forestry programmes this is probably related to many pupils achieving vocational qualifications at Vg3 without apprenticeship. Design, Arts and Crafts is a small education programme and only offers vocational qualifications at Vg3 without apprenticeship to a limited extent, but a relatively large proportion of pupils (31 per cent) apply for the supplementary year qualifying for higher education (see table 5.4).

Building and Construction and Restaurant and Food Processing have the greatest decline in applications for apprenticeship, from 21.7 to 19.9 per cent and from 16.4 to 15.6 per cent respectively. Electricity and Electronics and Technical and Industrial Production have the greatest increase in applications for apprenticeship, up from 11.1 to 14 per cent and from 21.8 to 22.6 per cent respectively.

Since by and large there are more applying for apprenticeships than obtain them, all the education programmes are oversubscribed. Both in absolute and relative numbers the programmes Service and Transport and Health and Social Care are the most oversubscribed, 577/48 per cent and 428/21 per cent respectively.

The percentage of applicants with the youth right has declined somewhat from 2008 (87.7 per cent) to 2009 (85.9 per cent). The decline applies to all the education programmes. The education programme with the lowest percentage with the youth right is Health and Social Care (71.7), which is due to many adults applying for this education programme.

5.3 Pupils, apprentices and training candidates in upper secondary education and training

Figures for pupils and apprentices are collected as of 1 October. At this time, admissions and the procurement of apprenticeship contracts are largely completed, although contracts are also procured after this date. The Knowledge Promotion has been implemented at all levels, but there are still some pupils being educated according to the old structure (R94). The main reason for this is that dispensations have been given. For pupils in upper secondary education and training, the tables only include pupils following the Knowledge Promotion structure. The number of pupils following the R94 structure is commented on in the text. For apprentices and training candidates, both structures are included. In addition to figures concerning pupils and apprentices at various levels, differences due to social background and immigrant background are also included.

Pupils at Vg1 (upper secondary level 1)

Most pupils, 95.9 per cent, pass directly from lower secondary to upper secondary school (KOSTRA 2008). This number is slightly lower than the previous year. The percentage starting upper secondary school straight from lower secondary is lower than the percentage applying for upper secondary school directly from lower secondary. One possible explanation is that some applicants decline the offer of a study place.

Table 5.6: Pupils at Vg1 as of 1 October 2008, by education programme. Non-revised figures.

	Number	Proportion with youth right
Sports and Physical Education	3,938	94.9
Music, Dance and Drama	2,133	95.2
Specialisation in General Studies	26,956	84.4
Building and Construction	5,619	93.1
Design, Arts and Crafts	3,272	92.4
Electricity and Electronics	4,776	94.0
Health and Social Care	7,487	86.5
Media and Communication	3,544	83.7
Agriculture, Fishing and Forestry	1,604	73.2
Restaurant and Food Processing	2,667	91.6
Service and Transport	3,217	91.7
Technical and Industrial Production	6,774	91.8
Alternative education	1,882	94.6
Other courses*	-	-

*Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Source: Statistics Norway

Table 5.7: Pupils at Vg1 as of 1 October 2008, by education programme and parents' level of education. Non-revised figures.

	Total number	Long higher	Short higher	Upper secondary	Lower secondary	Not stated
Sports and Physical Education	3,938	11.3	39.1	42.0	5.4	2.2
Music, Dance and Drama	2,133	19.3	44.2	31.3	4.0	1.3
Specialisation in General Studies	26,956	17.9	38.1	32.7	6.7	4.6
Building and Construction	5,619	2.4	21.2	56.5	15.8	4.0
Design, Arts and Crafts	3,272	3.5	20.2	55.3	17.1	3.9
Electricity and Electronics	4,776	4.3	28.1	55.1	9.3	3.2
Health and Social Care	7,487	2.0	16.8	53.4	19.2	8.6
Media and Communication	3,544	9.7	37.9	43.7	7.1	1.7
Agriculture, Fishing and Forestry	1,604	4.2	22.9	56.4	15.2	1.2
Restaurant and Food Processing	2,667	2.8	18.6	53.8	19.9	4.8
Service and Transport	3,217	3.6	19.6	51.7	18.2	7.1
Technical and Industrial Production	6,774	2.3	19.0	58.5	16.0	4.1
Alternative education	3,319	6.6	19.6	46.2	23.7	3.9
Total proportion	100.0	9.6	29.2	44.9	11.8	4.5
Total number of pupils	75,306	7,262	21,970	33,807	8,911	3,356

Source: Statistics Norway

Table 5.6 shows that a total of 75,306 pupils were registered at Vg1 in the autumn of 2008 (in addition to 160 pupils registered in the old structure), ie. fewer than in 2007. The Specialisation in General Studies programme has the highest amount of pupils (26,956), and 46 per cent attend programmes for general studies (not including pupils in alternative education). Health and Social Care and Technical and Industrial Production have the most pupils of the vocational education programmes. Music, Dance and Drama has the fewest.

88.4 per cent of all pupils had the youth right in the autumn of 2008. The percentage with the youth right is lowest at Agriculture, Fishing and Forestry, Media and Communication and Health and Social Care.

Differences in participation at Vg1 by parents' level of education

Table 5.7 shows recruitment to education programmes at Vg1 by parents' highest level of education. The category *Not stated* largely consists of first generation immigrants where the parents' level of education is unknown.

9.6 per cent of pupils in Vg1 have parents with a long higher education, 29.2 per cent have parents with a short higher education, 44.9 per cent have parents with upper secondary school and 11.8 per cent have parents with lower secondary school only.

The table shows that pupils who have parents with higher education (both long and short) are overrepresented in all three programmes for general studies (Sports and Physical Education, Specialisation in General Studies and Music, Dance and Drama) and in the vocational education programme Media and Communication.

The opposite is the case for pupils who have parents with upper or lower secondary school only. Both of these groups are underrepresented in the programmes for general studies and Media and Communication. Pupils whose parents have lower secondary school only are also underrepresented in Electricity and Electronics.

The table corresponds to research showing that pupils with higher marks (related to their parents' level of education) choose programmes for general studies to a greater extent than pupils with low marks. Pupils at Music, Dance and Drama had the highest average mark. The average mark among pupils at all vocational areas of study or education programmes, with the exception of Media and Communication, was lower than the average for the whole age cohort (Frøseth et al. 2008).

Table 5.8: Pupils at Vg1 as of 1 October 2008, by education programme and immigrant background. Non-revised figures.

	Norwegian background	Non-western 1st gen. immigrants	Non-western 2nd gen. immigrants
Sports and Physical Education	95.3	2.6	2.1
Music, Dance and Drama	97.9	1.2	0.9
Specialisation in General Studies	88.4	6.7	5.0
Building and Construction	92.2	5.5	2.3
Design, Arts and Crafts	92.5	5.4	2.1
Electricity and Electronics	93.5	4.1	2.4
Health and Social Care	84.4	12.3	3.3
Media and Communication	96.7	1.9	1.4
Agriculture, Fishing and Forestry	98.8	1.2	0.0
Restaurant and Food Processing	91.6	6.5	1.9
Service and Transport	85.0	10.8	4.2
Technical and Industrial Production	92.3	6.0	1.8
Alternative education	89.1	6.7	4.2
Total proportion	90.4	6.3	3.3

Source: Statistics Norway

Differences in participation at Vg1 by immigrant background

90.4 per cent of the pupils in Vg1 have a Norwegian background, 6.3 per cent are non-western first generation immigrants and 3.3 per cent of the pupils are non-western second generation immigrants. Table 5.8 shows that pupils with a Norwegian background are overrepresented in most education programmes except Specialisation in General Studies, Health and Social Care and Service and Transport. Second generation immigrants, in particular, are overrepresented in Specialisation in General Studies, but also first generation immigrants. This corresponds to the findings of Bakken (2003) that pupils from a language minority had higher motivation and ambitions for their education level than the majority. Pupils from a language minority tend to aim for higher education. First generation immigrants, in particular, are overrepresented in Service and Transport, but also second generation immigrants. Only first generation immigrants are overrepresented in Health and Social Care.

This pattern corresponds to the application patterns found by Lødding (2009) in her report *Sluttere, slitere og sertifiserte (Quitters, Strugglers and Completers)*. Although this report concerned applications to study programmes under R94, she found that high percentages of non-western first generation immigrants applied for Health and Social Care and lower percentages applied for Arts and Design and Media and Communication.

Table 5.9: Pupils at Vg2 as of 1 October 2008, by education programme. Non-revised figures.

	2008	
	Number	Proportion with youth right
All programmes	64,009	79.9
Sports and Physical Education	3,632	95.0
Music, Dance and Drama	2,021	91.5
Specialisation in General Studies	24,602	86.1
Building and Construction	4,696	90.0
Design, Arts and Crafts	2,287	87.3
Electricity and Electronics	3,830	91.8
Health and Social Care	7,383	75.1
Media and Communication	2,938	86.4
Agriculture, Fishing and Forestry	1,499	66.4
Restaurant and Food Processing	2,067	90.5
Service and Transport	3,795	87.2
Technical and Industrial Production	5,259	89.0
Alternative education	686	94.5
Other courses*	-	-

*Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Kilde: Source: Statistics Norway

Pupils at Vg2 (upper secondary level 2)

Table 5.9 shows that the number of pupils in the 2008–2009 school year was 64,009 (in addition to 278 pupils registered in the old structure).

The table shows that, as at Vg1, the Specialisation in General Studies programme has the largest number of pupils and 47 per cent attend programmes for general studies (not including pupils in alternative education). In 2008–2009, Agriculture, Fishing and Forestry, Music, Dance and Drama and Restaurant and Food Processing have the fewest pupils.

79.9 per cent of all pupils had the youth right in the autumn of 2008. The percentage with the youth right is lowest at Agriculture, Fishing and Forestry and Health and Social Care.

Pupils at Vg3 (upper secondary level 3) in school

Table 5.10 shows that the number of pupils at Vg3 was 45,180 in the autumn of 2008 (in addition to 2,040 pupils registered in the old structure). The number of pupils at Vg3 is higher than the number of applicants, which is due to the statistical figures including pupils who have started upper secondary education and training without having applied in the spring. The reason may be that they originally applied to a private school but instead started state school. There are also some pupils who have applied after the deadline and pupils who applied for apprenticeships but did not receive one and ended up in school instead.

At Vg3, 34,345 pupils attend Specialisation in General Studies (including the supplementary year qualifying for higher education) and 88 per cent attend programmes for general studies (not including pupils in alternative education). The reason is that most pupils in vocational programmes attend training in training establishments after Vg2.

Media and Communication has the highest number of pupils of the vocational programmes. The reason is that many pupils taking this education programme want university and college admissions certification. This is also possible in Agriculture,

Table 5.10: Pupils at Vg3 as of 1 October 2008, by education programme. Non-revised figures.

	2008	
	Number	Proportion with youth right
All programmes	45,180	80.5
Sports and Physical Education	3,492	93.0
Music, Dance and Drama	1,878	92.1
Specialisation in general studies*	34,345	80.1
Building and Construction	137	72.3
Design, Arts and Crafts	333	78.4
Electricity and Electronics	842	80.8
Health and Social Care	826	59.6
Media and Communication	2,048	84.4
Agriculture, Fishing and Forestry	856	43.9
Restaurant and Food Processing	32	56.3
Service and Transport	174	26.4
Technical and Industrial Production	217	86.2
Alternative education	751	84.4
Other courses**	-	-

*Including supplementary year qualifying for higher education.
**Including courses that give both vocational qualifications and university and college admissions certification: Health and Social Care with general subjects, Agriculture, Fishing and Forestry with general subjects, Electricity and Electronics with general subjects, Building and Construction with general subjects, Technical and Industrial Production with general subjects.

Source: Statistics Norway

Fishing and Forestry. Furthermore, many pupils take vocational qualifications in school in Electricity and Electronics, Health and Social Care and Agriculture, Fishing and Forestry. Restaurant and Food Processing and Building and Construction have the fewest pupils.

As this is the first year pupils at upper secondary level 3 follow the new Knowledge Promotion structure, it is hard to make any observations on potential changes after the reform. It is, however, possible to conclude that there is a shift from vocational to general studies programmes.

In 2008–2009, 80.5 per cent of the pupils have the youth right. The proportion with the youth right varies a lot between education programmes and is lowest among pupils in Service and Transport, Agriculture, Fishing and Forestry and Health and Social Care.

Some who apply for training in training establishments end up taking their training at Vg3 in school because they are unable to secure an apprenticeship. Tables 5.11 and 5.12 show the percentage of applicants to apprenticeships as of 1 March 2008 who are not registered as enrolled in education or who are registered as pupils as of 1 October 2008.

Table 5.11 shows that a large proportion of applicants to apprenticeship within the various education programmes are not registered as apprentices in the following school year. Most of them are not registered in education (27.6 per cent) and some are registered as pupils in upper secondary education and training (8.7 per cent). The highest percentage applying for

Table 5.11: Applicants for apprenticeships in 2008 who in the same year are not registered in education, or who receive training in school, by education programme.

	Proportion not registered in education	Proportion registered as pupils
Total	27.6	8.7
Building and Construction	27.2	6.7
Design, Arts and Crafts	33.2	13.0
Electricity and Electronics	15.2	5.8
Health and Social Care	27.0	10.4
Media and Communication	41.0	23.0
Agriculture, Fishing and Forestry	37.3	9.5
Restaurant and Food Processing	31.0	10.5
Service and Transport	38.7	11.6
Technical and Industrial Production	24.6	7.2

Sources: The Norwegian Directorate for Education and Training/VIGO

apprenticeship but not registered in education are in the education programmes Media and Communication, Agriculture, Fishing and Forestry and Service and Transport with around 40 per cent not in education. The lowest percentage is in Electricity and Electronics where about 15 per cent are not registered in education. The highest percentage of applicants to apprenticeship who end up as pupils are in Media and Communication and Design, Arts and Crafts. The lowest is in Electricity and Electronics and Building and Construction.

Table 5.12: Applicants for apprenticeships in 2008 who in the same year are not registered in education, or who receive training in school, by county.

	Proportion not registered in education	Proportion registered as pupils
Entire country	27.6	8.7
Østfold	33.1	10.9
Akershus	27.5	8.9
Oslo	32.4	13.2
Hedmark	34.1	10.0
Oppland	28.7	9.5
Buskerud	28.3	10.7
Vestfold	26.5	13.3
Telemark	25.3	7.0
Aust-Agder	23.5	8.3
Vest-Agder	22.3	4.6
Rogaland	20.8	5.9
Hordaland	23.5	7.5
Sogn og Fjordane	23.7	6.7
Møre og Romsdal	25.7	9.7
Sør-Trøndelag	29.6	6.4
Nord-Trøndelag	28.3	12.3
Nordland	31.7	7.2
Troms	34.2	8.8
Finnmark	40.5	11.0

Sources: The Norwegian Directorate for Education and Training/VIGO

Table 5.12 shows that there are relatively large differences between counties in the proportion of applicants to apprenticeship not registered in education or registered as pupils. The highest proportion not registered in education is in Troms and Finnmark, and the lowest in Rogaland. The highest proportion registered as pupils is in Oslo and the lowest in Vest-Agder and Rogaland. Differences between counties may be due to variations in settlement patterns and business structure.

Training in training establishments – apprentices and training candidates

As of 1 October 2008 there was a total of 38,168 apprentices. This constitutes 16.3 per cent of everyone in upper secondary education and training in 2008–2009. 34.6 per cent of all pupils in vocational education programmes in Vg2 in 2007–2008 are apprentices in 2008–2009 (KOSTRA 2008).

How to secure an apprenticeship contract

County authorities aim to establish contact between applicants to apprenticeships and businesses interested in taking on apprentices. This work on the part of the county authorities is called procurement. Businesses are not obliged to take on apprentices and in some cases the county authorities' efforts do not lead to contracts. Many also procure their own apprenticeships without applying to the county, in particular older candidates and candidates who have not been absent from school much and who have good marks. These apprenticeship contracts must also be approved by the county authorities.

Table 5.13 shows how many new apprenticeship and training contracts have been entered into from 1 October 2007 to 30 September 2008.

The implementation of the Knowledge Promotion entailed a new structure for recognised trades, and this year's figures are therefore not easily comparable to previous years. The new recognised trades from the Knowledge Promotion were implemented in the autumn of 2008 and 25 per cent of the new apprenticeship contracts are therefore entered into under R94.

For recognised trades under the Knowledge Promotion, the highest number of apprentices is in Technical and Industrial Production, Health and Social Care and Building and Construction. Media and Communication, Agriculture, Fishing and Forestry and Electricity and Electronics have the fewest apprentices, which is in accordance with the fact that many pupils take these subjects at Vg3 in school.

In the same period (1 October 2007 to 30 September 2008) a total of 543 training contracts were entered into. The total proportion of training candidates is 2.8 per cent for recognised trades in KL06 and 3 per cent for R94. The percentage of training candidates varies strongly between trades. In KL06, there are most training contracts in Health and Social Care and Technical and Industrial Production and the fewest in Design, Arts and Crafts and Agriculture, Fishing and Forestry.

Table 5.13: New apprentice and training contracts as of 1 October 2008, by education programme or area of study.

Recognised trades	Apprentices	Training candidates	Proportion with youth right*
Total Knowledge Promotion	**13,898**	**397**	**81.2**
Building and Construction	3,236	86	86.1
Design, Arts and Crafts	857	15	66.9
Electricity and Electronics	1,908	5	80.5
Health and Social Care	2,049	81	74.4
Media and Communication	86	:	55.8
Agriculture, Fishing and Forestry	329	23	72.9
Restaurant and Food Processing	1,024	53	84.7
Service and Transport	1,169	49	80.8
Technical and Industrial Production	3,240	83	85.3
Total Reform 94	**4,687**	**146**	**41.7**
Construction and building	587	25	44.8
Electricity and Electronics	1,171	:	39.6
Arts and design	566	7	30.9
Hotel and catering	280	18	48.9
Health and Social Care	297	30	36.4
Chemistry and processing	82	:	50.0
Mechanical subjects	974	31	51.0
Media and Communication	47	:	19.1
Agriculture, Fishing and Forestry	65	4	44.6
Sales and service	195	11	47.7
Technical construction and building	270	10	33.3
Woodworking	59	5	16.9
General/business/administration studies	94	:	39.4

*The youth right includes both apprentices and training candidates.
: Two or less.

Sources: Statistics Norway/The Norwegian Directorate for Education and Training

A total of 73.1 per cent of the apprentices and training candidates in the Knowledge Promotion have the youth right. The percentage with youth right varies between KL06 and R94, which is largely due to the fact that most new apprenticeship contracts are drawn up in KL06 and that there are many older pupils receiving apprenticeship contracts in R94. The largest

Table 5.14: Apprentices (running apprenticeship contracts as of 1 October 2008) under the Knowledge Promotion, by immigrant background. Non-revised figures.

	Norwegian background	Non-western 1st gen. immigrants	Non-western etterkommere
Building and Construction	96.8	2.5	0.8
Design, Arts and Crafts	92.7	5.5	1.8
Electricity and Electronics	95.8	2.6	1.5
Health and Social Care	89.1	10.1	0.8
Media and Communication	100.0	-	-
Agriculture, Fishing and Forestry	100.0	-	-
Restaurant and Food Processing	94.3	4.0	1.7
Service and Transport	93.9	4.1	2.0
Technical and Industrial Production	95.4	3.5	1.0
Total proportion	94.6	4.3	1.1

Source: Statistics Norway

Table 5.15: Applicants as of 1 March 2008 who have been granted their primary choice as of 1 October 2008, by county and level. Per cent.

County	Vg1	Vg2	Vg3	Apprentices
Entire country	67.0	72.3	78.0	57.7
Østfold	68.5	76.1	62.8	50.3
Akershus	63.0	76.6	82.2	60.1
Oslo	59.2	72.4	77.4	51.4
Hedmark	69.8	73.9	72.3	53.0
Oppland	76.8	76.0	81.1	56.8
Buskerud	66.9	74.9	80.0	59.9
Vestfold	71.0	75.6	84.2	54.2
Telemark	69.8	73.5	74.9	63.2
Aust-Agder	70.9	69.4	76.7	59.8
Vest-Agder	67.9	75.7	80.5	68.5
Rogaland	63.2	71.0	79.5	66.5
Hordaland	63.4	68.3	75.6	62.0
Sogn og Fjordane	73.3	76.0	81.5	59.3
Møre og Romsdal	74.4	73.5	80.3	56.1
Sør-Trøndelag	63.4	63.7	77.5	58.2
Nord-Trøndelag	75.5	73.7	79.2	52.1
Nordland	70.2	68.6	73.5	51.6
Troms	69.7	67.8	71.2	46.7
Finnmark	65.8	67.6	72.2	43.3

Sources: The Norwegian Directorate for Education and Training/VIGO

percentage with youth right are in Building and Construction, Technical and Industrial Production and Restaurant and Food Processing, while the lowest percentages are in Media and Communication and Design, Arts and Crafts.

Recruitment to training in training establishments and differences by immigrant background

94.6 per cent of the apprentices have a Norwegian background, 4.3 per cent are non-western first generation immigrants and 1.1 per cent of the apprentices are second generation non-western immigrants. Table 5.14 shows that pupils with a Norwegian background are overrepresented in most education programmes except Design, Arts and Crafts, Health and Social Care and Service and Transport. Both first and second generation immigrants are overrepresented in Design, Arts and Crafts. Only first generation immigrants are overrepresented in Health and Social Care, while in Service and Transport, Electricity and Electronics and Restaurant and Food Processing only second generation immigrants are overrepresented.

Primary choice

Since Reform 94, the right to one of three choices and primary choice has been in focus. This is because statistics show that when pupils are granted their primary choice, this is closely linked to motivation and completion (Markussen et al. 2008). The OECD has criticised the Norwegian focus on primary choice as this can lead to many pupils being admitted to education programmes even if the apprenticeship and job opportunities are unpromising (Kuczera et al. 2008). The OECD also feels that there is little evidence that granting a pupil's primary choice reduces the chances that this student will quit, since marks are the most important reason behind completion of upper secondary education and training.

The definition of granted primary choice for pupils in Vg1 to Vg3 is being granted admission to their highest prioritised combination of school and education programme, and for apprentices, admission to their highest prioritised education programme.

Table 5.15 shows the percentage of applicants as of 1 March 2008 who had been granted their primary choice as of 1 October 2008, by level and county. The percentage of applicants granted their primary choice increases at national level from Vg1 to Vg3 in school. However, there are major differences between counties, partly due to differences in the widespread geographical location of schools. The more thinly spread the schools are, the fewer applicants are granted their primary choice.

In most counties, the percentage granted their primary choice increases during the course of their studies. This is largely due to the fact that there are fewer alternatives at higher levels. The national average of applicants granted their primary choice to Vg1 is 67.0 per cent. Oslo and Akershus have the lowest percentage of applicants granted their primary choice, while Oppland has the highest percentage.

The national average of applicants granted their primary choice to Vg2 is 72.3 per cent. Sør-Trøndelag and Finnmark have the lowest percentage of applicants granted their primary choice, while Akershus, which was among the two lowest for Vg1, has the highest.

At Vg3, the national average granted their primary choice is 78.0 per cent. Østfold and Troms have the lowest percentage of applicants granted their primary choice, while Vestfold has the highest.

57.7 per cent of applicants to apprenticeships have been granted their primary choice. Finnmark and Troms have the lowest percentage of applicants to apprenticeships granted their primary choice, while Vest-Agder has the highest. The percentage granted their primary choice to apprenticeship is largely dependent on available apprenticeships.

Table 5.16: Applicants as of 1 March 2008 who are in education as of 1 October 2008, by county and level.

	Proportion in upper secondary education and training			
County	Vg1	Vg2	Vg3	Apprentices
Entire country	93.4	90.6	91.4	72.3
Østfold	92.2	90.5	80.6	66.3
Akershus	95.7	93.5	93.9	72.4
Oslo	94.3	91.5	91.8	67.4
Hedmark	91.8	90.3	89.8	65.9
Oppland	95.3	90.1	92.4	71.1
Buskerud	92.2	90.6	92.5	71.4
Vestfold	93.9	91.2	91.8	73.4
Telemark	91.4	89.2	88.4	74.6
Aust-Agder	93.3	90.5	92.4	75.8
Vest-Agder	93.4	90.4	90.3	77.9
Rogaland	93.6	90.8	93.8	79.3
Hordaland	94.7	90.9	92.3	76.9
Sogn og Fjordane	94.7	91.8	91.8	75.5
Møre og Romsdal	92.9	88.2	89.5	74.2
Sør-Trøndelag	93.8	90.6	91.4	70.4
Nord-Trøndelag	93.6	91.4	91.1	70.9
Nordland	91.5	88.8	88.6	68.0
Troms	90.2	87.1	87.8	65.9
Finnmark	90.4	88.2	88.6	59.7

Sources: The Norwegian Directorate for Education and Training/VIGO

Many of those not granted their primary choice start other upper secondary education and training. Table 5.16 shows the percentage of applicants in upper secondary education and training. 93.4 per cent of all applicants to Vg1 start upper secondary education. The corresponding percentages for Vg2 and Vg3 are 90.6 and 91.4 per cent respectively. 72.3 per cent of the applicants to apprenticeships are in upper secondary education.

Troms and Finnmark have the lowest percentage of applicants to Vg1 in education and training, while Akershus has the highest percentage.

At Vg2, Troms, Finnmark and Møre og Romsdal have the lowest percentages of applicants in education and training, while Akershus has the highest.

At Vg3, Østfold and Troms have the lowest percentage of applicants in education and training, while Akershus has the highest.

Finnmark, Troms and Hedmark have the lowest percentages of applicants for apprenticeship in education and training, while Rogaland has the highest.

5.4 Transitions, pauses, completion and competence achievement

Applying for admission to upper secondary education is voluntary, but it is a political goal that as many as possible start, complete and pass upper secondary education and training after lower secondary school. Report No. 31 to the Storting (2007–2008) *Kvalitet i skolen (Quality in schools)* points out that increasing completion in upper secondary education and training among young people is extremely important:

> The number of inhabitants who have not completed upper secondary education and training is relatively high in Norway compared to other countries. On a list of OECD countries by percentage of the population who have completed upper secondary education and training, Norway is about in the middle (Ministry of Education and Research 2007–2008).

The Report further points out that there is significant potential for improving completion rates for upper secondary education and training among young people. One important reason for low completion rates is the lack of necessary knowledge obtained in primary and lower secondary school. There is a strong correlation between parents' education and pupils' marks in lower secondary school and thus an indirect connection between parents' level of education and pupils' completion of upper secondary education and training, via their marks from lower secondary school (Ministry of Education and Research 2007–2008).

Completing upper secondary education and training is important in order to avoid exclusion from the labour market. Prognoses from Statistics Norway show that the demand for employees who have only completed lower secondary school will decline significantly in the years to come. Statistics Norway suggests that the proportion of unskilled persons (with only lower secondary education) will constitute 3.5 per cent of the total workforce in 2025, compared to 11 per cent in 2004. With such a development, society faces a surplus of unskilled labourers in the years to come unless more people, including more adults, complete upper secondary education and training (Statistics Norway).

The majority of those who start upper secondary education complete and pass upper secondary education and training and receive university and college admissions certification, vocational qualifications or craft or journeyman's certificates. However, it is relatively common for pupils and apprentices to take pauses in their course of study and disappear from the educational system from time to time. Some of them return quickly to their studies, while others stay away for longer periods of time.

Looking into how long such pauses from the educational system last may be a good idea in order to distinguish those who take pauses from those who have dropped out. The distinction between drop-outs and pauses from the course of studies is not clear cut. A sensible distinction may be between those who are gone from upper secondary education and training for one year and those who are gone for two or more subsequent years. The reasoning behind this is that there are many good reasons why pupils and apprentices are gone from the educational system for one year, for instance leaves of absence and student exchange.

Official Norwegian Report (NOU) 2008: 18 Fagopplæring for framtida (Vocational education and training for the future)

In June 2007, the government appointed a public committee to look at future challenges in vocational education and training (VET), the so-called Karlsen Committee. In its mandate, this committee was asked to study changes in the labour market, technological developments, environmental issues and future competence needs, particularly in the health sector, as well as to assess the importance changes in these fields will have on VET. The committee was also asked to assess measures for securing more apprenticeships and to look at current cooperation between the various parties involved in VET.

The committee handed over the results of their study to the Ministry of Education and Research on 13 October 2008. The study described current VET and outlined basic development trends of importance to VET. The committee concluded that VET in Norway has many strong sides on which to build, but that there are also problem areas to be addressed. 80 measures were suggested in several fields. These include:

- **Completion**. Professional relevance of training, greater obligation for follow-up of the pupils and measures to improve access to apprenticeships, including greater obligations on public training establishments.
- **Quality development system**. There is a need for a common national system for systematic quality assurance, development and measurement in VET.
- **Research and documentation**. The Committee suggests the establishment of one or more research centres on VET. There is a need for improved statistics on VET.

A normal definition of drop-outs is pupils who are registered in upper secondary education and training for one year and who have not completed or who are still in upper secondary education two years later (Fekjær and Brekke 2007). There are fewer good reasons to stay away from the educational system for two subsequent years and an absence of two years may mean that the pupil or apprentice has serious problems adapting to the educational system. Some of those who are gone for two years or more may still return to upper secondary education and training at a later time. In this chapter, we look at the difference between those who have been gone from education for one year and those who have been gone for two years. We will also look into how the drop-out rate among pupils in upper secondary education and training varies by year and by parents' level of education.

Most pupils who start upper secondary education and training complete their education at some point. In Norway, however, there are many who do not complete it in the stipulated time. The completion analyses presented here measure completion five years after starting study for pupils in programmes for general studies, and six years after starting study for vocational programmes. The reason for this difference is that this makes it possible to look at completion in the course of the entire youth right period, which is five years for programmes for general studies and six years for those who take all or part of their training in training establishments. The completion analyses distinguish between pupils and apprentices who have completed upper secondary education and training in the stipulated time, completed within the youth right period, who are still in education, who have completed but failed or who have left upper secondary education and training. The completion analyses include age cohorts who started after the implementation of Reform 94 and do not include competence at a lower level.

The pupils registered as quitters in these analyses are those who, for various reasons, are not in education or have not formalised their education within the time the completion is measured. A special group in this category is the apprentices who have completed their apprenticeship contract but not completed their craft examination. Some of the pupils registered as quitters will later complete and pass upper secondary education and training.

The quitters are a heterogeneous group, but the paths leading to quitting are not as varied. There is a definite correlation between the percentage quitting and their parents' level of education and immigrant background. The point of time where the quitters leave also varies. Some quit just after they have started their first year, others after they have been in upper secondary education and training for a while. This means that the quitters who leave late in their course of studies have acquired some competence from upper secondary education and training, even though they have not completed it.

In this chapter we will look at competence achievement among pupils who quit in the course of their upper secondary education and training.

Transitions and pauses

Transitions between levels and pauses in the course of studies may be an expression of efficiency in upper secondary education and training.

Statistics Norway (KOSTRA) annually publishes indicators on transitions and pauses in upper secondary education and training. These analyses look at the status of an age cohort at a certain level from one year to the next. Most pupils continue on to the next level, but many change their course of study, repeat the year or quit upper secondary education and training. In order to produce a picture of the drop-out rate, additional calculations have been made of the proportion who were pupils in upper secondary education and training in the 2006–2007 school year but who had not passed or who were still in upper secondary education and training in the 2007–2008 and 2008–2009 school years. The numbers show that many of the quitters return to their education after two years.

Table 5.17: Transitions and pauses from Vg1. Non-revised figures.

	General studies		Vocational studies		Total	
	2006-2007	2007-2008	2006-2007	2007-2008	2006-2007	2007-2008
In Vg2 the following year	88.2	86.7	73	74.3	80.0	80.1
Change of course at Vg1 the following year	3.7	3.8	7.2	7.3	5.6	5.7
Repeating Vg1 without changing course the following year	0.9	1	3.9	3.4	2.5	2.3
In other education the following year	1.3	1.5	3	2.6	2.2	2.1
Not in education the following year	5.9	6.9	12.8	12.4	9.6	9.8
Not in education two years later	-	-	-	-	7.0	-

Source: Statistics Norway

Not all pupils who complete lower secondary school continue immediately to upper secondary education. Of the 64,036 pupils who completed lower secondary school in the spring of 2008, 4.1 per cent were not in upper secondary education and training in the autumn of 2008 (KOSTRA 2008). The proportion not in upper secondary education the autumn after completing lower secondary school is somewhat higher in 2008 than in previous years. 96.9 per cent of all pupils who completed lower secondary school in the spring of 2007 were in upper secondary education in the autumn of 2007.

Table 5.17 shows that the percentage of pupils who attended Vg1 in the 2007–2008 school year and who move on to vocational education programmes in Vg2 in the 2008–2009 school year is lower (74.3 per cent) than those who move on to programmes for general studies (86.7 per cent). The percentage changing their course at Vg1 and who repeat Vg1 without changing their course is twice as high for pupils in vocational education programmes as in programmes for general studies. The proportion not in education in the 2008–2009 school year is 6.9 per cent for pupils in programmes for general studies and 12.4 per cent for pupils in vocational education programmes.

The total proportion who were not pupils in 2008–2009 was 9.8 per cent. This number is somewhat higher than for the age cohort who attended Vg1 in the 2006–2007 school year and who were not pupils in 2007–2008 (9.6 per cent). Some of the pupils who were in education in 2006–2007 but not in 2007–2008 returned to upper secondary education and training in 2008–2009. 5,351 of the pupils and apprentices who were in Vg1 on 1 October 2006–2007 were no longer registered in upper secondary education and training in 2008–2009, ie. 7 per cent of all pupils and apprentices in Vg1 in 2006–2007. In other words, one quarter of the quitters in 2007–2008 resumed their education in 2008.

Table 5.18 shows that of the pupils in Vg2 in 2007–2008, a higher proportion attended Vg3 in 2008–2009 in programmes for general studies (94.3 per cent) than in vocational education programmes (64.5 per cent). The percentage changing their course at Vg2 and who repeat Vg2 without changing their course is higher for pupils in vocational education programmes than in programmes for general studies. The proportion not in education in the 2008–2009 school year is 3.1 per cent for pupils in programmes for general studies and 26.3 per cent for pupils in vocational education programmes. The high percentage in vocational education programmes may be due to difficulties in securing apprenticeships.

The total proportion of those attending Vg2 in 2007–2008 who were not pupils in 2008–2009 was 15.5 per cent. There are no corresponding figures for the 2006–2007 school year as these figures for Vg2 were first produced in 2008. 7,671 of those attending VK1 in 2006–2007 were still not in education in 2008–2009, ie. 12 per cent.

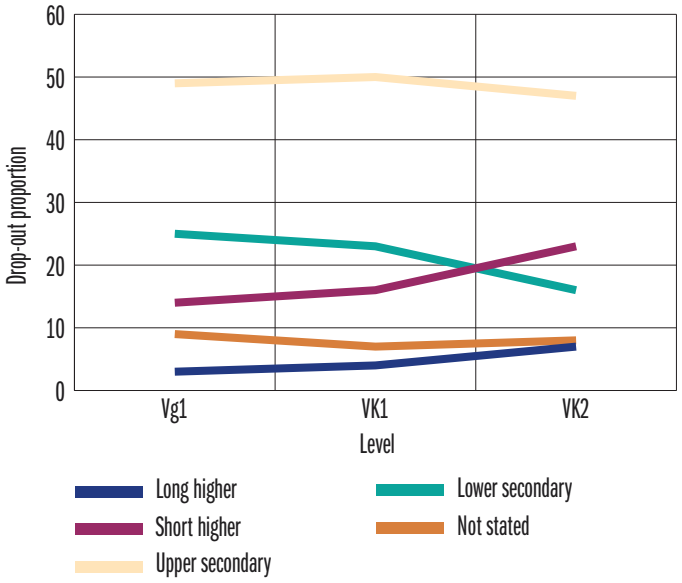
If the percentage who quit VK1 in 2006–2007 approximately corresponds to the percentage quitting Vg2 in 2007–2008, around one in six will resume their education in the following year. Next year it will be possible to produce figures on the percentage who quit Vg2 in 2007–2008 and who resume their education after two years.

Table 5.18: Transitions and pauses from Vg2. Non-revised figures.

	General studies		Vocational studies		Total	
	2006-2007	2007-2008	2006-2007	2007-2008	2006-2007	2007-2008
In Vg3 the following year	-	94.3	-	-	-	44.0
Apprentices the following year	-	-	-	34.6	-	18.4
In Vg3 vocational studies the following year	-	-	-	3.6	-	1.9
In Vg3 general studies the following year	-	-	-	26.3	-	14.0
Change of course at Vg2 the following year	-	1.2	-	3.2	-	2.3
In other education the following year	-	1.5	-	6	-	3.9
Not in education the following year	-	3.1	-	26.3	-	15.5
Not in education two years later	-	-	-	-	12.0	-

Source: Statistics Norway

Figure 5.2: Drop-out rate among pupils by time of drop-out and parents' level of education. Non-revised figures.



Source: Statistics Norway

Figure 5.2 shows a definite correlation between parents' level of education and the time of dropping out. Among the pupils who have parents with higher levels of education, the percentage quitting increases during the course of their studies. For pupils whose parents have low levels of education, the trend is the opposite – the percentage decreases in the course of their studies. For those who have parents with upper secondary education the percentage is relatively stable. This means that those who have parents with a low level of education quit earlier than those who have parents with a high level of education.

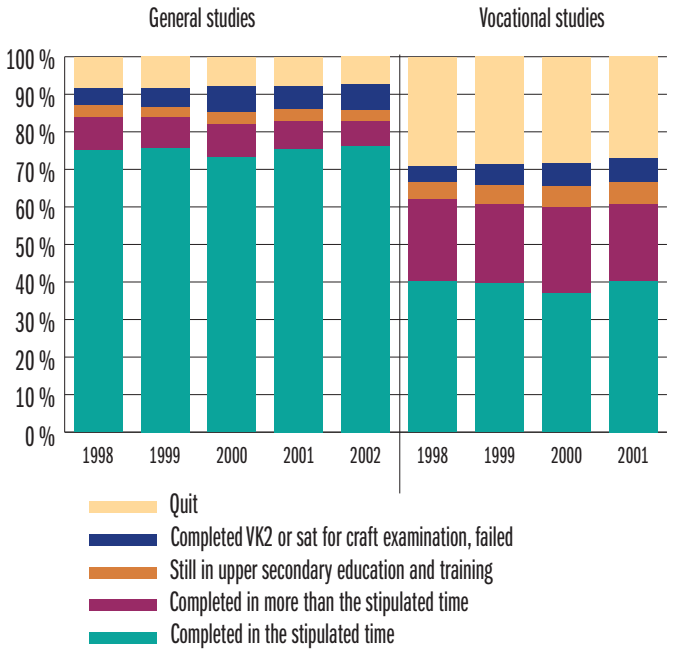
Completion and competence achievement

Most pupils complete and pass upper secondary education and training, but many do not complete it in the stipulated time. If we measure completion 5 and 6 years after study start, we can study the percentage of the age cohort completing their education within the youth right period. However, many pupils spend more time than has been allocated to the youth right.

Analyses from Statistics Norway show that only 57 per cent of the age cohort starting upper secondary education and training in 2001 and 2002 completed it in the stipulated time. Furthermore, 12 per cent completed within five years of starting. This means that as many as 31 per cent of the age cohort have not passed upper secondary education and training during the youth right period. Some are still in education, some have completed without passing and some are no longer in education.

Table 1.13 in chapter 1 shows the highest level of education in the population by age groups and gender. Total figures for the population show that lower secondary school is the highest level of education for 19.6 per cent in the 25–29 year age group and for 16 per cent in the 30–39 year age group. That lower secondary school is the highest level of education means that all those who do not have lower secondary school as their highest level of education have completed and passed

Figure 5.3: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively.



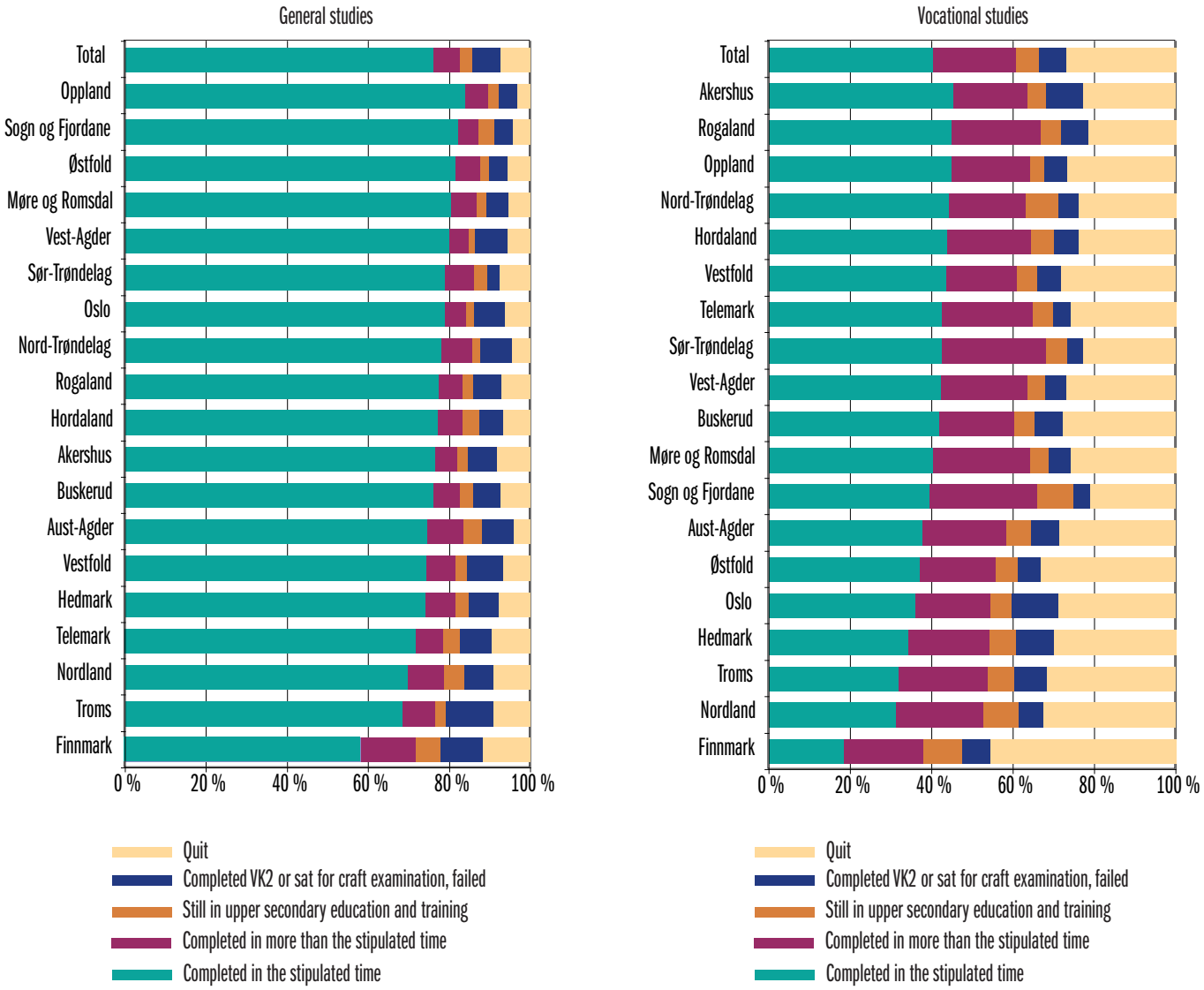
Source: Statistics Norway

upper secondary education. This means that 80.4 per cent of the 25–29-year-olds have completed and passed upper secondary education and training as well as 84 per cent of the 30–39-year-olds. The percentage who have not completed and passed upper secondary education and training is thus halved in the period after the youth right period has expired.

Figure 5.3 shows status at the end of the youth right period for the age cohort who started programmes for general studies in 1998 to 2002 and vocational programmes in 1998 to 2001 (under R94). Completion has previously been measured five years after study start both for programmes for general studies and for vocational programmes. As apprentices who take all or part of their training in a training establishment may spend six years completing their upper secondary education and training, this year's analysis gives a more correct presentation of completion rates during the youth right period for vocational programmes than previous years'. The change from five to six years for vocational programmes means that the percentages quitting, completing without passing and still in upper secondary education and training decrease, while the proportion completing in more than the stipulated time increases by 5 per cent. In other words, completion rates for vocational studies increase by 5 per cent when we consider the entire youth right period.

There are minor differences between age cohorts regarding the percentage achieving general university and college admissions certification or vocational qualifications in the stipulated time or during the youth right period. The percentage completing in the stipulated time among pupils at the programmes for general studies is still somewhat higher in the age cohort starting in 2002 than in previous age cohorts. The percentage of pupils

Figure 5.4: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohort by county, sorted by percentage completing in the stipulated time.



Source: Statistics Norway

quitting programmes for general studies is also somewhat lower in the 2002 age cohort than in previous age cohorts.

The percentage completing in the stipulated time among pupils in vocational programmes is at about the same level in the 2001 age cohort as in previous age cohorts. The percentage quitting is, however, somewhat lower, but the percentage still in education and the percentage completing but failing is increasing.

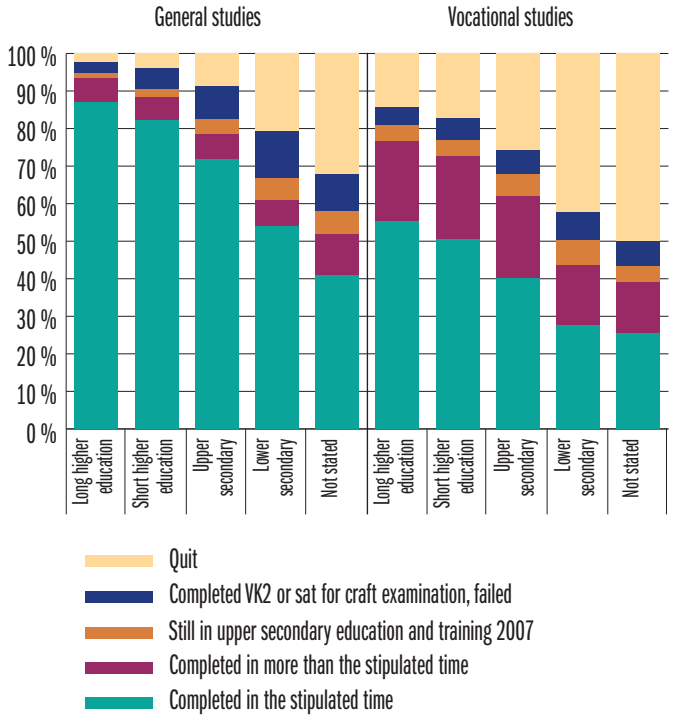
There are fairly large differences in completion and progression between pupils in programmes for general studies and those in vocational programmes. Figure 5.3 shows that pupils in vocational studies spend more time completing than pupils in programmes for general studies. More than 70 per cent of pupils in programmes for general studies completed their studies in the stipulated time, and more than 80 per cent completed upper secondary education during the youth right period. In comparison, around 40 per cent of the pupils in vocational programmes completed within the stipulated time and around 60 per cent during the youth right period.

Another major difference between pupils in programmes for general studies and those in vocational programmes is evident from the proportion quitting. The proportion of pupils quitting vocational programmes varies from 26 to 30 per cent between the four age cohorts. Corresponding figures for pupils in programmes for general studies are just below 10 per cent for all five age cohorts.

Figure 5.4 shows completion rates for programmes for general studies and vocational programmes respectively by county. A weakness in this presentation is that it is not corrected for differences in pupil distribution between counties. The differences between counties can therefore be an expression of more than the counties' efforts for completion.

For programmes for general studies, the three most northern counties have the lowest percentage completing their education and training within the stipulated time. These counties, however, have a large percentage completing in more than the stipulated time, Finnmark in particular. The percentage quitting

Figure 5.5: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohorts, by parents' highest level of education.



Source: Statistics Norway

is therefore not so far from the total average for all counties. Finnmark, Telemark and Troms are the three counties with the highest percentage quitting.

Finnmark has a particularly low percentage completing vocational programmes in the stipulated time, about half of the average. After Finnmark, Nordland and Østfold are the counties with the highest percentages of quitters in vocational programmes. There are minor differences between counties in the percentage completing in more than the stipulated time. Sogn og Fjordane, Nordland and Finnmark have the highest percentage still in upper secondary education and training. Oslo has a large percentage completing without passing. Østfold, Nordland and Finnmark are the three counties with the highest percentage of quitters.

The percentage of age cohorts completing upper secondary education and training is lowest in the northernmost counties. All three counties have low percentages completing with general university and college admissions certification or vocational qualifications and high percentages still in upper secondary education and training.

Figure 5.5 shows that completion rates in upper secondary education and training are strongly correlated with parents' level of education. This applies to both programmes for general studies and vocational programmes. The category *Not stated* largely consists of first generation immigrants where the parents' level of education is unknown.

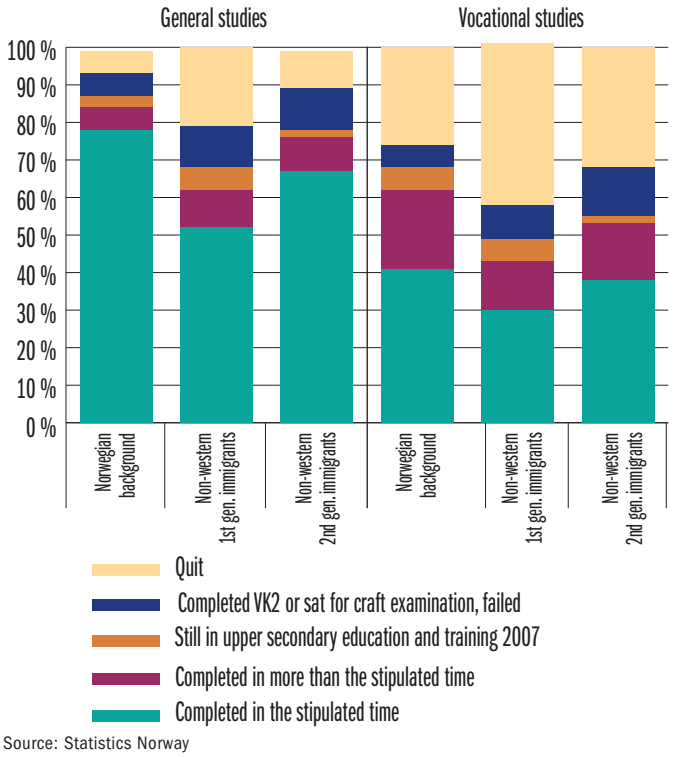
The percentage completing within the stipulated time is higher for pupils whose parents have higher education than for pupils whose parents only have upper or lower secondary school. This applies to pupils both in programmes for general studies and in vocational programmes.

For the quitters, the results are the opposite: the percentage quitting is highest for those whose parents have lower secondary school and lower for those whose parents have higher education. The percentage completing without passing is also higher for pupils and apprentices whose parents only have lower secondary school, although this pattern is not as clear for vocational programmes.

Figure 5.6 shows the extent to which pupils and apprentices in programmes for general studies and vocational programmes complete upper secondary education and training, sorted by pupils with Norwegian background, non-western first generation immigrants and non-western second generation immigrants. There is no point in singling out western first and second generation immigrants in upper secondary education and training as there are too few of them.

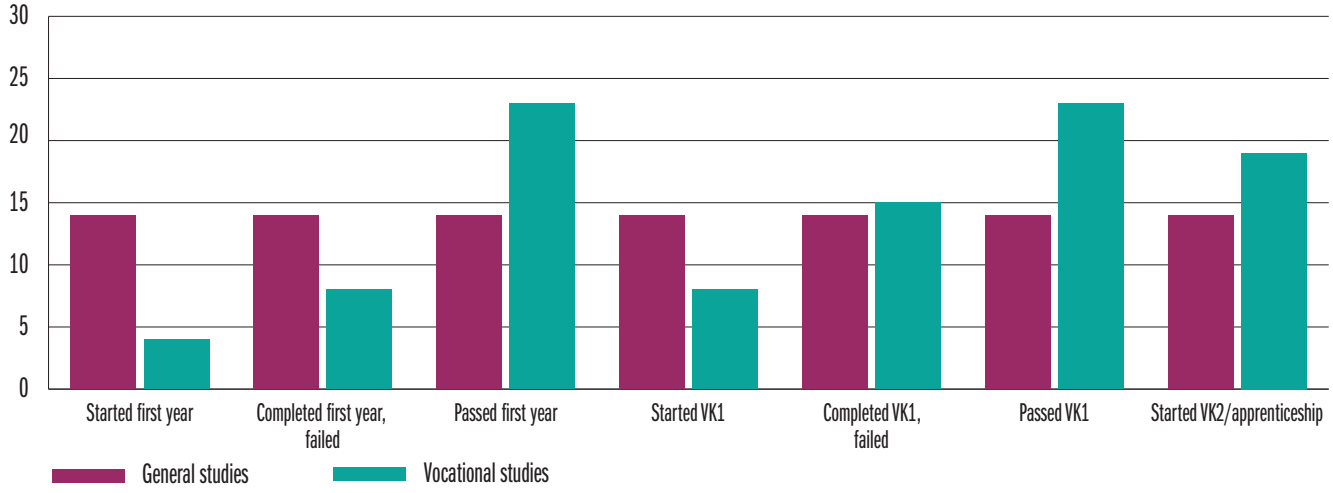
Among pupils in programmes for general studies, pupils who are first generation immigrants have lower completion rates than pupils with Norwegian backgrounds and second generation immigrants, and there is also a larger percentage of quitters. A comparison between Norwegian pupils and second generation immigrants shows that a lower percentage of second generation immigrants complete in the stipulated time and a higher percentage complete without passing.

Figure 5.6: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohorts, by immigrant background



Source: Statistics Norway

Figure 5.7: Competence achievement among quitters in the age cohorts from programmes for general studies (2002) and vocational studies (2001).



Source: Statistics Norway

In vocational programmes, first generation immigrants quit to a greater extent than second generation immigrants and pupils and apprentices with a Norwegian background. The percentage completing in the stipulated time and the percentage quitting are about the same for pupils with a Norwegian background and second generation immigrants. However, there is a larger percentage of second generation immigrants who have completed upper secondary education and training without passing.

Lødding (2009) found that early quitting from vocational programmes is an important reason why language minority pupils in upper secondary education and training do not achieve vocational qualifications to the same extent as other young people. By focusing more on minority pupils quitting from vocational programmes, Lødding found that about one in three quits before the end of their first year of training. The quitters are characterised by low average marks and high absenteeism rates in Year 10. Furthermore, completion without passing all subjects in programmes for general studies is an important reason why language minority pupils in upper secondary education and training do not achieve university and college admissions certification to the same extent as other young people. Half of them have passed up to the second year of upper secondary education and training. The subject in which they lacked pass marks to a greater extent than the majority was mathematics.

However, it is not their immigrant background in itself that causes lower completion rates and higher quitting rates in these groups, but a combination of other factors. By adjusting for the fact that pupils and apprentices with immigrant backgrounds have a lower average social background and lower marks in school, the quitting differences are outlined (Byrhagen et al. 2006).

Differences in completion rates between pupils and apprentices whose parents have low or high education levels and between pupils with and without immigrant background show that the educational system as it is today is perhaps insufficiently adapted to all groups. It may seem as if it is harder for pupils and apprentices whose parents have low education levels to complete upper secondary education and training and, if they do, more of them spend more time than is stipulated. The same applies to pupils and apprentices with immigrant backgrounds. Differences with immigrant backgrounds are partly connected to the fact that parents of pupils and apprentices with immigrant backgrounds have lower levels of education than parents of pupils and apprentices with Norwegian backgrounds.

Competence achievement among quitters

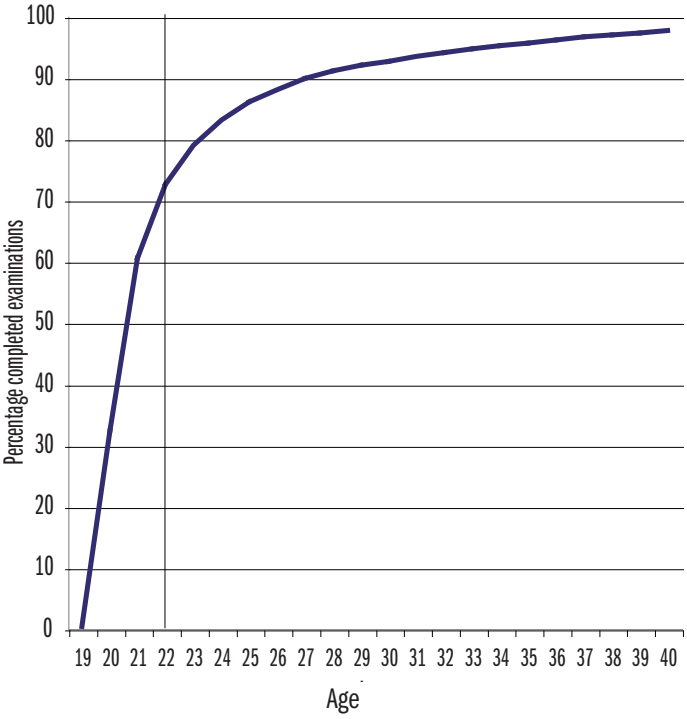
Figure 5.3 showed that a total of 7 per cent of those who started programmes for general studies in 2002 and a total of 26 per cent who started vocational programmes in 2001 quit during the youth right period. Most of the quitters in upper secondary education and training achieve part of their upper secondary competence. Figure 5.7 shows that there is a large variation in competence achievement among the quitters in upper secondary education and training. The columns show highest achieved competence among pupils and apprentices who quit and do not complete upper secondary education and training during the youth right period.

The percentage of quitters in programmes for general studies was the same for each level (14 per cent).

23 per cent of the quitters from vocational programmes have passed their first year (R94), and this is their highest competence. Among them, some pupils have only completed competence at a lower level. However, there are only 12 per cent who have not passed their first year, ie. 88 per cent of the age cohort has passed the first year. Furthermore, 23 per cent have passed VK1 as their highest achieved competence. 58 per cent have not passed VK1, ie. 42 per cent of the age cohort has completed and passed VK1.

The largest percentage quits after they have passed their first year, after they have passed VK1, and during VK2/apprenticeship. 23 per cent of the age cohort quit after they have passed

Figure 5.8: Completed craft and journeyman's examinations as of 1 October 2008, by age. Cumulative proportion. Non-revised figures.



Source: The Norwegian Directorate for Education and Training

their first year and before VK1. A similar percentage quit after they have passed VK1. The transition between VK1 and VK2/ apprenticeship is a critical phase for all pupils in transition from education in school to training in a training establishment. The reason is that there is normally not a sufficient number of available apprenticeships for all pupils who apply for one, and because training establishments refuse pupils who are hard to place. 19 per cent of the quitters from vocational programmes quit during VK2 or during their apprenticeship. Most of these are apprentices who have completed their apprenticeship but who have not sat for their craft or journeyman's examinations before the end of the youth right period. Figures show that two out of five quit vocational studies after they had passed VK1 and that the main reasons most probably are that many of them were unable to secure an apprenticeship and that many who completed their apprenticeship did not sit for their craft and journeyman's examinations before the end of the youth right period.

Competence achievement after the youth right period

The figures 5.3–5.6 show that there are many quitters from vocational programmes. The high percentage quitting vocational studies may be due to many pupils postponing the formalisation of their competence until after the youth right period. The age of the pupils and apprentices (excluding candidates for experience based trade certification) who sat for craft and journeyman's examinations between 1 October 2007 and 30 September 2008 gives us an indication of when vocational competence tends to be formalised.

Figure 5.8 primarily shows that there are many adults who sit for craft and journeyman's examinations. Assuming that most of them start upper secondary education at 16, the figure shows that measuring the status six years after they started studying (the vertical line) will not include 27.5 per cent of candidates for the craft and journeyman's examinations in this period. Considering the facts that some start vocational education after the stipulated age and that some sit for more than one craft or journeyman's examination, the real percentage can be assumed to be somewhat lower. However, most of them will be registered as quitters in completion statistics. Many of them may have had trouble securing apprenticeship contracts or have elected to wait before sitting for their craft and journeyman's examinations. The graph increases up to 10–11 years after starting studies and the proportion is then around 90 per cent.

It is an aim that as many as possible complete within the stipulated time, but many disappear from the educational system for shorter or longer periods of time. Progression delays cause many pupils to complete their upper secondary education and training as adults.

The fact that many sit for craft and journeyman's examinations as adults is one of the reasons why the level of education in the population is higher than is shown by the measurements six years after study start. There is not sufficient knowledge about why so many formalise their vocational qualifications so late or what consequences the lack of a craft certificate have for job security and payroll development. There is a need for more knowledge on what quitters from upper secondary education and training do after they have left school and how many come back and complete their education at a later time.

The follow-up service

County authorities have a follow-up service for young people who have the youth right and who are not in upper secondary education and training, cf. Section 3-6 of the Education Act and Section 13.1 of the regulations. The purpose of the follow-up service is to offer these young people education, training, work or other occupation, the primary aim of which is to increase their competence. The follow-up service also works to reduce drop-out rates from upper secondary education and training through close cooperation with the career guidance services in schools.

Section 3-6. The follow-up service

The county authority shall provide a follow-up service for young people who have the right to education and training pursuant to section 3-1, and who are neither attending a course of education nor are employed. This service shall be made available until the end of the year during which the person concerned reaches the age of 21. The service also follows up young people who have lost the right to upper secondary education and training pursuant to section 3-8 or 4-6..

Table 5.19: Young people with the youth right reported to the follow-up service as of 1 January 2006-2008, by county.

	2007		2008		2009	
	Proportion	Number	Proportion	Number	Proportion	Number
Total	22	44,661	20	43,934	21	46,948
Østfold	26	2,670	22	2,478	21	2,669
Akershus	22	5,000	14	3,550	18	4,586
Oslo	25	4,209	26	4,698	28	5,031
Hedmark	21	1,690	19	1,721	19	1,752
Oppland	23	1,567	21	1,543	20	1,749
Buskerud	23	2,219	21	2,525	24	2,934
Vestfold	15	1,658	20	2,285	24	2,721
Telemark	23	1,841	21	1,763	24	1,997
Aust-Agder	27	1,294	21	1,129	20	1,072
Vest-Agder	22	1,655	13	1,115	16	1,326
Rogaland	24	4,679	24	4,928	22	4,707
Hordaland	23	4,869	16	3,724	19	4,197
Sogn og Fjordane	19	996	18	995	20	1,126
Møre og Romsdal	22	2,665	19	2,494	23	2,924
Sør-Trøndelag	9	1,147	13	1,814	12	1,605
Nord-Trøndelag	5	302	15	1,006	14	968
Nordland	26	3,042	24	3,045	19	2,335
Troms	26	1,854	25	2,023	24	1,936
Finnmark	35	1,304	28	1,098	33	1,313

Source: The Norwegian Directorate for Education and Training

Table 5.19 shows that as of 1 January 2009 there were 46,948 persons with the youth right in the follow-up service. The number of young people in the follow-up service is higher than in previous years. Statistics are uncertain, however, and it is hard to say whether the changes are real or an expression of an unstable basis for the data. There is still a need for further development and quality assurance of the data basis for the follow-up service.

Figures show that 21 per cent of young people with the youth right were registered in the follow-up service at the beginning of 2009. There are large variations between counties in this percentage. It is uncertain whether this is due to real difference or to differences in reporting practices in various counties.

Of the 46,948 young people reported to the follow-up service, just under 12,500 are back in school or have secured apprenticeships. Just under 11,000 are involved in measures implemented by the follow-up service, and just under 4,500 are registered as not in need of services. 15,000 of the young people reported to the follow-up service are still in the system, and county municipalities have failed to contact around 11,000 of them.

6 Quality development

Quality development is a broad concept that involves several elements. This year, this chapter is about individual assessment, which is part of the work of quality development in schools.

Individual assessment comprises both ongoing[1] and final assessment. Ongoing assessment is intended to be used as a tool in the teaching process, to be the basis for adapted education and to help ensure that the pupil, apprentice or trainee improves his or her competence in the subject. It comprises learning-promoting assessment processes that in recent years have been discussed as assessment for learning in international research and professional literature. Ongoing assessment should be seen in conjunction with final assessment, which provides information about the achievement of the pupil, apprentice or trainee after the conclusion of teaching in the subject. This chapter focuses on national measures that are intended to strengthen the use of ongoing assessment and a fair final assessment.

Since 2007, trials of national criteria for goal achievement, as part of the national project *Bedre vurderingspraksis (Better Assessment Practice)*, have helped bring about a stronger focus on individual assessment in many Norwegian schools. Evaluation of the project shows that most of the teachers and school administrators who have taken part in the project have been very positive. The participants also report that they have seen work on criteria as relevant for local assessment within schools. This chapter presents some of the findings from the project, as well as findings from other national and international surveys on individual assessment.

There is little research available and few surveys covering individual assessment and other assessment in vocational education and training. For this reason, this chapter places more emphasis on pupil assessment than on apprentice assessment.

[1] Ongoing assessment is assessment given to pupils up to their final assessment in lower and upper secondary school. Ongoing assessment can be both summative and formative. Formative assessment is assessment that is used to promote pupils' learning. Summative assessment is used to summarize the pupils' learning outcome.

6.1 Assessment and learning

National trends

Several national and international surveys show that assessment practice in Norwegian schools has potential for improvement in some areas. The OECD report *Equity in Education* underlines the fact that Norway lacks systematic external assessments that could comment on pupil performance in Norwegian primary and lower secondary schools (Mortimore et al. 2006). The evaluation of Reform 97 showed that feedback given by teachers was far from systematic, especially at primary level (Haug 2004, Klette 2003). These findings can be viewed in conjunction with analyses of The Pupil Survey from recent years. These analyses point out that many pupils in both primary and lower secondary school and in upper secondary education and training find that they do not always receive subject related feedback. Surveys have shown that there is also potential for improving pupils' codetermination in the work of assessment (Danielsen et al. 2007, Skaar et al. 2008a). Surveys at both lower and upper secondary level have indicated great variations in schools around the country with regard to what forms the basis of a set of overall achievement marks in a subject (Dale and Wærness 2006).

Extract from commission number 06/2007 from the Ministry of Education and Research to the Directorate for Education and Training about measures relating to individual assessment in school and vocational education and training:

One of the overall goals of Knowledge Promotion is to improve the learning outcome of all pupils. Relevant, subject related feedback from teachers, trainers and other pupils is an important part of the learning process. Pupils have the right to information about where they stand in relation to the determined goals. It is therefore vital that teachers have sufficient competence and practice in assessment methods that both promote learning and involve the students in the assessment process.

Findings from national and international surveys have made it necessary for national authorities to strengthen and systematise assessment practice in schools. In January 2007, the Directorate for Education and Training was commissioned by the Ministry of Education and Research to set in motion a number of measures to strengthen assessment practice in Norway (Ministry of Education 2007b). This is the background to the Directorate's having begun a comprehensive programme of measures to make the regulations on individual assessment clearer, to improve assessment competence in schools and teacher training, to facilitate a more subject related and fair assessment practice and to make knowledge about individual assessment better documented.

Goal oriented assessment

It has been normal practice in schools to distinguish between norm referenced, individual related and goal oriented assessment. *Norm referenced assessment* means that one assesses a pupil against the performance of a group or a predetermined selection. *Individual related assessment* means assessing a pupil's performance based on his or her own development and own aptitude. *Goal oriented assessment*, which can also be called criteria based assessment, means that one assesses whether the pupil has attained goals that have been determined for their learning (Engh et al. 2007). The Curriculum for the Knowledge Promotion is based on the goal oriented assessment principle.

Surveys have shown that teachers at both lower and upper secondary level have combined goal oriented and individual related assessment in the overall achievement marks by allowing effort to play a part. When giving marks it has also been common to distribute marks against norms (Dale and Wærness 2006, Throndsen et al. 2009). Individual related assessment has been the norm at primary level, where marks are not given. A consequence of the transition from individual related assessment at primary level to a more goal oriented assessment at lower secondary level has been that many pupils have entered lower secondary school with an unrealistic picture of their own competence (Dale and Wærness 2006).

In the curricula for Knowledge Promotion, the performance of pupils and apprentices is to be assessed on the basis of predefined competence aims. This applies to both ongoing and final assessment. That is to say the assessment looks at how far the pupil has come in relation to the competence aims. The pupil's aptitude, conduct and absence should not be brought into subject assessment, other than in physical education in lower secondary school and when assessing order and conduct. This is detailed in chapter 3 in the regulations to the Education Act.

The regulations to the Education Act were amended in August 2007 to bring out the requirement for goal oriented assessment in education more clearly. It was emphasised that pupils should be assessed in relation to the competence aims in the subject and at the same time identical descriptions were introduced for marks given in primary and secondary education and training. In the spring of 2009 new proposals for amendments to the regulations to the Education Act were submitted. The amendments propose that there should be a joint chapter on assessment in basic education and training for primary and lower secondary schools and for upper secondary education and training, including regulations for vocational education and training. The learning-promoting perspective of assessment should be similarly strengthened. The amendments came into effect from autumn 2009.

In order to give both school owners and schools more support and guidance with local curricula, the Directorate for Education and Training has commenced a comprehensive programme of creating guidelines for local subject curricula, in which individual assessment is central. The guidelines include, for example, how to work with ongoing and final assessment in the subject and what can be assessed in terms of different levels of achievement of the competence aims. The first guidelines were published in June 2009.

The Better Assessment Practice project

As part of the work of strengthening individual assessment in Norway, the national education authorities have begun a comprehensive trial of national criteria for goal achievement, as part of the *Bedre vurderingspraksis* (*Better Assessment Practice project)*. The trials commenced in autumn 2007 and were completed in the spring of 2009.

The aim of the project has been to give teachers and pupils more guidance in the practice of assessment and to promote a subject related and fair assessment practice. At the same time, the project should provide some answers about whether national criteria for goal achievement in subjects should be introduced. The criteria were descriptions of the quality of what the students master in relation to the competence goals in the curriculum.

To find out more about the use of criteria for goal achievement, 33 school owners and 77 schools, 59 of them primary or lower secondary schools, have participated in the project. The schools have tried out four models for criteria for goal achievement in relation to competence aims in selected subject curricula.

The four models in the Better Assessment Practice project:

Model A: Schools have developed and tested criteria for high and low achievement goals in Primary school.

Model B: Schools have tested criteria, which have been developed by experts which can serve as achievement goals in Primary school.

Model C: Schools have tested criteria which have been developed by experts and which can serve as criteria for high and low achievement goals in the Primary school.

Model D: Schools have developed and tested criteria for achievement goals related to the grading system in Lower and Upper secondary school.

At both lower and upper secondary levels, the criteria should be developed in correlation with the scale of marks.

The predetermined examples of criteria used in models B and C were devised by the Directorate for Education and Training in collaboration with academic groups. The competence aims in subject curricula form the basis for devising the national criteria for goal achievement in subjects.

Teacher training institutions, local and county authorities, schools and training establishments have collaborated in the trials, with the aim of strengthening assessment competence at all levels. The Department of Teacher Education and School Development (ILS) at the University of Oslo has been continuously evaluating implementation. This evaluation has focused on the practical implementation of assessment using the criteria. School owners, school administrators, teachers and pupils at the project schools have been interviewed during the course of the project.

On the basis of experience from the project, a report with assessments and advice has been prepared and was sent to the Ministry of Education and Research in June 2009. In its report, the Directorate for Education and Training proposes to combine guideline national criteria for goal achievement with a four year programme. In this programme, schools and school owners will be offered competence development in assessment and follow up with the use of criteria. It is also proposed to begin research into the correlation between assessment and learning.

Systematic mapping and follow up

The research associated with the Better Assessment Practice project stresses that there is a need to look more closely at the extent to which attaining goals at the various stages of education is a prerequisite for further learning (Stokke et al. 2008). Information from mapping tests and national tests can provide the basis for this.

The national quality assessment system provides information about the learning outcome for the pupils and is used in development work in schools. The purpose of the various tests is to cover needs both during education and after education has been completed. The system makes it possible to see connections that can provide more information about education than can individual tests and assessments. Different forms of assessment have different intentions. Such tests can each in their own way give the teacher or trainer a varied basis for assessment to meet pupils and apprentices wherever they may happen to be in the learning process.

In recent years, national authorities have stressed the importance of assessing pupils at an early stage.

Pupils in year 2 , were introduced to mapping tests in reading skills, number comprehension and mathematics skills in spring 2008. A mapping test in reading skills for pupils in Year 1 and a voluntary mapping test in number comprehension and mathematics skills for pupils in Year 3 were introduced for the first time in spring 2009. In autumn 2009, pupils in Vg1 (upper secondary level 1) took a mapping test in mathematics.

The aim of the mapping tests is that the teacher should identify which pupils may need additional follow up and adaptation. The mapping tests contain mainly easy questions, so as to provide good information about the weakest pupils.

On the basis of a nationally representative selection of pupils' results, a critical limit has been established on the basis of the weakest 20 to 25 per cent of pupil results. This critical limit is guidance for the teachers and must be supplemented with what the teachers already know about the pupils and what the pupils have been taught. An analysis carried out by Danish Clearinghouse shows that it is the work done locally after the tests have been taken that has the greatest effect on the pupils' learning. It is important for teachers to understand how the results of the tests can be used constructively in day to day teaching (Nordenbo et al. 2009). For each of the mapping tests, guideline material has been devised that explains how the teacher can interpret results and gives some tips on how teachers can follow up the pupils who need it.

While the aim of the mapping tests is to give teachers information about which of their pupils need extra follow up, the aim of the national tests is twofold. Firstly, these tests should provide information to schools and school owners about how they succeed in developing the basic skills of the pupils. Secondly, they should give the teacher information about the skills of the pupils, with the intention of using this as a basis for adapted education in Years 5 and 8. The reading and mathematics tests are not tests in these subjects, but of basic skills for all subjects. These tests are not therefore based on the competence aims in Norwegian and mathematics, but in reading and mathematics as skills. The tests in reading English, on the other hand, are also based on certain competence aims for English as a subject. They are not intended to measure a pupil's overall competence in English, but rather English reading skills. Information from the tests is presented with the aid of a scale of various levels of attainment which gives a general impression of the skills of the group of pupils at each level.

The national tests have been much discussed in the media in recent years, partly because the results have been used to devise a league table of schools, even though this is not part of the intention of these tests. Media coverage of the 2008 national tests shows that perceptions of their value have changed. The national tests have had more positive media coverage in 2008 than in 2007. This may be linked to the fact that the schools have put in a good deal of local assessment work. In their analysis of the 2007 TIMSS survey, researchers have pointed out that the introduction of national tests may have led to attention being directed to the value of assessment and that assessment has been more thematic and debated locally in schools (Grønmo and Onstad 2008).

6.2 International trends

Report to the Storting No. 31 (2007–2008) *Kvalitet i skolen (Quality in schools)* points out the need for more knowledge about assessment that promotes learning, about the connection between assessment practice on one hand and learning outcome on the other. The report stresses that teachers' practice should be in line with knowledge and research about what works and what doesn't.

Many countries can claim much more research into the area of assessment than Norway. In England, several research projects and studies have been carried out over the last 10 years on the connection between assessment and learning. The *Assessment Reform Group (ARG)* has been central to this work. In 1998, two researchers in this group, Paul Black and Dylan Wiliam, published an article about the consequences of assessment in schools. This article was subsequently published as a pamphlet for teachers entitled *Inside the Black Box – Raising Standards Through Classroom Assessment*. This work resulted in a research project in 1999 that was financed by the British government.

Assessment for learning

The findings of the research carried out by the Assessment Reform Group have shown that assessment can have both positive and negative consequences for pupils' learning. If results and marks are used to promote competition in schools, this can affect pupils' motivation to learn. If pupils are given feedback about where they stand, and where they are headed, in the learning process, this can improve their motivation. This applies especially to the weakest pupils (Black and Wiliam 1998). Clear learning goals, constructive feedback that emphasises what the pupil can do to improve and also pupil participation are elements that are put forward as important for learning. Other comprehensive research projects show the same tendencies (Hattie 2009, Nordenbo et al. 2008).

On the basis of the Assessment Reform Group's work, the OECD published a book about assessment for learning in 2005. The book referred to schools in Canada, Denmark, Finland, Italy, New Zealand, Queensland in Australia, England and Scotland that have worked systematically on learning-promoting assessment practice at lower secondary level (OECD 2005).

In this chapter, England and Scotland are used as examples of countries that have been working with assessment for learning over an extended period. Both countries have implemented national strategies for improving teachers' assessment practice.

Assessing Pupils' Progress in England

In England, there has been a strong focus on tests and mapping pupils' results since the early 1980s. The results have been used to make schools, teachers and pupils more responsible. They have also been used to devise league tables for schools (Stobart 2008).

In 2002, the Qualifications and Curriculum Authorities published guidelines, devised by the Assessment Reform Group, which laid out ten research based principles for how assessment can be used as a tool for teaching. The guidelines are meant as an aid for teachers, but should also help local and central authorities, student teachers and researchers (ARG 2002, OECD 2005).

In autumn 2008, the English authorities introduced a new national strategy, *Assessing Pupils' Progress (APP)*, which was intended to strengthen the learning-promoting aims of assessment. APP is a process of structured periodic assessment for mathematics, reading and writing. It supports teachers by promoting a broad curriculum and by developing teachers' skills in assessing standards of attainment and the progress children have made.

The APP strategy is designed to strengthen teachers' assessment competence through their:

- using information about pupils' strengths and weaknesses to improve teaching and pupils' learning and development
- performing reliable assessments that relate to national standards and that are based on a broad range of evidence
- mapping pupils' progress and development.

For all subjects in the national curriculum, there are national standards of achievement, expressed through descriptions

of competence at eight levels. These standards should help teachers, pupils and parents or guardians to understand where the pupil is in relation to the level expected for his or her age (QCA 2009).

The aim of the strategy is to strengthen teachers' assessment competence by stressing that assessment is part of day to day teaching and should help to promote learning. This is in line with the advice of the Assessment Reform Group that assessment must be seen in conjunction with day to day teaching in the classroom (ARG 2002).

Assessment is for learning in Scotland

Based on the work of the Assessment Reform Group in England, the Scottish education authorities initiated a countrywide survey in 1999.

This survey, which involved all parts of the educational system, showed that there was a need for change in three areas especially:

1 A need for better understanding of how assessment can be made into part of day to day teaching and learning in the classroom.
2 A need to reassess the relationship between assessment for learning and assessment as a tool for accountability.
3 A need for documentation of pupil competence in a way that maintains the focus on learning.

As a result of this, a political initiative was taken to develop a coherent assessment system with the focus on assessment for learning. This is the background to Scotland's present national scheme, *Assessment is for learning (AifL)*, by which assessment should be seen in relation to learning (OECD 2005).

The programme is now in its eighth year. All schools in Scotland have participated in the programme or have been given the opportunity to do so. Schools are part of the programme for one year and can apply to continue for a further year.

Assessment is for learning (AifL):
AifL emphasises three forms of assessment:
- *Assessment for learning* is the day to day assessment in the classroom, the intention of which is to promote learning.
- *Assessment as learning* is about pupils using assessment as a tool for learning about how they learn.
- *Assessment of learning* is about giving a fair assessment of the pupils' competence in relation to national criteria for goal attainment.

AifL has led to changes in assessment practice and the assessment culture in Scotland. Data indicate that this assessment practice has increased motivation among both teachers and pupils and improved the pupils' goal attainment. An AifL school must fulfil ten quality criteria for good assessment practice. These criteria are used by the teachers and school owners in their assessments. An AifL school is a school in which everyone learns in fellowship (Hutchinson and Hayward 2005).

International trends in assessment for learning may be seen in the light of several English speaking countries having placed a strong focus on results and accountability in schools over the last 20 years. In most cases the results have been used to rank schools and pupils, rather than as a basis for adapted education. This has often encouraged a "teach to the test" mentality in both pupils and teachers and has in many cases had a negative impact on learning-promoting assessment (Black and Wiliam 1998, Stobart 2008). By teaching to the test, teachers are only teaching what the pupils will be assessed in. Trends in England and Scotland are in contrast to the assessment culture in Norway, where accountability for results has played a more minor role in recent years.

6.3 Focus on formative assessment

In order to strengthen schools' work with formative assessment, the Directorate for Education and Training has published a brochure about formative assessment in subjects. This brochure is intended as information and as a basis for discussion about practice in the individual school. The content of the brochure is in line with international research (Black and Wiliam 1998, Sadler 1989, Hattie and Timperly 2007), which points out four principles for assessment that promotes learning.

Learning can be improved if pupils:
- understand what they are to learn and what is expected of them
- get feedback that tells them about the quality of their work or performance
- get advice about how they can improve
- are involved in their own learning process, for example by assessing their own work and development

These four principles require a focus on teachers' assessment competence, clear goals, constructive feedback and pupil participation in assessment.

Focus on teachers' assessment competence

Danish Clearinghouse was commissioned by the Ministry of Education and Research in 2008 to carry out a systematic review of what forms of teacher competence led to improved learning for children and young people. In brief, the studies revealed that, over and above the teacher's academic insight into the subjects taught, there are three forms of competence that are important for what the pupils learn:

- Didactic competence: high academic level combined with the ability to convey the subject
- Competence as a leader: setting a clear lead in the work of teaching and having the ability to give pupils responsibility for devising and maintaining rules
- Relationship competence: activating and motivating the pupils and the ability to take the pupils' different aptitudes into consideration

The report also points out that pupils' learning can be increased if the teacher has clear goals and explicitly formulated

rules for teaching, as well as being a clear leader. At the same time it is important for the learning outcome that the teacher supports and motivates the pupils (Nordenbo et al. 2008).

Report to the Storting No. 11 (2008–2009). *Læreren. Rollen og utdanningen (The teacher: the role and the education)* emphasises the findings of the Danish Clearinghouse report and points to the teacher's assessment practice as important for learning. The report stresses that it is vital for the teacher to develop and communicate clear goals for teaching and criteria for goal achievement, to facilitate self assessment among pupils and to give feedback that the pupils can learn from.

In line with the new requirements for teachers, the Directorate for Education and Training, in collaboration with ten universities and university colleges, has been working on the development of further education for teachers in which pupil assessment is one of five priority areas. The further education offered will be relevant to the participants' practices and will emphasise ongoing assessment. In this context, special material will be prepared which the teacher can use in pupil assessment work. The new further education scheme will be offered from autumn 2009.

Clear goals and criteria for goal achievement

The results of evaluation of the Better Assessment Practice project indicate that in 2008 more and more teachers made use of the criteria for goal achievement in their own assessment work. On average 70 per cent of teachers respond that they have been using the criteria in their communication with pupils about assessment. The corresponding figure in the first survey that was carried out was about 35 per cent. A difference between the various levels of education was noted: 81 per cent of teachers at both lower and upper secondary levels gave a positive response to this question, while the corresponding figure for primary school teachers was 63 per cent (Throndsen et al. 2009).

Experience from the trials shows that, for pupils in Year 10, those at participating schools find more often than those at other schools that the teacher has talked with them about what is needed to achieve a specific mark in a subject. While 80 per cent of the project pupils agree or strongly agree that the teacher has talked with them about this, only 60 per cent of the control group say the same. There is also more agreement among the project pupils than the control group regarding the question of whether the pupils are aware of what is needed to get the various marks (79 per cent against 65 per cent). This may indicate that the project has had a positive effect on pupils in year 10 when it comes to knowledge of what the marks mean and what is needed to attain them (Throndsen et al. 2009).

The 2008 Pupil Survey has three questions that are classified as knowledge about goals. The questions ask whether pupils knew what they were to learn in the various subjects, whether the teacher had spoken about the requirements for attaining the various marks and whether the pupils were aware of the competence aims in the curriculum. If we group together the answers "in many subjects" and "in all or most subjects", 71 per cent of pupils knew what they were to learn, 51 per cent knew the mark requirements and 38 per cent knew the competence aims. The remaining pupils knew the goals and requirements in just some or a few subjects. It has been pointed out in previous analyses of the Pupil Survey that schools face a challenge here (Skaar et al. 2008a).

In the analysis of the 2008 Pupil Survey, the researchers found positive connections between motivation and effort among pupils on one hand and knowledge about goals, affinity and teachers' assessments on the other hand (Skaar et al. 2008a). This accords with international analyses and research which indicate that clear goals are relevant for creating good assessment processes that promote learning (Black et al. 2006, Hattie and Timperly 2007, Nordenbo et al. 2008).

At present no national analysis is performed on responses in the Apprentice Survey. The reasons are the low response rate in the counties that use the survey and the fact that a number of counties do not use it at all. The response rate in the six counties that received responses varied from 7 to 40 per cent, as well as varying a great deal from subject to subject. Response rates between 50 and 75 per cent must be used with caution, but can show trends. See chapter 4 for more about user surveys.

In Nord-Trøndelag, the subject health and social studies had a response rate of 54 per cent in the Apprentice Survey and 51 per cent in The Trainer Survey. 35 per cent of apprentices in this subject respond that they receive information about the goals in the curriculum to a *great or very great extent*. The Trainer Survey of the same subject shows that 65 per cent of trainers believe that they give apprentices information about the goals in the curriculum to a great or very great extent. Further, 43 per cent of apprentices say that they receive information about what criteria they are assessed on to a *great or very great extent*. The Trainer Survey shows that 68 per cent of trainers say that they give apprentices information about what criteria they are assessed on to a *great or very great extent*. These findings indicate that there is a relatively large gap between how the trainers believe they inform about goals in the curriculum and the perception of the apprentices (Skaar et al. 2008b).

Feedback and guidance

In the evaluation of the Better Assessment Practice project, over 80 per cent of teachers in primary and secondary education and training respond that criteria for goal attainment can help produce more relevant feedback to the pupils (Throndsen et al. 2009).

Feedback can be used to give pupils answers to the following:

1. Where am I going? One can respond to this by pointing to clear goals and criteria that show the way.
2. Where am I in the learning process? Feedback here can show where the pupil stands in relation to the goals that are to be achieved.
3. What is the next step? Feedback here can show what the pupil can do in order to improve. This kind of feedback can be called "feedforward" (Hattie and Timperly 2007).

This last point regarding feedforward has the greatest effect on the pupils' learning (Hattie and Timperly 2007).

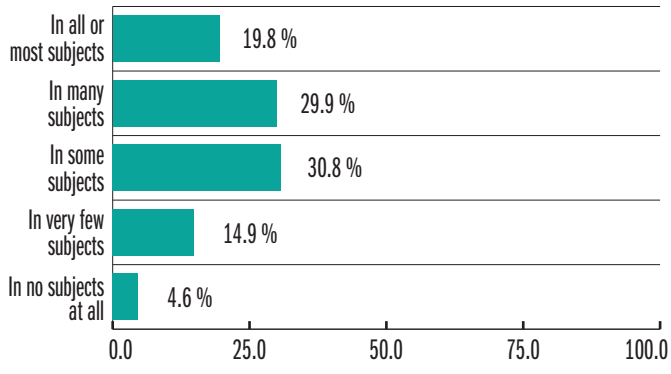
The surveys have shown that marks without comments do not support the pupils' learning as much as descriptive feedback that relates to where each pupil is in the learning process. Moreover, a strong focus on marks and results can have an effect on the intrinsic motivation to learn (Black et al. 2006, Deci et al. 1999).

Section 3 of the regulations to the Education Act points out that marks as part of the ongoing assessment should be supplemented with guidance on how the pupil can improve in the subject. Feedback should be related to competence aims and point forward to the competence the pupil should develop.

In the Better Assessment Practice project, almost all teachers (about 96 per cent) agreed or strongly agreed that they explain to each pupil what he or she should do in order to improve in the subject and what the pupil has mastered. This applies to teachers at all levels. In response to the question whether the teacher explains to pupils what is required in order to attain various levels of goal achievement, the percentage is still high (96 per cent) among lower and upper secondary teachers, while fewer primary school teachers (60 per cent) say they do this (Throndsen et al. 2009).

Responses to the surveys in Better Assessment Practice indicate that how teachers see their own assessment practice does not correspond with how it is perceived by pupils. About half the pupils who participated said that they are well aware of what they must do in order to improve in the subjects included in the project. In primary and lower secondary schools, these were Norwegian, mathematics, social science and food and health, while the pupils in upper secondary education were asked to respond with regard to Norwegian and mathematics. It appears that the proportion of pupils who answer *In all or most subjects* varies somewhat from level to level. Endorsement is highest at primary level (59 per cent) and lowest at lower secondary level (46 per cent). In upper secondary education and training, 51 per cent of pupils respond that they know what they must do in order to improve in the subject (Throndsen et al. 2009).

Figure 6.1: Do the teachers tell you what you should do to achieve better results in the subjects? Per cent.

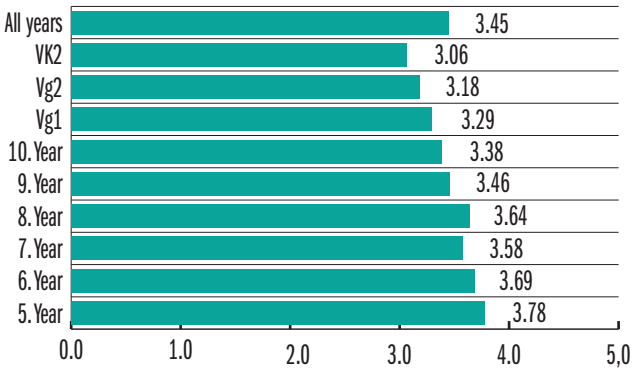


Source: Skaar et al. 2008a

The findings from Better Assessment Practice correspond to the findings from the 2008 Pupil Survey, in which pupils in Year 7, Year 8 and VK2 responded to questions about whether teachers tell them what they should do in order to achieve better results in the subject (see figures 6.1 and 6.2) and how often teachers tell them what they should do in order to achieve better results in the subject (see figures 6.3 and 6.4). (VK2 is the third year of upper secondary education after Reform 94 and corresponds to the present Vg3.)

Figure 6.1 shows that most pupils (30.8 per cent) find that teachers tell them what they should do to achieve better results in some subjects. 19.8 per cent of pupils reply that this applies in most subjects and 29.9 per cent that it applies in many subjects. Finally, there are 19.5 per cent of pupils who reply that teachers tell them what they should do to achieve better results in very few subjects or none at all. This represents about 60,000 pupils (Skaar et al. 2008a). These results show that there are still many teachers who do not give the pupils feedback that could strengthen their learning.

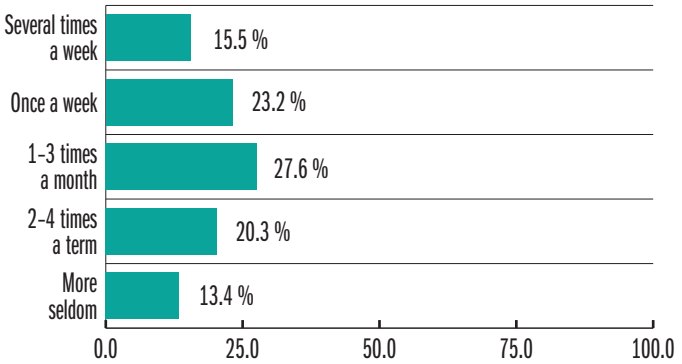
Figure 6.2: Do the teachers tell you what you should do to achieve better results in the subjects? Year.



Source: Skaar et al. 2008a

From figure 6.2 we can see that the pupils' experience that teachers tell them what they should do to achieve better results in subjects is highest in Year 5 and decreases thereafter up to and including VK2.

Figure 6.3: How often do the teachers tell you what you should do to achieve better results in the subjects? Per cent.



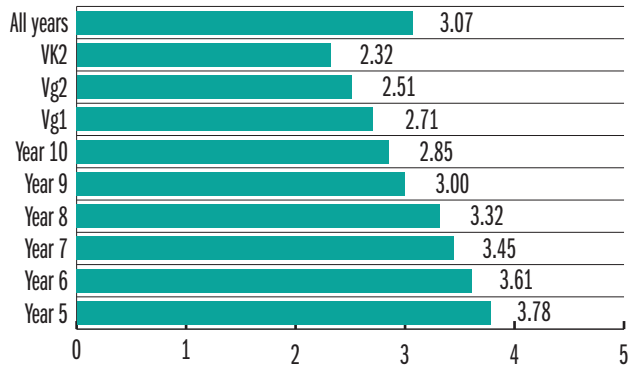
Source: Skaar et al. 2008a

Figure 6.3 shows that over half the pupils are told what they could do to achieve better results in the subject one to three

times a month or less. Research shows that one should give subject-relevant feedback frequently during teaching, so that pupils have the opportunity to adjust their work and their own learning strategies (Black et al. 2006, Popham 2008).

How often teachers tell pupils what they should do to achieve better results in subjects varies very much from year to year.

Figure 6.4: How often do the teachers tell you what you should do to achieve better results in subjects? Year.



Source: Skaar et al. 2008a

Figure 6.4 shows that the average for all years is 3.07. This indicates that the pupils find that teachers tell them what they should do to achieve better results one to three times a month. We see the highest score for Year 5 (3.78), where on average pupils find that teachers tell them this once a week. We see the lowest score (2.32) at VK2. There pupils respond that on average teachers tell them what they should do to achieve better results in subjects two to four times a term. We can see that the average for how pupils perceive guidance in subjects decreases greatly from Year 5 to VK2 (Skaar et al. 2008a). This is in line with the findings from Better Assessment Practice (Throndsen et al. 2009).

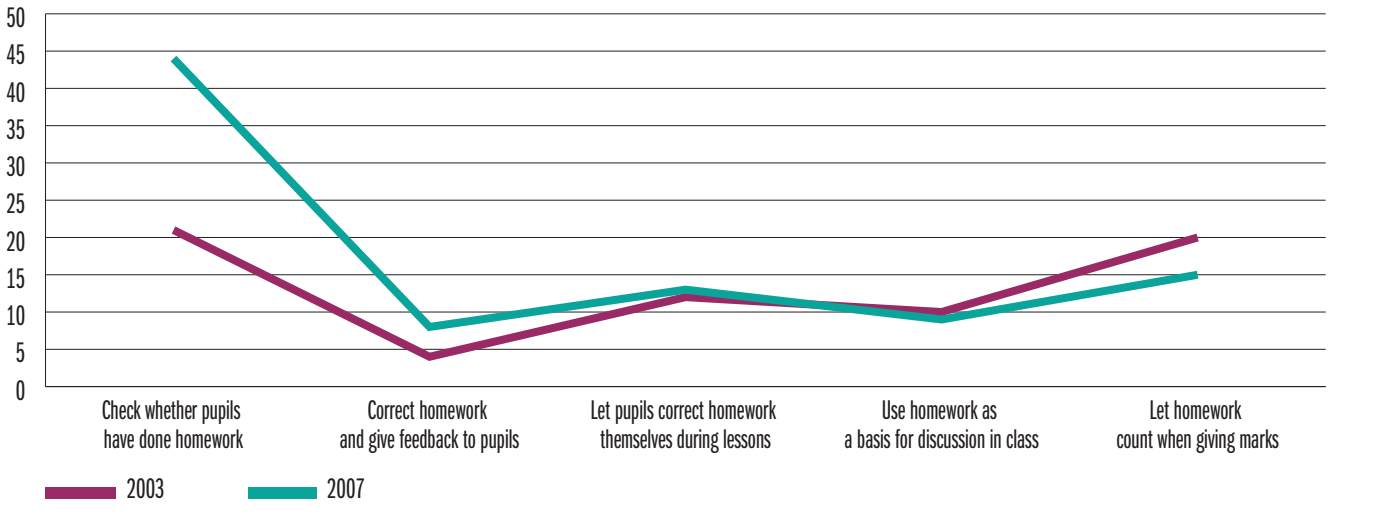
In the analysis of the 2008 Pupil Survey, the pupils' experience of how often teachers tell them what to do to achieve better results in subjects is similar in 2008 and 2007 (Skaar et al. 2008a). The international *Trends in International Mathematics and Science Study* 2007 (TIMSS) shows however that feedback on homework has progressed since 2003. The TIMSS 2003 report showed that Norwegian mathematics teachers in Year 8 gave a similar amount of homework to teachers in other countries, but in Norway there was much less follow up from the teachers in the form of giving feedback on pupils' homework (Grønmo and Onstad 2008).

Figure 6.5 shows the percentage of teachers who respond that these activities occur in about half the lessons or more often. The figures show that there has been a marked increase in the number of maths teachers responding that they follow up on homework by checking that pupils have done it and there has been a moderate increase in the percentage responding that they correct homework. It would appear that teachers have taken the signals from the TIMSS 2003 report about weak follow up of homework seriously. The researchers claim that, when we look at improved follow up on homework in conjunction with the greater focus on assessment, at school and classroom level, systematic teaching appears to have improved since 2003 (Grønmo and Onstad 2008).

Pupil participation in assessment

Several international studies put forward pupil participation in assessment as being important for learning (Black et al. 2006, Nordenbo et al. 2008). By pupil participation we mean the real opportunity pupils have to affect choices regarding their learning and development in a subject. Self assessment is an example of a method that gives pupils an overview of their development in a subject. Self assessment can strengthen pupils' learning (Black and Wiliam 1998). It also appears to increase pupils' learning if they teach and give feedback to each other (Nordenbo et al. 2008). Self assessment is laid down in the regulations to the Education Act. *Principles for Education* (Ministry of Education 2006b) emphasises a learning environment that provides room for collaboration, dialogue and democratic processes. Findings from the research associated with Better Assessment Practice and analysis of the Pupil Survey 2008 show that there is potential for improving pupil participation in schools.

Figure 6.5: Use of homework in mathematics, Year 8. Per cent.



Source: Grønmo and Onstad 2008

Table 6.1: Pupil participation in assessment. Per cent.

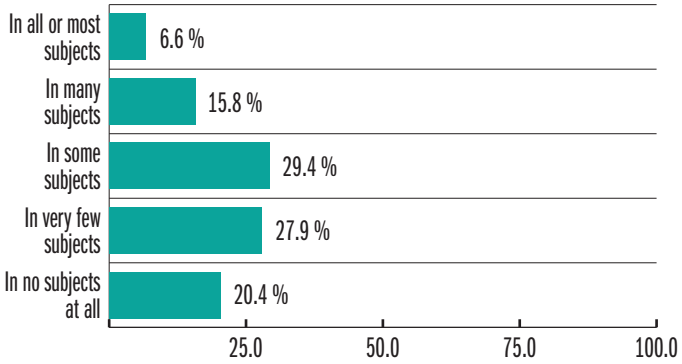
	Primary	Lower secondary	Upper secondary
The teachers ask me how I assess my own work in the subjects named above	61	40	35
The teachers ask if I have suggestions for how I should work in order to improve in these subjects	74	47	49
The teachers ask me to assess my own work in relation to the competence aims in the curriculum	64	40	37
The teachers ask pupils to assess each other's school work	54	39	30
The teachers allow pupils to take part in deciding what should be emphasised when work is assessed	50	36	31

Source: Throndsen et al. 2009

Table 6.1 shows the percentage of pupils from the Better Assessment Practice project who agree or strongly agree with various statements about pupils' participation in assessment. The findings indicate that pupils at the primary stage are more involved in assessment than older pupils. This trend is consistent and applies to all the statements about which pupils were asked to respond. When we compare this with the control group pupils in Years 7 and 10, we find the same tendency there. The proportion of pupils who agree or strongly agree is often larger in the control group. In this area it therefore appears that the project has not had any measurable effect so far.

Findings from the Better Assessment Practice project are in line with the analysis of the 2008 Pupil Survey; both indicate that codetermination for pupils in the work of assessment could be improved.

Figure 6.6: May you take part in decisions on what is to be emphasised when your work is to be assessed? Per cent.

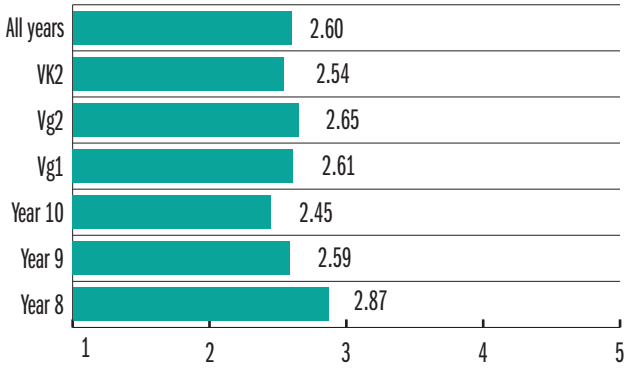


Source: Skaar et al. 2008a

Figure 6.6 shows that only 6.6 per cent of pupils are allowed to help determine what should be emphasised when their work is assessed in all or most subjects. More than 20 per cent respond that they do not have the opportunity to do this in any subjects at all. Responses from the Pupil Survey in 2008 show that there is potential for improvement in this area and that there has been no significant progress since analysis of the Pupil Survey in 2007 (Danielsen et al. 2007).

Figure 6.7 shows the differences between years regarding whether pupils are allowed to help determine what should be emphasised when their work is assessed. Almost all the results indicate that pupils in some subjects are involved in such decisions. We see the highest score (2.87) in Year 8. The lowest score (2.45) is in Year 10. It is only in Year 10 that we see

Figure 6.7: May you take part in decisions on what is to be emphasised when your work is to be assessed? Year.



Source: Skaar et al. 2008a

a score below 2.50 and this is also where students are only involved in determining what should be emphasised when their work is assessed in very few subjects (Skaar et al. 2008a).

In the 2008 Pupil Survey, the following question was also put: *Do teachers ask how you assess your own schoolwork?* 24 per cent of pupils respond that teachers ask about their assessment in all or most subjects or in many subjects. But 46 per cent say that teachers ask them *in very few subjects or in no subjects at all.*

Analysis of the 2008 Pupil Survey looked at the connection between codetermination and guidance. It also looked at the connection between codetermination and pupils' experience of getting help and support in teaching and in adapting education. The analysis concludes that there is a connection, in that where codetermination gets a high score, so does the question about guidance and the question about how the pupil assesses help and support in teaching and in adapting education. The analysis interprets this as codetermination having several positive knock on effects (Skaar et al. 2008a). This is in line with other research which indicates that pupil participation has a positive effect on learning and pupils' development (Black et al. 2006).

6.4 Improving strategies for final assessment

On the basis of goal oriented assessment, the final assessment, just like the ongoing assessments, should be made in relation to the competence aims in the curriculum. The final assessment covers overall achievement grades, final examinations and assessment of craft and journeyman's examinations.

Assessment of competence examinations and assessment of total qualifications are also considered final assessments.

Overall achievement grades

The overall achievement grades are intended to provide information about the competence the pupil has attained in the subject at the conclusion of lower secondary school and in subjects in upper secondary education and training. The overall achievement grade should express what the pupil has mastered in relation to the combined competence aims for the subject. The implication is that in most subjects the results of a single examination cannot be decisive. A test that measures only part of a pupil's competence in a subject is not a good enough basis for assessing the pupil's total competence in that subject.

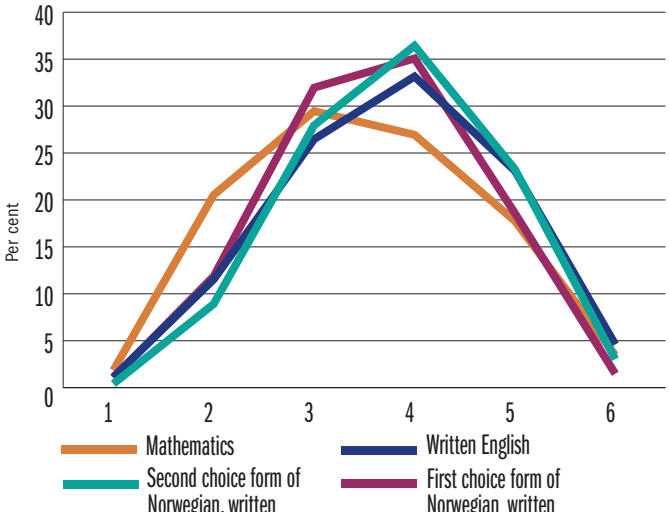
As mentioned, surveys and research have shown that similar performances are given different overall achievement grades. Since there has not been a common standard for goal achievement, teachers have given marks on different bases and many have allowed the pupil's effort to affect the marks (Dale and Wærness 2006).

Experience from Better Assessment Practice indicates that as many as six teachers out of ten agree that effort and activity should count when assessing a pupil's competence in a subject. These results may indicate that clarification is needed in order that assessment should be in line with prevailing regulations (Throndsen et al. 2009). The associated research shows that there is a connection between the perception that teachers have of the usefulness of criteria and their opinion on whether pupils' effort or activity and interests should count when assessing a subject. That is to say that, in schools where teachers believe that pupils' effort and interests should be included when assessing competence in a subject, the teachers believe that working with criteria has been less useful (Throndsen et al. 2009).

Other factors may also affect overall achievement grades in subjects. Analyses of connections between pupils' performance in school has given findings that may indicate that the social background of a group of pupils affects their overall achievement grades. Hægeland et al. (2005) point out that there is a tendency for a pupil whose fellow pupils have an advantageous social background to receive somewhat lower overall achievement grades. On the other hand it appears to be somewhat easier to achieve higher overall achievement grades if one's fellow pupils have a less advantageous social background. This is not the case with examination marks. The researchers have arrived at this conclusion by comparing pupils' overall achievement grades with their examination marks. The analyses are based on data from pupils in their final year (Year 10) in spring 2002 and 2003 (Hægeland et al. 2005). Analyses of school results in 2007 show the same tendencies (Gravaas et al. 2008).

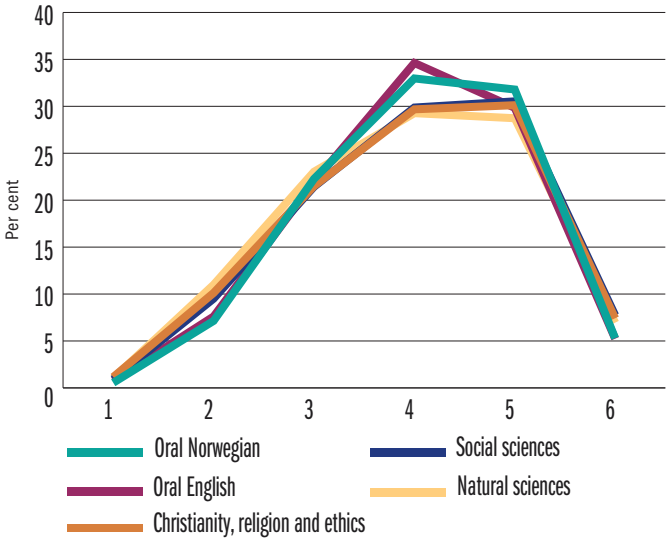
Statistics on the marks given in 2008 show that the overall achievement grades awarded in different subjects vary according to whether a particular subject leads to a written or oral examination or no examination at all.

Figure 6.8: Overall achievement marks in subjects where pupils may take a written examination. 2008.



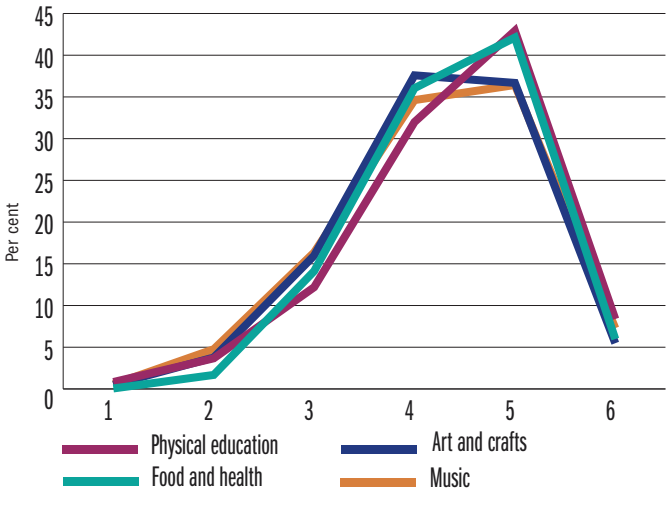
Source: Statistics Norway

Figure 6.9: Overall achievement marks in subjects where pupils may take an oral examination. 2008.



Source: Statistics Norway

Figure 6.10: Overall achievement marks in subjects where there is no examination. 2008.



Source: Statistics Norway

Figures 6.8–6.10 show how overall achievement marks were awarded in 2008. The subjects have been grouped according to whether they have a written or oral examination or no final examination at all.

The figures show that overall achievement marks in subjects where some of the pupils are given a written exam follow normal curves at a national level quite closely. But in overall achievement grades in most subjects with an oral final exam, many more pupils achieve marks of 4 or 5. In subjects without a final exam there is a clear predominance of marks of 4 or 5. Overall achievement marking in the practical and aesthetic subjects can hardly reflect the competence and skills of pupils in the subjects when 75 to 80 per cent of pupils have high achievement (marks of 4 to 6) in these subjects at national level.

Criteria for goal achievement and standards could be vital for reliable marking and might help to promote fair judgements in final assessments (ARG 2006, Wikström 2007). Experience from Better Assessment Practice indicates that teachers think the criteria are useful when determining marks. 9 out of 10 teachers involved with the project say they agree or strongly agree that the criteria:

- clarify for the teachers what the different marks mean
- lead to them assessing on the basis of criteria when giving the marks
- clarify for pupils what the different marks mean.

Comparisons between years show very little difference between teachers at lower secondary and upper secondary levels on this point (Throndsen et al. 2009).

Assessment by examination

For national exams, the Directorate for Education and Training determines how the examination in each subject should be organised, what the examination questions will be, the date of the exam and how marking should be carried out. The local authority is responsible for implementation of all local examinations. The subject teacher must prepare proposals for examination questions. The pupil must be informed which subjects he or she will be tested in at least 48 hours before the examination.

The examination assessment should be based on the pupil's performance in relation to competence aims in the curriculum. In order to make it possible to complete the examination during the time available, the exam questions cover fewer competence aims in the subject than the overall achievement grades.

Assessment guidelines with criteria for goal attainment have been prepared for most examination subjects. The guidelines include examples of criteria that are linked to the different marks, but do not replace the stipulations regarding individual assessment in the regulations to the Education Act. The criteria are intended to give examiners guidance in what characterises the different marks and this can promote a fairer assessment practice in the school. The assessment guidelines also have a learning-promoting intention in that teachers can explain the criteria to pupils before the examination.

Another measure that has been initiated to promote the fair practice of examination assessment is national training for examiners in all subjects. This training for examiners is intended to help ensure that examiners interpret marking for national examinations in the same way. An important part of the course is group discussion in which the examiners discuss their way to a common basis for assessment of the examination questions, based on curricula, assessment guidelines, examination questions and pupils' answers.

Craft and journeyman's examinations

The final assessments in vocational education and training are craft or journeyman's examinations. These are examinations in which the candidate plans a piece of work, chooses methods, implements, assesses and documents the work and gives reasons for his or her choices. The examination is therefore made up of three parts: planning, implementation and documentation. All three parts count towards the assessment.

Research based knowledge about assessment and learning in vocational education and training is insufficient and there is a great need for more research in this area. This was underlined in the report of the Karlsen committee, Official Norwegian Report (NOU) 2008:18 *Fagopplæring for framtida (Vocational education and training for the future)*. The committee therefore offers proposals for strengthening research in this area. The report comments that there is a particular need for research based knowledge about learning-promoting assessment practice in schools and training establishments, developing assessment criteria, the quality of the work of the examination boards and how to establish and maintain subject standards, including interdisciplinary standards (Ministry of Education 2008b).

The project *Alternative vurderings- og prøveformer i fagopplæringa (Alternative forms of assessment and examination in vocational education and training)* was initiated by the Ministry of Education, Research and Church Affairs in 2000. It covered certain subjects and county authorities and was concluded in the autumn of 2003. The intention was to arrive at a wider assessment that was more in line with the curricula than had been possible with the ordinary examinations. The trial was based on apprentices taking several smaller examinations as a part of the ongoing assessment that were put together according to criteria for the subject examination: planning, implementation, documentation and assessment. The exams were adapted to the level and experience of the apprentice. In this way the apprentice received training and preparation for the craft or journeyman's examination, while the organisation of teaching led to more reflection and participation in the pupil's own learning situation. The smaller examinations (at least one every term) counted towards the final marks, together with a final examination that was somewhat less extensive than a normal craft or journeyman's examination (Havn and Buland 2003).

Based on experience from this trial the county authorities in Hedmark, Oppland, Troms and Østfold collaborated on a project that was named *Vandreboka (The Companion Book)*. This is to facilitate a systematic form of work throughout upper secondary education in schools and training establishments. *Vandreboka* uses portfolio assessment as its method throughout its four year course and the intention is to make pupils and apprentices more aware of their own learning strategies. Planning, implementation, assessment and documentation of the work of pupils and apprentices are seen in conjunction. This project commenced in autumn 2004 and was concluded in spring 2009, with the exception of a small group who have a six month longer learning period.

6.5 The role of school administrator and school owners in the work of assessment

The results of evaluation of the Better Assessment Practice project indicate that a committed school administration is important when a process of change is going on in a school. In the surveys, teachers in schools where one person from the school administration acts as project manager say that they are more satisfied with working with criteria than do teachers at schools where the administration is not as strongly involved (Throndsen et al. 2009).

Report to the Storting No. 31 (2007–2008) Quality in schools

The schools that have particularly good results are characterised by having a common school culture in which teachers and administrators work towards common goals and in which the basic values are reflected in the practical work with the pupils. In order to lead the school in the right direction, the head teacher must have insight into the academic and educational work. The head teacher must understand pedagogical methods and what characterises the effective teaching of different groups of pupils, must know about curricular work and pupil assessment and have the ability to establish and follow up rules for order and conduct.

Similar findings have been seen in the programme *Knowledge Promotion – from words to action*. The experience from this programme has been that school administrators, through systematic follow up and guidance, can help teachers to develop their assessment competence and become more proficient in the work of ongoing and final assessment. The school administrators have a key role in the work of development and change and the head teacher is particularly important. Administrators must be active, committed, clear, visible, involving and persevering, they must focus on the work and follow it up (Synnevåg 2009).

New requirements for assessment in schools mean new requirements for the competence of school administrators. One measure that is intended to help increase the assessment competence of school administrators is the national education programme for head teachers that commences in autumn 2009. In this connection, a professional framework for school administration, which also includes assessment competence, has been devised. Of the five nationally defined expectations and competence requirements for head teachers, learning results and the learning environment for pupils have been put forward as the most important areas. This also includes the introduction of emerging pedagogies, pedagogic and didactic processes and conditions for learning. By taking the new education programme, head teachers should gain awareness of and knowledge about the use of relevant tools for quality development, assessment, mapping, analysis, documentation and interpretation of exams, as well as knowledge about the surveys into the learning environment (Directorate for Education and Training 2008b).

The national education authorities' initiative of a national education programme for head teachers is intended to help provide school owners with resources, competence and assistance in ensuring good and relevant competence development for school administrators. The aim is to support and help the school owners and the education programme for head teachers is seen as a way of making such support more concrete and of introducing new forms of collaboration with school owners. It is vital that the training of administrators does not undermine the ownership responsibility of the local authorities and that the government and the local authorities cooperate well (Ministry of Education 2007-2008).

Evaluation of the Better Assessment Practice project indicates that the school owners' follow up has been important to the progress of the project. On the question of the role of the school owner in the project, school owners report that they have primarily been responsible for conveying information from the Directorate for Education and Training to the project schools, motivating and following up (97 per cent). They have also had meetings with administrators at the schools and have established contact with and coordinated collaboration with an external resource centre (84 per cent). Beyond this, many school owners (74 per cent) respond that they have taken part in professional discussions at the project schools, organised collaboration between the project schools and been active in the schools' work with the project. The school administrators were also asked to assess the school owners' participation in the project. Of those who responded to this question, 8 out of 10 were satisfied or very satisfied with their school owner (Throndsen et al. 2009).

The researchers also found that, at schools where teachers are positive about the usefulness of criteria for goal achievement, the school administration is satisfied with the commitment of the school owner. There was also a significant connection between the positive perception by teachers of the value of working with criteria and the school owner having had regular meetings with teachers and organised collaboration between the project schools. These findings may be an indication that the commitment of the school owner has had a positive influence on work with assessment and criteria in the individual school (Throndsen et al. 2009).

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Supplementary table 1.1 to figure 1.1: Developments in the number of pupils in the period 1998–1999 to 2008–2009 for mainstream primary and lower secondary schools.

	Primary and lower secondary school	Primary school	Lower secondary school
1997-1998	558,247	401,640	155,112
1998-1999	568,666	411,500	155,387
1999-2000	580,261	419,805	158,279
2000-2001	590,471	426,475	162,040
2001-2002	599,468	429,445	168,095
2002-2003	610,297	432,618	175,121
2003-2004	617,577	432,345	181,934
2004-2005	618,250	429,652	185,866
2005-2006	619,640	429,207	187,856
2006-2007	619,038	430,737	188,301
2007-2008	616,388	428,650	187,537
2008-2009	614,033	425,756	188,262

Source: GSI

Supplementary table 1.2 to figure 1.2: Expected number of children in the 6–15 years age group as of 1 January every year. Based on prognoses from Statistics Norway, middle alternative.

Year	Children 6-15 years
2008	619,565
2009	618,611
2010	619,934
2011	621,175
2012	621,821
2013	623,146
2014	625,400
2015	628,693
2016	630,830
2017	632,786
2018	636,798
2019	641,816
2020	645,907

Source: Statistics Norway

Supplementary table 1.3 to figure 1.3: Distribution of small, medium-sized and large mainstream primary and lower secondary schools, in per cent, 1997–1998 to 2008–2009.

	Fewer than 100 pupils	100–299 pupils	300 pupils or more
1997-1998	40	42	19
1998-1999	38	42	20
1999-2000	38	41	21
2000-2001	37	41	22
2001-2002	36	41	23
2002-2003	36	40	24
2003-2004	35	40	25
2004-2005	35	39	26
2005-2006	36	39	26
2006-2007	35	40	26
2007-2008	34	39	26
2008-2009	33	40	27

Source: GSI

Supplementary table 1.4 to figure 1.4: Distribution of pupils in small, medium-sized and large mainstream primary and lower secondary schools, in per cent, 1997–1998 to 2008–2009.

	Fewer than 100 pupils	100–299 pupils	300 pupils or more
1997-1998	11	46	43
1998-1999	10	46	44
1999-2000	10	44	46
2000-2001	10	43	48
2001-2002	9	42	49
2002-2003	9	41	50
2003-2004	9	39	52
2004-2005	9	38	53
2005-2006	9	38	53
2006-2007	8	39	53
2007-2008	8	38	54
2008-2009	8	38	54

Source: GSI

Supplementary table 1.5 to figure 1.5: Proportion of pupils in mainstream primary and lower secondary school with Bokmål, Nynorsk and Sami as first-choice form of Norwegian, by county 2008-2009. Per cent.

	Bokmål	Nynorsk	Sami
Entire country	86.3	13.4	0.2
Østfold	100.0	0.0	0.0
Akershus	100.0	0.0	0.0
Oslo	99.2	0.0	0.0
Hedmark	100.0	0.0	0.0
Oppland	80.2	19.8	0.0
Buskerud	96.5	3.1	0.0
Vestfold	100.0	0.0	0.0
Telemark	86.4	13.1	0.0
Aust-Agder	93.0	6.4	0.0
Vest-Agder	96.5	3.5	0.0
Rogaland	74.8	25.2	0.0
Hordaland	59.4	40.6	0.0
Sogn og Fjordane	2.9	97.1	0.0
Møre og Romsdal	46.5	53.4	0.0
Sør-Trøndelag	99.4	0.1	0.0
Nord-Trøndelag	99.8	0.2	0.0
Nordland	99.9	0.0	0.1
Troms	99.4	0.2	0.3
Finnmark	91.6	0.0	8.4

Source: GSI

Supplementary table 1.6 to figure 1.6: Number of apprentices, by gender. Revised data.

	Men	Women
2003-2004	19,931	8,559
2004-2005	20,365	8,654
2005-2006	22,343	8,973
2006-2007	25,097	9,342
2007-2008	27,566	9,656
2008-2009	27,935	10,233

Source: Statistics Norway

Supplementary table 1.7 to figure 1.7: Age distribution of teachers and administrators in primary and lower secondary school. Fourth quarter 2007.

	Number
23 years and younger	1,037
24 years	651
25 years	922
26 years	1,079
27 years	1,207
28 years	1,371
29 years	1,476
30 years	1,629
31 years	1,789
32 years	1,976
33 years	2,137
34 years	2,291
35 years	2,396
36 years	2,307
37 years	2,176
38 years	2,211
39 years	2,025
40 years	1,827
41 years	1,638
42 years	1,528
43 years	1,436
44 years	1,412
45 years	1,377
46 years	1,451
47 years	1,593
48 years	1,629
49 years	1,684
50 years	1,638
51 years	1,781
52 years	1,826
53 years	1,952
54 years	2,015
55 years	2,066
56 years	2,000
57 years	1,932
58 years	1,865
59 years	1,865
60 years	1,862
61 years	1,974
62 years	1,337
63 years	1,056
64 years	731
65 years	430
66 years	230
67 years	135
68 years	101
69 years	91
70 years and older	119

Source: Statistics Norway

Supplementary table 1.8 to figure 1.8: Age distribution of teachers and administrators in upper secondary education. Fourth quarter 2007.

	Number
23 years and younger	101
24 years	53
25 years	93
26 years	165
27 years	241
28 years	281
29 years	330
30 years	311
31 years	366
32 years	412
33 years	475
34 years	546
35 years	529
36 years	637
37 years	585
38 years	625
39 years	608
40 years	646
41 years	673
42 years	660
43 years	654
44 years	682
45 years	626
46 years	656
47 years	673
48 years	729
49 years	737
50 years	758
51 years	855
52 years	884
53 years	907
54 years	1,070
55 years	1,053
56 years	993
57 years	1,004
58 years	1,019
59 years	1,027
60 years	1,022
61 years	1,020
62 years	788
63 years	617
64 years	429
65 years	294
66 years	184
67 years	100
68 years	83
69 years	68
70 years and older	103

Source: Statistics Norway

Supplementary table 2.1 to figure 2.1: Municipalities distributed by real operating expenses and operating expenses adjusted for cost structure per pupil for 2006.

Operating expenses, interval	Adjusted gross operating expenses	Operating expenditures adjusted for structure
50-55	1	1
55-60	3	5
60-65	19	15
65-70	43	20
70-75	65	74
75-80	64	88
80-85	54	99
85-90	42	71
90-95	28	28
95-100	38	12
100-105	13	5
105-110	16	6
110-115	10	3
115-120	9	
120-125	6	1
125-130	5	
130-135	6	1
135-140	2	
140-145	1	
150-155	2	
165-170	1	
180-185	1	

Source: Hægeland et al. 2009

Supplementary table 2.2 to figure 2.2: Development of teacher hours per pupil over time.

School year	Years 1 to 4	Years 5 to 7	Years 8 to 10	Total
2003-2004	46.70	58.88	57.77	53.38
2004-2005	48.63	58.47	57.61	54.06
2005-2006	49.47	58.04	57.11	54.14
2006-2007	50.20	57.74	57.20	54.62
2007-2008	51.19	58.30	58.05	55.43
2008-2009	53.74	58.89	58.66	56.82

Source: GSI

Supplementary table 2.3 to figure 2.3: Proportion of teacher hours for SNE, as percentage of total teacher hours.

School year	Years 1 to 4	Years 5 to 7	Years 8 to 10	Total
2003-2004	10.3	15.1	16.3	13.8
2004-2005	10.2	14.6	16.2	13.5
2005-2006	10.4	14.4	16.6	13.7
2006-2007	10.9	14.9	17.1	14.2
2007-2008	11.8	15.7	17.9	15.0
2008-2009	12.1	16.8	18.7	15.7

Source: GSI

Supplementary table 2.4 to figure 2.4: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 1 to 4. All mainstream public and private primary and lower secondary schools.

School year	Pupils	Teacher hours	Pupil hours	Teacher density
2003-2004	1	1	1	1
2004-2005	0.99	1.03	1.05	0.99
2005-2006	0.99	1.05	1.09	0.97
2006-2007	0.99	1.06	1.09	0.98
2007-2008	0.98	1.07	1.08	0.99
2008-2009	0.97	1.12	1.14	0.98

Source: GSI

Supplementary table 2.5 to figure 2.5: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 5 to 7. All mainstream public and private primary and lower secondary schools.

School year	Pupils	Teacher hours	Pupil hours	Teacher density
2003-2004	1	1	1	1
2004-2005	0.99	0.99	0.99	0.99
2005-2006	1.00	0.98	0.99	0.99
2006-2007	1.01	0.99	1.01	0.98
2007-2008	1.01	1.00	1.01	0.99
2008-2009	1.01	1.01	1.01	1.00

Source: GSI

Supplementary table 2.6 to figure 2.6: Developments in teacher density, teacher hours, pupil hours and number of pupils over time. Years 8 to 10. All mainstream public and private primary and lower secondary schools.

School year	Pupils	Teacher hours	Pupil hours	Teacher density
2003-2004	1	1	1	1
2004-2005	1.02	1.02	1.02	1.00
2005-2006	1.03	1.02	1.03	0.99
2006-2007	1.04	1.03	1.04	0.99
2007-2008	1.03	1.04	1.03	1.00
2008-2009	1.04	1.05	1.04	1.01

Source: GSI

Supplementary table 2.7 to figure 2.7: Full-time equivalents for teaching, teaching and other tasks and total teaching full-time equivalents. All mainstream public and private primary and lower secondary schools.

Years	All pupils	Total teaching full-time equivalents	Full-time equivalents for teaching (and other tasks from 2007)	Other tasks or teaching staff (fom 2007)	Total full-time equivalents for teaching staff
2003-2004	616,909	49,477.02	49,477.02		50,182.97
2004-2005	617,616	50,770.35	50,770.35		51,486.43
2005-2006	619,030	50,654.1	50,654.1		51,421.8
2006-2007	618,829	51,303	51,303		52,025
2007-2008	616,388	50,797	52,751	1,953	53,698
2008-2009	614,033	50,970	53,475	2,505	54,402

Source: Hægeland et al. 2008

Supplementary table 2.8 to figure 2.8: Pupils per contact teacher. All mainstream public and private primary and lower secondary schools.

School year	Years 1 to 4	Years 5 to 7	Years 8 to 10
2003-2004	17.37	17.71	17.03
2004-2005	15.82	15.72	14.9
2005-2006	15.81	15.66	14.69
2006-2007	15.8	15.75	14.6
2007-2008	15.63	15.59	14.55
2008-2009	15.8	15.67	14.76

Source: Hægeland et al. 2009

Supplementary table 2.9 to figure 2.9: Cost per pupil in general studies for 2007 and 2008, in NOK 1,000. Permanent 2008 prices.

County	2007	2008
Østfold	94,352	98,964
Akershus	90,254	92,395
Oslo	121,848	122,048
Hedmark	96,685	95,842
Oppland	96,826	96,638
Buskerud	89,373	93,303
Vestfold	91,974	94,018
Telemark	96,203	96,292
Aust-Agder	96,415	97,929
Vest-Agder	93,661	93,959
Rogaland	92,148	95,645
Hordaland	94,079	96,420
Sogn og Fjordane	113,909	112,674
Møre og Romsdal	93,992	98,872
Sør-Trøndelag	95,119	97,488
Nord-Trøndelag	106,085	114,080
Nordland	97,863	100,164
Troms	110,823	115,571
Finnmark	116,605	117,061

Source: KOSTRA level 2, preliminary figures

Supplementary table 2.10 to figure 2.10: Cost per pupil in vocational programmes for 2007 and 2008, in NOK 1000. Permanent 2008 prices.

	2007	2008
Østfold	126,032	125,136
Akershus	118,126	119,391
Oslo	139,981	142,261
Hedmark	122,811	119,291
Oppland	111,815	112,759
Buskerud	114,529	119,037
Vestfold	114,989	117,084
Telemark	115,852	116,223
Aust-Agder	118,238	119,116
Vest-Agder	119,045	117,356
Rogaland	117,015	119,018
Hordaland	126,104	125,487
Sogn og Fjordane	132,669	133,776
Møre og Romsdal	120,405	120,436
Sør-Trøndelag	114,671	114,537
Nord-Trøndelag	135,814	139,319
Nordland	126,287	126,271
Troms	140.469	138,073
Finnmark	130,226	127,669

Source: KOSTRA level 2, preliminary figures

Supplementary table 2.11 to figure 2.11: Education costs as per cent of GNP, 2003–2008.

	2003	2004	2005	2006	2007	2008
Proportion of GNP used for preschool, primary and lower secondary school for mainland Norway	3.39	3.26	3.16	3.15	3.02	2.94
Proportion of GNP used for upper secondary education and training for mainland Norway	1.77	1.81	1.57	1.57	1.50	1.47
Proportion of GNP used for other education for mainland Norway	2.81	2.54	2.61	2.47	2.35	2.49

Source: Statistics Norway

Supplementary table 2.12 to figure 2.12: Education costs as proportion of total public costs, 2003–2008. Per cent.

	2003	2004	2005	2006	2007	2008
Proportion of total public costs used for preschool, primary and lower secondary school	5.97	6.00	6.20	5.99	5.92	5.65
Proportion of total public costs used for upper secondary education and training	3.12	3.30	3.00	2.98	2.94	2.84
Proportion of total public costs used for other education	4.94	4.63	4.92	4.71	4.61	4.80

Source: Statistics Norway

Supplementary table 2.13 to figure 2.13: Cost per pupil in OECD countries in 2005, measured in USD. Adjusted for differences in purchasing power.

	Years 1 to 7	Years 8 to 10	Upper secondary education and training
Luxemburg	14,079	18,844	18,845
Iceland	9,254	8,985	8,004
USA	9,156	9,899	10,969
Norway	9,001	9,687	12,096
Denmark	8,513	8,606	10,197
Switzerland	8,469	9,756	16,166
Austria	8,259	9,505	10,028
Sweden	7,532	8,091	8,292
Italy	6,835	7,599	7,682
Japan	6,744	7,630	8,164
Netherlands	6,266	8,166	7,225
Australia	5,992	7,930	9,223
Ireland	5,732	7,352	7,680
Finland	5,557	8,875	6,441
France	5,365	7,881	10,311
Germany	5,014	6,200	10,282
Portugal	4,871	6,555	6,381
New Zealand	4,780	5,165	7,586
Korea	4,691	5,661	7,765
Hungary	4,438	3,993	3,613
Poland	3,312	2,971	3,131
Czech Republic	2,812	4,864	4,830
Slovakia	2,806	2,430	3,026
Mexico	1,913	1,839	2,853
OECD average	6,252	7,437	8,366

Source: OECD 2008a

Supplementary table 3.1 to the diagram in table 3.1: Pupils at mathematics levels in Year 4, TIMSS 2007. Per cent.

Countries/ Regions	Below low	Low	Inter-mediate	High	Advanced
Hong Kong	0	3	16	41	40
Singapore	2	6	18	33	41
Chinese Taipei	1	7	26	42	24
Japan	2	9	28	38	23
Kazakhstan	5	14	29	33	19
Russia	5	14	33	32	16
England	6	15	31	32	16
Latvia	3	16	37	33	11
Netherlands	2	14	42	35	7
Lithuania	6	17	35	32	10
USA	5	18	37	30	10
Germany	4	18	41	31	6
Denmark	5	19	40	29	7
Australia	9	20	36	26	9
EU/OECD average	**8**	**21**	**38**	**26**	**7**
Hungary	12	21	32	26	9
Italy	9	24	38	23	6
Austria	7	24	43	23	3
Sweden	7	25	44	21	3
Slovenia	12	25	37	21	5
Armenia	13	27	32	20	8
Slovakia	12	25	37	21	5
Scotland	12	26	37	21	4
New Zealand	15	24	35	21	5
Czech Republic	12	29	40	17	2
Norway	**17**	**31**	**37**	**13**	**2**
International average	**25**	**19**	**28**	**20**	**8**
Ukraine	21	29	33	15	2
Georgia	33	32	25	9	1
Iran	47	33	17	3	0
Algeria	59	27	12	2	0
Colombia	69	22	7	2	0
Morocco	74	17	7	2	0
El Salvador	78	16	5	1	0
Tunisia	72	19	8	1	0
Kuwait	79	16	5	0	0
Qatar	87	11	2	0	0
Yemen	94	5	1	0	0

Sources: The Swedish National Agency for Education 2008/ Mullis et al. 2008

Supplementary table 3.2 to the diagram in table 3.2: Pupils at mathematics levels in Year 8, TIMSS 2007. Per cent.

Countries/ Regions	Below low	Low	Inter-mediate	High	Advanced
Chinese Taipei	5	9	15	26	45
South Korea	2	8	19	31	40
Singapore	3	9	18	30	40
Hong Kong	6	9	21	33	31
Japan	3	10	26	35	26
Hungary	9	22	33	26	10
England	10	21	34	27	8
Russia	9	23	35	25	8
USA	8	25	36	25	6
Lithuania	10	25	35	24	6
Czech Republic	8	26	40	20	6
Slovenia	8	27	40	21	4
Armenia	11	28	37	18	6
EU/OECD average	**12**	**25**	**36**	**21**	**6**
Australia	11	28	37	18	6
Sweden	10	30	40	18	2
Malta	17	23	34	21	5
Scotland	15	28	34	19	4
Serbia	17	26	33	19	5
Italy	15	31	37	14	3
Malaysia	18	32	32	16	2
Norway	**15**	**37**	**37**	**11**	**0**
Cyprus	22	30	31	15	2
Bulgaria	26	25	29	16	4
Israel	25	27	29	15	4
Ukraine	24	30	31	12	3
Romania	27	27	26	16	4
Bosnia and Herzegovina	23	35	32	9	1
International average	**33**	**25**	**23**	**13**	**6**
Lebanon	26	38	26	9	1
Thailand	34	32	22	9	3
Turkey	41	26	18	10	5
Jordan	39	26	24	10	1
Tunisia	39	40	18	3	0
Georgia	44	30	19	6	1
Iran	49	31	15	4	1
Bahrain	51	30	16	3	0
Indonesia	52	29	15	4	0
Syrian Arab Republic	53	30	14	3	0
Egypt	53	26	16	4	1
Algeria	59	34	7	0	0
Colombia	61	28	9	2	0
Oman	59	27	12	2	0
Palestinian Nat'l Auth.	61	24	12	3	0
Botswana	68	25	6	1	0
Kuwait	71	23	6	0	0
El Salvador	80	17	3	0	0
Saudi Arabia	82	15	3	0	0
Ghana	83	13	4	0	0
Qatar	84	12	4	0	0

Sources: The Swedish National Agency for Education 2008/ Mullis et al. 2008

Supplementary table 3.3 to figure 3.1: Achievements in mathematics domains in Year 8, TIMSS 2007. Score related to TIMSS scaled average 500.

	Number	Algebra	Geometry	Data display
Australia	503	471	487	525
Italy	478	460	490	491
Japan	551	559	573	573
Norway	**488**	**425**	**459**	**505**
Slovenia	502	488	499	511
TIMSS scaled avg. 500	500	500	500	500

Source: Grønmo and Onstad 2009

Supplementary table 3.4 to figure 3.2: Trends in Norwegian pupils' mathematics achievements in Years 4 and 8. TIMSS 1995–2007. Score.

	1995	2003	2007
Year 8	498	461	469
Year 4	476	451	473

Source: Grønmo and Onstad 2009

Supplementary table 3.5 to the diagram in table 3.3: Pupils at science levels in Year 4, TIMSS 2007. Per cent.

Countries Regions	Below low	Low	Inter-mediate	High	Advanced
Singapore	4	8	20	32	36
Chinese Taipei	3	11	31	36	19
Hong Kong	2	10	33	41	14
Japan	3	11	35	39	12
Russia	4	14	33	33	16
Latvia	2	14	37	37	10
England	5	14	33	34	14
USA	6	16	31	32	15
Hungary	7	15	31	34	13
Italy	6	16	34	31	13
Kazakhstan	5	16	35	34	10
Germany	6	18	35	31	10
Australia	7	17	35	31	10
Slovakia	7	19	38	30	6
Austria	7	17	37	30	9
Sweden	5	19	39	29	8
EU/OECD average	**7**	**18**	**36**	**30**	**9**
Netherlands	3	18	45	30	4
Slovenia	7	19	38	30	6
Denmark	7	21	37	28	7
Czech Republic	7	21	39	26	7
Lithuania	5	21	44	27	3
New Zealand	13	22	33	24	8
Scotland	10	25	39	22	4
Armenia	23	25	25	15	12
Norway	**16**	**30**	**37**	**16**	**1**
International average	**23**	**19**	**28**	**22**	**8**
Ukraine	18	30	35	15	2
Iran	35	29	24	10	2
Georgia	41	33	21	4	1
Colombia	49	29	16	5	1
El Salvador	53	29	14	4	0
Algeria	67	22	9	2	0
Kuwait	63	21	12	4	0
Tunisia	67	22	9	2	0
Morocco	79	12	7	2	0
Qatar	77	15	6	2	0
Yemen	92	6	2	0	0

Sources: The Swedish National Agency for Education 2008/ Martin et al. 2008

Supplementary table 3.6 to the diagram in table 3.4: Pupils at science levels in Year 8, TIMSS 2007. Per cent.

Countries Regions	Below low	Low	Inter-mediate	High	Advanced
Singapore	7	13	19	29	32
Chinese Taipei	5	12	23	35	25
Japan	4	11	30	38	17
South Korea	3	12	31	37	17
England	6	15	31	31	17
Hungary	4	16	34	33	13
Czech Republic	3	15	38	33	11
Slovenia	3	16	36	34	11
Hong Kong	8	15	32	35	10
Russia	5	19	35	30	11
USA	8	21	33	28	10
Lithuania	7	21	36	28	8
Australia	8	22	37	25	8
Sweden	9	22	37	26	6
EU/OECD average	**12**	**22**	**33**	**25**	**8**
Scotland	13	26	35	21	5
Italy	12	26	38	20	4
Armenia	17	28	32	15	8
Norway	**13**	**29**	**38**	**18**	**2**
Ukraine	15	27	36	19	3
Jordan	21	23	30	21	5
Malaysia	20	30	32	15	3
Thailand	20	32	31	14	3
Serbia	19	30	35	14	2
Bulgaria	24	25	29	17	5
Israel	25	24	30	16	5
Bahrain	22	29	32	15	2
Bosnia and Herzegovina	20	33	33	12	2
International average	**25**	**26**	**28**	**16**	**5**
Romania	23	31	30	14	2
Iran	24	35	27	12	2
Malta	29	23	27	16	5
Turkey	29	31	24	13	3
Syrian Arab Republic	24	37	30	8	1
Cyprus	26	32	30	11	1
Tunisia	23	46	27	4	0
Indonesia	35	38	23	4	0
Oman	39	29	24	7	1
Georgia	39	34	22	5	0
Kuwait	40	32	22	6	0
Colombia	41	37	18	3	1
Lebanon	45	27	20	7	1
Egypt	45	28	20	6	1
Algeria	45	41	13	1	0
Palestinian Nat'l Auth.	46	26	19	8	1
Saudi Arabia	48	34	16	2	0
El Salvador	58	31	10	1	0
Botswana	65	24	9	2	0
Qatar	71	18	9	2	0
Ghana	81	13	5	1	0

Sources: The Swedish National Agency for Education 2008/ Martin et al. 2008

Supplementary table 3.7 to figure 3.3: Achievements in science domains in Year 8, TIMSS 2007. Score related to TIMSS scaled average 500.

	Biology	Chemistry	Physics	Earth science
Australia	518	505	508	519
Italy	502	481	489	503
Japan	553	551	558	533
Norway	487	483	475	502
Slovenia	530	539	524	542
TIMSS scaled avg. 500	500	500	500	500

Source: Grønmo and Onstad 2009

Supplementary table 3.8 to figure 3.4: Trends in Norwegian pupils' science achievements in Years 4 and 8, TIMSS 1995–2007. Score.

	1995	2003	2007
Year 8	514	494	487
Year 4	504	466	477

Source: Grønmo and Onstad 2009

Supplementary table 3.9 to figure 3.5: Distribution by gender by mastering level in reading in English, reading in Norwegian and mathematics national tests, Year 5, 2007-2008. Per cent.

			Level 1	Level 2	Level 3
English	Boys	2007	28.3	45.6	26.0
		2008	26.3	47.5	26.1
	Girls	2007	26.6	49.5	23.9
		2008	24.9	50.1	25.0
Norwegian	Boys	2007	30.5	48.5	21.0
		2008	27.6	47.5	24.8
	Girls	2007	22.4	51.7	25.8
		2008	21.4	50.4	28.2
Mathematics	Boys	2007	26.0	45.2	28.8
		2008	24.2	45.6	30.2
	Girls	2007	27.2	49.3	23.5
		2008	29.4	52.0	18.5

Sources: Statistics Norway 2009

Supplementary table 3.10 to figure 3.6: Results in reading in Norwegian, Year 8, national tests 2008, by county. Per cent.

County	Level 1	Level 2	Level 3	Level 4	Level 5	Total level 4 and 5
Akershus	5.8	15.6	36.7	27.0	14.8	41.8
Oslo	8.4	18.0	33.3	24.2	16.1	40.3
Sogn og Fjordane	5.0	16.6	41.8	23.8	12.8	36.6
Oppland	7.5	18.1	38.8	24.4	11.1	35.5
Sør-Trøndelag	7.3	19.2	38.7	22.6	12.3	34.9
Hordaland	8.4	19.5	37.4	24.0	10.7	34.7
Buskerud	7.7	20.1	38.4	22.3	11.5	33.8
Troms	7.0	19.5	39.7	22.4	11.4	33.8
Aust-Agder	6.9	21.5	37.9	22.6	11.1	33.7
Nord-Trøndelag	7.8	20.4	38.2	23.3	10.3	33.6
Møre og Romsdal	7.3	18.8	40.6	22.4	10.9	33.3
Nordland	7.8	19.4	39.5	23.4	9.7	33.1
Hedmark	8.5	19.6	39.1	23.4	9.5	32.9
Rogaland	8.7	20.9	38.5	22.2	9.8	32.0
Vestfold	8.3	21.0	39.4	21.0	10.2	31.2
Vest-Agder	9.4	19.6	39.8	21.0	10.1	31.1
Finnmark	9.3	22.7	37.0	22.6	8.4	31.0
Telemark	8.6	20.5	40.0	20.0	10.9	30.9
Østfold	10.2	21.8	39.4	20.2	8.4	28.6

Source: Statistics Norway 2009

Supplementary table 3.11 to figure 3.7: Standardised national test results from 2007 and 2008, Year 5, reading, mathematics and English in total, by size of municipality measured in number of inhabitants.

Inhabitants	2007	2008
<2,500	-0.16	-0.21
2,500-5,000	-0.14	-0.15
5,000-10,000	-0.10	-0.08
10,000-15,000	-0.05	-0.07
15,000-25,000	-0.03	-0.04
25,000-50,000	-0.03	-0.03
>50,000 w/o Oslo	0.12	0.13
Oslo	0.24	0.21

Source: Bonesrønning and Vaag Iversen 2008, 2009

Supplementary table 3.12 to figure 3.8: Pupils by mastering level in reading in Norwegian, Year 5, national tests 2008, by parents' level of education. Per cent.

	Level 1	Level 2	Level 3
Lower secondary/no education	45.3	44.1	10.6
Upper secondary	30.4	50.8	18.8
Higher education	15.0	48.6	36.4

Source: Statistics Norway 2009

Supplementary table 3.13 to figure 3.9: Pupils by mastering level in reading in Norwegian, Year 8, national tests 2008, by parents' level of education. Per cent.

	Level 1	Level 2	Level 3	Level 4	Level 5	Total level 4 and 5
Grunnskole/ ingen utdanning	18,3	33	34,7	11,2	2,9	14,1
Videregående nivå	9	23,1	41,7	19,5	6,7	26,2
Høyere utdanning	3,2	11,8	36,2	30,2	18,5	48,7

Source: Statistics Norway 2009

Supplementary table 3.14 to figure 3.10: Average overall achievement marks by subject for Year 10, 2008. Boys, girls and in total.

Subject	Total	Girls	Boys	Gender difference
Physical education	4.38	4.26	4.49	0.23
Mathematics	3.49	3.56	3.41	0.11
English oral	4.01	4.17	3.85	0.32
Social studies	4.03	4.20	3.87	0.33
Natural science and environmental subjects	3.95	4.13	3.77	0.36
English written	3.79	3.98	3.62	0.36
Music	4.23	4.44	4.04	0.40
Norwegian oral	4.04	4.29	3.81	0.48
Arts and crafts	4.23	4.50	3.96	0.54
Norwegian first-choice form, written	3.82	4.11	3.55	0.56
Religion, philosophy, ethics	4.00	4.29	3.72	0.57
Food and health	4.36	4.66	4.09	0.57
Norwegian second-choice form, written	3.63	3.92	3.34	0.58

* Marks: 1–6. The subjects are sorted by gender gap.
Source: The Norwegian Directorate for Education and Training/VIGO

Supplementary table 3.15 to figure 3.12: Pupils with overall achievement mark 1 in selected subjects in upper secondary school. Per cent.

NOR1003	Norwegian written Vg1 general studies	0.5
ENG1002	English Vg1 general studies	0.9
NOR1002	Norwegian written Vg2 vocational	1.6
MAT1007	Theoretical mathematics Vg1 general studies	2.5
MAT1006	Theoretical mathematics Vg1 vocational	3.2
ENG1003	English Vg2 vocational	3.6
MAT1002	Practical mathematics Vg1 general studies	6.2
MAT1001	Practical mathematics Vg1 vocational	8.5

Source: Steffensen and Ziade 2009

Supplementary table 3.16 to figure 3.13: Passed craft and journeyman's examinations in 2008 of those sitting the exam, by county. Per cent.

	Number of pupils	Failed	Passed	Very good
Oslo	1,127	18.9	67.8	13.3
Sør-Trøndelag	1,518	8.5	77.3	14.2
Hordaland	1,050	11.0	72.5	16.5
Nord-Trøndelag	782	6.2	76.1	17.7
Akershus	962	8.3	73.2	18.5
Sogn og Fjordane	908	4.1	76.9	19.0
Finnmark	834	6.4	73.6	20.0
Troms	875	7.1	72.6	20.2
Aust-Agder	575	11.3	68.2	20.5
Vest-Agder	1,032	4.4	74.1	21.5
Rogaland	2,522	8.0	69.2	22.8
Telemark	2,511	7.3	69.4	23.3
Møre og Romsdal	511	5.9	70.2	23.9
Vestfold	1,434	7.1	69.1	23.9
Oppland	1,423	8.2	67.6	24.2
Hedmark	778	7.4	66.8	25.8
Østfold	1,168	9.8	64.3	25.8
Buskerud	647	8.8	65.1	26.1
Nordland	345	8.2	61.6	30.2
Not stated	473	93.4	70.0	23.5

*Preliminary figures.
Source: Statistics Norway/VIGO

Supplementary table 4.1 to figure 4.5: I feel that my teaching affects my pupils' learning.

	Hungary	Estonia	Spain	Italy	Austria	Australia	Belgium	Ireland	Denmark	Norway
Strongly disagree	0.3	0.9	0.5	0.2	0.6	0.6	0.1	0.4	0.2	0.1
Somewhat disagree	14.8	15.5	10.4	2.7	9.3	5.7	2.7	3.7	3.2	0.5
Somewhat agree	76.1	70.3	75.6	74.3	66.7	65.4	68.5	67.2	62.6	34.1
Strongly agree	8.8	13.3	13.5	22.9	23.5	28.3	28.7	28.7	34.0	65.3
	100	100	100	100	100	100	100	100	100	100

Source: Aamodt and Vibe 2009

Supplementary table 4.2 to figure 4.6: If I try really hard, I can make progress with even the most difficult and unmotivated students.

	Hungary	Spain	Estonia	Belgium	Denmark	Australia	Austria	Italy	Ireland	Norway
Strongly disagree	1.0	2.5	1.7	0.7	1.9	1.4	2.8	0.6	1.0	1.3
Somewhat disagree	28.4	31.0	23.5	18.7	23.3	11.6	19.3	8.8	13.0	7.7
Somewhat agree	64.0	54.2	62.6	65.1	56.3	64.8	55.1	67.4	60.0	51.3
Strongly agree	6.5	12.2	12.2	15.5	18.5	22.1	22.8	23.2	25.9	39.7
	100	100	100	100	100	100	100	100	100	100

Source: Aamodt and Vibe 2009

Supplementary table 4.3 to figure 4.7: All in all, I am satisfied with my job.

	Hungary	Estonia	Italy	Spain	Australia	Ireland	Denmark	Austria	Belgium	Norway
Strongly disagree	1.1	0.7	0.7	0.8	2.7	1.9	1.0	0.7	0.4	1.5
Somewhat disagree	16.4	10.9	4.3	8.5	14.9	8.5	10.5	6.1	5.0	7.1
Somewhat agree	74.5	73.1	74.8	68.5	59.6	60.8	56.6	56.3	57.3	41.9
Strongly agree	8.0	15.3	20.2	22.2	22.8	28.8	31.9	36.9	37.4	49.5
	100	100	100	100	100	100	100	100	100	100

Source: Aamodt and Vibe 2009

Supplementary table 5.1 to figure 5.2: Drop-out rate among pupils by time of drop-out and parents' level of education. Non-revised figures.

	Long higher	Short higher	Upper secondary	Lower secondary	Not stated
Vg1	3.1	14.5	48.7	25.2	8.6
VK1	3.6	16.0	49.6	23.4	7.4
VK2	6.9	23.2	46.7	15.7	7.6

Source: Statistics Norway

Supplementary table 5.2 to figure 5.3: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively.

		Completed in the stipulated time	Completed in more than the stipulated time	Still in upper secondary education and training	Completed VK2 or sat for craft examination, failed	Quit
General studies	1998	75.1	8.9	3.0	4.6	8.3
	1999	75.7	8.0	2.7	5.3	8.3
	2000	73.1	8.8	3.3	6.9	7.9
	2001	75.4	7.3	3.2	6.2	7.9
	2002	76.2	6.6	3.0	6.9	7.4
Vocational studies	1998	40.1	22.1	4.4	4.2	29.2
	1999	39.6	21.3	4.9	5.4	28.8
	2000	37.0	22.8	5.7	6.1	28.4
	2001	40.3	20.5	5.6	6.6	27.0

Source: Statistics Norway

Supplementary table 5.3 to figure 5.4: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohort by county, sorted by percentage completing in the stipulated time.

General studies	Completed in the stipulated time	Completed in more than the stipulated time	Still in upper secondary education and training 2007	Completed VK2 or sat for craft examination, failed	Quit
Finnmark	58.3	13.5	6.0	10.4	11.7
Troms	68.4	8.0	2.9	11.7	9.1
Nordland	69.8	8.8	4.9	7.4	9.0
Telemark	71.7	6.9	3.9	8.1	9.4
Hedmark	74.1	7.4	3.4	7.4	7.8
Vestfold	74.2	7.4	2.8	9.1	6.5
Aust-Agder	74.4	9.2	4.4	8.0	4.1
Buskerud	76.0	6.8	3.1	6.8	7.3
Akershus	76.5	5.5	2.4	7.4	8.2
Hordaland	77.3	6.0	4.2	6.0	6.5
Rogaland	77.4	5.8	2.7	7.0	7.1
Nord-Trøndelag	78.1	7.8	1.8	7.9	4.5
Oslo	78.9	5.2	1.9	7.8	6.2
Sør-Trøndelag	79.0	7.2	3.0	3.2	7.6
Vest-Agder	79.9	4.9	1.5	8.2	5.6
Møre og Romsdal	80.5	6.4	2.2	5.6	5.3
Østfold	81.4	6.3	2.0	4.7	5.5
Sogn og Fjordane	82.3	5.0	3.7	4.6	4.3
Oppland	83.9	5.8	2.6	4.6	3.1
Total	76.2	6.6	3.0	6.9	7.4

Vocational studies	Completed in the stipulated time	Completed in more than the stipulated time	Still in upper secondary education and training 2007	Completed VK2 or sat for craft examination, failed	Quit
Finnmark	18.4	19.5	9.8	6.7	45.6
Nordland	31.3	21.3	8.8	6.1	32.5
Troms	31.9	21.8	6.6	8.1	31.6
Hedmark	34.2	20.1	6.4	9.4	29.9
Oslo	36.1	18.4	5.0	11.6	28.8
Østfold	37.2	18.5	5.6	5.7	33.0
Aust-Agder	37.7	20.7	6.1	6.8	28.7
Sogn og Fjordane	39.6	26.2	8.9	4.3	21.0
Møre og Romsdal	40.4	23.8	4.7	5.2	25.8
Buskerud	41.9	18.5	4.9	7.0	27.6
Vest-Agder	42.3	21.2	4.2	5.5	26.8
Sør-Trøndelag	42.6	25.4	5.3	3.9	22.8
Telemark	42.7	22.1	5.2	4.2	25.8
Vestfold	43.6	17.4	4.9	5.8	28.2
Hordaland	43.8	20.7	5.7	6.1	23.7
Nord-Trøndelag	44.1	19.1	7.9	5.0	23.9
Oppland	45.0	19.1	3.6	5.7	26.6
Rogaland	45.0	21.9	5.0	6.6	21.5
Akershus	45.3	18.2	4.7	9.2	22.7
Total	40.3	20.5	5.6	6.6	27.0

Source: Statistics Norway

Supplementary table 5.4 to figure 5.5: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohort, by parents' highest level of education.

		Completed in the stipulated time	Completed in more than the stipulated time	Still in upper secondary education and training 2007	Completed VK2 or sat for craft examination, failed	Quit
General studies	Long higher education	87.0	6.3	1.5	2.8	2.4
	Short higher education	82.2	6.2	2.0	5.6	4.1
	Upper secondary	71.8	6.7	3.9	8.9	8.7
	Lower secondary	54.0	6.9	5.8	12.6	20.7
	Not stated	41.0	10.9	6.1	9.9	32.2
Vocational studies	Long higher education	55.2	21.5	4.0	5.0	14.3
	Short higher education	50.6	21.9	4.4	5.9	17.3
	Upper secondary	40.2	21.6	5.9	6.6	25.6
	Lower secondary	27.6	16.1	6.4	7.6	42.4
	Not stated	25.4	13.7	4.3	6.5	50.1

Source: Statistics Norway

Supplementary table 5.5 to figure 5.6: Status five and six years after starting school for pupils in programmes for general studies and vocational programmes respectively for the 2002/2001 age cohort, by immigrant background.

		Completed in the stipulated time	Completed in more than the stipulated time	Still in upper secondary education and training	Completed VK2 or sat for craft examination, failed	Quit
General studies	Norwegian background	78	6	3	6	6
	Non-western 1st gen. immigrants	52	10	6	11	21
	Non-western 2nd gen. immigrants	67	9	2	11	10
Vocational studies	Norwegian background	41	21	6	6	26
	Non-western 1st gen. immigrants	30	13	6	9	43
	Non-western 2nd gen. immigrants	38	15	2	13	32

Source: Statistics Norway

Supplementary table 5.6 to figure 5.7: Competence achievement among quitters in the age cohorts from programmes for general studies (2002) and vocational studies (2001).

	General studies	Vocational studies
Started first year	14.3	3.8
Completed first year, failed	14.3	7.7
Passed first year	14.3	23.1
Started VK1	14.3	7.7
Completed VK1, failed	14.3	15.4
Passed VK1	14.3	23.1
Started VK2/apprenticeship	14.3	19.2

Source: Statistics Norway

Supplementary table 5.7 to figure 5.8: Completed craft and journeyman's examinations as of 1 October 2008, by age. Cumulative proportion. Non-revised figures.

Stipulated number of years after starting school	Age	Cumulative proportion
3	19	0.3
4	20	32.3
5	21	60.4
6	22	72.5
7	23	78.9
8	24	83.0
9	25	85.9
10	26	88.0
11	27	89.8
12	28	91.0
13	29	91.9
14	30	92.6
15	31	93.4
16	32	94.0
17	33	94.6
18	34	95.2
19	35	95.6
20	36	96.1
21	37	96.6
22	38	96.9
23	39	97.3
24	40	97.6

Source: The Norwegian Directorate for Education and Training

Supplementary table 6.1 to figure 6.5: Use of homework in mathematics, Year 8. Per cent.

	2007	2003
Check whether pupils have done homework	44	21
Correct homework and give feedback to pupils	8	4
Let pupils correct homework themselves during lessons	13	12
Use homework as a basis for discussion in class	9	10
Let homework count when giving marks	15	20

Source: Grønmo and Onstad 2008

Supplementary table 6.2 to figure 6.8: Overall achievement marks in subjects where pupils may take a written examination. All pupils. 2008. Per cent.

Marks	First choice form of Norwegian, written		Written English		Second choice form of Norwegian, written		Mathematics	
Alle	60033	100	59786	100	53040	100	60462	100
1	245	0,41	668	1,12	549	1,04	1113	1,84
2	5352	8,92	6898	11,54	6295	11,87	12418	20,54
3	16781	27,95	15828	26,47	16950	31,96	17811	29,46
4	21862	36,42	19822	33,15	18599	35,07	16288	26,94
5	13973	23,28	13819	23,11	9862	18,59	10739	17,76
6	1820	3,03	2751	4,6	785	1,48	2093	3,46

Source: Statistics Norway

Supplementary table 6.3 to figure 6.9: Overall achievement marks in subjects where pupils may take an oral examination. All pupils. 2008. Per cent.

Marks	Oral Norwegian		Christianity, religion and ethics		Social sciences		Oral English		Natural sciences	
All	60,356	100	60,591	100	60,633	100	60,220	100	60,677	100
1	332	0.55	702	1.16	559	0.92	458	0.76	628	1.03
2	4,309	7.14	6,131	10.12	5,765	9.51	4,581	7.61	6,669	10.99
3	13,440	22.27	13,030	21.5	12,994	21.43	13,210	21.94	13,973	23.03
4	19,897	32.97	17,982	29.68	18,113	29.87	20,851	34.62	17,758	29.27
5	19,187	31.79	18,251	30.12	18,510	30.53	17,967	29.84	17,431	28.73
6	3,191	5.29	4,495	7.42	4,692	7.74	3,153	5.24	4,218	6.95

Source: Statistics Norway

Supplementary table 6.4 to figure 6.10: Overall achievement marks in subjects where there is no examination. All pupils. 2008. Per cent.

Marks	Food and health		Physical education		Arts and crafts		Music	
All	60,000	100	61,038	100	61,079	100	60,764	100
1	38	0.06	508	0.83	308	0.5	336	0.55
2	1,007	1.68	2,242	3.67	2,300	3.77	2,891	4.76
3	8,471	14.12	7,440	12.19	9,763	15.98	9,939	16.36
4	21,630	36.05	19,525	31.99	22,960	37.59	21,039	34.62
5	25,269	42.12	26,205	42.93	22,401	36.68	22,136	36.43
6	3,585	5.98	5,118	8.38	3,347	5.48	4,423	7.28

Source: Statistics Norway

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