



NORWEGIAN MINISTRY
OF EDUCATION AND RESEARCH

Summary of Official Norwegian Report 2014: 7

Pupils' learning in the School for the Future

A knowledgebase



Pupils' Learning in the School of the Future – a knowledge foundation



1 Interim report, the committee and terms of reference

In the Royal Decree of 21 June 2013, the Norwegian Government appointed a committee to assess primary and secondary education subjects in terms of the competence society and working life will need in the future. The committee was asked to submit an interim report and a principal report, with a deadline of 15 June 2015.

The committee and its terms of reference are presented here together with a summary of the interim report and a description of the committee's efforts to satisfy the terms of reference for the interim report.

2 The committee's summary and assessment

The pace of social, cultural and technological changes and knowledge development is steadily increasing. While this is not new, it is increasing the pressure for changes in competence for the individual, society, working life and school. Learning in school and other arenas creates the foundation that will enable individuals to acquire new long-lasting competence that will become even more important in the future. This interim report describes the knowledge foundation for the committee's work on the principal report.

In the principal report, the committee will assess the content of primary and secondary edu-

Box 1.1 Summary of the interim report

The committee's point of departure has been:

- A broad concept of competence involves solving problems and dealing with challenges in different contexts, including cognitive, practical, social and emotional aspects of pupils' learning.
- Research on learning shows that
 - deep learning, as opposed to surface learning, has a long-term impact on pupils' development within and across disciplines, enabling good progression in pupils' learning efforts,
 - pupils' skills are developed through the interaction of academic, social and emotional aspects of learning, and social and emotional learning can contribute positively to the pupils' learning outcomes in school,
 - there is a clear relationship between pupils' social and emotional competences and how they succeed later in life, and that
 - it is important that schools work systematically to develop a stimulating learning environment where pupils learn to take joint responsibility for their learning environment.
- When it comes to content, many school subjects are broad in scope. Implementing curricula in practice requires that a broad scope is emphasised in school. This broad orientation makes it challenging to cultivate deep learning and achieve good progression in pupils' academic development.
- Pupil assessment and system level assessment should be coherent to support the pupils' learning goals. It is important that the various components in the assessment systems reflect the broad scope of the school's competence aims in a coherent way.

In the principal report the committee will

- assess the need to renew school subjects and assess whether the classification of subjects should be changed, whether subjects should be regrouped and whether individual subjects or disciplines should be reduced or removed in favour of new ones,
- consider whether the relationship between scientific disciplines and school subjects should be renewed, and assess how important areas of knowledge that are not based on scientific disciplines can be designed for students' learning,
- consider whether there are better ways of integrating the broad concept of competence into all areas of the national curriculum,
- systematically assess which generic competences are part of current subjects, including basic skills, and assess the extent to which generic competences and multidisciplinary themes and issues are addressed in a satisfactory manner in today's curricula,
- consider whether any generic competences should be given more prominence than today, such as critical thinking, creativity, collaborative skills, complex problem solving and scientific thinking and methodology, and consider what changes should be made if these competences are to increasingly characterise the content of the education and training,
- assess which competences can help pupils learn in various arenas throughout life and how, for example, metacognition and self-regulated learning can be constant elements in the future national curriculum,
- consider how the school's work with pupils' social and emotional competences can be strengthened and discuss the implications this should have for the national curriculum and assessment of pupils,
- examine various options for competence-oriented curricula, and how the current Norwegian curriculum model can be developed and
- describe overriding principles for implementation of the committee's proposals.

Box 1.2 The chapters in the interim report

Chapter 2 *The Norwegian school of today* provides a description of the current school system to serve as the common basis for further discussion. The presentation is descriptive without providing an assessment of the situation.

Chapter 3 *Pupils' learning* provides an overview of research on important conditions for pupils' learning. The chapter presents research on the importance of deep learning, metacognition and self-regulated learning and social and emotional competences. Research on teaching practices in Norwegian classrooms is also described.

Chapter 4 *Learning outcomes* provides an overview of what inspections, tests and international comparative surveys say about Norwegian pupils' learning outcomes within various disciplines and areas of competence.

Chapter 5 *Competence* discusses how competence is described and expressed in the National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training. The chapter also examines generic competences, the content of the competence concept and its relationship to other concepts, such as skills, knowledge and attitudes. The chapter defines a broad competence concept that the committee will adopt in its further work, including cognitive, practical, social and emotional aspects of pupils' learning.

Chapter 6 *Primary and secondary subjects* discusses the content and structure of the subjects from a historical and comparative perspective. Particular emphasis is placed on breadth and depth orientation in the curricula based on the premise that depth orientation is important for permanent learning and good learning progress.

Chapter 7 *Curricula and assessment systems* describes some of the factors affecting implementation and quality work in schools, such as various models of competence-oriented curricula, pupil assessment and quality assurance at various levels. The historical lines in Norway are described, while some similarities and differences compared to countries the committee has studied are described.

Chapter 8 *21st century skills* describes some important features of social, cultural and technological development and key international projects that address the relationship between education in schools and skills needed in working life and society. In the principal report the committee will provide a more detailed assessment of competences for the future.

cation (subjects and competence) in light of the competence and skills society and working life will require in the future. This first report serves as the foundation for the principal report and presents knowledge based on an analysis of:

- the historical development of primary and secondary school subjects,
- primary and secondary school subjects in relation to naturally comparable countries, including composition, grouping and content and
- reports and recommendations from national and international stakeholders relating to future competence requirements and which are relevant for primary and secondary education.

The main features and key considerations in the interim report are presented below.

2.1 A broad competence concept

The interim report initially provides a brief overview of the structure and content of the current school system to create a sound foundation for further discussion. The current Norwegian school system is based on long traditions, but was undergone changes through the Knowledge Promotion Reform which characterise school life today. With the Knowledge Promotion Reform, competence became the key concept for learning outcomes and competence goals became the new model for teaching.



While the Norwegian school system has its strengths, there is still room for improvement. Changes that are implemented must aim to preserve, enhance and develop the work already invested in making improvements. The evaluation of the Knowledge Promotion Reform shows that the transition to competence-oriented curricula has been challenging for some school owners and schools. At the same time, the evaluation shows that the reform has generally been positively received and that there have been substantial changes in development and learning in connection with the work on the reform.

The committee has looked at various definitions of competence and uses a broad competence concept in the interim report. It includes a wide range of cognitive, social and emotional competences such as problem solving, collaborative skills and creativity. The competence concept also embraces practical skills, attitudes, ethical considerations and the value of democratic participation and institutions. The committee understands knowledge as something that can be developed and learned and expressed through how people act in and across different situations.

The interim report assesses the current national curriculum in light of the broad concept of competence. All in all, the objects clause and the national curriculum contain goals for the academic, social and personal learning and development of the pupils. Competence is more narrowly described in the competence objectives for subjects than in other parts of the national curriculum, i.e. the Core Curriculum and the Quality Framework. The committee assumes that if the broad concept of competence is increasingly integrated throughout the national curriculum, it will emphasize the overriding mission of the schools and clarify expectations of what pupils should learn. In the principal report, the committee will consider various options that can strengthen the cohesion between the various parts of the national curriculum.

The intention of the Knowledge Promotion Reform as a steering reform was to shift the focus from managing through framework conditions and input factors in the schools to steering through objectives and performance information.

The interim report presents current information on the learning outcomes of pupils in Norwegian schools in areas such as literacy, numeracy, mathematics, science and democratic competence. A pupil survey provides information about pupils' learning environments, including motivation for learning.

The overall situation is that Norwegian pupils perform about average in the areas that have been mapped in international surveys. At the same time, the trend, particularly in the sciences, is that fewer Norwegian pupils are at the highest or the lowest level of proficiency. The committee sees that the Norwegian school still faces challenges in raising the academic competence of pupils.

Measured through the same surveys, the differences between Norwegian pupils have become smaller, mainly due to the fact that the performance of the weakest pupils has improved. At the same time, Norway has a lower percentage of pupils who perform at the highest level, compared with other countries. In the principal report, the committee will discuss how changes can be made to the content of the national curriculum so that it gives better support than today to the school's efforts to increase the performance of all pupils, including the low and high achievers. International studies and newer classroom research show that Norwegian pupils have a limited repertoire of learning strategies and rarely use these strategies. In the principal report, the committee will discuss what can be done with the school content to facilitate better use of learning strategies among Norwegian pupils.

The committee points out that the school's competence goals for pupils are broader in scope than what is captured by the measuring tools used today (national examinations and international surveys). The available information on outcomes provides a limited picture of the skills pupils acquire with respect to the broad concept of competence defined throughout the national curriculum and the subjects the school offers.

There is limited information available, for example, about pupils' collaborative skills and other forms of social and emotional competence.



Research on social and emotional competence illuminates and highlights the school's broad social mission and provides knowledge about how school can help to ensure that all pupils have equal opportunities in later life. Social and emotional learning can contribute positively to the pupils' learning outcomes in school. Pupils' skills are developed through the interaction of academic, social and emotional aspects of learning. The committee will highlight research which suggests that pupils with poor academic achievement are the ones who especially benefit from systematic work on social and emotional competence in school.

Bearing the perspective of the broad concept of competence in mind, in the principal report the committee will examine whether some competences, such as scientific reasoning, critical thinking, creativity, metacognition and self-regulation, collaborative skills and complex problem solving, should be given more prominence in various ways in the national curriculum.

The committee finds that if more content is to be added to primary and secondary education and training, some content will also have to be removed. As mentioned above, many of the current subjects already have a rather broad orientation. Also in the future, the school is likely to face requirements from many environments/interest groups that more topics must be taught in school.

Learning research shows that learning something in depth, and not just on the surface, takes time. Hence the committee is aware of how many subjects, disciplines and competences it is realistic for pupils to learn and develop in depth during primary and secondary education and training. The committee understands curriculum overload to mean that new content, consisting of subject matter, work methods and competences, is constantly being added to school without anything else being removed.

2.2 Deep learning and progression

In a broad sense, cultural and technological development provides a virtually unending source of information. While this is not new, attention must be paid to the challenges schools have in dealing

with the rapid pace of development. This development is a main source of curriculum overload, which can make it more difficult for schools to facilitate permanent learning and progression in the pupils' learning.

The interim report presents key research summaries from learning research on aspects of teaching and learning activities that promote pupils' learning. There is consensus in the research field that deep learning is significant for pupils' development within and across disciplines, and is essential for them if they are to then function well as employees and independent citizens in an increasingly complex society. Deep learning means that pupils develop an understanding of concepts and contexts within a discipline, where they link new ideas to already known concepts and principles so that new comprehension can be used to solve problems in new and unfamiliar contexts. Learning research points out that it is important for pupils' learning that they have an opportunity to immerse themselves in complex tasks, are given time to reflect on their own learning and receive help to understand correlations. Deep learning requires good progression in pupils' learning activities adapted to their prior knowledge and experiences. This means that competence objectives and subject matter must provide opportunities for progressively more nuanced understanding and complex problem solving. Learning research shows that deep learning has a lasting and positive impact on how pupils act, think, feel and see themselves as learning individuals. Both a breadth and depth orientation is important for learning and all-round skills attainment, but the committee emphasises that deep learning is essential for academic development, lifelong learning and proficiency over time.

The research shows that pupils' active participation in and reflection on their own learning processes promotes learning. Metacognition and self-regulated learning entail that pupils reflect on and try to control and influence their own learning and thinking. Use of relevant teaching strategies is part of this, as is the pupils' confidence in their own proficiency, motivation to learn and capacity to persist when the content becomes diffi-



cult to master. The knowledge base from learning research increases the opportunities for teachers to support pupils in the development of advanced learning strategies and skills that help them to become lifelong learners. The committee will use this research in its assessments in the principal report.

Pupils' knowledge and skills are developed through the interaction of academic, social and emotional aspects of learning. Research also shows that social and emotional learning helps pupils to develop skills and attitudes that affect learning outcomes in a positive direction and that there are correlations between pupils' social and emotional competences and how they succeed later in life. A stimulating learning environment will improve the performance of all pupils. Therefore it is important to support social and emotional learning that allows pupils to contribute positively to the stimulating learning environment.

The committee will also apply the available knowledge base on teaching that promotes deeper learning in schools. Teaching that encourages deep learning and progression, where both teachers and pupils are oriented towards the purpose of the learning process, and where formative assessment is an integral part of this, is crucial for learning. More advanced practices in these areas place great demands on teachers' professional and educational competence, and how teaching staff, school management and school owners support the work of teachers.

2.3 Renewal of school subjects

The interim report describes the development of the structure and content of subjects in the primary and lower secondary school and common core subjects in upper secondary schools over time. The committee points out that many school subjects have comprehensive content. Realisation of the curricula often requires that the focus is on the breadth of the subjects which can make it difficult to help pupils develop their deep learning and have good progression. Because the depth orientation is essential for academic development and mastery over time, in the principal report the committee will continue to build on the analyses

made of the subjects' breadth orientation. Overlapping between subjects will also be a key issue.

In the principal report, the committee will look at the need to renew subjects in schools in the light of future skills that will be needed in society and the workplace. Subjects and disciplines in schools have been stable over time. Many are rooted in established scientific subjects, but the traditional scientific subjects are not the only disciplines that can set standards for the determination of school content in the future. School subjects are historical and cultural constructions that have been selected and shaped in processes where social change, political aspirations and educational considerations play significant roles. Today's subjects, disciplines and competences are only one of several possible ways of organising the content of school. The committee will consider whether subject classification should be changed, which subjects can be regrouped, whether individual subjects and disciplines should be removed in favour of new ones or whether existing disciplines should be strengthened. The discussion on the subject review will also involve the renewal of the relationship between scientific disciplines and school subjects, i.e. whether the current subject structure should continue, or whether the content of education and training should be structured in other ways.

2.4 Themes, issues and competences across subjects

Subject classification can make it challenging to work with the themes, issues and competences that cross disciplines and subject areas in the school's current structure. In the principal report, the committee will consider whether key trends in society and findings from recent research on pupils' learning mean that subject content should be viewed together to a greater degree, for example, with greater emphasis on themes, issues or competences that cross subjects.

Generic competences are described in various places in the current national curriculum. The five basic skills in the Knowledge Promotion Reform are integral to competence objectives in all subjects, partly as part of the competence in the



subject and partly as tools for learning and development in the subject. The five skills are reading, writing, mathematical ability, oral communication and digital competence. Other generic skills such as social and cultural skills, learning strategies and motivation are described in the *Quality Framework*, but have not been defined to any extent as part of the competence objectives in the subject curricula. Nor does the national curriculum describe how the school's work on competence in the Quality Framework can be linked to learning activities in the subjects.

In the principal report, the committee will look systematically at the generic competences that are part of the subjects today and assess the extent to which multidisciplinary themes and issues are addressed in a satisfactory manner within the current curricula. The committee will also consider which competences are important in school, both within and across subjects, including social and emotional competences. One key question is whether generic competences should be emphasised and given prominence in other ways than in the current national curriculum, and if so, which competences should be prioritised. Generic competences include, for example, creativity, use of scientific methods in investigative work and a wide range of social and emotional competences.

The committee notes that the current curricula require that pupils must be challenged to develop *competence*, i.e. that they are able to apply the knowledge and skills they have learnt and developed in the different subjects in new tasks. Transferring knowledge and skills across activities can be seen as a generic competence. The committee finds that a broad competence concept that explicitly embraces the pupils' academic, social and emotional competences requires a common understanding of the concept of competence among all stakeholders to ensure a common practice that supports pupils' learning efforts.

2.5 Competence needs in the 21st century

The interim report describes some of the key developments underpinning the question of what will be important competences for active participation in working life and society in the future:

technology, globalisation, cultural diversity, democracy, climate and environment.

These trends have led to a number of international projects that highlight the relationship between education in schools and competences needed in working life in the knowledge society. The interim report describes the most important projects in this area and summarises their recommendations by relating them to the competences that should be given prominence in the future. The competences match a broad definition of competence as composed of knowledge, skills and attitudes. Many of the competences recommended are generic, while the renewal of subject knowledge is given less attention in most of these projects.

Several competences addressed by the international projects are already part of the Norwegian comprehensive school and any changes that are implemented must aim to preserve, enhance and develop the work already done.

In the principal report, the committee will consider how global and national development trends have consequences for school content and discuss challenges related to the implementation and assessment of any changes.

2.6 Curricula and assessment systems

Guidelines for school content are determined in national curricula. School owners have the local responsibility and schools and teaching staff implement curricula through their daily work with pupils. Various factors affect how the curricula are realised in school, including how the curricula are interpreted, and the competence and capacity of teachers, schools, school owners and assessment systems in primary and secondary education and training.

Curriculum research distinguishes between *competence-oriented* and *content-oriented* curricula. The national curricula the committee has analysed in several countries are competence-oriented because they describe goals for what the pupils are expected to master after completing the various levels of education. At the same time, the curricula have varying degrees of content orientation. In the principal report, the committee



will examine different options for competence-oriented curricula and assess how the current Norwegian curriculum model can be developed. An important question is how curricula can best ensure quality and equality in education.

The committee finds that national reforms and any change of content in school must be accompanied by implementation strategies that are targeted, supportive and accurate enough to create a common understanding of the purpose of the changes and that give school owners, school leaders and teachers ownership of what is new. In the principal report, the committee will discuss overarching principles for the implementation of the committee's recommendations on subjects and competences in the future school.

Assessment systems should both provide information and constitute the basis for learning and development. The committee finds that assessment and quality assurance work must be based on overriding goals for pupils' learning. It is important that the various components of assessment systems reflect the broad scope of the school's goals.

3 The committee and its terms of reference

This section presents the composition of the committee, its terms of reference, its interpretation of the terms of reference and how it will work to fulfil them.

3.1 The committee's background and composition

The background for the committee is described in Meld. St. 20 (2012-2013) *På rett vei – Kvalitet og mangfold i fellesskolen* (Report to Parliament: On the right track – Quality and diversity in the comprehensive school system):

Children and adolescents spend much time in school, and their school years have an effect on their childhood and the choices they make later in life. Each pupil and apprentice should acquire values and competences for self-development and active social participation. The overriding aim for the school system is to develop participants in society with

competences that are sustainable for decades.

The curricula create the frames for the content of the subjects, while the distribution of teaching hours per subject governs the scope of the various subjects in school. Norwegian/Sami is the subject that has had the largest increase in scope and the largest proportion of total time. Teaching hours have been increased both in primary and in lower secondary school after the implementation of the Knowledge Promotion Reform. In grades 1 to 4, the number of teaching hours has been expanded by a total of 190 teaching hours per year in mathematics, Norwegian/Sami and English. In grades 5 to 7, the number of teaching hours has been expanded by 76 hours of physical activity. In grades 1 to 7, the number of teaching hours has been expanded by 38 flexible hours. The hours must be used for teaching in the subjects and at the level school owners believe is most appropriate according to local needs. In grades 8 to 10, teaching hours will be expanded by 56 hours over three years in connection with the introduction of electives from the autumn of 2012.

Fundamental changes have taken place in Norway and other Western societies over the last 20-30 years. Norway is a knowledge society where the demand for more advanced skills is increasing and changing faster than before. The society and workplaces are more diversified, and the labour market is increasingly characterised by international competition and cooperation. Digital and media developments in society also require that children and young people, as well as employees, have the capacity to manage large streams of information and transform that information into relevant knowledge.



The Ministry's assessments

The content of the subjects in primary and secondary education and training are intended to provide young people with the skills needed in society and working life in the future. It should be periodically assessed whether the content is relevant and proper, and whether the current distribution of teaching hours per subject supports and maintains the competences and skills that are important in further education and participation in working and social life, and whether the education and training promote the broad objectives of primary and secondary education and training.

The Ministry points out that in recent years there have been several debates on the current distribution of teaching hours per subject in primary and lower secondary school. For example, some experts want more focus on Norwegian and mathematics in the first few years of primary school, while other experts point to the need to give more priority to practical and aesthetic subjects and more physical activity in schools.

Through the *21st Century Skills* project, the OECD highlights such qualities as cooperation, creativity, flexibility and the ability to make independent choices concerning competences and skills that will be important for being able to adapt to new demands and expectations in working life.

The Ministry has found that there is a need to appoint a government committee to assess primary and secondary education subjects in light of the skills required by society and working life in the future.

The committee's composition

On 21 June 2013, the Stoltenberg II Government appointed a committee to assess the degree to which school content covers the competences pupils will need in society and working life in the future.

The committee is composed of individuals with broad expertise and experience:¹

Sten Ludvigsen, Professor, committee chair, Oslo
Kjersti Kleven, Chair of the board in The Federation of Norwegian Industries, Ulsteinvik

Sigve Indregard, Journalist, Oslo

Eli Gundersen, Education Authority Director, Stavanger

Tormod Korpås, Principal, Sarpsborg

Bushra Ishaq, Physician, Oslo

Pia Elverhøi, Principal, Tromsø

Helge Øye, Project manager, Gjøvik

Mari Rege, Professor, Stavanger

Sunniva Rose, PhD student, Oslo

Daniel Sundberg, Associate professor, Växjö, Sweden

Jens Rasmussen, Professor, Copenhagen, Denmark

3.2 Terms of reference for the committee's work

Terms of reference

The Government has assigned the following terms of reference to the committee:

The committee shall submit a report by 1 September 2014, presenting a knowledge foundation and an analysis of:

- the historical development in primary and secondary school subjects²
- primary and secondary school subjects in relation to naturally comparable countries, including composition, grouping and content and
- reports and recommendations from national and international stakeholders that are relevant for primary and secondary school with a

¹ Researcher Henrik Thune from NUPI resigned from the committee after its first meeting due to a lengthy assignment abroad. After the change of government in the autumn of 2013, the committee was expanded with members Jens Rasmussen, Daniel Sundberg and Tormod Korpås.

² The terms of reference for the committee's work includes all the subjects in primary school and the common core subjects in primary and secondary education (Norwegian, Mathematics, Natural Science, English, Social Science and Physical Education).



view to future requests for competence (21st century skills).

The committee shall submit a principal report by June 2015 that examines:

- the extent to which the content of the subjects covers the competences and the basic skills the committee finds are needed in future society and working life,
- what changes need to be made if these competences and skills are to characterise the content of the education to a larger degree,
- whether today's structure of subjects should continue to form the basis for education, or if the content should be structured in other ways and
- if the content of the objects clause for the primary and secondary school is reflected to a sufficient degree in the content of the education.

At least one of the committee's proposals for change should be implemented within today's resource framework.

One condition for the committee's work is that the present objects clause for primary and secondary education and training has to be maintained. The proposals must be based on the assumption that at the end of primary and lower secondary school pupils are still able and qualified to choose from all the education programmes in upper secondary education and training. The committee should not suggest a concrete distribution of teaching hours per subject.

The committee will consider the need to add further expertise in the work and facilitate the views and issues presented from representatives of relevant organisations and experts. This could be done through a reference group. The committee shall raise the question of interpretation or limitation of the terms of reference with the Ministry of Education and Research. The Ministry assists and is responsible for the secretariat of the committee.

In its interpretation of the terms of reference, the committee points out the following:

The relationship between the interim report and the principal report

The committee has decided to mainly deal with the distinction between the principal report and interim report as outlined in the terms of reference. The committee sees the interim report as an important foundation for the principal report, but also wants the interim report to outline the issues that will be discussed in more detail in the principal report.

This highlighting of the issues that will be discussed in the principal report will raise awareness of the committee's work and provide input that will be important in the committee's work on the principal report.

Research and studies-based knowledge foundation

The committee uses a research and studies-based approach to knowledge for its work on the issues in the terms of reference. To build a solid foundation for its assessments, the committee shall make use of findings from major studies or many individual studies that over time confirm key findings, such as research summaries and synthesis reports.

The interim report shall constitute a knowledge foundation and is mainly descriptive in areas related to the framework for and organisation of the school. The committee will use the analyses and assessments of the school's content in the interim report as part of the knowledge foundation for the assessments in the principal report.

In its work on the interim report, the committee commissioned some studies and research summaries related to specific issues from external experts.

Subjects in primary and secondary education

The committee has been asked to look at the historical development of primary and secondary education subjects over time and finds that the subjects have been designed in specific time periods and that the legitimacy of the school subjects cannot be taken for granted. The subjects and disciplines they are based on must therefore be



reviewed in light of the need for future skills. As the transition to competence-oriented curricula seems to represent a significant shift in curriculum history, the committee has chosen to focus mostly on recent changes in curriculum history. The development of the subjects is described through the competence in the subjects, subject matter and content elements across disciplines. In learning research, which is a key part of the knowledge foundation in the interim report, there is broad agreement on the importance of deep learning for pupils' academic development. Special attention is therefore given to the breadth and depth orientation of the subject curricula and learning progression.

A broad competence concept

The committee uses a broad competence concept. The competence term is connected to the school's broad education and qualification mission that the objects clause and national curriculum as a whole describe. This means that the concept of competence includes both academic knowledge and skills, social and emotional skills, attitudes and ethical considerations.

A cohesive system

The subject curricula are steering tools and academic and educational tools for planning and implementing teaching. The content and form of the curricula are therefore important for practice in schools. How the intentions in the subject curricula are implemented is closely related to other issues connected to them, including pupil and quality assessment systems. The committee finds that assessment and quality assurance must have goals for pupils' learning as the core and that the assessment systems provide relevant information about and contribute to pupils' learning and quality improvement in school.

Comparison with other countries

The committee has been asked to compare disciplines and competences in the Norwegian school with other countries and in this connection points out that comparing curricula with different countries has distinct challenges and limitations. Social and cultural factors, curriculum traditions, political priorities and school practices vary. The committee has chosen to compare Norway with countries with which Norway is commonly compared, such as other Nordic countries. Scotland and Poland were selected as examples of countries that have achieved high learning outcomes according to international surveys.

Future needs in society and working life

In their work to create the knowledge foundation for the future needs of schools, society and the workplace, the committee has asked a number of national stakeholders for input on its work in this area.

Internationally, several projects are considering what types of competence will be needed in the 21st century. The committee has taken a closer look at some of these.

The committee's terms of reference and the school's social mandate

The objects clause in the school curriculum describes the overall educational goals in primary and secondary education. The objects clause states what society expects primary and secondary education and training to take responsibility for. The main aim is to facilitate the development of the all pupils, but also included in this are general values that are important for society.

Together with the national curriculum, the objects clause describes broad and complex goals for the types of competence that Norwegian pupils are to develop through their schooling. The broad scope of the school's social mandate gives school both a *qualification mission* and a *formative mission*. School shall provide pupils with competence that society needs and that the pupils themselves will need in their further education and the

Box 1.3 Key terms in the interim report

Competence

The committee employs a broad concept of competence. Competence is about being able to solve problems and deal with challenges in different contexts and includes cognitive, practical, social and emotional aspects of pupils' learning, including attitudes and ethical considerations. Competence can be developed and learned and is expressed through what people do in different situations and activities.

The broad definition of competence is justified by the requirements for complex problem solving in society and working life, and is consistent with the breath of the school's social mandate, as described in the objects clause.

Generic competences

Generic competences is a term used to describe competences developed and used across disciplines and fields of knowledge in society and working life.

Examples of generic competences that have traditionally been important in Norwegian curricula are scientific ways of thinking and working, curiosity, ability to undertake critical reflection, democratic skills and the ability to cooperate.

The basic skills are the clearest example of generic competences in the National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training (LK06).

The basic skills

In LK06, the five basic skills – *reading, writing, mathematics, oral communications and digital skills* – are competences that all pupils must develop throughout their schooling.

The basic skills are integrated into the competence goals in the curricula at all levels of primary and secondary education and training, on the subjects' premises. The skills are important tools for pupils' learning and development in the subjects, and they also form part of the competence in the subjects. The basic skills are also important from the perspective of lifelong learning.

Multidisciplinary themes

When pupils work on issues or themes that require expertise from different disciplines we call this *multidisciplinary work*. For example, pupils' understanding of issues related to climate challenges requires knowledge and skills from the natural sciences, mathematics and social sciences.

21st Century Skills

The *21st century skills* or *key competences* comprise a field of many projects that consider what the most important competences are for the future in light of changes in society.



occupation they choose. As such, the qualification mission has both a community-oriented and individual-oriented objective. The formative mission also has both an individual orientation and a general orientation. The individual orientation involves individual empowerment, self-realisation and personal responsibility. The general orientation is about the aim that pupils develop into cooperative members of society who actively participate in culture and democracy.

3.3 Openness and involvement in the committee's work

The committee has chosen to be open in its work so that it can appeal to a broad audience, both in the education sector and other sectors of society. An important step in this regard has been to establish *The School for the Future* blog.

The blog contains information about the committee's terms of reference and composition, documents from all committee meetings, as well as blog posts from committee members, researchers, educators, organisations and others. Anyone can comment on the blog or send input to the committee by e-mail to Ludvigsenutvalget@kd.dep.no.

The blog, started in December 2013, has between 1600 and 3000 visitors a month. So far, the blog has had over 40,000 page views. Visitors to the blog look at an average of three posts each. The documents for committee meetings are the most read texts.

The committee has invited a number of organisations and various experts to meetings and to provide input on key issues in the committee's work. This includes employee and employer organisations, national centres for maths, science, training in and research on reading and writing, and several think tanks. The various organisations and academic communities the committee has had meetings with have also been invited to provide input to the draft for the interim report. This has helped to increase the quality and relevance of the committee's work. Written feedback from stakeholders is available on the blog.

To ensure the quality and focus of the work, the committee has established a research group and a sector group as external reviewers of the draft for the interim report. See the discussion on the blog for a list of members of these groups.

The committee has so far held five meetings and been on a study tour to the OECD/UNESCO.

4 Knowledge foundation and methodological approach

The interim report is an empirically-based knowledge foundation based on findings from research and studies and the results of evaluations.

To build a solid foundation for the assessments the committee will make in the principal report, it uses as far as possible findings from major studies or many individual studies that over time confirm key findings, such as research summaries and synthesis reports.

In the work on the interim report, the committee commissioned certain studies or research summaries related to specific issues from external experts.

The main parts of the of the knowledge foundation are:

The evaluation of the Knowledge Promotion Reform (EvaKL)

The Knowledge Promotion Reform was followed by a research-based evaluation programme. The evaluation of the Knowledge Promotion Reform (2006-12) covered various aspects of the reform, with sub-reports and final reports from a total of ten projects, in addition to several synthesis reports.

EvaKL provides knowledge on how the reform has been implemented, how it has changed the school and whether the outcomes match the intentions. Selected EvaKL findings are used in the interim report.



International studies and research summaries based on register data

Norway participates in many international studies that compare school systems and measure pupils' skills in several areas. Studies such as PISA, TALIS, ICCS, TIMSS and PIRLS document some important aspects of the quality in the participant countries' school systems, and central to most is the measurement of the pupils' levels of competence in specific disciplines. Most of the studies measure trends, i.e. changes in pupils' competence performance for specific levels or age groups.

Information from various registers is also part of the knowledge foundation. Register data on grades, test scores, completion rates in primary and secondary education and training and social background factors are part of the data on which the committee bases its assessments.

NOVA submitted a memorandum commissioned by the committee with a summary of research on social equalisation of school results.

Statistics Norway submitted a memorandum commissioned by the committee on Norwegian pupils' performance on the basis of social background factors.

Evaluations

The university/university college sector and the research sector conduct various types of evaluations of primary and secondary education and training on behalf of the Ministry of Education, the Norwegian Directorate for Education and Training and other stakeholders. These evaluation reports are used in conjunction with other research where possible.

Learning research

Knowledge of how pupils learn and what constitutes suitable education is taken from a variety of research summaries, each of which tries to form an overview by assembling research from various quarters. A research summary informs about the relevant research findings that exist at any given time. The summaries mainly used in the study are:

- *Nature of Learning* (2010), OECD
A project under the auspices of the OECD where a number of leading learning and education researchers from Europe and North America were commissioned to write about learning from different perspectives by summarising large amounts of research and pointing out the importance of the research for designing advanced teaching and stimulating learning environments.
- *National Research Council: How People Learn. Brain, Mind, Experience and School* (2006)
A compilation of a number of theoretical and empirical works in areas such as developmental psychology, cognitive psychology, neuroscience and educational psychology.
- John Hattie's *Visible Learning* (2009)
A summary of 800 meta-studies of what works in education, based on a total of over 50,000 individual studies.
- Håkansson & Sundberg's *Utmärkt undervisning* (Excellent teaching) (2012)
A research summary of Swedish and international research on the characteristics of successful teaching and learning.
- James Greeno's contribution "Learning in Activity" in *The Cambridge Handbook of the Learning Sciences* (2006)
A key contribution to learning research that synthesizes central features that constitute different approaches to learning.

Comparing with other countries

The committee has been asked to compare subjects and competences in the Norwegian school with other countries. The comparisons are based on studies of national curricula and other relevant policy documents and information, as well as comparative studies and relevant research in each country. The comparative perspective is not used systematically and consistently; the purpose of the comparisons has been to shed light on key dimensions or to highlight some contrasts in national curricula, subject curricula and other governing documents.

The committee points out that comparing curricula with other countries has its distinct chal-



allenges and limitations. Social and cultural factors, curriculum traditions, political priorities and school practices vary. The committee has chosen to compare Norway with countries is common for Norway to be compared to, such as other Nordic countries. Scotland and Poland were chosen because they can show good learning outcomes according to international surveys.

Curriculum history

The committee has been asked to look at the historical development of primary and secondary education subjects over time. The transition to competence-oriented curricula appears to be a significant shift in curriculum history. The committee has therefore decided to focus mostly on recent curriculum history, but also describes the main features of the history from the curriculum M74 onwards. In some cases, earlier national curricula are cited.

The basis for the historical review of the curricula consists of

- curricula in the period covered by the committee
- relevant government and NOU reports
- a selection of schooling history presentations
- the primary and lower secondary school information system (GSI)

The curricula review is partly based on a delivery from the Norwegian Directorate for Education and Training commissioned by the committee. The Directorate was asked to analyse curricula for primary school subjects and common core subjects in secondary education with special emphasis on

- the transition from R94/L97 to LK06
- the most important changes in individual subjects, and the similarities
- depth orientation as opposed to breadth orientation in the curricula
- how progression is expressed in the curricula

21st Century Skills

The description of the most important trends in society is based on assessments in national and international research projects and studies of the changes that will take place in society and working life and the competences pupils will need in the future.

The committee has assessed the future needs of society and working life, and has therefore asked a number of national stakeholders for input to the committee's work on this point.

Internationally, a number of projects look at the skills needed in the 21st century. The committee has taken a closer look at some of these.

The committee commissioned a survey of the research and study field known as *21st Century Skills* from the *TransAction* research group at the Faculty of Education at the University of Oslo. The survey looked at what key studies emphasise as crucial competences for the future, paying special attention to what is relevant for primary and secondary education and training in Norway.

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