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Nordic Council of Ministers

Northern Lights on PISA 2009 – focus on reading





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Niels Egelund (editor)

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Preface

The first PISA survey was conducted in co-operation with the governments of the OECD member countries in 2000. PISA – Programme for International Student Assessment – has now been carried out four times at three year intervals. Discussions on the results of the surveys have been high on the political agenda, not only in the Nordic countries, but worldwide.

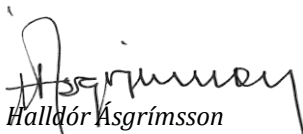
The four surveys over a decade have given researchers solid knowledge about 15-year-old students' skills in reading, mathematics and science.

For several years the Nordic Council of Ministers' Advisory Group for the Nordic School Co-operation, NSS, has supported a Nordic research group which has analysed the results for the Nordic countries. This work has resulted in the fourth Nordic report on the differences and similarities in the Nordic countries' results in PISA.

PISA Northern Lights IV analyses the reading skills of 15-year-olds in the Nordic countries. The report points to the fact that there are large gender differences in reading skills, that there are similarities between weak readers in the Nordic countries, that basic reading practice has a significant effect and that parents' reading to their children is important.

I would recommend this report as useful reading for everyone interested in education policy or who has children at school. The results of the report will be presented and discussed at a Nordic conference in Stockholm in 2012 and I hope that the report will arouse debate on future choices in school policy.

A big thank you to the researchers behind this report under the leadership of Professor Niels Egelund!



Halldór Ásgrímsson

Secretary General

Nordic Council of Ministers

1. Introduction

Niels Egelund, professor, Department of Education, Aarhus University.

1.1 General results from PISA

The intention of PISA – Programme for International Student Assessment – is to answer the following crucial questions in a postmodern information society:

- Are students well-prepared to meet the challenges of the future?
- Can they analyse, reason and communicate their ideas effectively?
- Have they found interests they can pursue throughout their lives as productive members of the economy and society?

PISA, which is developed by OECD under inspiration from earlier international comparative studies and is run by IEA (International Association for the Evaluation of Educational Achievement), seeks to answer the above questions through its triennial surveys of key competencies of 15-year-old students in OECD member countries and partner countries/economies. In all, the group of countries participating in PISA 2009 represents nearly 90 % of the world economy.

PISA assesses three domains of key competences, i.e. reading, mathematics and science. Reading was the main domain covered most extensively in the first round of PISA cycles in 2000, while mathematics constituted the main domain in 2003 and science in 2006. In 2009, reading was again the main domain, wherefore we now have a sound basis for analysis of trends over almost a decade. Students' reading competencies therefore constitute the main focus of the present PISA Northern Lights 2009 publication.

1.1.1 *Why is reading so important?*

The invention of the first writing systems is, roughly speaking, contemporary with the beginning of the late 4th millennium BC, but writing and reading skills were limited to a small percentage of the population up until around 1800. However, the ability to convey information in a written form as well as orally is one of humankind's greatest assets. The discovery that information can be shared across time and space, without the limits of the strength of one's voice, the size of a venue and the accuracy of memory, has been fundamental to human progress from 3,000 BC till now. Learning how to read and write requires efforts as it cannot be achieved without mastering a collection of complex skills. The brain is biologically primed to acquire language, but writing and reading are relatively recent achievements in human history. Becoming a proficient reader is a goal that requires practice and dedication, but it was an ability limited to the elite up until the beginning of the 19th century.

Industrialization and the development of the modern civic society gave rise to a demand for increasing education, and systems of compulsory education were established in most Western countries from around 1800. The transition in the last 30 years from the late industrial society to the present information society has dramatically reduced the demand for unskilled workers. Today, all countries strive to increase the educational attainment of their populations. Success in reading provides the foundation for achievement in other subject areas, for secondary and tertiary education and full participation in adult life.

1.1.2 *How can PISA be used?*

A distinct feature of PISA is its orientation toward policy. It connects data on student learning outcomes with data on students' characteristics and key factors shaping their learning in and out of school, with the aim of drawing attention to differences in performance patterns and identifying the characteristics of students, schools and education systems that have high performance standards.

Some will question – and have questioned – the validity of PISA's ability to assess how prepared 15-year olds are to meet the challenges of the future. The relevance of the knowledge and skills measured by PISA has,

however, been confirmed by studies tracking young people in the years after they have been assessed by PISA. Longitudinal studies in Australia, Canada, Denmark and Switzerland display a strong correlation between performance in reading in the PISA 2000 assessment at age 15 and future educational attainment and success in the labour market.

PISA reveals what is possible in education by showing what students in the highest performing countries can do in reading, mathematics and science. PISA is also used to gauge the pace of educational progress, by allowing policy makers to assess the extent to which nationally observed performance gains are in line with performance gains observed elsewhere. In a growing number of countries, PISA is also used to set policy targets against measurable goals achieved by other systems and to initiate research and peer learning designed to identify policy levers and reform trajectories to improve education. While PISA cannot identify cause-and-effect relations between inputs, processes and educational outcomes, it can highlight the key features in which education systems are similar and different, and it can disseminate those findings to educators, policy makers and the general public.

1.1.3 Gender differences

In the countries that took part in PISA 2009, most boys and girls sit together in the same classrooms during classes and are taught by similar types of teachers. Yet, PISA reveals that in OECD countries boys are on average 39 points behind girls in reading, which is equivalent to one year of schooling. PISA suggests that differences in how boys and girls approach learning and how engaged they are in reading account for most of the gender gap in reading performance. In fact the prediction is that this gap could be reduced by 14 points if boys approached learning as positively as girls, and more than 20 points if they were as engaged in reading as girls. Yet, this is not to say that performance gains will automatically increase if boys' engagement and awareness of learning strategies should increase with the mentioned points. However, as most of the gender gap can be explained by boys being less engaged, and less engaged students show lower performance, policy makers are encouraged to look for more

effective ways of increasing boys' and (less engaged students') interest in reading at school or at home.

Although girls generally have higher mean reading performance, enjoy reading more and are more aware of effective strategies to summarize information than boys, differences within the genders are far greater than those between the genders. Moreover, the size of the gender gap varies considerably across countries, which suggests that the interests of boys and girls and their academic strengths are not inherently different, but are mostly acquired and socially induced. The big gender gap in reading is not a mystery; it can be attributed to differences that have been identified in the attitudes and behaviours of boys and girls.

Girls are more likely than boys to be frequent readers of fiction, and they are also more likely than boys to read magazines. However, over 65 % of the boys regularly read newspapers for enjoyment while only 59 % of the girls do so. Although relatively few students say that they read comic books regularly, on average across OECD countries, 27 % of the boys read comic books several times a month or several times a week, while this is only the case for 18 % of the girls.

1.1.4 Influence from social background

Social background can influence student performance in two ways. One is at the individual level where parents' social, economic and cultural status relates to the academic success of their offspring. The other is at school level where the average social, economic and cultural status can influence the learning environment of the school and class in a positive or negative way. The latter type of influence is also called the peer effect. In most countries, and especially in the Nordic welfare countries, it is of high priority to minimize negative influence from low social background.

Canada, Finland, Japan, Korea and the partner economies Hong Kong-China and Shanghai-China all perform well above the OECD mean performance, and their students tend to perform well regardless of background conditions or the school they attend. These countries not only have large proportions of students performing at the highest levels of reading proficiency, but also relatively few students at the lower proficiency levels.

While most of the students who perform poorly in PISA are from socio-economically disadvantaged backgrounds, some peers from similar backgrounds excel in PISA, which suggests that overcoming socio-economic barriers to achievement is possible. Resilient students come from the bottom quarter of the distribution of socio-economic background in their country and they score in the top quarter among students from all countries with similar socio-economic background. Between 39 % and 48 % of the disadvantaged students are resilient in Finland, Japan, Turkey, Canada and Portugal as well as the partner country Singapore. In Korea and the partner economy Macao-China, 50 % and 56 % of disadvantaged students can be considered resilient, and this percentage is 72 % and 76 % in the partner economies Hong Kong-China and Shanghai-China, respectively.

1.1.5 Influence from immigration

In New Zealand, Canada and Switzerland 20 % to 25 % of students have an immigrant background while the proportions are even higher in Liechtenstein (30 %), Hong Kong-China (39 %), Luxembourg (40 %) and Qatar (46 %). In Macao-China and Dubai (UAE) the percentage is at least 70 %. There is no positive association between size of immigrant student population and average performance at country or economy level, nor is there any indication of a correlation between proportion of students with an immigrant background and performance gap between native and immigrant students. These findings contradict the assumption that high levels of immigrant students will inevitably lower the mean performance of school systems.

1.1.6 Characteristics of the most successful school systems

PISA gathers a wealth of background factors about schools and school systems, which renders it possible to identify system factors correlating with high student performance.

Results show that school systems with high performances and an equitable distribution of learning outcomes tend to be comprehensive, requiring teachers and schools to embrace diverse student populations through personalised educational pathways. In contrast, school systems that as-

some students have different destinations with different expectations and differentiation in terms of position in schools, classes and grades often show less equitable outcomes without an overall performance advantage.

The most successful school systems grant greater autonomy to the individual schools to design curricula and establish assessment policies, but the school systems do not necessarily allow schools to compete for enrolment. The incentive to deliver good results for all students is not simply a matter of how the student body of a school is defined. It also depends on the ways in which schools are held accountable for their results and the forms of autonomy they are allowed to have – as well as how this may help to influence their performance. PISA has looked at accountability both in terms of the information that is made available about performance and how that information is used, whether by administrative authorities through rewards or control systems, or by parents for example through their choice of school. Thus the issues of autonomy, evaluation, governance and choice are interrelated and together they provide a framework within which schools are given the incentives and the capacity to improve.

1.1.7 School resources

School systems differ in the amount of time, human capital, material and financial resources they invest in education. Equally important, school systems also vary in how these resources are spent. At the level of school system and net level of national income, PISA shows that higher teacher salaries, but not smaller class sizes, are associated with better student performance. Teacher salaries are related to class size in the way that if spending levels are similar, school systems tend to make trade-offs between smaller classes and higher salaries for teachers. The PISA findings suggest that systems prioritising higher teacher salaries over smaller classes tend to perform better, which corresponds with research showing that increasing teacher quality is a more effective route to improved student outcomes than creating smaller classes. At national level, schools with better resources tend to do better only to the extent that they also tend to have more socio-economically advantaged students. Some countries show a strong correlation between the schools' resources and the socio-economic and demographic background of the students, which indicates

that resources are inequitably distributed according to the socio-economic and demographic profiles of the schools.

In other respects, the overall lack of a relation between resources and outcomes is not an indication of resources being unimportant, but rather that the level of resources does not have a systematic impact within the prevailing range. If most or all schools had the minimum resource requirements to allow effective teaching, additional material resources would make little difference to outcomes.

1.1.8 Attitudes towards reading: time spent on reading for enjoyment and reading performance

One of the most powerful indicators of attitudes towards reading is the time students spend reading and reading for enjoyment out of school. Time spent on reading is therefore an important predictor of students' reading performance.

In PISA, the variable time spent on reading for enjoyment measures how frequently and for how long students read. The amount of time students spend reading for enjoyment provides an indicator of their interest in reading. Frequency of reading is strongly related to reading comprehension. Better readers tend to read more because they are more motivated to read, which in turn leads to improved vocabulary and comprehension skills.

PISA has asked students how much time they usually spend reading for enjoyment. Students could choose between "I do not read for enjoyment", "I read for up to 30 minutes a day", "I read for more than 30 minutes but less than 60 minutes a day", "I read for between 1 and 2 hours a day" and "I read for more than 2 hours a day."

Students who read for enjoyment proved to be more proficient readers than students who do not read for enjoyment in all the PISA participating countries. On average, across OECD countries, more than one-third of students reported that they do not read for enjoyment at all. The average performance (464 points) of these students on the reading scale is well below the average for the OECD as a whole. Another one-third of students across OECD countries read for 30 minutes or less per day. Their mean performance, 504 points, is in line with the OECD average of 493 points. A further

17 % of students across OECD countries read for between 30 minutes and one hour per day and obtain a performance level of 527 points. Students who reported reading for longer, between one and two hours per day, and assiduous readers, who read for enjoyment for more than two hours daily, score 532 and 527 points, respectively.

In more than two-thirds of the PISA participating countries, the score point difference associated with doing at least some daily reading for enjoyment is far greater than the score point difference associated with increasing the amount of time spent reading in school. This underlines the importance for educators to engage students in at least some reading for enjoyment. The gap in performance between students who read for enjoyment for 30 minutes or less per day and students who do not read for enjoyment is more than 30 points in 36 countries and above 60 points in six countries. However, a performance gap above 30 points between students who read for enjoyment from 30 minutes to one hour and students who read 30 minutes or less is only registered in eight countries. In no country is the performance gap between students who read for enjoyment between one and two hours per day and students who read between 30 minutes and one hour per day above 20 points.

In most countries, the score point difference between students who spend less than 30 minutes per day reading for enjoyment and students who spend no time reading for enjoyment is greater than the score point difference between students who spend 30 minutes to an hour reading for enjoyment and students who spend less than 30 minutes. In general, the score point difference between the various groups of students decreases as students spend more time reading for enjoyment. This may mean that the returns on the time students spend reading for enjoyment decrease as time invested by students increases; or alternatively, that poor readers need more time to read a text. Naturally, it is not simply a question of how much time students spend reading, the types of materials they read and the levels of complexity are also relevant. These aspects are considered in the next section.

PISA 2009 indicates that reading for enjoyment is associated with reading proficiency. The low reading performance among students who do not read for enjoyment calls for education systems to encourage reading both in and outside of school. Moreover, the existence of a threshold effect in how

fast students with different abilities access written information calls for continued focus on encouraging students to read for enjoyment daily, rather than focussing on how much time they spend reading.

1.1.9 Trends over time

As PISA has been implemented for a decade, it is now possible to explore not just where countries stand in terms of student performance, but also how learning outcomes or gaps between higher- and lower-performing students change. Every three years, PISA assesses student knowledge and skills across a nine-year cycle. The basic survey design remains constant to allow for comparability from one PISA assessment to the next. In the long term it allows countries to relate certain policy changes to improvements in educational standards and to learn more about how changes in educational outcomes compare with international benchmarks.

Certain countries showed a significant gain in outcomes from PISA 2000 to PISA 2006. Among these were two OECD countries (Korea and Poland) and five partner countries/economies (Chile, Liechtenstein, Indonesia, Latvia and Hong Kong-China). From 2000 to 2006, Korea increased its reading performance by 31 score points, mainly by raising performance standards further among the better performing students. Hong Kong-China has increased its reading performance by 11 score points since 2000. The increased performance in both Korea and Hong Kong-China is assumed to be caused by high expectations on students from schools, teachers and parents in the fast developing economies. Poland increased its reading performance by 17 score points from PISA 2000 to PISA 2003 and by another 11 score points from PISA 2003 to PISA 2006. Today, it performs at 508 score points, which is, for the first time, clearly above the OECD average. Between these three assessments, Poland raised its average performance mainly through increases at the lower end of the performance distribution, probably by establishing a comprehensive school system. As a result, in PISA 2003 fewer than 5 % of the Polish students fell below the performance standards that were not reached by the bottom 10 % of the students in PISA 2000. Since PISA 2003, performance in Poland has risen more evenly across the performance spectrum.

The remaining countries that have seen significant performance increases in reading between PISA 2000 and PISA 2006 are Chile (33 score points), Liechtenstein (28 score points), Indonesia (22 score points) and Latvia (21 score points). However, with the exception of Liechtenstein, they all perform significantly below the OECD average.

A number of countries saw a decline in their reading performance between PISA 2000 and PISA 2006. This group comprises nine OECD countries (in descending order) – Spain, Japan, Iceland, Norway, Italy, France, Australia, Greece and Mexico – and five partner countries – Argentina, Romania, Bulgaria, the Russian Federation and Thailand. No explanations have been given for this decline.

When looking at the PISA 2009 results, we see that the 26 OECD countries (Chile, Israel, Poland, Portugal, Korea, Hungary and Germany) and six partner countries (Peru, Albania, Indonesia, Latvia, Liechtenstein and Brazil) with comparable results in both assessments all improved their reading performance between 2000 and 2009, whereas performance declined in Ireland, Sweden, the Czech Republic and Australia.

In many countries, improvements in results are largely due to improvements at the bottom end of the performance distribution, which signals progress towards greater equity in learning outcomes. Variation in student performance fell by 3 % across the OECD countries. On average, across the 26 OECD countries with comparable data in both assessments, 18 % of the students performed below the baseline reading proficiency Level 2 in 2009, while 19 % did so in 2000. Among the countries with 40 % to 60 % students below Level 2 in 2000, Chile reduced its share of low-performing students by the largest amount. Mexico and the partner country Brazil also showed important decreases in their share of low performers. Among countries where the proportion of students performing below Level 2 was smaller than 40 %, but still above the OECD average of 19 %, we find the partner country Latvia, which reduced its proportion by 13 percentage points, while Portugal, Poland, Hungary, Germany, Switzerland and the partner country Liechtenstein reduced their share by smaller amounts. In Denmark, the percentage of students below Level 2 fell from an already below-average level to 15 %.

The share of top performers – i.e. students who attain reading proficiency Level 5 or 6 – increased in Japan, Korea and the partner economy

Hong Kong-China. Consequently, these countries have the largest proportions of high-achieving students among the countries participating in the 2009 assessment. Several countries with an above-average proportion of top performers in 2000 saw their proportion decrease in 2009. Notably, Ireland was among these. Here, the proportion of top performers fell from 14 % to 7 %, which is below the OECD average. From 2000 to 2009, Poland, Portugal, Germany, Switzerland and the partner countries Latvia and Liechtenstein raised the performance of their lowest-achieving students while maintaining the performance level among their highest-achieving students. Korea, Israel and the partner country Brazil raised the performance of their highest achieving students while maintaining the performance level among their lowest-achieving students. Chile and the partner countries Indonesia, Albania and Peru showed improvements in reading performance among students at all proficiency levels. On average from 2000 to 2009, OECD countries reduced the gap in scores between the highest and lowest-performing students. Some also improved overall performance. In Chile, Germany, Hungary, Poland, Portugal and the partner countries Indonesia, Latvia and Liechtenstein, overall performance improved and variation in performance decreased. In many cases, this is the result of improvements among the low-achieving students.

1.2 Nordic perspectives

The present publication about reading aims to identify and analyze specific Nordic results and trends from 2000 to 2009. Focus is on weak readers and gender issues. Moreover, it provides an analysis of two Danish national options; one covers tests of basic reading skills, word decoding and vocabulary knowledge, while the other presents results from analysis of oversampling of students with immigrant background. The publication also gives an overview of the school systems in Denmark, the Faroe Islands, Finland, Iceland, Norway and Sweden with a timeline of politically induced changes from 1990 to 2010 – the years of the PISA assessments. An overview of such changes has never previously been provided. The documented changes are used to form possible explanations for trends in PISA reading results in the respective countries.

2. Weak readers in the Nordic countries

– gender, immigrant background, socioeconomic background, enjoyment of reading and school related factors

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The objective of this article is to identify how big the groups of weak readers are in the Nordic countries and to examine the composition of these groups with respect to gender, immigrant background, socio-economic background, enjoyment of reading and school related factors. The percentage of weak readers varies from 8 % in Finland to 17 % in Iceland and Sweden. The percentage of weak readers has increased in Finland, Iceland and Sweden between 2000 and 2009 and decreased in Norway and Denmark in the same period. The groups of weak readers seem to be of similar composition in the Nordic countries. Yet, despite the many similarities between the countries, Finland seems to differ more from the other countries. One possible reason could be that the Finnish group of weak readers is much smaller than in the other countries, which affects the representativity of the composition of the group.

2.1 Introduction

A literacy scale has been used in the PISA studies to describe students' readings proficiency. The range of difficulty of tasks within the scale relates to seven levels of reading proficiency. Level 1b is the lowest level followed by Level 1a, 2, 3, 4, 5 and 6, and Level 6 is thus the highest level. Across the OECD countries, 81.2 % of the students perform at Level 2 or higher, while 19.8 % of the students perform below Level 2. Students at Level 1a *"are capable of locating pieces of explicitly stated information that is rather prominent in the text, recognizing a main idea about a familiar topic and recognizing the connection between information in such a text and their everyday experience"* (OECD, 2010a:52). Students at Level 1b *"can find explicitly stated information in short, simple texts with familiar style and content"* (OECD, 2010a:53). Students below Level 1b are too few, and too few tasks have thus been tested, to be able to generalize what students performing at that level can do as readers. Generally, students below Level 2 can be described as weak readers who are able to perform some basic reading skills, but they have difficulties reading more complex texts, using the information in the texts to integrate and interpret the content of the texts as well as difficulties reflecting on and evaluating the texts.

Students below Level 2 are likely to have problems reading many of the texts they meet in everyday life. There is a risk these students will have problems proceeding their education and find jobs at the labor market. In the International Adult Literacy Survey (OECD/Statistics Canada, 1995), a scale, similar to the one in PISA, was used to describe literacy skills in the adult population (age 16–65). The survey found that very few individuals on Levels 4/5 and 3 were unemployed, whereas the opposite was the case for many of those at Level 1, as many were without jobs. It was also observed that individuals at Level 1 were much more likely to have no income than those at other levels. Concerning education, it was noticed that as the level of education increased the proportion of individuals at Level 4/5 increased and the proportion of individuals at Level 1 decreased.

2.2 Method

The PISA database has provided relevant data for the identification of weak readers and the subsequent description of weak readers as a group. Weak readers are defined as students who perform below Level 2. To identify the weak readers the students' proficiency levels were calculated for each of their five plausible values on the combined reading scale, thus creating five slightly different sub-groups of weak readers. Statistics for weak readers were then calculated separately for each of the five sub-groups and subsequently averaged. When producing the statistics, the calculations were also weighted using normalised final student weights. As these analyses were made only on student level, replicates were not needed.

The formula described in Djurfeldt, Larsson and Stjärnhagen (2008:118–119) was used to compute the standard error for the proportions:

$$SE = \sqrt{\frac{p(1 - p)}{n}}$$

To compensate for using a method intended for an independent random sample, although the design is hierarchical, a correction factor of 1.3 was multiplied with SE according to common practice (Djurfeldt et al., 2008:134–135). A z-test was used to test for statistical significance. This way of computing standard errors, and thus significance, necessitates a cautious interpretation.

All computations were done in PASW Statistics 18.0.0 with the PISA replicate add-in version 7.1 installed.

When the label *no response* is used in the tables, it covers cases where all the students' answers can be classified as fitting with one of three different categories: missing, not applicable or invalid. *Missing* is only used if the respondent was expected to answer but did not make any marks on the paper. *Invalid* codes are only used for coding multiple responses, for example if a respondent ticked multiple boxes when only one box should be ticked. *Not applicable* is used if it was impossible for the respondent to

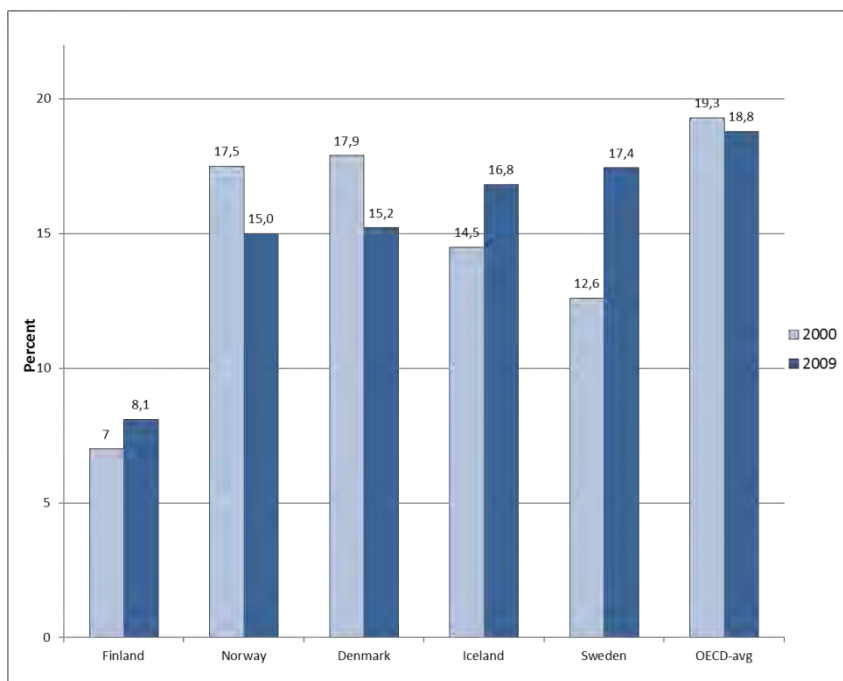
answer the question. It is typically used when a question is misprinted or deleted from the questionnaire (OECD, 2009:129).

2.3 Results

In the following sections the results from the study of weak readers in the Nordic countries will be presented. The presentation opens with an overview of the percentage of the weak readers in each country followed by examination of the group composition of weak readers with respect to gender, immigrant background, socio-economic background, enjoyment of reading and some school related factors.

2.3.1 Weak readers in the Nordic countries

Figure 1 shows the percentage of weak readers in the Nordic countries in 2000 and 2009



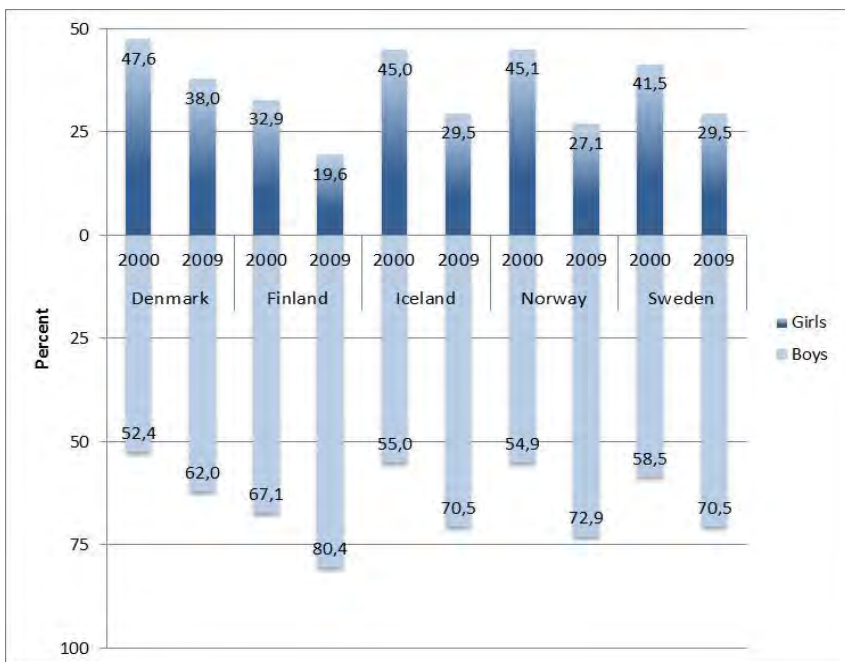
As can be seen in the figure, Finland differs considerably from the other Nordic countries. The percentage of weak readers in 2009 varies from 8 % in Finland to 17 % in Iceland and Sweden. It also shows that although Iceland and Sweden have the highest percentage of weak readers among the Nordic countries, their percentage proportion of weak readers is still lower than the average percentage among all OECD-countries, which is 19 % (OECD, 2010a).

In comparison with the results from PISA 2000 we see that the percentage of weak readers has decreased in Norway and Denmark, but increased in Finland, Iceland and Sweden. While the increase in Finland is fairly small, it is considerably bigger in Sweden. In OECD as a whole, a slight decrease has been noticed from 2000 to 2009.

2.3.2 Boys and girls

A large number of studies show that boys are, on average, less proficient readers compared to girls (see for example Wagemaker, 1996). Figure 2 shows the percentage of boys and girls among the weak readers in the Nordic countries in the years 2000 and 2009.

Figure 2. Distribution (percentage) of boys and girls among the weak readers in 2000 and 2009



Boys and girls each compose about 50 % of the whole population. As expected the percentage of boys among weak readers in all the Nordic countries is higher than 50 %. Though the percentage of boys, who are weak readers, is not lower than 60 % in any of the countries in 2009, there are differences between the countries. We find the highest percentage of boys among the weak readers in Finland and the lowest percentage in Iceland. In Finland, more than four fifths of the weak readers are boys. Among the Nordic countries, Finland is the country with the generally highest difference in reading between boys and girls (OECD, 2010a). In all the other countries the percentage of boys among weak readers is between 62 % (Denmark) and 72.9 % (Norway). In comparison with the assessment in 2000, the percentage of boys among the weak readers has increased in all of the Nordic countries.

2.3.3 *Students with an immigrant background and native students*

PISA distinguishes “between three types of student immigrant status: i) students without an immigrant background, also referred to as native students, are students who were born in the country where they were assessed by PISA or who had at least one parent born in the country; ii), second-generation students are students who were born in the country of assessment but whose parents are foreign-born; iii) first-generation students are foreign-born whose parents are also foreign born. Students with an immigrant background thus include students who are first- or second-generation immigrants” (OECD, 2010b:66). Students with an immigrant background are more often identified as weak readers in the test languages than native students (see for example Skolverket, 2003). Table 1 shows the percentage of native students and students with immigrant background among all students and among weak readers. The information about students’ immigrant background is based on information given by the students in the student questionnaire.

Table 1. Distribution (percentage) of native students and students with an immigrant background among all students and among weak readers

Country	Native students (%)		Students with an immigrant background (total) (%)		Students with an immigrant background (1st generation) (%)		Students with an immigrant background (2nd generation) (%)		Non response (%)	
	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers
Denmark	89.7	75.2	8.5	19.6	2.7	7.6	5.8	12.0	1.8	5.1
Finland	96.5	89.1	2.6	9.3	1.4	6.9	1.1	2.4	0.9	1.6
Iceland	95.5	88.4	2.3	5.9	1.9	4.9	0.4	0.9	2.2	5.8
Norway	92.4	82.8	6.7	13.7	3.2	7.5	3.6	6.2	0.9	3.5
Sweden	86.9	71.1	11.6	23.9	3.7	10.2	7.9	13.8	1.5	5.0

The figures demonstrate great differences between the Nordic countries when the percentages of students with an immigrant background are compared. In Iceland, 2.3 % of all students have an immigrant background, while the corresponding figure is 11.6 % in Sweden. Following this the countries also differ with respect to percentage of students with an immigrant background among the weak readers. In Iceland, this group corresponds to 5.9 % of the weak readers and 23.9 % in Sweden. To see whether

the number of students with an immigrant background among the weak readers match what could be expected, this particular group of students must be compared with the percentage of students with an immigrant background in the whole population. In all the Nordic countries the proportion of immigrant students among the weak readers is bigger than the proportion of immigrant students in the entire population of students. Although the population of students with an immigrant background is rather small in Finland and Iceland, these groups of students are nonetheless overrepresented among the weak readers, as is the case in the other countries. While the percentage of weak readers among the students of immigrant background is about twice as big as the percentage of students of immigrant background in the whole population in most of the Nordic countries, it is three times as big as the percentage of students of immigrant background in Finland.

2.3.4 *Social, economic and cultural status*

Another area typical of differences between weak readers and the other students is students' social, economic and cultural background (OECD, 2010b). To assess this area, the PISA index of social, economic and cultural status (ESCS) is used in the PISA surveys. This index is based on the students' answers to questions in the student questionnaire regarding family and home background. The index is

“derived from the following variables: the international socio-economic index of occupational status of the father or mother, whichever is higher; the level of education of the father or mother, whichever is higher, converted into years of schooling; and the index of home possessions, obtained by asking students whether they had a desk at which they studied at home, a room of their own, a quiet place to study, educational software, a link to the Internet, their own calculator, classic literature, books of poetry, works of art (e.g. paintings), books to help them with their school work, a dictionary, a dishwasher, a DVD player or VCR, three other country-specific items and the number of cellular phones, televisions, computers, cars and books at home”

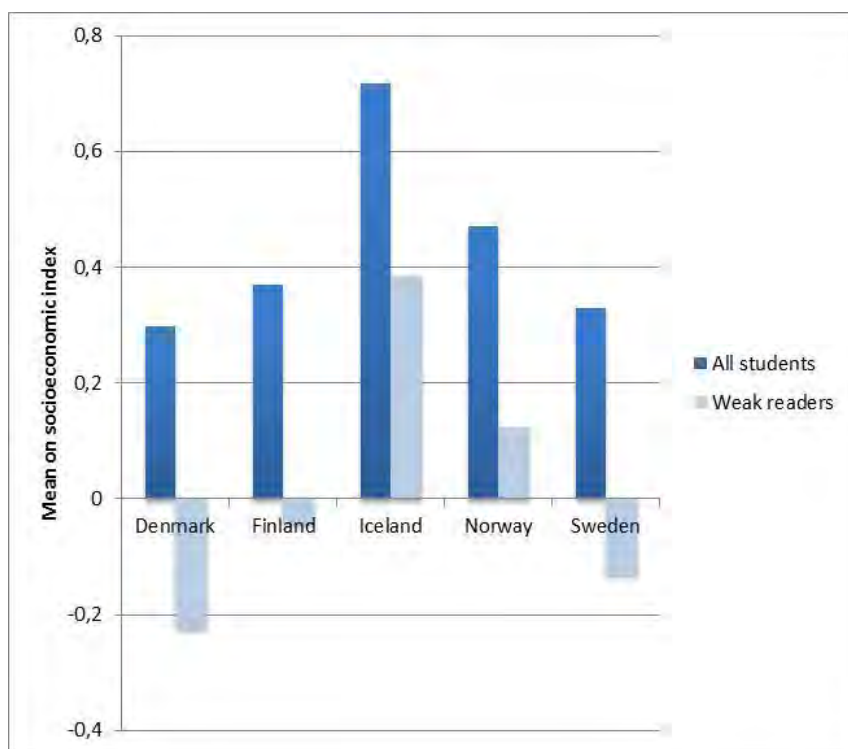
(OECD, 2010b:29).

The values of the ESCS index have been standardized to a mean of zero for the population of students in OECD countries, with each country given equal weight.

“A one-point difference on the scale of the index represents a difference of one standard deviation on the distribution of this measure.”

(OECD, 2010b:29)

Figure 3. The PISA ESCS index average for all students and average for weak readers in the Nordic countries

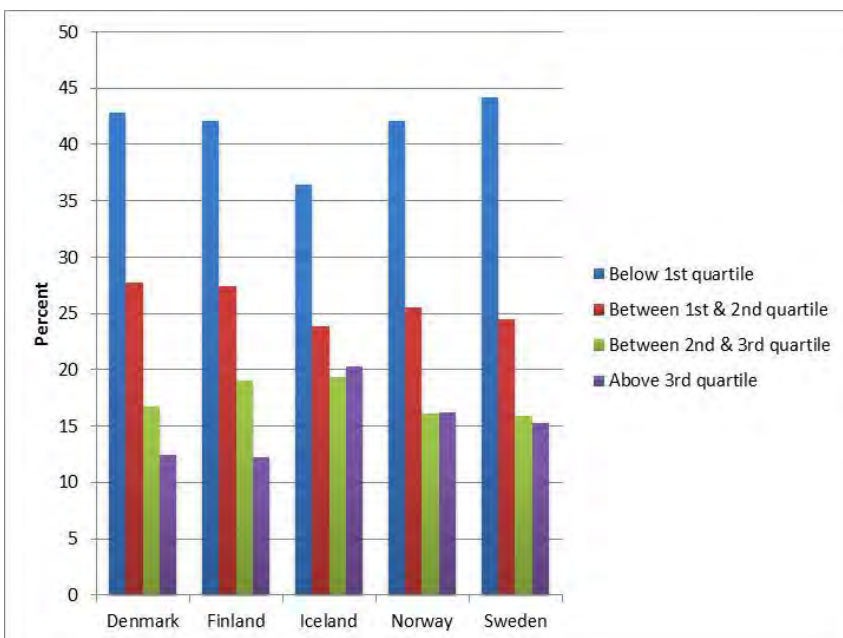


The average value of the PISA index of social, economic and cultural status for all students in the Nordic countries is above the OECD average. It varies from 0.3 in Denmark to 0.71 in Iceland. The average for the weak readers is lower than the average for all students in all the Nordic countries. In Denmark, Finland and Sweden the average for the weak readers is below

the OECD average. The difference between all students and the weak readers is greatest in Denmark and Sweden.

The social, economic and cultural status characteristic of the group composition of weak readers can also be described by using quartiles. Quartiles separate the population into four parts. In Figure 4, the students in the first group are those who are below the value of the first quartile in the PISA ESCS index, and the last group comprises the students who are above the third quartile. It means that the weak readers in the first group belong to the part of all students with values on the PISA ESCS index that are below the first quartile. They can therefore be defined as the quarter of all students with the lowest social, economic and cultural status. Each of the four quartiles comprises 25 % of the entire student population. The quartiles are calculated separately for each country.

Figure 4. Distribution (percentage) of weak readers according to quartile



If the weak readers were distributed in the same way as all students, the weak readers would constitute 25 % in each of the four quartiles. Yet, the figures indicate that this is generally not the case in any of the four countries. In all of the countries, the biggest group among weak readers is found below the first quartile, which means that they are among the students with the lowest social, economic and cultural status. In Sweden 44 % of the weak readers are below the first quartile. Corresponding figures are for Denmark 43 %, Finland 42 %, Norway 42 % and Iceland 36 %. With respect to the proportion of weak readers below the first quartile, the difference between Sweden and Iceland is significant at the 5 % level. The smallest group of weak readers is found in the students above the third quartile, i.e. students with the highest social, economic and cultural status. In Sweden 15 % of the weak readers are above the third quartile. Corresponding figures are for Finland 12 %, Denmark 13 %, Norway 16 % and Iceland 20 %.

Students live in different types of communities. In Table 3, the students have been grouped according to the type of surrounding they come from: villages or rural areas, small towns, towns, cities and large cities. Information about the students' type of surrounding is based on information given by the head teachers in the school questionnaire.

Table 2. Distribution of students from different types of surroundings among all students and weak readers

Country	Villages or rural areas (%)		Small towns (3,000 to 15,000 inhabitants) (%)		Towns (15,000 to 100,000 inhabitants) (%)		Cities (100,000 – 1,000,000) (%)		Large cities (more than 1,000,000) (%)		Non response (%)	
	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers
Denmark	22.3	27.2	27.2	24.6	34.9	30.8	10.6	10.9	4.3	5.7	0.7	0.7
Finland	11.2	14.9	26.6	29.1	36.4	32.0	25.8	23.9	0	0	0	0
Iceland	20.9	24.4	20.2	16.8	22.6	25.2	26.8	25.6	0	0	9.6	8.1
Norway	19.3	25.5	35.4	34.7	25.9	23.4	17.5	15.1	0	0	1.8	1.4
Sweden	13.8	16.7	26.5	28.5	34.0	30.4	25.3	24.2	0	0	0.4	0.2

The majority of students live in small towns or towns in all the Nordic countries, with the exception of Iceland where students are more equally distributed between villages or rural areas, small towns, towns and larger cities. Only in Denmark do some students live in a large city with a population of more than 1 million inhabitants. The majority of weak readers also

lives in small towns and towns, with the exception of Iceland. The greatest discrepancy between proportion of all students and proportion of weak readers is found in villages and rural areas in Norway, where the proportion of all students constitutes 19.3 % in these communities and the proportion of weak readers is 25.5 %. In all the countries, the proportion of weak readers who live in villages and rural areas is bigger than the proportion of all students who live in villages and rural areas.

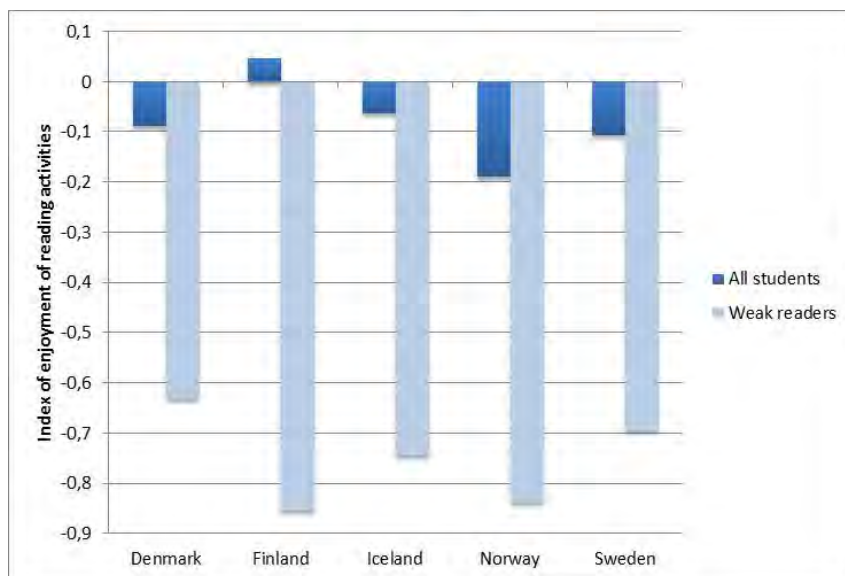
2.3.5 *Enjoyment of reading*

Reading and enjoyment of reading are closely interrelated. Students who like to read are usually better readers than those who do not enjoy reading (OECD, 2010c). An index of enjoyment of reading was constructed on the basis of the students' responses, in the student questionnaire in PISA 2009, to a number of questions about their attitude to reading.

“The index of enjoyment of reading activities (ENJOY) was derived from students' level of agreement with the following statements (ST24): i) I read only if I have to; ii) reading is one of my favourite hobbies; iii) I like talking about books with other people; iv) I find it hard to finish books; v) I feel happy if I receive a book as a present; vi) for me reading is a waste of time; vii) I enjoy going to a bookstore or a library; viii) I read only to get information that I need; ix) I cannot sit still and read for more than a few minutes; x) I like to express my opinions about books I have read and xi) I like to exchange books with my friends” (OECD, 2010c:112). The index was constructed “so that the average OECD student would have an index value of zero and about two-thirds of the OECD student population would be between the values of -1 and 1 (i.e. the index has a standard deviation of 1). Negative values on the index, therefore, do not imply that students responded negatively to the underlying question. Rather, students with negative scores are students who responded less positively than the average response across OECD countries. Likewise, students with positive scores are students who responded more positively than the average student in the OECD area”

(OECD, 2010c:29).

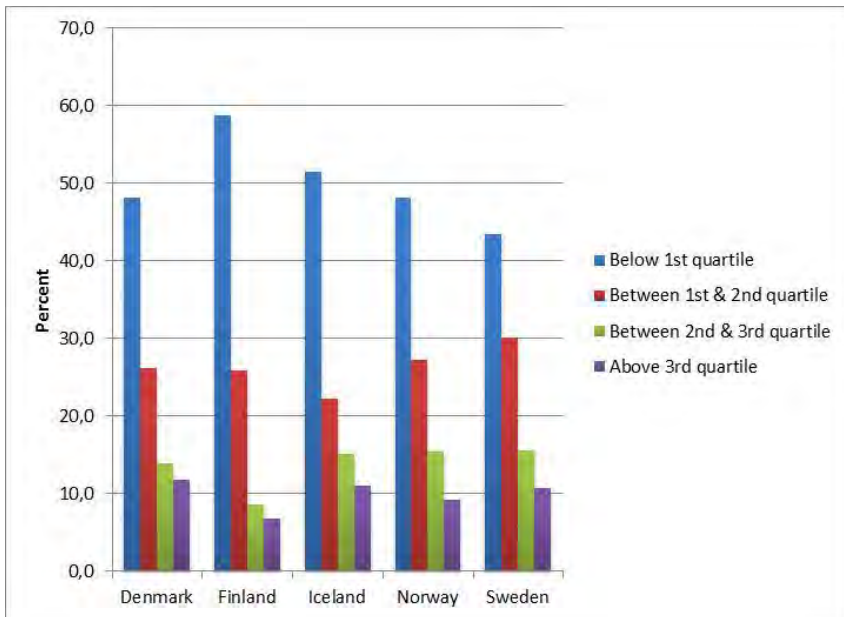
Figure 5. Average on the index of enjoyment of reading activities



Generally, though with the exception of Finland, students in the Nordic countries are on average less positive about reading than the average student across OECD. In all of the Nordic countries, the weak readers are less positive about reading than the general students. The biggest difference in attitude towards reading between all the students and the weak readers is found among the Finnish students. In Finland and Norway the weak readers seem to be less positive about reading than the groups of weak readers in the other Nordic countries, while the weak readers in Denmark seem to be more positive about reading than the other weak readers.

In Figure 6, the students have been divided into four groups. The first group comprises students who are below the value of the first quartile in the index of enjoyment of reading activities, and the last group includes students who are above the third quartile. Thus, students in the first group belong to the share of all students who have values on the index of enjoyment of reading activities that are below the first quartile. These are the students who do not find much enjoyment in reading. Above the third quartile, we find the students who have indicated great enjoyment reading. Each quartile comprises 25 % of the entire student population. The quartiles are calculated separately for each country.

Figure 6. Distribution (percentage) of weak readers according to index level of enjoyment of reading



If the weak readers were distributed in the same way as all students, the weak readers would account for 25 % in each quartile. This is not the case in any of the countries. In all the Nordic countries, the biggest group of weak readers is found below the first quartile, which means that they are among the students with the lowest values on the index of enjoyment of reading activities. In Finland 59 % of the weak readers are among those who do not enjoy reading. In the other countries the percentage is between 44 % (Sweden) and 52 % (Iceland). The smallest group is found above the third quartile; these are the students with the highest values on the index of enjoyment of reading activities. In Finland 7 % of the weak readers are above the third quartile. Corresponding figures are for Norway 9 %, Iceland 11 %, Sweden 11 % and Denmark 12 %.

2.3.6 School related factors

Students who are 15 years old have different experiences of schooling and have participated in different types of instruction during their years in school. Before they started school some attended pre-school for a longer or shorter time, while others did not attend pre-school. Table 3 shows the percentage of all students, and of the weak readers, who did not attend pre-school, who attended pre-school for one year or less and those who attended pre-school for more than one year. The information about pre-school attendance is based on information given by the students in the student questionnaire.

Table 3. Distribution of students who did and did not attend pre-school among all students and among the weak readers

Country	Did not attend pre-school		Attended pre-school one year or less		Attended pre-school more than one year		Non response	
	All	Weak readers	All	Weak readers	All	Weak readers	All	Weak readers
Denmark	2.1	6.5	27.4	35.0	68.1	52.8	2.4	5.7
Finland	5.0	7.9	28.7	34.7	65.5	54.2	0.8	3.2
Iceland	2.9	4.8	3.6	5.0	92.1	85.7	1.4	4.6
Norway	9.2	13.1	6.4	8.5	83.6	75.8	0.8	2.5
Sweden	9.6	17.8	23.6	22.5	64.8	53.3	1.9	6.3

A majority of students in all countries attended pre-school for more than one year. This is also true for the weak readers. The percentage of weak readers who did not attend pre-school is higher than the percentage of all students who did not attend pre-school. The percentage of weak readers who attended pre-school for one year or less is slightly higher than the percentage of all students who attended pre-school one year or less in all the countries except Sweden. For those who attended pre-school for more than one year, the percentage of all students is higher than the percentage of weak readers. The biggest difference between all students and the weak readers can be found in Denmark, where 68.1 % of all students attended pre-school for more than a year, while the percentage for the weak readers is 52.8 %. The differences are significant for all the countries, both at the 1 % and 5 % level. The data is based on the students' self-reports. It can be discussed to which extent the students correctly remember the

length of their attendance in pre-school. A higher percentage of the weak readers than of all students have not responded to the question about pre-school attendance.

Some students participate in remedial education in the official school language (Danish, Finnish, Icelandic, Norwegian or Swedish). In the student questionnaire the students were asked whether they had spent time outside normal school hours on remedial education in the school language either at the school, at home or elsewhere. Table 4 shows the percentage of all students and weak readers according to participation in such lessons.

Table 4. Distribution of students according to participation in remedial lessons in the official school language (Danish, Finnish, Icelandic, Norwegian or Swedish)

Country	Participated in remedial education in the official school language		Did not participate in remedial education in the official school language		Non response	
	All	Weak readers	All	Weak readers	All	Weak readers
Denmark	3.3	11.7	91.8	78.0	4.9	10.3
Finland	2.2	11.1	95.7	84.1	2.2	4.8
Iceland	8.5	19.8	88.8	73.4	2.7	6.9
Norway	3.7	13.9	94.3	80.1	2.1	6.0
Sweden	4.8	17.7	92.5	75.8	2.7	6.6

A clear majority, both among all students and the weak readers, have not participated in remedial education. Only a small percentage of all students have participated in remedial education. Among the weak readers, the percentage of students who have participated in remedial lessons is higher than among all students, but the percentage varies between the countries from nearly 20 % (Iceland) to just over 10 % (Finland and Denmark). Iceland seems to have a bigger proportion among all students and weak readers who have taken part in remedial lessons. Remedial lessons in the school language are often organised within the school hours, but the question in the student questionnaire enquired about participation outside school hours. This may have caused some confusion, which should be considered in the analysis of the students' answers. A higher percentage of the weak readers than among all students has not responded to the question.

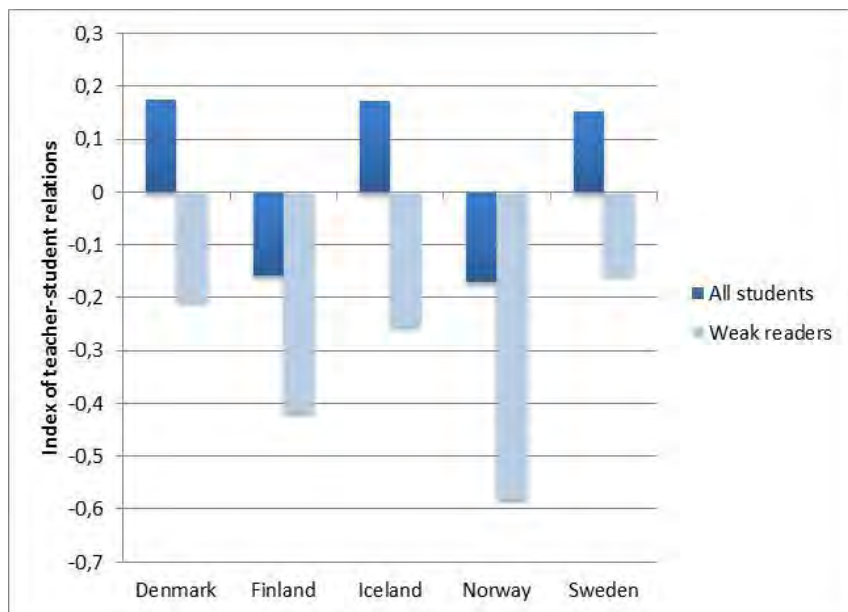
An important aspect of students' schooling is their experience of relations to their teachers. In order to measure this aspect, students were asked

“to indicate the extent of their agreement with several statements regarding their relationships with teachers in school. These statements include whether they get along with the teachers, whether teachers are interested in their personal well-being, whether teachers take the student seriously, whether teachers are a source of support if the student needs extra help, and whether teachers treat the student fairly. This information was combined to create a composite index of teacher-student relations so that the index has an average of zero and a standard deviation of one for the OECD countries. Higher values indicate better teacher-student relations”

(OECD, 2010d:88).

Figure 7 shows the average value on the index of teacher-student relations for all students and for the weak readers in the Nordic countries.

Figure 7. Average on the index of teacher-student relation

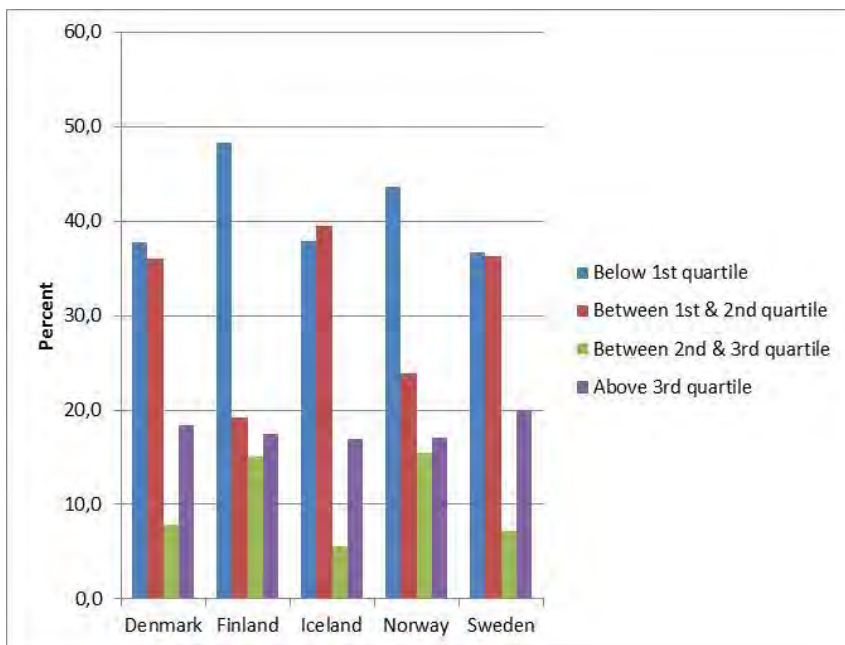


In Finland and Norway the average for all students and for weak readers on the index of teacher-student relations is below the OECD average. In Sweden, Denmark and Iceland the average is above the OECD average for all students, but below OECD average for the weak readers. Generally, it

can be noted that on average the weak readers have lower values on the index in comparison to all students.

In Figure 8, the weak readers have been divided into four groups. The first group comprises students who are below the value of the first quartile in the index of teacher-student relations, and the last group includes those who are above the third quartile. It means that students in the first group belong to the share of all students who have values on the index of teacher-student relations that are below the first quartile. These are the students who do not feel that they have very good relations with their teachers. Above the third quartile, we find those students who have indicated that they have very good relations with their teachers. Each quartile comprises 25 % of the entire student population. The quartiles are calculated separately for each country.

Figure 8. Distribution (percentage) of weak readers according to index level of teacher-student relation



In all the countries, except from Iceland, the biggest group of weak readers is found below the first quartile. In Finland 48 % of the weak readers are in this category. This percentage is 44 % in Norway, 38 % in Denmark and 37 % in Sweden. In Iceland (38 %), the biggest group of weak readers is found between the first and the second quartile. Regarding the proportion of weak readers below the first quartile, the difference between Finland and the other countries (except Norway) is significant at the 5 % level. The smallest group of weak readers is found between the second and third quartile. This group account for the following percentages in the five countries: Norway (15 %), Denmark (8 %), Sweden (7 %), Iceland (6 %) and Finland (15 %).

2.4 Conclusions

The size of the group of weak readers varies between the Nordic countries. With a weak reader group size of only 8 % in Finland, this group is considerably smaller than in the other Nordic countries. Here the group size varies from 15 % (Denmark and Norway) to 17 % (Sweden and Iceland). The percentage of weak readers has increased in Finland, Iceland and Sweden between 2000 and 2009 and decreased in Norway and Denmark in the same period.

In broad terms, the composition of the group of weak readers seems to be similar across the Nordic countries. It has been noticed that:

- There are more boys than girls among the weak readers in all the Nordic countries
- The percentage of students with immigrant background is higher among weak readers than all students
- Weak readers more often come from a background with low social, economic and cultural status than other students in general
- Weak readers are less positive about reading than other students
- A higher percentage among weak readers have not attended pre-school or have attended pre-school one year or less compared to all students
- Weak readers report a relation to their teachers that is less positive compared to all students

It has also been noticed that the group composition of weak readers and all students does not differ greatly in terms of whether the students come from rural areas, villages, small towns, towns, cities or large cities.

Although a higher percentage of the weak readers have participated in remedial lessons compared to all students, the majority of the weak readers indicated that they have not participated in remedial lessons.

When countries are compared, it can be noted that:

- The percentage of boys among the Finnish weak readers is higher than in the other Nordic countries
- Although the percentage of students with immigrant background is lower in Finland and Iceland than in the other Nordic countries, this group of students tends to be overrepresented among the weak readers, as is the case in the other countries
- The difference between all students and weak readers on the index of enjoyment of reading activities is biggest in Finland
- In Finland and Norway, both students in general and weak readers seem to have had experiences of less good relations with their teachers than students in the other Nordic countries

Although there are many similarities between the Nordic countries, Finland seems to be the country that differs mostly from the other countries. First of all, the percentage of weak readers is smaller in Finland than in the other countries. Yet, the proportion of boys among the weak readers is a much bigger than in the other countries. The difference in enjoyment of reading activities between all students and the weak readers is also bigger in Finland compared to the other countries. Perceptions of student-teacher relations seem to be less good in Finland compared to the other countries, with the exception of Norway. Moreover, in comparison with the other countries (with the exception of Norway), Finland has a significantly bigger proportion of the weak readers below the first quartile on the teacher-student index. One possible reason behind these differences may be that the weak readers constitute a much smaller group in Finland than in the other countries, and this could influence the representativity of this group composition.

All countries have an interest in reducing the number of weak readers and this interest may even be stronger in countries like Sweden and Iceland, where we find not only the highest percentage of weak readers among the Nordic countries but also a growing proportion of weak readers in the entire student population. Thus, better knowledge of the weak readers may be helpful when deciding which measures to undertake. There is a need to consider what can be done to support reading among boys, among students with immigrant background and among students who come from a background with low social, economic and cultural status. From this perspective, it is surprising that attendance in pre-school seem to be slightly lower among the weak readers than among all students, and that a clear majority of the weak readers report not having participated in remedial education. Although the PISA data about pre-school attendance and participation in remedial education may not be fully reliable, it would be interesting to further explore to which extent pre-school education and remedial education are in fact directed at the students who need it the most.

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3. “To read or not to read – that is the question”

Reading engagement and reading habits in a gender perspective

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3.1 Abstract

In this chapter we study Nordic students' reading engagement and reading habits. The PISA 2009 student questionnaire posed several questions about reading habits and reading attitudes, and many of these questions were also represented in the student questionnaire in PISA 2000. Thus, we are able to study Nordic boys' and girls' reading habits and engagement over time. Although there are some differences between the Nordic countries, the overall impression is that Nordic 15-year-olds spent less time reading for enjoyment in 2009 than they did in 2000. However, they spent more time online than they did in 2000. Gender differences favouring girls were great in 2000, both in terms of reading achievement and reading engagement, and this picture has not changed in 2009. Furthermore, the weakest readers read far less in their leisure time than the best readers. In all the Nordic countries and for both genders, reading engagement shows a higher correlation with reading scores than social background. Lastly, we relate our findings to current research and discuss the implications they may have for teachers and students.

3.2 Introduction

The development of reading literacy involves not only the development of skills and knowledge. It also includes motivation, attitudes and behaviours (Guthrie & Wigfield, 2000; Guthrie, 2007). According to self-determination theory, individuals are most well developed when they are self-determining (Ryan & Deci, 2000; Ryan & Deci, 2009). A self-determining reader is intrinsically motivated, which means he or she is reading for own sake and value. Furthermore, a self-determining reader reads for a number of purposes and interests.

“A self-determining reader holds values, beliefs and goals for reading that enable him or her to pursue educational occupational, personal and societal aims and activities”

(OECD, 2009:70).

According to the report *Teaching Reading in Europe: Contexts, Policies and Practices* (Eurydice, 2011), gender and family background are the most important student-related factors that affect reading achievement. Girls are better readers than boys and the gender gap increases with age. However, results from international studies suggest that engagement in reading has the potential to balance the reading performance differences both between students from different social backgrounds and between boys and girls.

PISA 2000 showed large gender differences favouring girls in reading in all OECD countries. These gender differences were also reflected in students' reading engagement; girls had far more positive attitudes towards reading and spent more time reading for pleasure than boys. Furthermore, it was found that students' reading engagement was positively and significantly correlated with their reading achievement. Engagement in reading had in fact the largest median correlation with achievement in all countries, and the correlation was stronger than between reading achievement and socio-economic status (OECD, 2002). These findings confirmed the importance of engagement in reading as a factor that might reduce some of the differences in achievement between the different sub-groups in each of the participating countries. Thus, there were strong

arguments to include measures of reading engagement in PISA 2009 as well (OECD, 2009).

The PISA 2009 definition of individual reading engagement is:

“Individual Reading Engagement refers to the motivational attributes and behavioural characteristics of students’ reading”

(OECD, 2009:70).

In PISA 2009, four characteristics of reading engagement are operationalised:

- *Interest in reading* – disposition to read literature and information texts for enjoyment and the satisfaction of curiosity
- *Perceived autonomy* – perceived control and self-direction of one’s reading activities, choices, and behaviours
- *Social interaction* – social goals for reading and interactive competence
- *Reading practices* – behavioural engagement referring to the amount and types of reading activities (OECD, 2009:70)

Highly engaged readers, as defined in PISA, spend a lot of time reading for enjoyment and they read a wide variety of texts in both print and electronic media. Highly engaged readers consider reading to be valuable and interesting in itself. However, such readers also acknowledge the significant role reading plays in their social relations. Students at the lowest levels of reading engagement spend very little time reading for pleasure, read only a narrow range of texts and show very little motivation to read either independently or in a social context. In all countries there is a higher percentage of boys than girls among the weakest readers (OECD, 2009).

The PISA 2009 measurements of reading engagement are based on students’ self-reports. These may suffer from some measurement errors since students were asked to retrospectively assess their level of engagement in reading activities. Besides possible measurement errors at country level, cultural differences in attitudes might influence the country-level engagement in reading activities. Earlier PISA studies have shown that many of the self-reported measurements of engagement in reading are positively and strongly correlated with reading achievement within countries, but have a negative or weak correlation with achievement at country

level. Thus, comparisons of levels of reading engagement should be used with caution, since students in different countries may not always mean the same when answering questions (OECD, 2010:29). In all the Nordic countries, however, engagement in reading showed a higher positive correlation with reading performance than in most other OECD countries in PISA 2000, ranging from 0.41 in Denmark and Norway to 0.47 in Finland. Within the OECD, the correlation was 0.35 (Lie et al., 2001:150).

In the following, the students' reading engagement in all the five Nordic countries will be compared. The focus will be on how much time students spend reading for enjoyment, how much students enjoy reading and what reading materials students read for enjoyment. If possible, comparisons with PISA 2000 will be made, and differences between boys and girls will be discussed. Finally, reported online reading activities in the Nordic countries will be compared. Correlations between reading engagement and reading achievement will also be made.

3.3 Results

3.3.1 Time spent reading for enjoyment

The first question about reading engagement in the PISA student questionnaire was: "About how much time do you usually spend reading for enjoyment?" The response alternatives were:

- I do not read for enjoyment
- 30 minutes or less a day
- More than 30 minutes to less than 60 minutes a day
- 1 to 2 hours a day
- More than 2 hours a day

Table 1. Percentage of boys and girls according to answer in the Nordic countries in 2009 (The percentage of students who answered “I do not read for enjoyment” in PISA 2000 is in parenthesis.)

Answer	Denmark (N=5718)		Finland (N=5725)		Iceland (N=3582)		Norway (N=4598)		Sweden (N=4490)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Do not read	41 (36)	23 (18)	47 (35)	19 (10)	49 (37)	28 (23)	50 (45)	30 (24)	49 (45)	25 (27)
30 min. or less	38	43	32	36	30	35	29	37	30	38
30 – 60 min.	13	20	13	24	12	21	14	20	13	22
1 – 2 hours	6	11	7	17	7	12	5	9	6	11
More than 2 hours	2	3	6	4	3	4	3	4	2	4

Table 1 shows that the pattern is rather similar in all the Nordic countries. A much higher percentage of boys than girls report that they do not read for enjoyment; the boys vary between 41 % in Denmark and 50 % in Norway, and the girls vary between 19 % in Finland and 30 % in Norway. Gender differences are smaller for the response “30 minutes or less a day.” A low percentage of the students answered that they read for enjoyment 1 to 2 hours a day or more than 2 hours a day. A higher per cent of the girls than the boys gave one of these two answers. The table also shows that with the exception of Swedish girls, the percentage of boys and girls who report that they do not read for enjoyment has increased significantly in all the Nordic countries, and particularly in Finland. However, Finnish girls still seem to be the most active voluntary readers among the Nordic students.

3.3.2 Time spent reading for enjoyment and reading performances

Earlier PISA studies have shown that the reading scores of students who answer that they never read for enjoyment have been significantly lower than the reading scores for students who report that they do, regardless of how much time they spend reading. Whether the students have answered that they read 30 minutes or more than 2 hours every day has been of less importance for their reading performances (Kjærnsli et al., 2007). Thus, students who never read for enjoyment seem to be most vulnerable. Table 2 shows the reading performances for boys and girls in relation to the different answers in all the Nordic countries in 2009. The countries are

collapsed into one group because the overall pattern is more or less the same for each country. The mean PISA reading score is 485 points for Nordic boys and 529 points for Nordic girls.

Table 2. Reading scores for groups of Nordic boys and girls based on time spent on daily voluntary reading. The mean score for Nordic students is 507 points

	I don't read	30 minutes or less	30 to 60 minutes	1 to 2 hours	More than 2 hours
Boys	455	504	523	533	517
Girls	488	532	553	557	551

Students who read between 30 minutes and two hours a day achieve the highest scores. Like in previous studies, both boys and girls who do not read for enjoyment achieve much lower reading scores than those who read for enjoyment, regardless of the time they spend each day. Thus, the largest achievement gap between the groups in all the countries is between students who do not read for enjoyment and students who read up to 30 minutes a day. Table 3 shows the score point difference between these two groups in each of the Nordic countries and the OECD average.

Table 3. Score point difference between students who do not read for enjoyment and students who read up to 30 minutes a day

	Score point difference
Iceland	66
Sweden	60
Norway	58
Finland	54
Denmark	39
OECD average	44

With the exception of Denmark, the score point difference between students who do not read for enjoyment and students who read up to 30 minutes a day is bigger in the Nordic countries than in OECD on average. In fact, in most of the countries participating in PISA 2009, the score point difference between students who spend up to 30 minutes per day reading for enjoyment and students who spend no time reading for enjoyment is greater than the score point difference between students who spend 30 minutes to an hour reading for enjoyment and students who spend less than 30 minutes. The score point difference between the various groups of

students tends to decrease as students spend more time reading for enjoyment (OECD, 2010).

3.3.3 Reading enjoyment

Reading enjoyment is measured by means of students' agreement (agree and strongly agree) or disagreement (disagree or strongly disagree) with 11 statements about reading:

1. I read only if I have to
2. Reading is one of my favourite hobbies
3. I like talking about books with other people
4. I find it hard to finish books
5. I feel happy if I receive a book as a present
6. For me, reading is a waste of time
7. I enjoy going to a bookstore or a library
8. I read only to get information that I need
9. I cannot sit still and read for more than a few minutes
10. I like to express my opinions about books I have read
11. I like to exchange books with my friends

Statements 2, 3, 5, 7, 10 and 11 express positive attitudes, and statements 1, 4, 6, 8 and 9 express negative attitudes. Table 4 and 5 shows the percentage of the boys and girls in each Nordic country who agree or strongly agree with the positive (Table 4) and negative (Table 5) statements.

Table 4. Percentage of Nordic boys and girls who agree or strongly agree with positive statements about reading

Boys	Denmark	Finland	Iceland	Norway	Sweden
Favourite hobby	16	18	17	15	16
Like talking about books	28	20	23	19	22
Happy to receive a book as present	36	38	50	31	27
Enjoy going to a bookstore or a library	22	27	28	20	20
Like to express opinions about books	67	45	36	54	37
Like to exchange books with friends	9	9	12	9	8
Girls	Denmark	Finland	Iceland	Norway	Sweden
Favourite hobby	32	50	31	29	39
Like talking about books	45	48	42	37	46
Happy to receive a book as present	50	66	72	50	45
Enjoy going to a bookstore or a library	47	68	53	43	51
Like to express opinions about books	80	71	59	70	60
Like to exchange books with friends	28	44	42	39	43

In Table 4 the overall impression is that the percentage of boys who agree with the positive statements are almost half of the percentage of girls who agree. For most statements Finnish girls show the highest percentage of agreement and Swedish boys show the lowest percentage of agreement. With the exception of Icelandic boys and girls, the statement “I like to express my opinions about books I have read” shows the highest percentage of agreement. For this statement the relative gender difference is also lower than for the other statements. Further, only between 8 (Sweden) and 12 (Iceland) per cent of the boys agree or strongly agree that they like to exchange books with friends, and here we find the largest gender differences.

Table 5. Percentage of Nordic boys and girls who agree or strongly agree with negative statements about reading

Boys	Denmark	Finland	Iceland	Norway	Sweden
Read only if I have to	57	50	59	56	53
Find it hard to finish books	27	36	33	33	27
Reading is a waste of time	35	42	33	40	38
Read only to get the information I need	61	53	53	63	56
Can only sit still and read for minutes	23	20	29	30	24
Girls	Denmark	Finland	Iceland	Norway	Sweden
Read only if I have to	34	20	36	32	25
Find it hard to finish books	23	20	26	25	21
Reading is a waste of time	17	13	17	20	17
Read only to get the information I need	34	20	30	37	27
Can only sit still and read for minutes	16	9	22	20	17

In Table 5 the overall picture is the opposite of Table 4; the percentage of boys who agree with the negative statements is higher than the percentage of girls who agree or strongly agree with the negative statements. Finnish girls represent the lowest percentage on all statements. Two statements show relatively small gender differences: “I find it hard to finish books” and “I cannot sit still and read for more than a few minutes.” Both statements are related to students’ problems with reading, and not so much with the fact that they have negative attitudes towards reading. One explanation may be that boys are more willing to express negative attitudes towards reading than to admit having problems with reading.

More than 50 % of the boys in all the Nordic countries agree or strongly agree with the statements “I read only if I have to” and “I read only to get information that I need.” These statements are at best expressions of pragmatic or indifferent attitudes towards reading, or at worst negative attitudes.

The PISA index of enjoyment of reading activities is derived from students’ level of agreement with the 11 statements above. All the items that are negatively phrased are inverted for scaling, and therefore higher values on this index indicate higher levels of enjoyment of reading. The OECD average for this index is zero with a standard deviation of 1. Students with negative scores are students who responded less positively than the average response across OECD countries, and students with positive scores are students who responded more positively than the average student in the OECD area (OECD 2010:29). In PISA 2000, statements 1–9 were represented in the index of enjoyment of reading. Although two more statements were added in 2009, the scores on the index give an idea of Nordic students’ relative attitudes towards reading activities compared to the OECD mean in 2000 and 2009 (see Figure 1).

Figure 1. Reading enjoyment compared in the Nordic countries (The OECD mean=0. One standard deviation =1) (Roe, 2010:104)

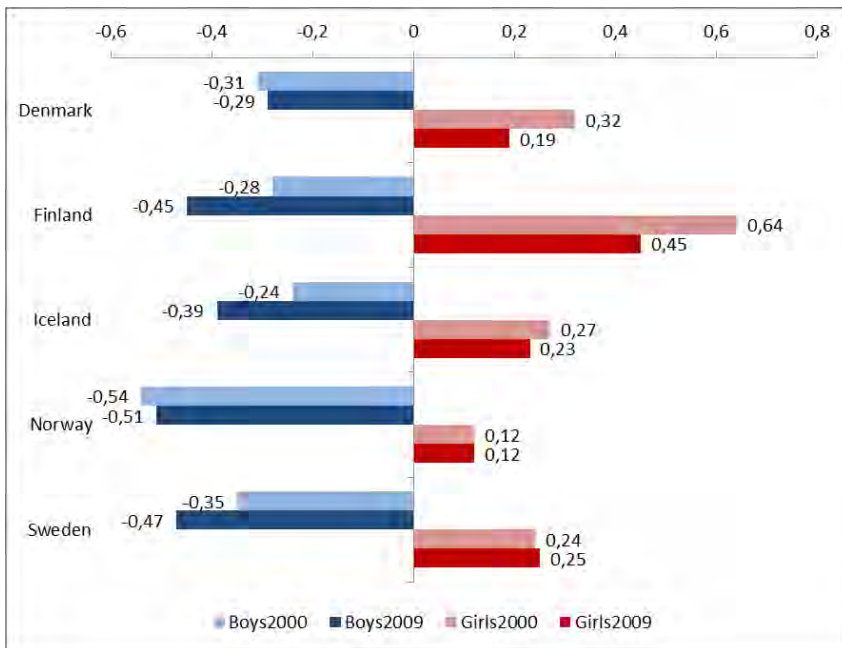


Figure 1 shows that Danish and Norwegian boys and Icelandic, Norwegian and Swedish girls have not changed their attitudes towards reading considerably compared to the OECD mean since 2000. Finnish, Icelandic and Swedish boys as well as Danish and Finnish girls, however, have become significantly less positive compared to the OECD mean since 2000. Despite this, Finnish girls still have the most positive attitudes towards reading among the Nordic students, and Norwegian boys are still the least positive. Yet, the difference between Norwegian, Swedish and Finnish boys is very small in 2009.

Table 6. Percentage of Nordic boys and girls below level 2 on the PISA reading scale

	Denmark	Finland	Iceland	Norway	Sweden
Boys below level 2	19.0	13.0	23.8	21.4	24.2
Girls below level 2	11.5	3.2	9.9	8.3	10.5

Across OECD countries, 18 % of student variation in reading performance can be explained by differences in how much students reported enjoying reading. The explained variation in reading performance is higher than 20 % age points in 16 OECD countries, among them Finland, Iceland, Norway and Sweden (OECD, 2010:30). Figure 2 shows reading enjoyment scores for students proficient at the different reading literacy levels in the Nordic countries. The distribution of boys and girls is not shown in this figure. However, the difference between boys and girls, in terms of percentage of students who score below Level 2 in PISA 2009, as shown in Table 6, and students' reading engagement shown in Figure 1, indicates that the lack of reading engagement is in general a more serious problem for boys than for girls.

Figure 2. Reading enjoyment scores for students within each reading proficiency level in the Nordic countries. (The OECD mean=0. One standard deviation=1)

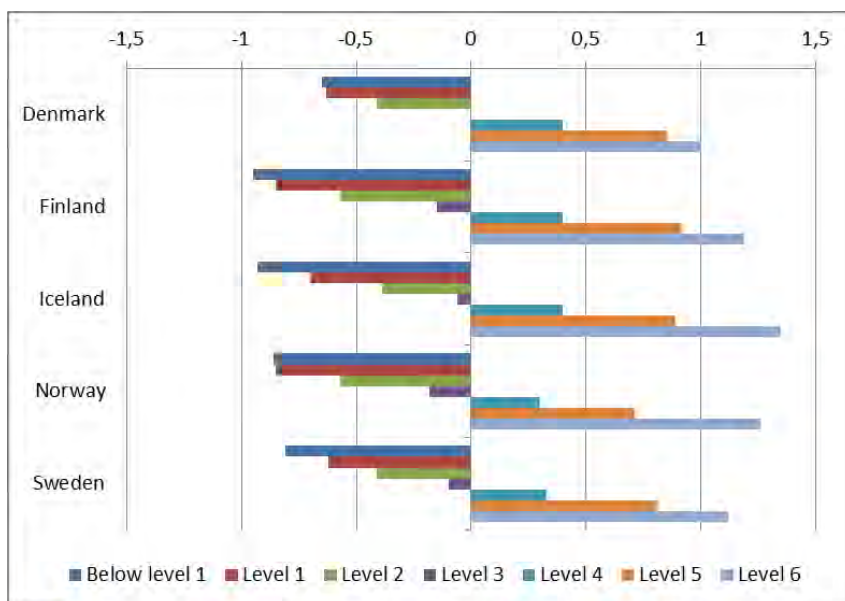


Figure 2 shows that the higher the students' proficiency level, the more positive attitudes they have towards reading activities. In all of the five countries, students proficient at Level 3 or below are less positive towards

reading activities than the OECD mean, and students proficient at Levels 5 and 6 are around one standard deviation above the OECD mean in reading engagement.

A correlation between reading achievement and the two variables socio-economic status (SES) and reading engagement (ENG) is shown for boys and girls in each Nordic country in Table 7. The correlation with socio-economic status varies more between the countries than the correlation with reading engagement. However, in all Nordic countries the correlation between reading engagement and reading achievement is stronger than between reading engagement and socioeconomic status, although the difference is small for Danish and Swedish boys and girls. In all the Nordic countries the correlation with reading engagement is slightly higher in 2009 than in 2000.

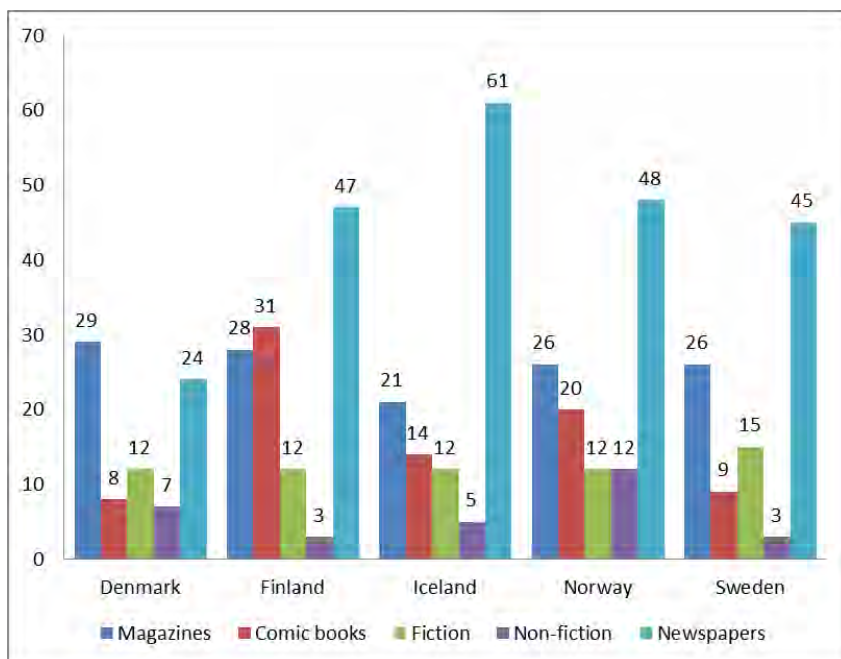
Table 7. Correlation between reading achievement and socio-economic status (SES) and reading engagement (ENG) for boys and girls in the Nordic countries

	Denmark	Finland	Iceland	Norway	Sweden
ENG Boys	0.43	0.46	0.43	0.42	0.42
ENG Girls	0.45	0.44	0.45	0.44	0.42
SES Boys	0.36	0.28	0.26	0.30	0.38
SES Girls	0.42	0.29	0.27	0.33	0.38

3.3.4 What do students read for enjoyment and how often?

The students were asked how often they read magazines, comic books, fiction, non-fiction books and newspapers, and the response alternatives ranged from “never or almost never” to “several times a week”. It is not specified whether responses referred to paper-based reading materials when they report on magazines, comic books, fiction and non-fiction. Newspapers are often read online, so here students may have referred to both. Figure 3 shows the percentage of Nordic students who report that they read different reading materials several times a week, and Table 8 shows the percentage of boys and girls who report what kind of reading materials they have read several times a week.

Figure 3. Percentage of students who read different materials several times a week



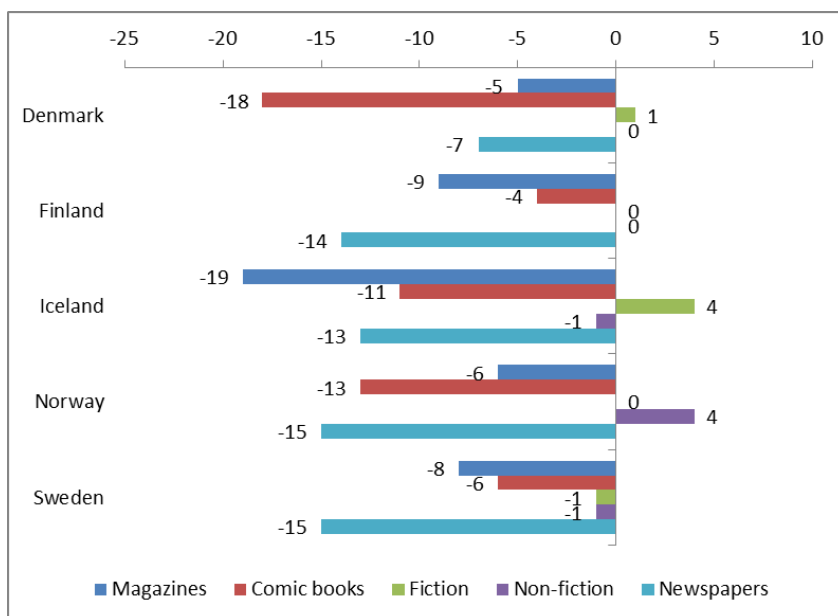
In all the Nordic countries, except Denmark, newspapers are the reading material read by the highest percentage of students several times a week, varying from 45 % in Sweden to 61 % in Iceland. In Denmark, magazines are more frequently read than newspapers. In Iceland, Norway and Sweden, the second most popular reading material is magazines (21–26 %). In Finland the second most popular reading material is comic books and in Denmark newspapers. The least popular reading materials are fiction or non-fiction books in all the Nordic countries. 12 % of Danish, Finnish, Icelandic and Norwegian students and 15 % of Swedish students read fiction several times a week. Non-fiction seems even less popular in most Nordic countries. Only 3 % of Finnish and Swedish students, 5 % of Icelandic students, 7 % of Danish students and 12 % of Norwegian students read non-fiction books several times a week.

Table 8. Percentage of boys and girls who read different materials several times a week

Boys	Denmark	Finland	Iceland	Norway	Sweden
Magazines	23	21	17	19	26
Comic books	12	40	16	26	12
Fiction	8	5	8	7	9
Non-fiction	8	5	4	12	3
Newspapers	28	48	60	50	47
Girls	Denmark	Finland	Iceland	Norway	Sweden
Magazines	35	34	25	34	27
Comic books	5	22	13	13	6
Fiction	16	19	17	18	22
Non-fiction	7	2	6	12	3
Newspapers	20	45	61	45	43

In Table 8 we find that the most obvious difference between boys and girls, in terms of reading materials, is that a much higher percentage of girls in the Nordic countries read fiction several times a week; between 16 % (Denmark) and 22 % (Sweden), while the percentage of boys who read fiction this often varies between 5–9 %. Furthermore, a much higher percentage of boys than girls in the Nordic countries read comic books several times a week. With the exception of Danish girls, newspapers are read several times a week by the highest percentage of both boys and girls in the Nordic countries. For girls in Finland, Iceland, Norway and Sweden, reading magazines takes the second place. In Denmark, the highest percentage of girls report that they read magazines several times a week and as second choice comes newspapers. In Denmark, Iceland and Sweden boys have magazines as their second choice and comic books as their third, while boys in Finland and Norway have comic books as their second choice and magazines as their third. In Norway 12 % of both boys and girls report that they read non-fiction several times a week, which is a higher percentage than in the other Nordic countries.

Figure 4. Changes in percentage of students who read different materials several times a week in the Nordic countries from 2000 to 2009. Positive values = increase, negative values= decrease. (Roe, 2010:109)

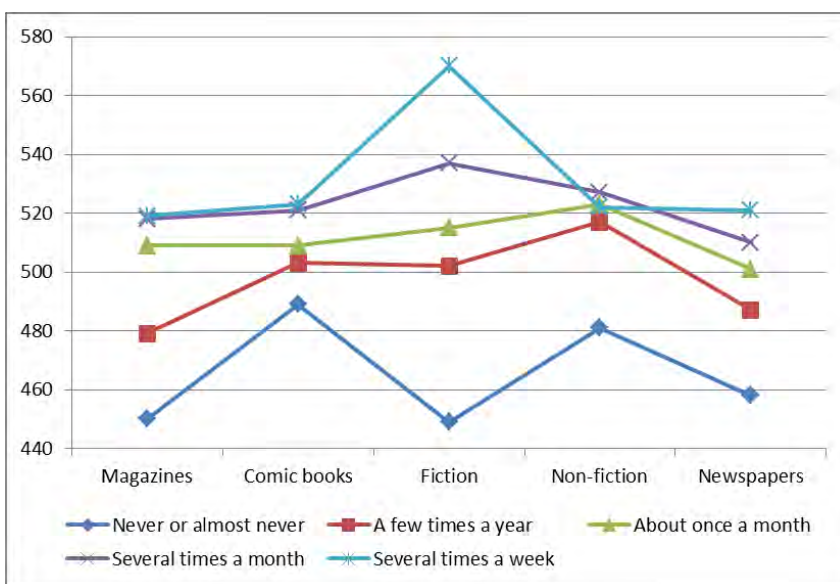


The overall impression is that a lower percentage of students read magazines, comic books and newspapers for enjoyment in 2009 than in 2000 (figure 4). Gender differences are not shown because the decrease in percentage of students who read the different materials is largely similar for both genders. The comparison over time shows that comic books account for the biggest percentage decrease of weekly readers in Denmark, Finland, Norway and Sweden. In Iceland this is the case for magazines. In the Nordic countries the percentage of students who read newspapers several times a week has decreased with 7–15 %. The percentage of students who read fiction or non-fiction several times a week was low in 2000, and it still is in 2009, though it has increased with 4 % in Iceland (fiction) and Norway (non-fiction).

3.3.5 What students read and reading performances

In Figure 5 all Nordic students are divided into five groups according to reading frequency of different materials online, and Table 9 shows these groups by gender. In Figure 5 the biggest achievement gaps are between students who report that they never or almost never read and students who read different materials a few times a year, except for magazines where there is an equally big gap between students who never read it, read it a few times a year and read it once a month.

Figure 5. Mean scores for Nordic students according to how often they read different materials online



The mean score for Nordic boys is 485 points and 529 points for Nordic girls on the PISA scale, and the mean gender difference is thus 44 points. Table 9 shows the same tendencies for boys as for girls; students who answer that they never or almost never read these materials achieve the lowest scores. With the exception of non-fiction, students' score points increase the more often they read. The increase is strongest when it comes to fiction. Fiction is also the reading material where the gender difference is generally smallest within each frequency group. Nordic boys

who read fiction several times a week achieve an average of 551 points, and Nordic girls in this group achieve 577 points.

Table 9. Mean scores for Nordic boys and girls according to how often they read different materials

	Magazines		Comic books		Fiction		Non-fiction		Newspapers	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Never or almost never	446	469	456	510	442	470	456	509	432	490
A few times a year	469	503	475	526	494	511	497	535	461	508
About once a month	494	528	484	535	503	524	501	544	477	521
Several times a month	497	534	502	547	523	545	513	543	489	530
Several times a week	498	535	508	553	551	577	511	535	500	543

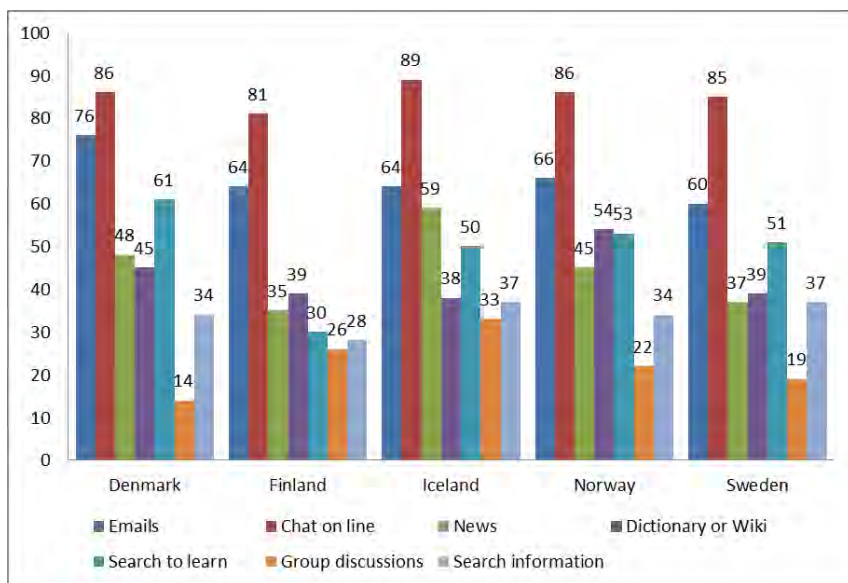
3.3.6 What do students read on the Internet?

The students were asked how often they are involved in the following electronic reading activities:

- Reading emails
- <Chat on line> (e.g. <MSN®>)
- Reading online news
- Using an online dictionary or encyclopaedia (e.g. <Wikipedia®>)
- Searching online information to learn about a particular topic
- Taking part in online group discussions or forums
- Searching for practical information online (e.g. schedules, events, tips, recipes)

The answer alternatives were: “I don’t know what it is”, “Never or almost never”, “Several times a month”, “Several times a week” and “Several times a day”. “Several times a day” is not a response alternative to the questions related to the reading materials shown in Figure 3. Thus, students who read some of these materials several times a day will have to answer “several times a week”. To compare online reading with the reading of those materials, the percentage of students who answer “several times a week” and “several times a day” are collapsed in Figure 6. A comparison between the Figures 3 and 6 gives an impression that most of the online reading activities are more popular than most of the paper based reading activities.

Figure 6. Percentage of students who practice online reading activities several times a week and several times a day



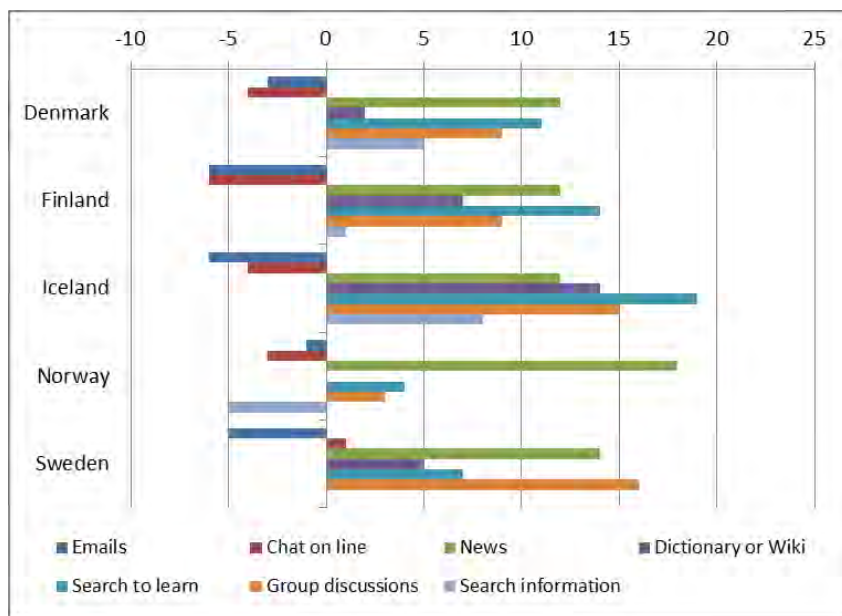
Chat is the most frequent online reading activity among 15-year-olds in all the Nordic countries. Between 81 % and 89 % of them report that they chat online several times a week or several times a day. Reading emails takes up a second place in all five countries; between 60 % (Sweden) and 76 % (Denmark) of the students do this at least several times a week. Participation in online group discussions is the least popular activity among 15-year-olds in all the Nordic countries, only 14 % of Danish students report that they do this several times a week or several times a day.

Reading of online news varies between the Nordic students. 59 % of Icelandic students do it several times a week or more often, while this is the case for 35 % of Finnish students. Norwegian students are the most frequent users of online dictionaries or encyclopaedias, 54 % report that they do this weekly or daily, in the other Nordic countries this percentage varies between 38 % (Iceland) and 45 % (Denmark).

50 % or more of the students in Denmark, Iceland, Norway and Sweden search online information to learn about a particular topic weekly or daily, while this is the case for 30 % of the Finnish students. Searching for practical information online is not a very frequent activity among Nordic 15-year-

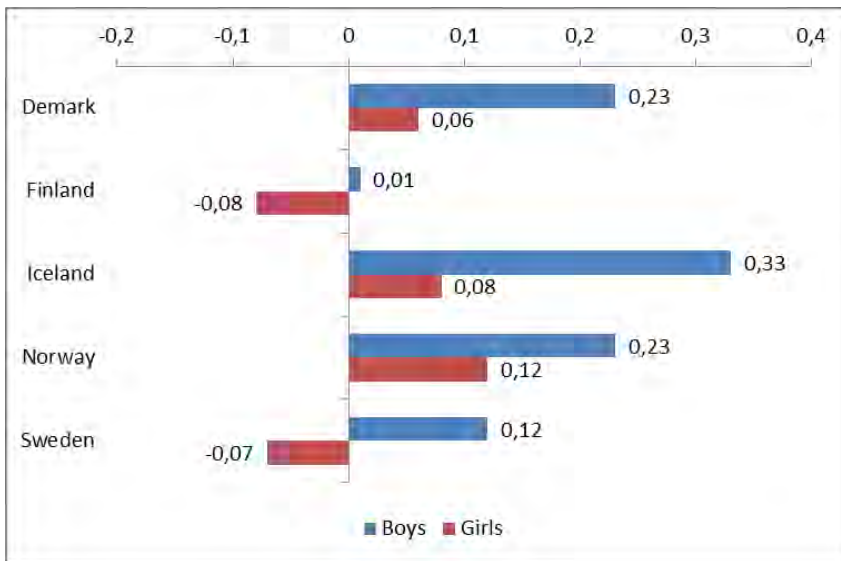
olds, and here the variation is small between the countries, between 28 (Finland) and 37 % (Iceland and Sweden) do this weekly or daily.

Figure 7. Gender differences in percentage of students who practice different online reading activities several times a week and several times a day. Positive values in favour of boys



The overall impression in Figure 7 is that boys are more frequent readers of online materials than girls, and that the gender differences are bigger when they are in favour of boys. A higher percentage of boys than girls in all Nordic countries read online news, search to learn about certain topics and participate in online group discussions at least several times a week. In Denmark, Finland, Iceland and Norway a higher percentage of girls than boys chat online at least several times a week, and in Norway a higher percentage of girls than boys search for information weekly or daily.

Figure 8. Nordic boys' and girls' online reading index. (The OECD mean=0. One standard deviation=1)



The online reading activities are scaled to represent an online reading index (ONLNREAD). The OECD average for this index is zero with a standard deviation of 1. Figure 8 shows that the biggest differences for this index are found in Denmark, Iceland and Sweden. Boys in all the Nordic countries and girls in Denmark, Iceland and Norway are above the OECD average, while Swedish and Finnish girls are slightly below the OECD average.

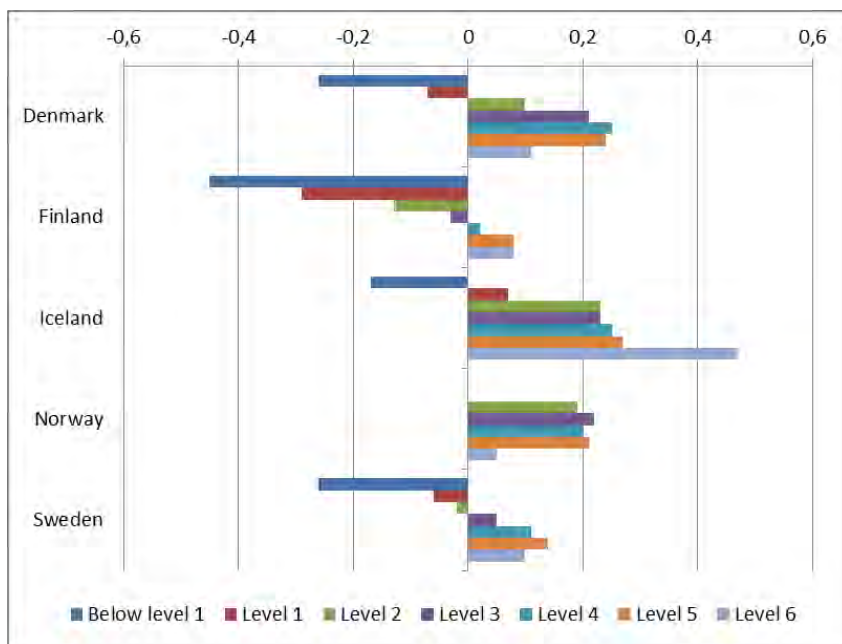
Table 10. Correlation between reading scores and paper-based reading materials (DIVREAD) and online reading materials (ONLNREAD) among boys and girls in the Nordic countries

	Denmark		Finland		Iceland		Norway		Sweden	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Divread	0.29	0.23	0.35	0.35	0.33	0.29	0.31	0.24	0.36	0.33
Onlnread	0.19	0.10	0.20	0.11	0.13	0.10	0.12	0.03	0.18	0.09

The reading of magazines, comic books, fiction, non-fiction and newspapers (see Figure 3) is also scaled to represent a reading index called “diversity of reading materials” (DIVREAD). Table 10 shows the correlation between reading scores and the two indexes DIVREAD and ONLNREAD.

Diversity of reading shows a positive correlation with reading scores in all the Nordic countries, varying between 0.23 (Danish girls) and 0.35 (Finnish boys and girls). Online reading shows positive, but weak, correlations with reading scores in all Nordic countries, especially for girls, between 0.03 in Norway and 0.11 in Finland. The rather weak correlations are also reflected in Figure 9.

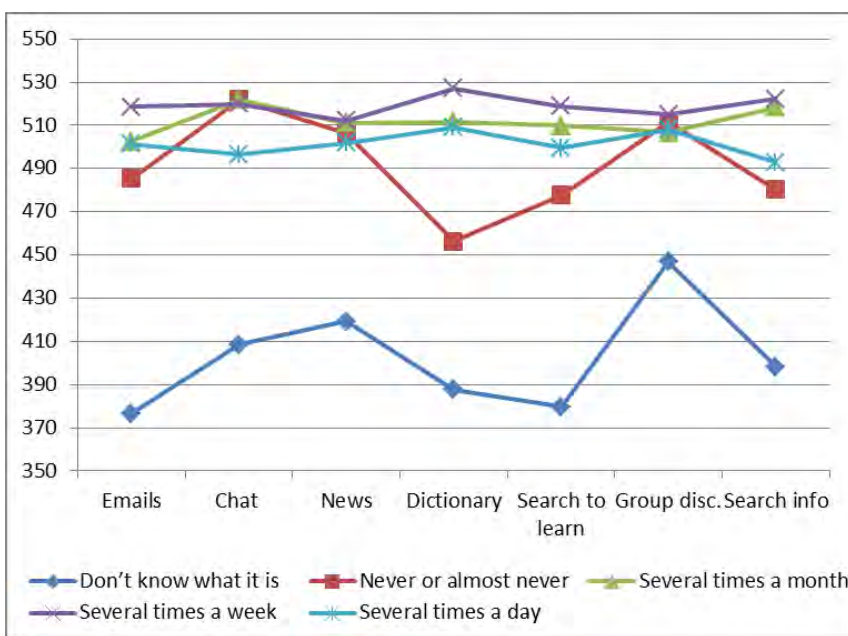
Figure 9. Online reading scores for students within each reading proficiency level in the Nordic countries. (The OECD mean=0. One standard deviation=1)



There is some variation between the Nordic countries, but one common feature is that students scoring below Level 2 practice less online reading activities than students at Level 2 or above in all five countries. In Denmark students at Level 3, 4 and 5 have higher online reading scores than students at Level 2 and 6. In Finland only students proficient at Level 4 or higher are slightly above the OECD average in online reading scores. In Iceland all students, except for those below Level 1 in reading proficiency, practice more online reading than the OECD average, and students proficient at Level 6

have very high online reading scores. In Norway no proficiency level group is below the OECD average in online reading scores, and there is no difference between students at Level 2, 3, 4 and 5. In Sweden, only students below reading proficiency Level 1 have a much lower online score than the OECD average. Swedish students above Level 1 are close to the OECD average in online reading scores. The online reading scores for Norwegian students below Level 1 and on Level 1 are at the OECD average, and these values are therefore 0 and not visible in the figure.

Figure 10. Mean scores for Nordic students according to how often they read different online reading materials



Students who report they never or almost never read paper-based reading materials achieve much lower reading scores than students who report they read these kinds of reading materials, and they generally achieve higher scores the more often they read (see Table 9). This is not quite the same for online reading. Figure 10 shows that students who report they do not know what it is achieve the lowest reading scores, and students

who report they read online several times a week achieve the highest reading scores. However, students who report they read online several times a day are not the best readers. In terms of chat, students who never or almost never chat online, achieve higher reading scores than students who do it several times a day. Table 11 shows that boys who read different online materials several times a week achieve the highest reading scores. This is also the case for girls, though with two exceptions, viz. chat and news. Girls who never or almost never chat online and girls who read online news several times a month achieve higher scores than girls who do this several times a week.

Table 11. Mean scores for Nordic boys and girls according to how often they read different online materials

	Emails		Chat on line		News		Dictionary or Wiki		Search to learn		Group discussions		Search information	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Don't know what it is	370	407	402	475	405	467	380	418	369	421	425	475	389	429
Never or almost never	468	507	496	561	479	527	433	484	449	507	486	531	467	499
Several times a month	482	525	491	550	482	535	486	533	485	530	487	531	495	537
Several times a week	496	538	496	538	495	531	509	545	498	540	500	538	500	541
Several times a day	482	523	479	517	494	521	502	522	492	516	496	535	480	514

The questions about online reading are new in PISA 2009, and can thus not be compared with earlier PISA studies. The PISA 2000 student questionnaire only had one question about online reading: "How often do you read email or web pages because you want to?" In all the Nordic countries students reported more frequent reading of email and web pages than the OECD average, and the correlation between online reading, and reading scores were below 0.2 in all the Nordic countries (Lie et al., 2001:140).

Table 12 shows the percentages of Nordic boys and girls who answered that they read email or web pages several times a week in 2000. In PISA 2006, only Norwegian and Swedish students were asked about reading email or web page. These percentages are in parenthesis.

Table 12. Percentage of boys and girls who read email and web pages several times a week in PISA 2000 (and 2006 in Norway and Sweden)

Denmark		Finland		Iceland		Norway		Sweden	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
44	31	36	32	54	36	49 (63)	37 (65)	55 (62)	48 (53)

In all the Nordic countries a higher percentage of boys than girls read email and web pages in 2000. Swedish students were the most frequent online readers and Finnish students were the least frequent online readers. In 2006, the percentage of Norwegian and Swedish boys and girls who reported that they read email and web pages several times a week had increased, especially among Norwegian girls. There is reason to believe that online reading has gradually increased for both genders in most countries from 2000 to 2009. The correlation between online reading and reading scores is rather low and the question is: What kind of reading takes place when students sit in front of their computers?

3.4 Summary and discussion

In the PISA 2000 questionnaire students were asked several questions about their voluntary reading and their attitudes towards reading. Many of the questions were repeated in PISA 2009, and it has thus been possible to study potential changes over time. A variety of online reading activities are measured for the first time in PISA 2009. Although we see indications that young people's online reading activities have increased, we are not able to measure such changes accurately here. However, online reading is different from paper-based reading in many respects, and PISA 2009 shows a number of interesting differences between the two media in terms of gender differences, reading frequency and correlation with reading achievement.

If we look at all the students in the Nordic countries as one group, PISA 2009 shows that one of four Nordic girls and nearly one of two Nordic boys report that they do not read for enjoyment in 2009. This represents a significant increase from 2000, both totally and in each of the Nordic countries, with Swedish girls as the only exception. The increase of students who do not read for enjoyment is greatest among Finnish boys, from 35 to 47 %. Furthermore, students who report that they do not read for enjoyment achieve considerably lower reading scores than students who do read, regardless of how much time they spend reading each day. Thus, to read or not to read is really the crucial question.

Nordic students have become less engaged in reading compared to the OECD mean since 2000, and the negative change is biggest among Finnish boys. We also see a negative trend over time among Finnish girls, but they still have the most positive attitudes towards reading of all Nordic boys and girls. Norwegian students have not changed significantly, but they are still among the least positive. Positive attitudes towards reading is rather strongly and positively correlated with reading scores, with a correlation coefficient around 0.5 in all the Nordic countries.

When it comes to reading habits, the percentage of students who read magazines, comic books and newspapers weekly has decreased in all Nordic countries from 2000. The percentages of students who read fiction and non-fiction several times a week were rather low in 2000 and are still low, in spite of a small increase in Norway and Iceland. A higher percentage of girls than boys read magazines and fiction, while a higher percentage of boys than girls read comic books and newspapers. Both boys and girls who read fiction every week achieve very high reading scores, but also students who read other kinds of reading materials every week achieve reading scores above the OECD average. Students who report they never read magazines, comic books, fiction, non-fiction or newspapers achieve the lowest reading scores. So again, to read or not to read proves to be the big question.

Danish, Icelandic and Norwegian students are more frequent online readers than the average OECD student, whereas Swedish and Finnish students are closer to the OECD mean. Except for online chatting and emailing, boys seem to spend more time online than girls, although the gender difference is not particularly marked. The correlation between

online reading and reading scores is very low in all the Nordic countries, which indicates that both weak and strong readers are frequent users of the Internet. It is also a fact that students, who report that they practice online reading several times a day, are not the best readers. On the whole, students who read online several times a month or several times a week achieve the highest reading scores, and students who never practice online reading or do not know what it is achieve the lowest reading scores. In terms of online reading, we cannot argue for the benefits of reading versus not reading to the same extent as for paper-based reading. However, in this connection there are also strong indications that *not to read* is a bad solution. The weaker correlations between online reading and reading achievement leads to the following question: What do students actually read online, and how much reading practice do they achieve from their online activities?

The general picture of gender differences in relation to reading is that a much higher percentage of Nordic boys than Nordic girls report that they never read for enjoyment. Nordic boys also have less positive attitudes towards reading than Nordic girls. Furthermore, boys who report they do read for enjoyment mainly read comic books and newspapers, whereas girls have a broader repertoire when it comes to reading materials. However, in online reading the gender differences are not particularly marked.

The two most important student-related factors that affect reading achievement are gender and family background. One question is how these two factors are related. Björnsson (2005) used data from PISA 2003 to test the hypothesis that differences between 15-year old boys' and girls' reading achievement are biggest at the lower levels of socio-economic status and that these differences become smaller the higher up the socio-economic scale the students are. However, he found that gender differences in reading achievement were almost the same regardless of social background and came to the conclusion that

“it is not new that boys at the lower levels of socio-economic background have poor (reading) results: what is new is that boys even at the higher levels so obviously are behind the equivalent groups of girls”

(ibid.:29).

Roe and Taube (2007) used PISA 2000 data and studied performance differences between boys and girls at three levels of socio-economic status (low, medium and high socio-economic status). They found that difference between boys' and girls' reading achievements were approximately the same at the three levels. Thus, gender differences in reading, which are closely related to differences in reading engagement and reading habits, are present at all levels of the socio-economic scale. A relevant question is thus: Why are boys less engaged in and less well at reading in comparison with girls of equivalent socio-economic backgrounds?

A number of studies have found that boys are significantly more active than girls (see for instance Eaton and Enns, 1986). Observed gender differences in temperament might influence parents and other caretakers to treat and talk to boys and girls differently and to expect different behaviors from them. In that way, boys are taught to be boys and girls are taught to be girls; a type of education that begins at a very early stage in their lives. Children aim at fulfilling the expectations of them as boys or girls. Boys and men are expected to be more lively, active, aggressive and willing to take risks. Girls and women are expected to be more passive, obedient and with an ability to adjust themselves. In the western world, it is well known that doing well at school is not related to the features of masculinity.

Lack of engagement in reading is one side of a more general negative attitude towards schoolwork (Young & Brozo, 2001; Björnsson, 2005). Freedmon (2003) found that boys who were poor readers in grade 7 saw reading as a far too passive activity. Just sitting is not fun, it is dull. Why read when one can have fun? Besides different sports activities there are nowadays computer games and movies full of action and fun, which are much easier to access than reading fiction. As expected, some boys think that the content of reading tasks at school is much more suitable for girls than for boys. Thus, one reason why boys are not a good readers as girls may be that the reading materials they are asked to read do not engage them (OECD, 2002). According to Smith and Wilhelm (2002), studies have shown that boys do not understand fiction as well as girls do, and they are less interested in reading for enjoyment. When boys read, they choose texts such as newspaper articles, articles in magazines and comics. They like to read about hobbies and sports, and they prefer adventure, humor and sometimes science fiction or fantasy books. In line with this finding, the current, general trend

“is to encourage teachers to use a wide range of fiction and non-fiction as well as non-book material such as magazines and newspapers, rather than rely solely on a traditional canon of literary texts”

(Eurydice, 2011: 132).

Lack of male reading role models at home and at school may be another reason for boys’ lack of reading engagement.

The observed increase of Nordic students who report that they do not read for enjoyment, and the fact that Nordic students have become less engaged in reading compared to the OECD mean since 2000 deserve attention from policymakers, teachers and parents. It is not enough to teach students to read different kinds of texts with different aims, to make inferences while reading, to summarize, to predict and to answer questions. There is also a need for a focused use of strategies to enhance students’ motivation to read. This entails availability of different kinds of reading materials, time for the students to read and time to have authentic discussions about the texts they have read. In other words, successful teaching of reading must include reading skills, reading strategies *and* reading engagement. Otherwise, teachers who successfully teach students to read have no guarantee that students will use their reading skills outside school if they do not have to.

Teachers who are struggling to engage the most reluctant boys in reading should be particularly aware of these boys’ need for diverse reading materials, as alternatives to the traditional text books. The majority of language teachers in lower secondary school are women, and even if they are splendid teachers, they cannot function as genuine role models for young boys. Good role models have strong effects on young people, therefore boys should be given opportunities to meet engaged male readers who can share their delight in reading with them and ignite their curiosity.

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4. To what extent do basic skills predict students' PISA reading score?

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4.1 Background

National as well as international literacy studies (i.e. PISA 2000–2009) have revealed that a fairly large proportion of the 15-year old students in Denmark possesses insufficient functional reading skills (below Level 2 of the six PISA reading levels). This has been a matter of grave concern among policy makers, as several studies have documented a strong relation between poor reading skills and failure to complete an upper secondary education or to hold on to a job (OECD, 2009; Smith, Mikulecky, Kibby & Dreher, 2000; Snow & Biancarosa, 2003; Andersen, 2005; Lundetræ, Gabrielsen & Mykletun, 2010). In the PISA studies, both sociological and cognitive factors have been presented as possible causes of insufficient reading skills, i.e. the students' socio-economic background, their enjoyment of reading and meta-cognitive strategy awareness.

Reading is a complex cognitive skill involving a number of basic and advanced sub-skills and processes. However, students' basic language skills (i.e. word decoding or vocabulary knowledge) are not examined in the 15-year old population in the PISA reading studies, as basic skills are expected to be well-established by middle school level. The PISA literacy studies examine advanced reading sub-skills and strategies (i.e. inferences, genre-knowledge and comprehension strategies), various socio-economic factors related to students' literacy skills (i.e. factors related to

the students' family background) as well as several reading-related factors (i.e. reading engagement and meta-cognitive strategy awareness).

The PISA 2009 study (OECD, 2009) reported fairly strong relations between students' PISA reading score and their enjoyment of reading, diversity of reading materials and meta-cognitive strategy awareness, even when controlling for their socio-economic background. Data further indicated that low levels of reading enjoyment and strategy awareness were especially pronounced in the poor reader group. Furthermore, awareness of effective comprehension strategies was related to better reading skills at all six reading levels indicating a possible causal relationship between reading skills and strategy awareness.

However, an impressive amount of research on reading difficulties has thoroughly documented the importance of basic skills (i.e. word decoding and vocabulary skills) for the development of text comprehension (functional reading skills). Word decoding and vocabulary are strong unique predictors of text comprehension, and both word decoding and vocabulary knowledge are causally related to reading difficulties (Hoover & Gough, 1990; Perfetti, Landi & Oakhill, 2005).

It is also well documented that students with reading difficulties report less reading enjoyment and demonstrate lower levels of meta-cognitive strategy awareness than their general reading peers (Paris & Hamilton, 2009; Nation, 2005). Thus, the strong relationship between PISA reading scores and reading enjoyment as well as meta-cognitive strategy awareness might in fact be mediated by the students' word decoding and vocabulary knowledge.

This chapter presents the results of secondary analyses of national data in the PISA 2009 study. The purpose of these analyses was to examine the relationship between students' reading skills and reading enjoyment and strategy awareness when controlling for word decoding and vocabulary skills.

4.2 Method and research questions

We included two national tests of word decoding and vocabulary knowledge in the PISA 2009 study. The two tests have been used in a Danish study of components of text comprehension among lower secondary students (Petersen, 2008). Data from this study revealed that students'

basic skills explained a fairly large proportion of the variance in text comprehension (45 %), even after controlling for other reading related variables (i.e. text genre awareness and a test of semantic categorisation). This finding indicates that basic skills still play an important role in students' text comprehension at age 15. The study further revealed that students with poor reading skills are a heterogeneous group suffering from a number of different linguistic weaknesses (e.g. 23 % of the students with poor reading comprehension suffered from poor decoding skills, and 33 % suffered from poor vocabulary knowledge).

To further examine the relationship between students' PISA reading score, basic reading skills and more advanced comprehension skills, we performed a number of hierarchical and logistic regression analyses.

The aims of the study were to examine the following research questions:

- What are the contributions of basic skills (word recognition and vocabulary knowledge), reading engagement (reading enjoyment and diversity of reading) and strategy awareness to text comprehension (measured by the PISA reading test) among Danish 15-year olds?
- Which are the strongest predictors of insufficient reading skills in Danish 15-year olds?

4.3 Tests

4.3.1 *Basic skills*

1. Orthographic coding

The test was used to measure the students' word recognition (133 items within a time limit of 2 minutes). The task is to identify the correctly spelled word of four homophones (i.e. fetter, fædder, fætter, fedder – "fætter" is the correct word). The orthographic coding test is a further development of the orthographic coding test used in a large number of studies in English speaking countries (Olson, Wise, Conners, Rack, & Fulker, 1989; Olson, Forsberg, & Wise, 1994; Gayan & Olson, 2001). The internal consistency of the test measured by Cronbach's alfa proved quite high (0.97).

2. Vocabulary knowledge

The vocabulary test has been developed for the PISA 2009 study (25 items). The vocabulary test is a synonym choice test in which the students must choose one of three words with the same meaning as the target word (e.g. “Is copy the same as clone, receptor or chromosome?”). The test items are read aloud to the students, who mark their choice on a coupon. The test items are selected from three different vocabulary measures used in the above-mentioned Danish study. Reliability measures: Cronbach’s $\alpha = 0.70$.

4.4 PISA tests

3. Functional reading skills (text comprehension)

The students’ PISA reading score (PISA 2009) was used as a measure of functional reading skills. The OECD total mean is 493 points (SD = 93). The variable was transformed into a dichotomous variable (below/above PISA Level 2) for the logistic regression analyses¹.

4. Enjoyment of reading

As part of the PISA student questionnaire, the students were asked to rate a number of statements about reading (e.g. “I only read if I have to”, “Reading is a favourite hobby of mine”) on a scale from 1 (strongly disagree) to 4 (strongly agree). The students’ answers were transformed to a reading enjoyment index with a mean of zero and a SD ± 1 . In the logistic regression analyses, the existing PISA variable of quartiles of reading enjoyment was used.

5. Diversity of reading

As part of the PISA student questionnaire the students marked how often they read a number of different text types (i.e. novels, magazines, news-

¹ Generally speaking, students below PISA reading Level 2 are capable of processing (i.e. identifying, comparing or contrasting) well-defined information in texts with a straightforward structure and easily identified main ideas. Thus, most likely they are faced with great challenges having to cope with the more complex subject matter texts of upper secondary education or vocational training.

paper, cartoons). The students' answers were transformed to a reading diversity index with a mean of zero and a $SD \pm 1$. For the logistic regression analyses the data were transformed into a dichotomous variable (below/above 1 SD below the M).

6. Awareness of strategies for understanding and remembering the information in a text

As part of the PISA student questionnaire the students were asked to rate a number of statements about strategy use in a reading task on a scale from 1 (totally useless) to 6 (very useful). An example of such a statement is: "Imagine you have to understand and remember information in a text: how useful are the following strategies?" The students' answers were transformed to a strategy awareness index with a mean of zero and a $SD \pm 1$. For the logistic regression analyses, the data were recoded into a dichotomous variable (below/above 1 SD below the mean).

7. Awareness of strategies for summarizing information in a text

As part of the PISA student questionnaire, the students were asked to rate a number of statements about strategy used in a summarization task on a scale from 1 (completely useless) to 6 (very useful). Examples of such statements are: "I carefully check whether the most important facts in the text is represented in the summary" and "Before writing the summary, I read the text as many times as possible." The students' answers were transformed to a summarization strategy awareness index with a mean of zero and a $SD \pm 1$. For the logistic regression analyses, the data were recoded into a dichotomous variable (below/above 1 SD below the mean).

8. Index of Economical, social and cultural status (ESCS index)

The ESCS index is a composite of the following socio-economic data: parents' highest educational level, parents' highest job status, family wealth, cultural passions in the home, educational resources and number of books in the home.

9. Gender

Definition of gender is self explanatory.

10. Language spoken at home

The students were asked to mark which language they mostly spoke at home from a list of languages. The students' answers were recoded into a dichotomous variable (Danish or other language).

4.5 Participants

Data from 5854 students were analysed in the post hoc study: 51.2 % girls and 48.8 % boys. 82.4 % of the students spoke Danish at home, whereas 11 % of the students spoke another language at home.

4.6 Results

4.6.1 Cognitive data

In Table 1, the students' PISA reading score, word recognition and vocabulary knowledge are presented (²raw mean, and SD). Table 2 presents proportion of students at each of the six PISA reading levels as well as proportion of students below/above PISA reading Level 2 (reading Level 2 is the cut off for functional reading skills in the PISA studies).

Table 1. Cognitive data (raw mean and SD)

Test	N	Raw M	SD
PISA reading score	5,854	482.5	84.12
Orthographic coding, 131 items in 2 min.	5,854	55.40	21.08
Vocabulary knowledge, 25 items	5,843	16.02	4.042

² In PISA 2009, Denmark over-sampled schools with large shares of students that primarily speak another language than Danish at home. The raw mean presents the mean of the un-weighted data, as we are studying the relation between the individual students' PISA score and their basic skills.

Table 2. The proportion of Danish students at each of the PISA reading levels

PISA reading level	N	Percent
Under 1B	29	.5
1B	248	4.2
1A	850	14.5
2	1672	28.6
3	1786	30.5
4	1096	18.7
5	168	2.9
6	5	.1
Total	5854	100.0
At or above PISA reading Level 2	4727	80.7
Below PISA reading Level 2	1127	19.3

As in Sweden, the mean reading score of Danish students was not statistically different from the OECD mean, but significantly below the mean reading score of students in Norway, Iceland and Finland³ Furthermore, it was noteworthy that the proportion of very strong readers in Denmark (Level 5 and 6) was quite small compared to the proportion of very strong readers in the other Nordic countries. The proportion of poor readers (i.e. students below Level 2) was, however, comparable to that of Norway, but a little smaller than in Iceland and Sweden.

4.6.2 Questionnaire data

Table 3. Presents descriptive data from the student questionnaire (M and SD).

Indexes	N	Mean	SD
Reading enjoyment	5713	-.548	.87
Diversity of reading	5784	.1301	1.05
Meta-cognition: strategies for understanding and remembering text	5624	.1196	.97
Meta-cognition: strategies for summarizing text	5554	.1384	.96

Table 3. Student questionnaire data

³ The comparisons between countries are based on the weighted data used in the Danish report on PISA 2009. As the data in these analyses are not weighted, the proportion of poor readers reported in this chapter is bigger than in the official report.

The mean reading engagement level of Danish students was below the OECD index mean of zero (-.548). Low levels of reading engagement were especially pronounced in the poor reader group. 39 % of the poor readers (below Level 2), compared to 20 % of the students above reading Level 2, reported a level of reading engagement in the lowest quartile of the scale.

The Danish mean of diversity of reading was a little above the OECD index mean of zero (.1301). Low levels of diversity of reading were pronounced among the poor readers; 22 % of the students with reading skills below Level 2, compared to 11 % of the students above Level 2, reported a very low level of diversity of reading materials (below 1 SD from the mean).

The mean level of meta-cognitive awareness of strategies for understanding and remembering text was at the level of the OECD index mean. 31 % of the poor readers, compared to 11 % of students above reading Level 2, had very low levels of awareness of effective strategies for understanding and remembering text (below 1 SD from the mean).

Finally, the mean level of meta-cognitive awareness of strategies for summarizing text was a little above the OECD mean (.1384). 32 % of the poor readers, compared to 9 % of the students above reading Level 2, reported very low levels of awareness of effective strategies for summarizing text (below 1 SD from the mean).

4.6.3 Correlations

A strong correlation was found between students' PISA reading score and their vocabulary knowledge ($r = 0.63$, $p < 0.00$). The strength of the correlation was similar to those of the Danish study of functional reading skills in lower secondary school (four different vocabulary measures were used in the study; the correlations with functional reading skills were 0.61, 0.53, 0.53 and 0.51).

The students' PISA reading score correlated moderately with word recognition (orthographic coding) and diversity of reading ($r = 0.27$, $p < 0.00$ and $r = 0.22$, $p < 0.00$ respectively). The correlation between orthographic coding and the PISA reading score was somewhat smaller than the one found in the Danish study (0.46). Finally, a medium strong correlation was found between the PISA reading score and reading enjoyment ($r = 0.40$, $p < 0.00$) and the two strategy awareness meas-

urements: summarizing ($r = 0.46$, $p < 0.00$), understanding and remembering ($r = 0.45$, $p < 0.00$).

4.6.4 Predictors of functional reading skills among 15-year old Danish students

In the following, information about the explanatory strength of the predictor variables is presented. Many of the variables share much of the variation in the dependent variable. Thus, information about the total amount of variance explained cannot be obtained by simply adding the percentages. As a single predictor, reading enjoyment explained 17 % of the variance in the students' PISA reading score, and diversity of reading 5 %. Strategies for understanding and remembering text by itself explained 20 % of the variance, and strategies for summarizing text alone explained 21 % of the variance.

We performed a linear regression analysis with the students' PISA reading score as the dependent variable, and reading enjoyment, diversity of reading as well as the two strategy awareness measurements as independent variables (see Table 4, model 1). The model explained 35 % of the variance in the students' reading score ($F = 706.032$, $p < 0.00$). All the independent variables, except diversity of reading, were significant at the 0.00 level. About two thirds of the variation in the students' PISA reading score was not explained by the variables in the model indicating that one or several other factors might be important for the development of functional reading skills.

4.6.5 To what extent do basic skills predict 15-year old students PISA reading score?

Orthographic coding by itself explained 7 % of the variance in the PISA reading score, whereas vocabulary knowledge uniquely explained 39 % of the variance in the students' PISA reading score.

We performed a hierarchical regression analysis with the PISA reading score as the dependent variable, including our basic skills components, orthographic coding and vocabulary knowledge as independent variables. Adding basic skills to the regression model greatly improved its prediction

power. The new model (see Table 4, model 2) explained 56 % of the variance in the PISA reading score ($F = 1360.73$, $p < 0.00$).

Controlling for students' basic skills (word recognition and vocabulary knowledge) markedly reduced the unique amount of variance explained by reading enjoyment and meta-cognitive strategies: 41 % of the variance in the students' PISA reading score was explained by the basic skills components; reading enjoyment and meta-cognitive strategies further explained 15 % of the variance in the students' PISA reading score. Changes in the coefficients of the various regression models are presented in Table 4.

Table 4. Beta coefficients of the regression models

Variables in model 1		Standardized Coefficients	Sig.
(Constant)			.000
Joy/Like reading		.260	.000
Diversity reading		.014	.257
Meta-cognition: Underst./remembering		.243	.000
Meta-cognition: Summarising		.277	.000
Variables in model 2		Standardized Coefficients	Sig.
Step 1	(Constant)		.000
	Orthographic coding	.160	.000
	Vocabulary knowledge	.594	.000
Step 2	(Constant)		.000
	Orthographic coding	.110	.000
	Vocabulary knowledge	.464	.000
	Joy/Like reading	.182	.000
	Meta-cognition: Underst./rem.	.164	.000
	Meta-cognition: Summarising	.207	.000

Finally, we performed a hierarchical regression analysis, fixed order, adding gender and language spoken in the home as well as ESCS to the model. The full model explained 59 % of the variance in the students' PISA reading score ($F = 882.06$; $p < 0.00$). Entered first, the socio-economic variables explained 23 % of the variance in the PISA reading score, and on top of that reading enjoyment and meta-cognitive strategies explained a further 22 %. However, even when controlling for students' socio-economic background and the reading-related variables, the two basic skills components uniquely explained 14 % of the variance in the PISA reading score.

Entering the basic skills components first in the model revealed that they, by themselves, explained 40 % of the variance. Reading enjoyment and meta-

cognitive strategies explained 15 %, whereas the socio-economic variables only explained a further 4 % of the variance in the PISA reading score.

4.6.6 Predictors of insufficient reading skills

We performed a number of logistic regression analyses to identify the best predictors of insufficient functional reading skills in the 15-year old students. The dependent variable was the students' PISA reading score, transformed into a dichotomous variable (below/above PISA reading Level 2), and the independent variables were reading enjoyment (quartiles), strategies for summarizing text (below/above 1 SD below the mean), strategies for understanding and remembering text (below/above 1 SD below the mean), diversity of reading⁴ (below/above 1 SD below the mean), orthographic coding (below/above 1 SD below the mean) and vocabulary knowledge (below/above 1 SD below the mean).

The logistic regression model without orthographic coding and vocabulary knowledge explained 16 % of the variance in the dependent variable and correctly predicted the group membership of 81 % of the students; the model correctly predicted almost all of the good readers, but only 13 % of the poor readers. Especially a low level of reading enjoyment (the lowest quartile) increased the likelihood of falling into the poor reader group (Exp (B): 2.755, $p < 0.00$).

Including the basic skills components (orthographic coding and vocabulary knowledge) in the model greatly strengthened its prediction value. The full model explained 35 % of the variance in the dependent variable, correctly predicting the group membership of 84 % of the students: 37 % of the poor readers and 95 % of the good readers. All the predictors in the model were significant ($p < 0.00$).

⁴ This variable was used in the regression as results from the PISA studies indicated a fairly strong relation between insufficient reading skills and diversity of reading.

Table 5. The prediction rate of the logistic regression models**Prediction rate of logistic regression model without basic skills**

Observed	Predicted		% Correct
	Above reading Level 2	Below reading Level 2	
Above reading Level 2	4597	124	97.4
Below reading Level 2	979	143	12.7
Overall percentage			81.1

Prediction rate of logistic regression model with basic skills

Observed	Predicted		% Correct
	Above reading Level 2	Under reading Level 2	
Above reading level 2	4497	224	95.3
Below reading level 2	705	417	37.2
Overall percentage			81.1

Table 6. Exp (B) values of the variables in the logistic regression models

	Step 1		Step 2	
	Exp (B)	SE	Exp (B)	SE
JoyReadIndex				
JoyReadIndex(1)	2.55	.112	2.800	.123
JoyReadIndex(2)	1.947	.109	1.554	.119
JoyReadIndex(3)	1.695	.120	1.375	.131
Meta-und./rem. below 1 SD (1)	.390	.086	.451	.096
Meta-sum. below 1sd (1)	.332	.087	.370	.097
Div. of reading below 1 SD (1)	.715	.098	.768	.108
Vocabulary (1)			6.018	.078
Orthographic coding (1)			3.496	.090
Constant	.904	.156	.309	.175

Poor vocabulary knowledge and poor word recognition were the strongest predictors of poor reading skills in the 15-year old students (Exp B = 6.018, $p < 0.00$ and Exp B = 3.496, $p < 0.00$ respectively), followed by reading enjoyment (especially low levels of reading enjoyment increased the likelihood of poor reading skills; Exp (B) = 2.380), cf. Table 6).

4.6.7 *Socio-economic predictors of insufficient reading skills*

In the PISA studies, as well as in many other studies, a strong relation is found between students' socio-economic background and their reading score. However, including traditional socio-economic indicators (i.e. ESCS, gender and language) in the model did not improve the prediction power of the model: 36 % of the variance was now explained, and the model correctly predicted 85 % of the students' group membership. 34 % of the poor readers were correctly predicted by the model and 96 % of the good readers, which suggests that basic language skills (i.e. vocabulary) might be a major underlying factor in the relation between students' socio-economic status and reading skills.

4.6.8 *Specific deficits in sub-skills*

We examined the basic skills of students below PISA reading Level 2 to see if any specific deficit was prevalent in the group. As in the Danish study, the group of poor readers was quite heterogeneous. 12 % of the poor readers had very poor word identification skills only (below 1 SD in orthographic coding), 38 % had very poor vocabulary knowledge only (below 1 SD on the vocabulary measure) whereas 24 % had both poor word identification and poor vocabulary skills. 26 % of the poor readers had neither poor word identification nor poor vocabulary skills. However, the reading enjoyment score of this sub-group of poor readers was below the mean; about half of the group did not read in their spare-time, and about 30 % had very poor awareness of the two comprehension strategies as well (below 1 SD).

4.7 Discussion and perspectives

Results from the post hoc analyses of the Danish PISA 2009 data clearly demonstrated that basic skills still have a great impact on students' reading skills at the end of lower secondary school. In line with results from a large number of studies, students' vocabulary knowledge proved by far the strongest predictor of their functional reading skills. Furthermore, the

prediction power of reading enjoyment and strategy awareness fell markedly when controlling for students' basic skills, which indicates that the relations between students' PISA reading score, reading enjoyment and strategy awareness was, at least to some extent, mediated by students' basic skills. Even when controlling for students' socio-economic background, vocabulary knowledge still proved the strongest predictor. Results from the regression analyses indicated that the greatly reported strong relation between students' socio-economic background and reading might be mediated by language skills.

Furthermore, results from the logistic regression analyses demonstrated that basic skills were the strongest predictors of insufficient reading skills even when controlling for the students' socio-economic background. Students' enjoyment of reading and their meta-cognitive strategy awareness were also significant predictors, adding to the prediction power of the model.

The results of the post hoc analyses clearly indicate the necessity of warning against speculations about causality in areas where strong positive results from a number of interventions studies have not been obtained. Correlation data cannot be used as indicators of causal relations. A relation between for instance reading enjoyment and reading skills might be explained in very different ways: poor readers have a hard time reading and thus do not find reading enjoyable and students who enjoy reading tend to read more, and with more practice they become better readers. Yet, the relation between reading enjoyment and reading skills might be mediated by another factor, such as word decoding skills, or the two factors, reading enjoyment and decoding skills, might be reciprocally related.

In order to examine causal relations between variables, i.e. reading skills and reading enjoyment, we have to design and implement proper intervention studies with well-defined groups of students, matching control groups and a comparable teaching content. Only when the training of a component skill leads to better reading skills can we infer a causal relation between the skills trained and the development of reading skills.

In line with the Danish study on components of text comprehension, the poor readers in our study proved to constitute a heterogeneous group, clearly indicating the necessity of individual testing and remediation of students with reading difficulties at all levels of obligatory schooling.

International large-scale literacy studies (i.e. PISA and PIRLS) are extremely important tools in local and international governance and by far the most influential instruments in Danish educational policy decision-making. However, these large-scale studies do not provide the necessary information about possible causes of insufficient reading skills to guide national and local interventions to reduce the proportion of poor readers in 9th grade.

If we are to effectively reduce the proportion of students with insufficient reading skills at the end of obligatory schooling, we have to identify effective interventions that can prevent reading difficulties. In this respect, improving students' basic skills seems by far the most effective intervention type at all levels of obligatory schooling. Basic reading skills are the focus of reading instruction and reading interventions in the primary grades. In the middle school years, focus on reading instruction and interventions changes to reading comprehension and content area reading skills. As a consequence, students with insufficient basic skills risk constantly lagging behind their peers in all subject where "reading to learn" is mandatory. Thus, it seems only logical to provide the necessary funding for intervention research on effective methods for developing students' vocabulary and decoding skills at all levels of schooling. In doing so, we prevent reading difficulties rather than use resources to remediate reading related problems (such as school dropouts, unemployment) when they have been established.

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5. PISA Ethnic 2009 – immigrant and native Danish students' results in PISA 2009

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5.1 PISA Ethnic – purpose and method

The PISA programme (Programme for International Student Assessment) was established as a collaboration between the governments of the OECD member countries to measure how prepared young people are for the challenges they face in today's information society. The hallmark of the PISA test is that it does not assess competencies based on the contents of specific curricula. Instead it focuses on how well young people can use their skills in relation to real-life challenges.

Besides assessments of cognitive skills, the PISA material includes background information provided by the students about their grade level, gender, family background, social, economic and cultural background, language spoken at home, immigrant status, leisure activities, reading motivation and attitudes to school.

PISA is designed to provide education policy makers, education administrators and practitioners with a comprehensive assessment of learning

⁵ Director of research Beatrice Schindler Rangvid is a co-author of the publication: Egelund et al. (2011) *PISA Ethnic 2009*, on which this article is based.

outcomes measured at the end of compulsory schooling. The assessment is presented in comparative figures – across countries and over time – in order to guide political decisions related to, for instance, allocation of resources. Through its international scope, PISA provides insight into the mix of factors that operate either uniformly or differently in various countries and regions.

In the ordinary⁶ rounds of PISA (Andersen et al., 2001; Mejding, 2004, Egelund, 2007), the number of students with immigrant background in Denmark has been too modest to compute statistically reliable results. Accordingly in 2008, the Danish Ministry of Education decided the ordinary PISA 2009 survey should include a special focus on students with immigrant backgrounds by collecting data on an extended sample of immigrant students. Results focusing on differences between native and immigrant students have been published in detail in a separate comprehensive report (Egelund et al., 2011).

5.1.1 Student population

A total of 5,924 15–16-year old students from 285 schools participated in the Danish part of PISA 2009 (Egelund, 2010a; Egelund 2010b), and the survey covers both public and private schools. Data were collected from a particularly large number of schools with bilingual students to enable in-depth analyses of these students' backgrounds and competencies. By weighting bilingual students' contributions to the total data pool, we have ensured that the data are representative of all 15-year old Danish students. Approximately 8 % of students were excluded from the Danish PISA testing due to academic, social or physical disabilities. Denmark has excluded more students than any of the other 64 participating countries. There are no clear explanations as to this high exclusion rate in Denmark. In addition to students who attend special education schools, local school

⁶ In addition to the ordinary rounds of PISA, Denmark has conducted a number of specifically Danish rounds of PISA. These are the PISA Copenhagen studies conducted in 2004, 2007 and 2010 (Egelund, N. & B.S. Rangvid (2005), Egelund, N. (2008) and Christensen et al. (2011)) as well as PISA Ethnic 2005 study (Egelund & Tranæs, 2008).

principals can decide whether certain students at the given school should be excluded.

5.1.2 Results

Reading was the main focus of the PISA 2009 cognitive test. In the PISA context, the concept of reading literacy goes beyond decoding texts and literal comprehension (OECD 2009). It includes the students' ability to understand, use and reflect on written texts. The definition also considers the wide range of situations (private/public, school/work, as an active citizen) that require sufficient literacy skills for young adults to achieve their goals, develop their knowledge and potential and participate in society. The concept of reading literacy is also based on the idea that literacy enables fulfilment of individual goals related to e.g. completing an education or obtaining a job, but relates to engagement in reading as well (i.e. interest in and enjoyment of reading). For this reason, the background questionnaire students were asked to complete also included a range of questions about their interest in reading and their reading habits.

Students' results in reading are reported using a reading proficiency scale with an OECD average score of 500 and a standard deviation of 100, meaning that two-thirds of the students in the OECD countries scored between 400 and 600 points. Moreover, reading results are reported using three subscales that capture the following dimensions of reading: (1) accessing and retrieving information, (2) integrating and interpreting texts and (3) reflection and evaluation. To help interpret students' reading results, the reading scale is divided into seven proficiency levels. Each level can be described in terms of skills and knowledge required to successfully achieve that level. Level 1b is the lowest level and level 6 is the highest. Level 2 is considered a baseline level of proficiency at which students have the reading skills that are deemed necessary to effectively and productively participate in tasks expected of students at this age. Students at Level 2 are said to have functional reading competencies. In addition to the ordinary cognitive test taken by students in all the participating countries, the Danish PISA test included two national items. These items test two aspects of basic reading skills: word decoding and vocabulary knowledge.

The overall results from the PISA 2009 study showed that students in Denmark obtained an average score of 495 points, which was not significantly different from the OECD average. This average position has been retained since the first PISA test in 2000. In 2009, 15 % of the participating Danish students were below level 2 (i.e. without functional reading competencies), which was slightly below the OECD average of 19 %. Yet, since Denmark has excluded more students than the OECD average, the actual percentage of Danish students below Level 2 may be somewhat higher. As in other countries, the Danish PISA results show a strong positive relation between reading engagement and reading scores.

Results presented in this chapter cover average cognitive scores measured on the PISA scale, the proportion of low and high-achieving students in reading and the proportion of students with low and high levels of reading engagement for native Danish and immigrant students. Average results for the three largest immigrant subgroups in Denmark will also be discussed. Finally, results on reading engagement, which is highly correlated with reading competencies, will be presented. Apart from the results for immigrants and native students in Denmark, we will also present selected results for native and immigrant students in the other Nordic countries. It should be noted that immigrants have *not* been over-sampled in the other Nordic countries. In other words, the statistical reliability of these results is greater, *ceteris paribus*, for the case of Denmark. Note too that this chapter exclusively focuses on the main reading results. The reader is referred to *PISA Ethnic 2009* (Egelund et al., 2011) for more detailed results concerning reading as well as the results for mathematics and science.

Apart from the “raw” test scores, certain results are presented after controlling for the students’ socio-economic background. This has been done by using the PISA index for Economic, Social and Cultural Status (ESCS). The ESCS index is composed of the following elements: highest occupational status of parents, highest educational level of parents and home possessions such as number of books and other educational resources.

5.1.3 Reading skills: immigrant and native students in Denmark

Reading was the main cognitive domain in both PISA 2000 (Andersen et al., 2001) and PISA 2009 (Egelund, 2010a; Egelund, 2010b). In both test rounds, the data revealed rather substantial differences in the academic performance between native Danish and immigrant students.

Table 1. Average scores in reading among native Danish and immigrant student in Denmark in PISA 2009 and PISA 2000

PISA 2000 and PISA 2009						
	Reading				Mathematics	Science
	Total	Information	Interpretation	Reflection		
PISA 2000						
Native Danish	503	504	502	508	520	488
Immigrants	426	432	417	429	451	402
1 st generation	431	439	422	434	448	398
2 nd generation	427	432	418	431	460	405
PISA 2009						
Native Danish	502	509	499	500	511	508
Immigrants	432	438	430	425	441	415
1 st generation	422	428	421	420	426	416
2 nd generation	446	454	443	442	447	430

As can be seen in Table 1, the native students obtained an average score in the reading test around 70 points above the average score obtained by the immigrant students. The performance gap between native and immigrant students is 7 points lower than in 2000, but a gap of 70 points on the PISA reading scale is still a big gap. It amounts roughly to what OECD students achieve within 1½ years of schooling.⁷ With regard to the sub-domains of reading, immigrant students scored 5 points higher in Information and 8 points lower in Reflection in 2009 compared to the PISA 2000 results.

In all, the results are not uplifting considering major efforts have been made in the previous nine-year period to develop the competencies of immigrant students by teaching *Danish as a second language* to immigrant students and by introducing a stronger focus on assessment culture. However, we must bear in mind that while native students comprise a relatively homogeneous group, the group of immigrant students is far more heterogeneous. To the extent that the socio-economic background of immi-

⁷ Cf. Box I.1.1 and Table A.1.2, Vol. II of the international PISA 2009 report.

grant students has changed over time, this will influence the average results obtained by this group.

In PISA 2009, about 8 % of all Danish students were excluded from the PISA test and survey due to language disabilities or special education needs. Most likely, some of these were immigrant students with poor Danish language skills. In comparison, only approximately 3 % of all students were excluded in PISA 2000. If the same proportion of students had been excluded from PISA 2009, the gap between native and immigrant students might have been slightly bigger. When the native-immigrant gap recorded in PISA 2009 is compared to the corresponding gaps found in three other specifically Danish rounds of PISA surveys (Egelund & Tranæs, 2008; Egelund & Rangvid, 2005; Egelund, 2008), it is first and foremost evident that a bigger gap is recorded in the City of Copenhagen than the rest of Denmark. The main reason is that the proportion of inhabitants with either a higher or lower education is greater in Copenhagen, as in other large cities, than in the rest of the country. Results from PISA 2009 also revealed that among students with immigrant background, second-generation immigrants scored significantly higher than first-generation immigrants. In PISA 2000 – and PISA 2003 (Mejdning, 2004) – the results for reading were the opposite, but this may be due to the fact that the number of immigrant students was relatively limited in the ordinary PISA rounds up until 2009. The differences between native and immigrant students were therefore not statistically significant. Interestingly, the results from PISA 2009 indicated that first-generation immigrants, who arrived in Denmark before the age of 6, achieved as high an average score as second-generation immigrants (442 and 446 points, respectively). First-generation immigrants who arrived between the age of 6 and 12 years scored significantly lower (an average of 414 points). The score point difference between early (before 6 years of age) and late (between 6 and 12 years of age) arriving immigrant students was thus 28 points. Controlling for possible differences in the socio-economic background between these two groups of first-generation immigrants only reduced the gap by 3 points, supporting the overall conclusion that first-generation immigrants arriving after the Danish school-starting age performed significantly poorer than first-generation immigrants arriving before the Danish school-starting age.

Moreover, there were no detectable differences between first-generation immigrants who arrived early and second-generation immigrants.

Students with backgrounds in the former Yugoslavian republics scored the highest (454 points), followed by students from Pakistan (430 points) and Turkey (416 points). Dividing the students according to language primarily spoken at home, we found that immigrants who primarily spoke either Danish or one of the Former Yugoslavian languages at home performed equally well in the PISA reading test and significantly better than immigrant students who spoke e.g. Kurdish, Turkish or Arabic at home. Controlling for socio-economic differences between these groups of students reduced the differences somewhat, but the gaps were still fairly big and remained statistically significant. The analysis did show one exception, however, between immigrants who speak one of the Former Yugoslavian languages and immigrants who speak Danish. The difference between these two groups of immigrant students was relatively small and insignificant both before and after correcting for social background.

5.1.4 *Students with particularly strong and weak reading skills*

PISA operates with a limit for when a student can be said to have functional reading competencies. This limit is when a student can read well enough to be able to complete a youth education. In PISA 2009, 13 % of the native students had reading skills below Level 2, while 43 % of first-generation immigrant students and 32 % of the second-generation students were below this level. This was an improvement since PISA 2000 where the proportion of poor readers constituted 17 % among native Danes and 49 % among immigrants. It should be kept in mind, however, that the percentage of excluded students was 5 percentage points higher in 2009 than in 2000.

Table 2. The proportion of students at the highest and lowest levels of reading competence for native Danish and immigrant students in PISA 2009

Student group	Below Level 2	Above Level 4
Native Danish students	13 %	5 %
Immigrant students	38 %	1 %
1 st generation	43 %	-
2 nd generation	32 %	-

Students who often read in their spare time perform better in the PISA reading test compared to students who never read in their spare time. An remarkable finding from PISA 2009 was that immigrant students spent more time reading in their spare time than native Danish students did (Table 3). Moreover, interestingly no significant difference in reading habits between students with first and second-generation immigrant background was noted.

Table 3. The amount of time native and immigrant students spent reading in their spare time

Student group	Never reads	Up to 30 min./day	> 30 min./day
Native Danish	34 %	42 %	24 %
Immigrant	28 %	39 %	32 %
1 st generation	29 %	35 %	36 %
2 nd generation	27 %	38 %	35 %

5.1.5 Reading skills: immigrants and natives in a Nordic perspective

A comparison of “raw” reading scores for immigrant students in the Nordic countries (Figure 1.)⁸ clearly shows quite similar results for Denmark and Sweden, both for first and second-generation immigrant students. In Iceland, first-generation students also performed at the same level (418). In Norway, the results of second-generation students resembled those in Denmark and Sweden, while first-generation students scored somewhat higher than in Denmark, Sweden and Iceland. First-generation students in Finland scored the same relatively high level as in Norway, while second-generation students scored markedly higher than in any of the other Nordic countries and performed almost at the OECD average.

When social, economic and cultural background conditions – as captured by the PISA ESCS index – were taken into consideration, interesting differences appeared (Figure 2). In Denmark, about one-third of the reading score gap turned out to be due to the immigrant students’ socio-economic background, while the remainder was attributable to other fac-

⁸ All figures are found at the end of the article

tors linked to immigration. The gap was lowest for students who spoke the test language in the home.

As mentioned earlier, when comparing results from 2000 and 2009, the proportion of students with low levels of reading competencies has declined in Denmark both among native and immigrant students (see Table 2). Among the Nordic countries, the number of poor readers (Figure 3) among first-generation students was lowest in Norway and highest in Sweden. Finland had the smallest proportion of poor readers among second-generation immigrant students, while the proportion in Denmark was the highest. As seen in Figure 4, Denmark had relatively few immigrant students who were strong readers compared with the other Nordic countries (Figure 4).

The Nordic countries shared a common pattern of first-generation students who arrived in the host country in their preschool years and performed just as well as second-generation students, cf. Figure 5. In addition, Denmark was the only country with a significant reading score gap between early (0 to 5 years of age) and late arriving (6 to 12 years) first-generation students when differences in social, economic and cultural background were taken into account. The difference in favour of early arriving immigrants was 25 score points after this adjustment.

Compared to the other Nordic countries, Denmark had a lower number of students with immigrant backgrounds who spoke a language other than the test language in the home. Results showed a positive correlation between speaking the test language at home and the students' reading scores in Denmark and Sweden (also when social, economic and cultural differences were taken into account), while no such statistically significant correlation was found in Norway and Finland. In general, when correcting for different social, economic and cultural status of the students in the various language groups, the gap in reading skills was smallest among immigrant students who spoke the test language in the home.

Across all the Nordic countries, the proportion of students from families where none or only one of the parents had a job was much higher among immigrants than native students. Nonetheless, the figures show much variation among the Nordic countries. The proportion of immigrant students with no parents working outside the home was 14–15 % in Norway and Finland, 18 % in Sweden and 24 % in Denmark. Moreover in relation to

reading scores, Denmark was the only Nordic country where it was a benefit if *both* parents worked outside the home rather than only one parent, when differences in social background were taken into account.

To summarise the influence of the students' home background on their reading results, we calculated how big a change in reading scores immigrants would be expected to achieve if the ESCS index were increased by one standard deviation. Such a change is expected to increase immigrants' average reading score by 27 points. The corresponding results were 41 points for immigrants in Sweden, 37 points for immigrants in Norway, 36 points for immigrants in Finland and 32 points for immigrants in Iceland. In other words, these results suggest that it is easier for immigrant students in Denmark to break with their social heritage than in Sweden. On the other hand, the differences in the socio-economic gradients in the other Nordic countries were not statistically different from the one found for Denmark.

5.1.6 *The student composition of schools*

The distribution of immigrant students across schools is of great political interest. Some Danish municipalities have developed policies by which immigrant students from areas with very high proportions of immigrant families are sent to schools with fewer immigrant children. For this reason, the relation between proportion of immigrant students at a given student's school and his/her PISA results has been of key interest in Denmark. Table 4 presents data on the distribution of native and immigrant students across schools with different shares of immigrant students in the 9th grade. While almost 80 % of the native Danish students attend schools with less than 10 % bilingual students, this is true for only 38 % of the immigrant students. At the other end of the spectrum, only 3 % of native Danish students attend schools with more than 60 % bilingual students. The same is true for 18 % of the immigrant students in Denmark. In comparison, the dispersion of native and immigrant students is somewhat more even in Sweden. There are fewer students at schools with either very few or very many bilingual students. Subsequently, there are more students at schools with a share of bilingual students between 10 % and 60 %, in comparison with Denmark.

Table 4. Distribution of students in PISA 2009 according to proportion of bilingual students in the school's 9th grade

	0.0 %–9.9 %	10.0 %–19.9 %	20.0 %–39.9 %	40.0 %–59.9 %	60.0 %–100.0 %	Total in %
Denmark	75.3	11.3	7.5	1.8	4.1	100.0
Natives	79.1	10.8	6.3	1.0	2.8	100.0
Immigrants	37.6	16.0	19.6	8.9	17.8	100.0
Sweden	59.1	21.6	12.8	3.8	2.7	100.0
Natives	64.0	20.8	11.7	2.3	1.2	100.0
Immigrants	24.7	26.1	21.1	14.8	13.3	100.0
Norway	80.7	10.3	5.6	2.0	1.5	100.0
Natives	82.6	10.1	4.9	1.2	1.1	100.0
Immigrants	53.5	12.9	14.2		19.4	100.0
Finland	87.8	11.2	0.7	0.3	0.1	100.0
Natives	88.4	10.6	0.7	0.3	0.1	100.0
Immigrants	63.8		36.2			100.0
Iceland	85.6	9.1	3.6	1.7		100.0
Natives	86.7	8.9	2.9	1.5		100.0
Immigrants	48.7		51.3			100.0

Note: For Norway, Finland and Iceland columns are merged due to a low number of students in each category.

In Denmark, native students attending schools with 40 % or more immigrant students achieved significantly lower scores in the PISA reading test compared with native students attending schools with fewer than 10 % immigrant students. At schools with up to 40 % immigrant students, however, there were no major differences in reading scores for native students.

The same tendency was seen for immigrant students. Immigrant students attending schools with less than 10 % immigrant students scored highest – but remained, on average, 48 points below native students at schools with the same dispersion of native and immigrant students. Immigrant students at schools with 60 % or more immigrant students scored, on average, 51 points higher than immigrant students at schools with only few immigrant students (Figure 6).

When correcting for students' social, economic and cultural background, differences between average scores obtained by native students at schools with different proportions of immigrant students were no longer statistically significant (see Figure 7). In other words, native students attending schools with many immigrant students (40 % or more) also had a weak socio-economic background, which seems to be the main explanation for their relatively poor scores in the reading test. Similarly, when

adjustments were made for immigrant students' home backgrounds, we found that social, economic and cultural differences only explained part of the difference (around 1/3) in these students' scores across different types of schools. In other words, other factors than those captured by the ESCS index must be at the root of the remaining performance differences of immigrant students across the different types of schools. Such factors may relate to e.g. immigrant students' cultural norms or characteristics of schools with high shares of bilingual students. Such schools clearly face other challenges directly related to a diverse mix of languages and cultures, which schools with few bilingual students do not face.

5.1.7 *Student-teacher relations*

As an integrated part of the PISA study, questionnaire asked students how well they got on with their teachers, and school principals were asked about student and teacher behaviour at the school. In this area, interesting differences emerged across the types of schools. Fewer students at schools with 40 % or more immigrant students confirmed that (i) they got on well with most of their teachers, (ii) their teachers were interested in their well-being and (iii) their teachers treated them fairly, compared to students at other schools. One in four students attending a school with 40 % to 60 % immigrant students reported having a principal who believed teachers' low expectations of students impeded the students' learning. This proportion was considerably bigger compared to the other types of schools. About 78 % of the students at schools with 40 % to 60 % immigrant students in Denmark reported having a principal who responded that disruptive students are an impediment to learning at the school. The students' lack of respect for teachers also seems to disturb the learning environment at schools with 40 % to 60 % immigrant students.

5.1.8 *Reading habits at home and parental involvement*

The ESCS index summarises a range of self-reported information on the students' family background. In addition to the factors included in this index, parents in Denmark were asked to fill out a parent questionnaire about e.g. reading habits in the home. The results indicated that for all

students – native and immigrants alike – children whose parents read to them every day or almost every day when they were in the first grade scored higher in the PISA reading test as 15-year-olds. The students attending schools with less than 10 % bilingual students scored the highest when being compared with students attending schools with higher shares of bilingual students. Among immigrant students at schools with 40 % or more immigrant students, results revealed that students whose parents read for them every day or nearly every day when they were younger scored 35 points higher in the PISA reading test than immigrant students whose parents only read to them once or twice a week. A point difference of this magnitude nearly corresponds to the average achievement among OECD countries during an entire school year. Here, too, we see a difference among immigrant students in terms of whether or not the parents read aloud to them and their PISA reading scores across the different types of schools. Differences in ESCS explain some of these variations, but far from all of them.

Besides differences in parents' reading habits – for their own and their children's sakes – the survey points to differences in parents' expectations of the school depending on which school they have chosen for their children. Among students attending schools with less than 10 % immigrant students, every fourth student attended a school where the school principal experienced constant pressure from *many* parents expecting that the school sets and achieves high academic standards. By contrast, for students attending schools with 60 % or more immigrant students, the majority of the principals experienced *almost no* pressure concerning such expectations from the parents.

5.2 Discussion

The oversampling of immigrant students in the Danish PISA Ethnic 2009 study has enabled a more detailed study of the reading skills of immigrant students and related factors than has been possible in the ordinary PISA cycles. It is a distinctive result from the Danish PISA Ethnic 2009 study that students with an immigrant background obtained lower cognitive results compared to native Danish students. First-generation immigrant students

scored lower than second-generation students. The same differences were found in Finland, Norway and Sweden, while the number of second-generation students in Iceland is too low to draw any valid conclusions about the generational difference. Three explanations are possible. One is influence from language, where the language of instruction is different from the students' mother tongue (Alba & Nee, 1997; Chiswick & Miller 2003). The second is influence from parents' social, economic and cultural background (Munk & McIntosh, 2007). The third is the peer effect at school with a high share of immigrant students (Egelund & Tranæs, 2008).

Immigrant students who primarily speak Danish at home perform better in the reading test compared to immigrant students who speak another language than Danish. Parents' social, economic and cultural background can account for about one third of the reading gap, and the proportion of immigrant students at the school also proved to constitute a statistically significant influence. Nevertheless, much of the variance (around 1/3) remains unexplained.

Thus, a lot of the unexplained variance must be due to other factors. Such other factors might be student characteristics that are not captured by the PISA ESCS index. Another explanation might be conditions at schools with particularly high shares of immigrant students, which in some way have a negative influence on immigrant students' reading skills, but apparently do not influence native students' reading skills. Schools with very large proportions of immigrant students, all things being equal, face various teaching challenges (language-related and cultural), which schools with very few immigrant students do not. The evidence from PISA Ethnic 2009 suggests that schools with a very large proportion of bilingual students face challenges not only related to students' relatively weak socio-economic backgrounds, but also in relation to establishing conducive learning environments.

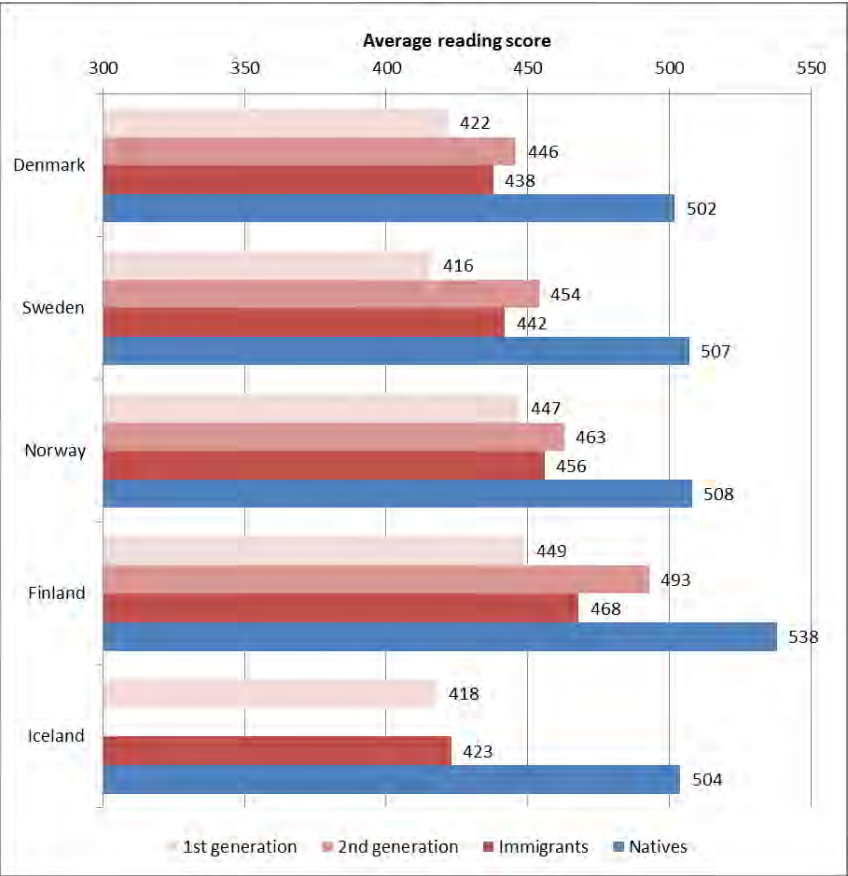
At policy level, the results point to two important issues. First of all, it is advisable to avoid having schools with very large proportions of immigrant students. This calls for incentives to encourage immigrant families to place their children in schools where the immigrant concentration is relatively low. Furthermore, efforts should be made to avoid large ethnically homogeneous housing areas. Secondly, efforts should be made to interest immigrant families in stimulating the language skills of their children by e.g. engaging

them in reading activities at home, placing them in day-care and later on engaging them in extra-curricular activities at school.

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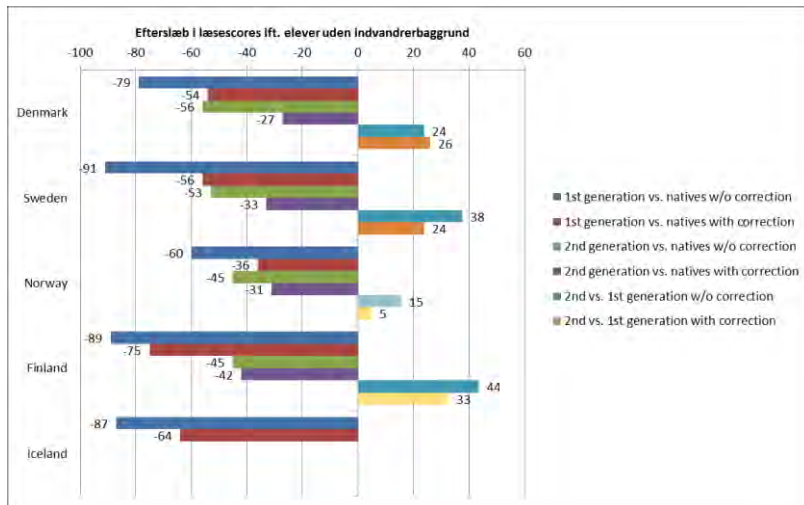
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Figure 1. Average reading scores for native and immigrant students in the Nordic countries



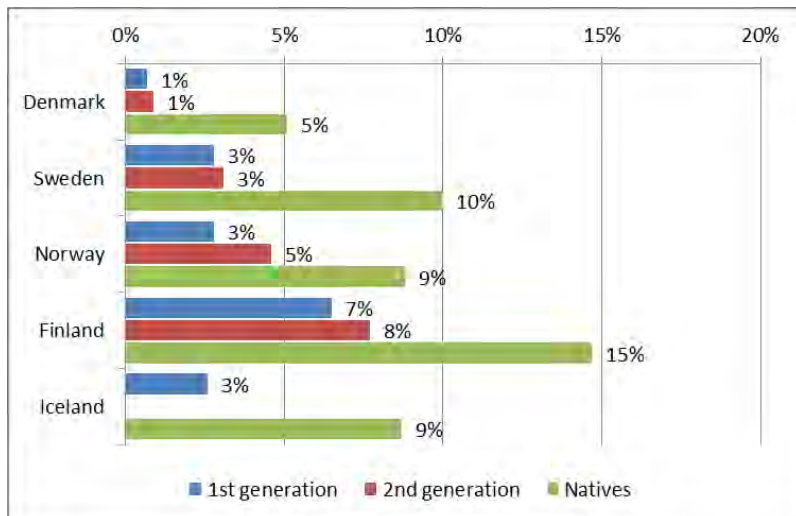
Note: Results for 2nd generation immigrants in Iceland are not included because of too few observations.

Figure 2. Difference in reading scores for native and immigrant students before and after correcting for social, economic and cultural status (ESCS)



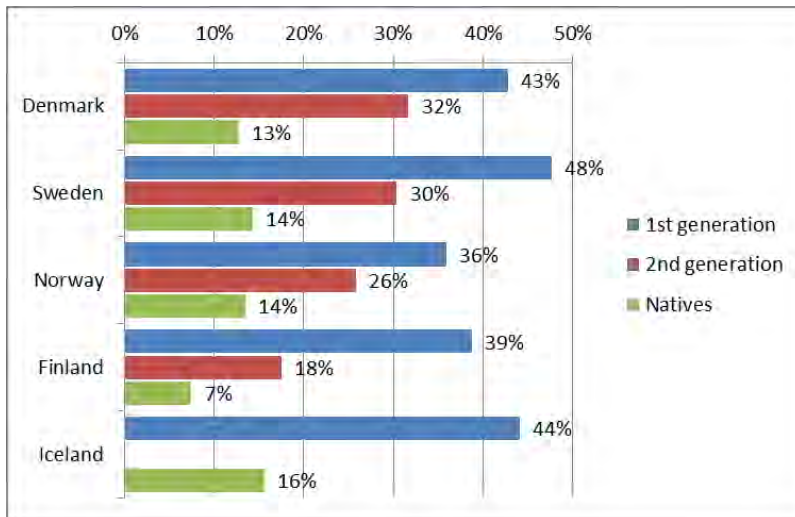
Note: Results for 2nd generation immigrants in Iceland are not included because of too few observations. Lighter colours indicate that the differences are not significant at the 5 % level.

Figure 3. Low-performing readers (below competency Level 2)



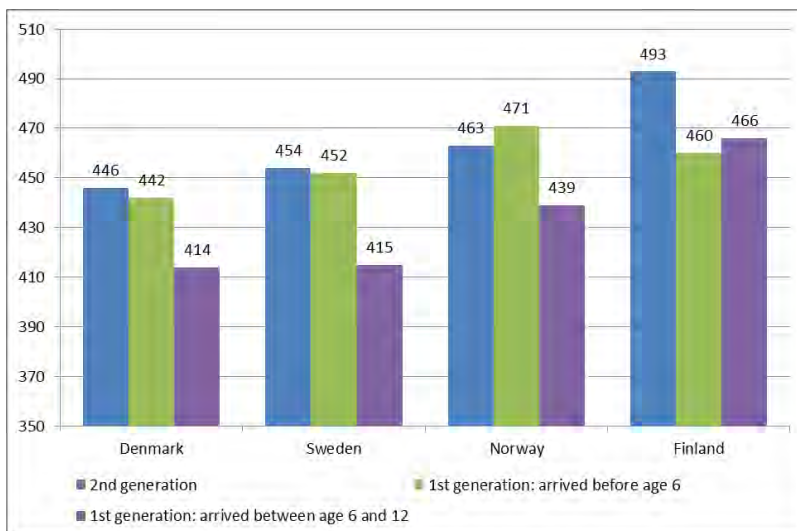
Note: Results for 2nd generation immigrants in Iceland are not included because of too few observations.

Figure 4. High-performing readers (competency Levels 5 & 6)



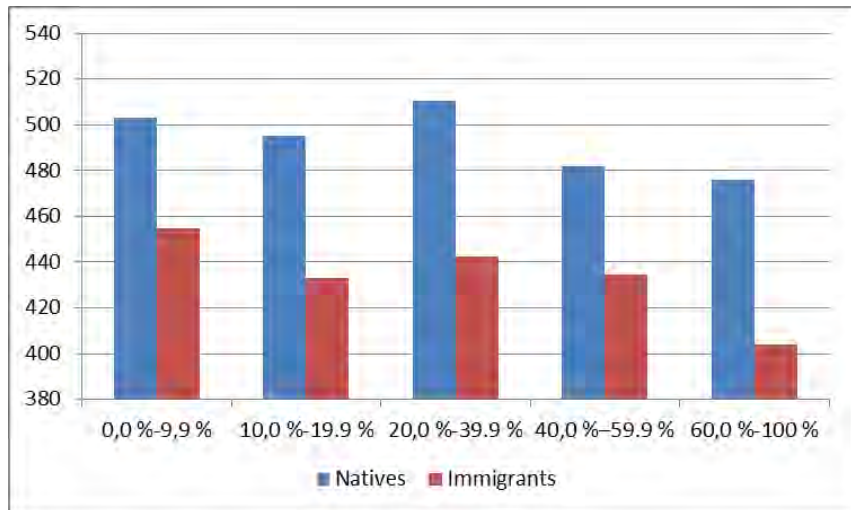
Note: Results for 2nd generation immigrants in Iceland are not included because of too few observations.

Figure 5. Average reading score by age of arrival in host country



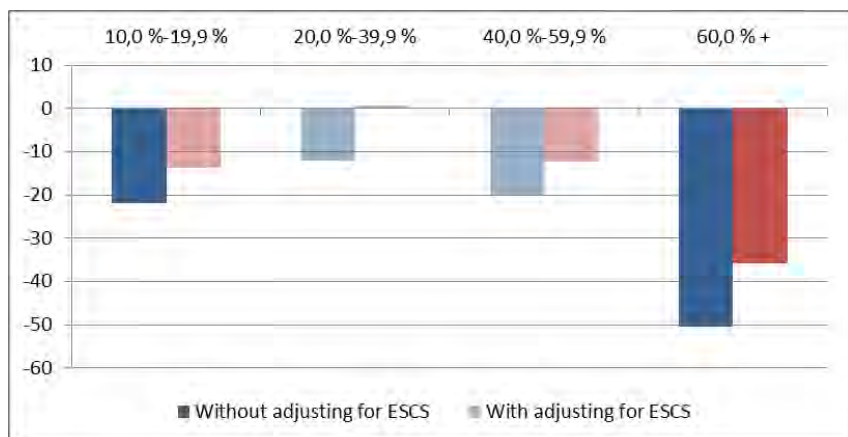
Note: Results for Iceland are not included because of too few observations.

Figure 6. Average reading score of natives and immigrants in Denmark by share of bilingual students at the school's 9th grade level

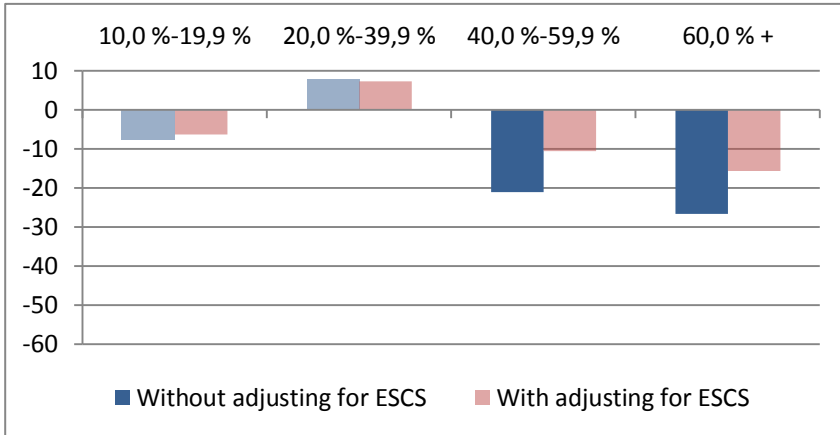


Note: The solid and dashed arrows denote differences in reading scores between students at different types of schools that are significant at the 5 and 10 % level, respectively.

Figure 7. Point difference in reading score by share of bilingual students at schools in Denmark, with and without social correction (ESCS). The reference category is students at schools with less than 10 % bilingual students at the 9th grade level



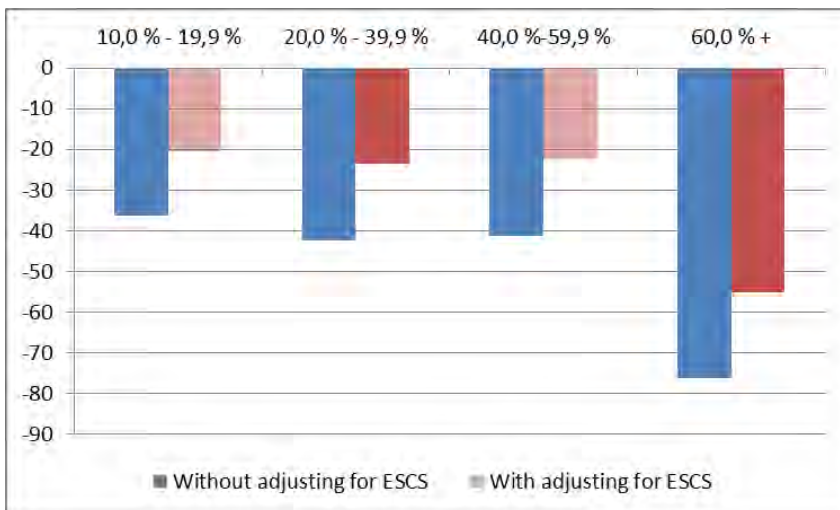
a) Native students



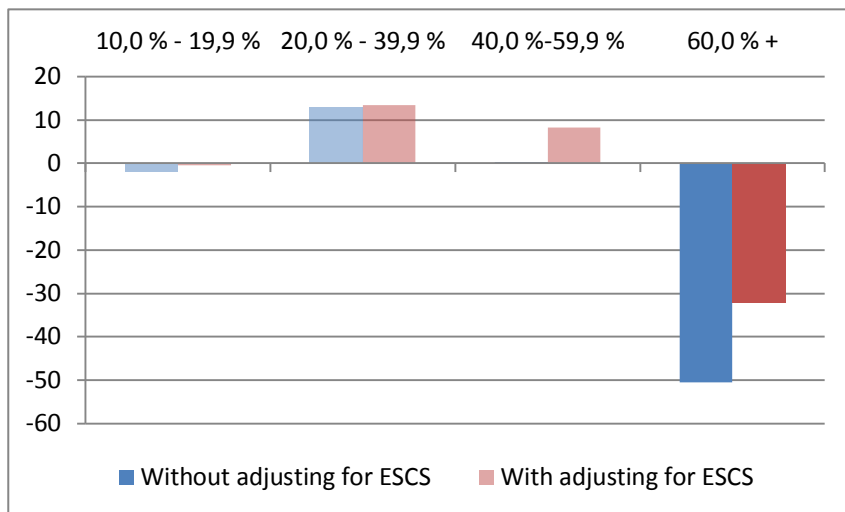
b) Immigrant students

Note: Lighter colours indicate that the differences are not significant at the 5 % level.

Figure 8. Point difference in average reading scores of students that read more than 30 minutes a day in their spare time by share of bilingual students at the school in Denmark, with and without social correction (ESCS). The reference category is students at schools with less than 10 % immigrants



a) Native students



(b) Immigrant students

Note: Lighter colours indicate that the differences are not significant at the 5 % level.
Compulsory education in the Nordic countries

6. Nordic education systems – primary and lower secondary school

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PISA is designed to compare the performance of national education systems and give advises regarding educational policies. Comparison of the individual educational systems is, however, not easy as descriptions found in official documents and websites often have very different formats, and some may even be rather old. It was therefore decided that the Northern Lights IV publication should contain a synoptic overview of compulsory education and educational reforms from 1990 to 2010 in the Nordic countries.

The synoptic overview has the following headings:

- Language
- Overview of the education system
- Pre-primary education
- Structure of the education system
- Examinations
- Teachers and teacher education
- Teacher in-service training
- Initiatives in relation to the strongest and weakest students
- Evaluation
- Second language instruction
- Absence among students
- Talented students
- Teaching assistants

- Emphasis on initiatives of improving reading literacy
- National curriculum on reading
- Reading instruction and materials
- Use of technology
- National centres
- Initiatives according to reading disabilities
- Diagnostic testing
- Instruction for children with reading disabilities
- Reading specialists and reading instructors
- Special needs education
- Time line on school policy 1990–2010
- References

The synoptic overview has been produced after desk studies of documents and websites as well as visits to all Nordic Countries. The work has been performed by research assistant Hilde Ulvseth under supervision of Niels Egelund. The countries are mentioned in alphabetic order.

6.1 Denmark

6.1.1 *Language*

The official language in Denmark is Danish, which belongs to the Germanic family of languages. Danish is the language of instruction in the Danish public and private schools. However, a few international schools offer schooling in another language (e.g. English, French or German).

Foreign language instruction in Danish schools includes English from third grade, and either German or French beginning in seventh grade.

6.2 Overview of the education system

The main authority of the Danish education system is the Ministry of Education, which is responsible for the overall content, goals and quality in education at all levels. As a supplement to the Ministry of Education, two national boards are established.

The *National Board of Education* is responsible for the development and the regulation of education and the *National Board of Quality and Inspection* is responsible for inspection, national testing, examinations and quality development.

Public primary and lower secondary schools constitute one coherent school in Denmark called “School for the people”, or in Danish “Folkeskolen”. Folkeskolen is centrally regulated by the Folkeskole Act, but it is up to the municipalities to decide how the local schools are to function in practice within the framework of the Folkeskole Act.

There are common goals and provisions for the teaching at all levels in the municipal schools, as well as common provisions for the central knowledge and proficiency areas of the subjects and the organization of the school system. Even though the municipal schools have these common goals and provisions, it is still possible for the individual schools to have a unique focus. In Denmark public schooling is free.

In every Danish school there is a school board with representation from parents, teachers and students. The school board makes recommendations regarding local curricula, based on the national goals. The local plan must be approved by the local authorities, where after it is binding for the individual schools. The majority of the municipalities choose to have a common plan for all schools in the municipality.

6.2.1 *Pre-primary education*

The municipal authorities are responsible for providing day-care for children from the age of six months until the age of six years, or when they enter kindergarten. However, most children, below the age of 1 year, are taken care of at home by one of the parents on maternity leave. This means that 66 % of children at the age of 0–2 years are in a day-care, whereas the number increases to 94 % for children at the age of 3–5 years.

Day-care institutions and the municipal childminders are required to present educational plans that include different themes such as social skills and language. The individual day-care institution or childminder determines the goals of the learning plans.

6.2.2 *Structure of the education system*

In Denmark basic schooling, i.e. from kindergarten to grade 9, is compulsory. Children begin to attend compulsory school in August the calendar year they turn six and end compulsory school after grade 9 in July.

The Danish school system includes both primary (kindergarten class to grade 6) and lower secondary education (grades 7–10). There is no streaming, which means the students are not grouped according to ability or interests. When a child enters first grade, he/she normally receives education in all subjects together with the same classmates throughout the nine or ten years of school life. This means that age groups define the different grades, and retention is almost non-existent.

Apart from compulsory schooling, the Folkeskole offers a tenth year, which is non-compulsory.

Continuation schools, where students can attend grades 8–10 (some continuation schools offer an eleventh year), are all private boarding schools, and they emphasize social learning and different subjects such as music, sports, nature, ecology, etc. Apart from continuation schools, students can also choose to attend a private school called the Free Elementary Schools. The Free Elementary Schools are self-governing institutions required to live up to the standards of the municipal schools. Both Continuation schools and the Free Elementary Schools receive approximately 85 % of their funding from state subsidies. Over 50 % of the students leaving ninth grade attend the voluntary tenth grade or a continuation school.

After compulsory education, a number of different youth education programmes are available. In order to give everyone equal opportunity for training and education, beyond compulsory education, the government offers students at the age of 18 or older a monthly grant, if they are enrolled in a youth or further education. The youth education programmes are either vocational or academically oriented. Today, about 80 % of the

students complete an upper secondary education each year. The Danish government wishes to increase this percentage to 95 by 2015.

6.2.3 Examinations

Students take formal examinations in up to ten subjects at the end of their compulsory education, where seven of the exams are mandatory. Two of the seven exams are decided by drawing, which means the students do not know two of the subjects for examination until the end of the year. In 2007, the Ministry of Education required a leaving exam in reading in addition to the written exam in the subject Danish language.

Two levels of formal examinations are offered. The Leaving Certificate of the Folkeskole after ninth grade, which is compulsory for all students, and the Advanced Leaving Certificate of the Folkeskole after the voluntary tenth grade.

The examinations are both written and oral. To ensure uniformity throughout the country there are standard rules for all examinations. The Ministry of Education develops written examinations, while the teachers conduct oral examinations. Furthermore, the students in grades 9 and 10 have a mandatory project assignment that gives the students the opportunity to complete and present an interdisciplinary project. The project assignment is assessed in a written statement based on content, the working process and the presentation of the final work. The assessment of the project assignment can be indicated in the leaving certificate.

In 2006, the grading scale was changed from the 13-grading scale to the 12-grading scale. The grading scale contains two grades for failing and five different grades of passing, 12 being the top grade.

6.2.4 Teachers and teacher education

The teacher education programme was reformed in 2007. Student teachers at university colleges select two or three main subjects from the compulsory subject areas of Danish, mathematics, science and technology as well as physics/chemistry. The student teachers can choose subjects from the main areas only, or they can select one subject from another area (e.g. a language like English or German).

The student teachers can specialize in Danish language and mathematics at either primary or lower secondary level, although it is still possible to graduate as a comprehensive teacher for primary as well as lower secondary level students. Some unique features of the Danish teacher education include in-depth study of two or three subjects, broadness of the curriculum and integration between didactics, psychology, school subjects and teaching practice.

The admission requirements of the colleges of education are comparable to the admission requirements of the universities. The relative emphasis on theories regarding reading acquisition and teaching methods varies for the individual colleges. Student teachers have 24 weeks of practice teaching at different schools during the four years of training.

The teacher education in Denmark is a professional bachelor's degree.

6.2.5 *Teacher in-service*

Teacher in-service training is offered at university colleges. Participation in education is voluntary, and a limited number of courses are available. They range from stand-alone courses in different subject areas to further education diploma programmes. Usually, they are financed by either the school or the participating teachers themselves.

6.3 Initiatives in relation to the strongest and weakest students

In recent years, the Ministry of Education has paid great attention to negative social inheritance, mainly because the PISA studies are able to show correlations between, for instance, parents' educational background and the students' test results. Results from PISA cycles show that the students' different socioeconomic background gives educational inequality.

The Ministry of Education is focusing on negative social inheritance, as it is considered to play an important role for the students' results in the Danish schools. The government has therefore made several initiatives regarding "vulnerable" children in the attempt to reduce inequality among students. The focus areas are presented in a report from the Danish Gov-

ernment in 2006, “Equal opportunities for all children and youths” (Lige muligheder for alle børn og unge). The report focuses on different areas. Some of them will be elaborated below.

6.3.1 Evaluation

The Ministry of Education composes a standard test in selected subjects for certain class levels. The Ministry of Education determines in which subjects and class levels the tests should be conducted.

Since 2006 new standard tests have been used in the Folkeskole. The aim of the tests is continuous assessment, which makes it possible for the teacher to differentiate the teaching. The tests are based on information technology, they are self-scored (local teachers do not mark the tests, but get the results returned) and adaptive, which means they adapt to the individual student’s ability during the testing process. There are 10 compulsory tests:

- Reading (within the framework of the subject Danish) in grades 2, 4, 6 and 8
- Mathematics in grades 3 and 6
- English in grade 7
- Geography, biology and physics/chemistry in grade 8

Regarding the national testing and evaluation, the Ministry of Education developed a website (www.evaluering.uvm.dk) in 2007, which provides teachers with evaluation tools and guidelines in the evaluation process. Furthermore, teachers have an opportunity to exchange experience. The website also provides students and parents with information about the evaluation, which gives especially the parents an opportunity to understand the aim of the tests and evaluations.

The Ministry of Education has made another initiative to improve the teacher’s opportunities for evaluation by introducing the Individual Student Plan in 2006. Teachers are obliged to write an individual student plan for every student from preschool to grade 10. The individual student plan serves several purposes. The student plans are meant to strengthen the foundation of the educational planning and organization, support the

current evaluation of individual students and strengthen collaboration between home and school.

Parents are regularly summoned for meetings at the school.

6.3.2 *Second language instruction*

In the Danish Folkeskole, around 10 % of the students speak Danish as a second language. The Folkeskole offers instruction in Danish as a second language for the children who are unable to follow the same instruction as the rest of the class. Students who receive this teaching are included in the class and the second language instruction is viewed as a part of the ordinary instruction, but as a means to differentiate the teaching to meet individual needs. The aim of the second language instruction is to further develop the knowledge about the Danish language, both orally and in writing. Furthermore, the teaching aims to encourage the students to use Danish language.

6.3.3 *Absence among students*

One of the initiatives from the Ministry of Education is to decrease absence among students in the Folkeskole. Consequently, a national campaign against absence in the educational system is running in 2011.

The Folkeskole Act requires teachers to keep track of the reasons for students' absence. There are three possible types of absence: absence caused by sickness, absence by permission from the headmaster and illegal absence.

6.3.4 *Talented students*

In addition to the focus on negative social inheritance and vulnerable students, the Ministry of Education also focuses on talents in the Folkeskole. The focus on talents is supposed to encourage students to be involved in their schoolwork and legalize the fact that some students are elite students.

6.3.5 Teaching assistants

Teaching assistants are used in the Danish Folkeskole as a support for both the teacher in the class and students with special needs, so the teaching can be conducted as planned. A teaching assistant is mainly supposed to support students whose schooling is complicated (e.g. lack of help with homework at home or students with diagnoses). There are no specific demands on the assistants' educational background. An assistant can be a student teacher, pedagogue, have another education or be uneducated. The use of teaching assistants in the Danish schools varies greatly.

6.4 Emphasis on Danish initiatives of improving reading literacy

Denmark has a national policy on reading which is written into the Common Aims (Fælles Mål). The introduction of the Common Aims in 2003 seems to be a milestone in Danish schools as the goals no longer constituted recommendations for the municipalities, but binding national goals for every national school to follow. The Common Aims contain common written, binding guidelines and recommendations for the teaching of every subject at different grade levels. The local schools and municipalities may develop their own reading policy in addition to the nationally required goals. This means that only the goals, and not the specific decisions regarding content and teaching materials, are centrally defined. Consequently, there are a variety of different school practices around Denmark.

The teaching of the Danish language includes reading instruction and focuses on the following main areas: oral language proficiency, reading and writing skills, awareness of language, literature and communication. To improve the Danish students' reading skills in grades 1–3, the Danish government decided in 2006 to increase the amount of Danish language lessons. Danish language instruction is considered a single unit from grades 1 to 10.

6.4.1 *National curriculum on reading*

The guidelines for grades 1–2 emphasize the importance of learning letter names, shapes and sounds; discovering the relationship between pictures and text, reading alone and with a partner, reading books in print and on the computer as well as reading simple texts aloud to the teacher and other students.

The guidelines for grades 3–4 stress working with reading comprehension, consolidating decoding skills and gradually improving the reading speed. Students practice their reading proficiency by reading literary and informational texts, which increase their awareness of the requirements of different reading purposes. By reading often and by reading a variety of texts, the students' enjoyment of reading is considered to be strengthened. Furthermore, the development of reading and writing are regarded as supplementing each other.

After fourth grade students are expected to be able to use tools such as underlining and making summary reports. They are expected to be able to read both literary and informal texts with good comprehension and master different search strategies. Furthermore, the students are expected to be able to read easy Swedish and Norwegian texts.

6.4.2 *Reading instruction and materials*

The Ministry of Education prescribes the minimum hours of instruction, but the Ministry does not decide exactly how many hours are spent on elementary reading itself. Consequently, the individual teacher is entrusted with freedom and flexibility to organize the instruction. Reading is mainly the responsibility of the language instruction teachers. However, there is a growing awareness of the fact that reading instruction must be strengthened. Consequently, focus on reading in all subjects is required.

The schools choose which materials to use. Some schools use published materials while other schools develop their own.

6.4.3 Use of technology

The use of technology is of high priority in the Danish Folkeskole. As soon as the students are confident with handwriting, computers gradually become part of the instruction as well. The use of computers is seen as a tool for differentiated teaching, since it allows the teacher to adjust the level of difficulty in the different assignments.

6.4.4 The National Research Centre of Reading

The National Research Centre of Reading (Nationalt Videncenter for Læsning) was established to develop the knowledge on reading, mainly to improve the practice in the Danish schools. The Research Centre is addressed to all trade groups concerning reading, writing and oral language (e.g. teachers, pedagogies in kindergartens, teacher students and researchers).

6.5 Initiatives according to reading disabilities

6.5.1 Diagnostic testing

The Ministry of Education requires a compulsory linguistic screening of every child in preschool to measure the individual linguistic skills the child possesses. The screening makes it possible for teaching to be planned individually.

In 2010, the Ministry of Education required a compulsory screening of kindergarten children who are supposedly in need of linguistic stimulation.

6.5.2 Instruction for children with reading disabilities

If a student encounters reading difficulties, the priority is always the lowest degree of intervention. The student is usually supported in the classroom by a remedial teacher. If the support from the remedial teacher is not sufficient, the next step is instruction at the school's reading clinic (if a reading clinic is established). However, the student may be included in the ordinary classroom instruction except from Danish language instruction.

The support aims to provide structured and explicit instruction in decoding and comprehension for the students encountering reading disabilities.

6.5.3 *Reading specialists and reading instructors*

The focus on improving reading skills means that most municipalities employ reading specialists, called reading consultants, who play a key role in coordinating the reading and literacy strategy of the entire municipality. Reading consultants render assistance to the language instruction teachers and other teachers at municipal schools on reading assessments, methods on reading instruction and guides on materials. Reading consultants are responsible for the development of knowledge on reading by disseminating recent reading research to teaching staff and by motivating and engaging the staff in reading initiatives. Moreover, reading consultants are responsible for monitoring the reading level at municipal schools yearly.

In some schools a new type of reading specialist, called a reading instructor (læsevejleder), has been employed. Reading instructors work at school level, which means their work is similar in nature to the reading consultants but restricted in focus to the individual schools. Some municipalities aim to have reading instructors at every school.

6.5.4 *Special needs education*

The teachers are responsible for recommending special education to the students. The educational psychological centre may be asked to assess students and propose initiatives. The school principal is responsible for taking action on these suggestions.

In larger municipalities, students with dyslexia are offered to attend special classes. Specially trained teachers run these classes. Often the student has to leave the district school and attend a special class, which usually includes five to seven other students requiring special education.

6.6 Time line on school policy in Denmark 1990–2010

1991

Denmark participated in an international survey conducted by IEA.

The 1991, reading literacy test was designed to measure reading achievements. Students from grades 3 and 8 participated.

Denmark's results were insufficient; especially students from grade 3 had inadequate reading literacy skills. The results were shocking, as Denmark was in the bottom of the 32 countries participating.

1993

The Danish Folkeskole Act was reformed, which primarily entailed that the teachers were to consider the class as a whole. The instruction was no longer ability grouped.

Focus areas:

1. *Teaching differentiation* was seen as the basic principle for teaching in the Folkeskole
2. *Evaluation* was a part of the differentiated instruction
3. *Project Report* was implemented as a compulsory part of the instruction in grades 9–10 in 1996/1997
4. *Teamwork* was another area of focus, as the teachers were to plan their instruction as a team. The new Act was a break with standardized teaching
5. *Foreign language instruction* was strengthened while English language instruction began in fourth grade instead of fifth grade. Furthermore, the schools were given the opportunity to provide French language instruction from seventh grade
6. *A practical/art dimension* was required in the instruction as well

1994

Compulsory number of teaching lessons increases from 24 to 25 in grades 8 and 9.

1995

The Ministry of Education chooses reading as a focus area in the school years 1995/1996 and 1996/1997 and named the focus area Project Effort on Reading (Projekt Læseindsats). The project indicated that the quality of reading instruction is seen as particularly connected to the teachers' involvement, their knowledge on reading, ability to plan and accomplish the instruction and the support of the parents.

1996

Bilingual preschool children are offered support to promote their linguistic development. Furthermore, the municipalities are required to offer Danish as second language instruction for children in kindergarten class and grades 1–10.

1998

The Folkeskole year 2000 (F2000) was a programme conducted by the Ministry of Education, Department of the Folkeskole, National Association of Municipalities and Danish Teacher Association in 1998–2000, which aimed to implement the visions from 1993.

The programme demanded the municipalities to take responsibility for the development on the municipal schools. Furthermore, the programme aimed to make schools responsible for the quality of their practice and promote the culture of evaluation.

Initiatives regarding cooperation around the children were made, as the pedagogical institutions were required to enhance the connection between them. Likewise, parents were involved as the programme aimed to improve the cooperation between home and school. Parents were encouraged to participate in meetings arranged by the schools.

A reading assessment, like the assessment in 1991, was conducted, which showed that the students in third grade had improved their reading skills. Grade 8 students, on the other hand, performed worse than in 1991.

1999

The *Danish Reading* project (Danlæs) is a research project in effective reading practices beginning in 1999 and ending 2007. Through interviews, questionnaires and current assessment reading skills, the survey

has demonstrated a number of different factors that advance and/or impede the progression of reading in schools.

2000

Denmark participated in the PISA survey with insufficient results. The Danish students scored below the OECD average in science and reading, but above the OECD average in mathematics.

2003

The introduction of the Common Aims in 2003 had great influence on the Folkeskole. The Common Aims (Fælles Mål) contained the common written, binding guidelines and recommendations for the teaching of every subject at different grade levels, which all national schools were required to follow. The aims are considered a help for the teachers in planning their instruction and in connection to evaluation.

Furthermore, teaching plans were required. Teaching plans contain six categories: description, aim, intermediate and final achievement goal, specification and syllabus.

Denmark participated in the PISA survey. As in 2000, the Danish students scored below the OECD average in reading and science, but above the OECD average in mathematics.

2005

Students can choose schools freely. However, the municipalities are allowed to move bilingual children from one school to another to prevent a high concentration of bilingual children in certain schools.

All bilingual children aged 3–6 years must receive Danish instruction.

2006

The number of lessons in Danish was increased in grades 1–3.

A new grading scale was implemented. The grading scale contains two grades for failing and five grades of passing, 12 being the top mark.

The Ministry of Education composes a standard test in selected subjects for certain class levels. The aim of the tests is continuous assessment of the students' skills in mathematics, reading, English, geography, biology and physics/chemistry.

In 2006, Denmark participated in the PISA survey. The students scored around the OECD average in reading and science and above the OECD average in mathematics.

2006/2007

Teachers are required to compose student plans for every child in kindergarten class and grades 1–10. The student plans are meant to strengthen the foundation of the educational planning and organization, support the current evaluation of the individual students and strengthen collaboration between home and school.

Establishment of the website of evaluation; www.evaluering.uvm.dk

2007

The Ministry of Education requires a leaving exam in reading in addition to the written exam in the subject Danish language.

2008

Kindergarten class is compulsory from now on, which increases the compulsory education from 9 to 10 years. Furthermore, linguistic screening of children in kindergarten class is compulsory.

2009

In 2009, a review on the Common Aims from 2003 was made which prompted changes in the intermediate and final goals of the subjects. Especially the goals for reading, mathematics, natural science and English were strengthened. The goals were no longer recommendations, but binding goals for the schools to follow.

Focus on differentiated teaching, evaluation, special education, bilingual students, reading and cross-curricular teamwork was emphasised.

The focus on reading covers all subjects, which means all teachers are from now on responsible for the students' development of reading literacy.

Denmark participated in the PISA survey. The Danish students scored around the OECD average in reading and science and above the OECD average in mathematics.

2010

The maximum number of daily lessons in grades 1–3 increases from six to seven.

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6.7 Faroe Islands

6.7.1 Language

Faroese is the official language in the Faroe Islands. However, Danish can be used in all official contexts. Faroese is the language of instruction in all Faroese schools.

Foreign language instruction includes Danish from third grade and English from fourth grade. German is taught from grade 8.

6.8 Overview of the education system

The main authority of the Faroese education system is the Ministry of Education (Mentamálaráðið), which is responsible for the overall content, goals and quality in education at all levels.

Public primary and lower secondary schools constitute one coherent school system in the Faroe Islands called Fólkaskúlin. The Fólkaskúli Act,

formulated by the Faroese Ministry of Education, centrally regulates the Fólkaskúli.

The municipalities and the school board are responsible for inspections of the local schools. However, the Ministry of Education do some inspections as well.

Municipalities are responsible for how the individual schools are to function in practice within the framework of the Fólkaskúli Act. Municipal authorities are responsible for providing school premises, such as instructional material and information technology as well as initiate renovation projects and new buildings. The local municipalities differ with regard to population and tax receipts, and consequently school buildings and their facilities vary a great deal. In recent years, the local authorities have initiated major renovation work on school buildings and several new buildings have been constructed.

Even though local schools in the different municipalities have common goals and provisions, it is still possible for the individual schools to have a unique focus. Public schooling is free of charge in the Faroe Islands.

6.8.1 *Pre-primary education*

The municipal authorities are responsible for providing day-care for children from the age of six months until six years, or when the child enters kindergarten class. However, most children, below the age of 1 year, are taken care of at home by one of the parents on maternity leave. The municipalities offer day-care in either kindergarten or family day-care in private homes.

Whether the institution composes an educational plan for the pedagogical practice is optional. Institutions use TRAS screenings to measure children's linguistic skills at the age of five.

6.8.2 *Structure of the education system*

Pre-primary education is optional in the Faroe Islands. Pre-primary education (forskúli) is only offered at four public schools.

Children begin school at the age of seven in first grade. The Faroe Islands have nine years of compulsory school and a tenth year, which is

optional. The Faroese Fólkaskúli includes primary education, grades 1–6, lower secondary education, grades 7–9, and a tenth optional year. The students are not grouped after ability or interests, which means there is no streaming. When a child enters first grade, he/she normally receives education in all subjects together with the same classmates throughout the nine or ten years of school life. However, the students have a certain freedom of choice regarding the combination of subjects. Age groups define the different grades, and retention is almost non-existent.

The tenth optional year the students are free to decide which and how many subjects they are attending. Furthermore, the students can choose whether they want to take a formal exam or not.

After the compulsory education students have different opportunities for further education. Students can attend an academic or vocational education or a combination of both. All students above the age of 18, who are enrolled in upper secondary education or further education, receive a monthly grant from the Government to ensure equal opportunity for all students.

The Faroe Islands have a large number of public schools compared to the number of students enrolled. This means there are 52 schools and around 6900 students in grades 1–10. The number of students in the Faroese schools varies from one student in one school to approximately 550 students in the largest school. Students from the smallest schools are often associated with the larger schools and classes.

Besides the public Fólkaskúli, the Faroe Islands have three private schools. Two of them are religiously oriented and the third is based on American pedagogical principles. As the private schools do not have capacity for all grades, these students must attend public school in the last years of compulsory education.

6.8.3 Examinations

Students take formal examinations at the end of ninth grade to obtain the Leaving Certificate.

The examinations include four written assignments in Faroese, Danish, Mathematics and English. The Ministry of Education develops the written exams.

Subjects for the oral examinations are chosen by the Faroese Ministry of Education and vary from year to year. The teachers conduct the oral examinations and decide the content of the different themes within the certain subject. The Ministry of Education chooses the external examiners.

Students taking formal examinations in tenth grade obtain the Advanced Leaving Certificate of the Fólkaskúli. These students take written exams in the same subjects as in ninth grade, and the Ministry of Education decides the subjects for oral examinations.

6.8.4 *Teachers and teacher education*

Since 2008, the teacher education in the Faroe Islands has been a part of the University of the Faroe Islands. The teacher education lasts four years. After three years the students attain a bachelor's degree, the fourth year they choose to take either the "diploma" education, which allows them to teach, or they can choose to take a two-year master's degree. However, the students' opportunity to choose depends on their former choices during their education.

6.8.5 *Teacher in-service education*

NÁM (national learning centre) offers every year different courses the teachers can attend. Two compulsory courses are established in 2011. The two courses thematises reading and interactive boards. Apart from the two compulsory courses, NÁM offers another 20 optional courses. Unfortunately, the economic circumstances at some of the schools prevent many teachers from participating.

6.9 Initiatives in relation to the strongest and the weakest students

6.9.1 Evaluation

The Faroese schools are required to conduct national tests in grades 4 and 6. The subjects being tested are mathematics, Faroese and natural science. The Ministry of Education is responsible for developing the tests.

6.10 Emphasis on the Faroese initiatives of improving reading literacy

6.10.1 National curriculum on reading

Currently, there is not a national curriculum on reading. However, in August 2011 the national curriculum was reformed, which means that Faroese schools will get a national curriculum on reading.

6.10.2 Reading instruction and materials

The Ministry of Education prescribes the minimum hours of instruction per week, but the Ministry does not decide exactly how many lessons are spent on elementary reading itself. Reading instruction is seen as a part of the regular instruction. However, Faroese and Danish language instruction pay special attention to improving literacy skills.

The majority of the schools have different reading projects for all grades.

6.10.3 Use of technology

In Faroese schools the use of information technology has a high priority. In recent years, the government has granted financial resources for computers and other instructional tools. The latest initiative is interactive boards that will be used at all schools in the Faroe Islands.

6.10.4 NÁM

The National Learning Centre, NÁM, is a merger of textbook publishers, the IT Centre and the centre of instructional materials. The National Learning Centre was established to unify the educational expertise and strengthen the production of educational material. Furthermore, the centre is responsible for in-service training of teachers.

6.11 Initiatives according to reading disabilities

6.11.1 *Reading instructors*

Schools can receive guidance from a reading instructor. The larger schools have reading instructors on the schools with whom the smaller schools cooperate.

The reading instructor function is a fairly new profession in the Faroese Islands. Consequently, only a few have finished the education. It is expected that reading instructors will be used to a greater extend the next few years.

6.11.2 *Diagnostic testing*

Linguistic screening is being used when children start school. The screening measures the individual linguistic skills the child possesses.

6.11.3 *Special needs education*

The Educational Psychological Centre assesses the students' learning outcome and decides if the students need special education. The Educational Psychological Centre has four offices across the Faroese Islands to support the local schools.

The Faroese Islands have one school for very disabled children. Additionally, there are classes for special education at the larger schools. The classes are for children with different diagnoses e.g. ADHD and autism.

6.12 Time line 1990–2010

6.12.1 Introduction

In 1978, the Fólkaskúli was transferred from Danish authorities to Faroese, and the Faroese Government became responsible for primary and lower secondary education.

The content of Fólkaskúlin was until then composed of general guidance/directions, and the Faroese education system was regulated by the Danish Folkeskole Act.

In 1978, a Faroese school administration was established and it became the responsible authority for the Fólkaskúli in the Faroe Islands.

1993

First guiding Faroese curricula for grades 1–10 was composed.

1997

The Fólkaskúli Act was reformed. The Fólkaskúli Act was very similar to the Danish Folkeskole Act.

Compulsory education was increased from seven to nine years. Almost 96 % of the students were attending grades 8 and 9 after all.

1998

The committee's report on use of information technology was implemented. The municipalities received financial support to be able to acquire equipment for the teaching.

2003

A development plan for the schools was composed. The intension of the Faroese Ministry of Education was to make every school reflect on the development of the schools and the teaching practice.

2005

The Faroe Islands participated in the PISA survey for the first time. The students' performance level was much below the OECD average, which were unexpected results. The PISA committee composed recommendations for further work in the Faroese Fólkaskúli. The recommendations

were followed and the PISA survey has had great influence on political initiatives in the Faroese educational system.

The Ministry of Education employs the principals, and the principals employ the teachers for the individual schools. The Ministry of Education is still responsible for the salary of both principals and teachers.

2006

The Ministry of Education aimed to strengthen the students' competences.

One of the changes concerned first to third grade, as the number of teaching lessons in mother tongue was increased from seven to eleven lessons a week each of the three years. The aim was to improve the students' literacy skills. The number of lessons in mathematics was increased as well.

The Education Act was reformed in relation to national tests. Every year, the Faroese Ministry of Education carries out national tests in the subjects Faroese language, mathematics and natural science in grades 4 and 6.

2008

Teachers are able to specialize in three different directions:

1. Reading instruction
2. Special needs instruction
3. Dyslexic instruction

The Faroese University is responsible for supplementary education of the teachers in the three directions.

2009

The TALIS survey of the teachers in the Fólkaskúli was conducted.

2011

Curricula for compulsory education as well as upper secondary education and vocational education are reformed. The aim is to have a continuous learning progression in and between the different school levels.

Some of the changes include:

1. Curriculum no longer includes recommendations, but binding goals for the schools to follow. The curricula are goal oriented
2. Grade objectives in grades 2, 4, and 6
3. Final objectives for grades 8 and 9
4. Focus on basic skills to improve the students' creativity, social skills and verbal expression, for example by working on presentations in front of the class
5. New grading scale is implemented, seven grades scale. Two grades for failing, and five different grades of passing, 12 being the top grade
6. National curriculum on reading

The reformed curriculum for the Fólkaskúli is implemented from grade 1 to grade 8 in August 2011, and the reformed curriculum for upper secondary education and vocational education will be implemented in August 2012.

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6.13.1 Language

Finnish and Swedish are the official school languages in educational institutions at all levels. Saami is offered as language of instruction in a few educational institutions.

Other languages of instruction are German, English, Russian and French. All schools are supposed to offer foreign language instruction typically from grade 3, but the municipalities are free to decide which language is taught and the instruction can begin from grade 1. English is most often chosen as the A-language.

6.14 Overview of the education system

The actual education is governed by Education Acts and Decrees and by the Government Decrees on General National Objectives and Distribu-

tion of Lesson Hours. These acts establish the common educational goals, the principles according to which education must be provide, and matters such as the core subjects taught to all students as well as the allocation of teaching hours to the individual subjects.

The Finnish National Board of Education determines the national core curriculum, which includes the objectives and core contents of different subjects, as well as the principles of student assessment, special-needs education, student welfare and educational guidance.

Furthermore, the principles of a good learning environment, working approaches and the concept of learning are addressed in the core curriculum.

Local education authorities and local schools draw up their own curricula for pre-primary and basic education within the framework of the national core curriculum.

Education providers are responsible for self-evaluation of the education they provide and they are expected to participate in national and international evaluations. The Education Evaluation Council has been cooperating with the Ministry of Education and Culture since 2003. They are responsible for planning, coordinating, managing and developing the evaluation of basic education. However, the Finnish National Board of Education is responsible for measuring the learning outcomes.

6.14.1 *Pre-primary education*

Ministry of Social Affairs and Health hold the overall responsibility for the development, quality and legislation of kindergartens and family day-care centres in Finland. The municipalities are responsible for ensuring that kindergartens and family day-care centres plan their work within the framework of the maintaining legislation and curriculum.

Day-care is a combination of care and education to strengthen children's development. Children can attend day-care full-time or part-time.

Pre-primary education is available free of charge for children one year before they begin compulsory schooling. Its aim is to develop children's learning skills as part of early childhood education and care.

Local authorities have statutory duty to arrange pre-primary education, but the children's participation is voluntary and decided by parents. About 96 % of the six-year olds attend pre-primary school. Pre-primary

instructors have either obtained kindergarten teacher qualification or class teacher qualification.

Pre-primary education emphasizes preparation for school. The Finnish National Board of Education defines the core curriculum for pre-primary education. Each education provider is obliged to draft a local curriculum based on the national core curriculum. Each pre-primary education provider decides on the timetables of pre-primary education, such as the number of working days, the start and end dates of instruction and other practical arrangements. However, there is a maximum of 4 hours per day.

6.14.2 Structure of the education system

Compulsory school begins the year a child turns seven. A child may be allowed to begin compulsory education one year earlier than stipulated if psychological and medical examinations show that the child has the aptitude for coping at school. However, a student may also attend compulsory school a year later, which is also decided on the basis of psychological and medical examinations.

Basic education in Finland encompasses nine years and caters for all children between 7 and 16 years. With the exception of very few schools, schools do not select their students. This means every student can go to the school of his or her own school district, but some may choose a school outside the district for example if they have special interest in music. Students are neither channeled nor streamed to different schools.

A class receives instruction in all subjects from the same teacher the first six years of basic school, i.e. grades 1–6. The last three years of basic school, grades 7–9, the instruction is provided by teachers specialized in the different subjects. However, some teachers obtain a “double qualification” that qualifies them to work as class teacher and teach some subjects in grades 7–9.

Textbooks and other materials, tools, as well as school health care are free of charge and students are offered a free daily meal.

Young people who have completed their compulsory schooling can opt for one extra year. This voluntary education is intended to help and encourage young people to continue their studies at the upper secondary

level. The voluntary year gives the students a chance to improve their school-leaving certificate.

The majority of schools offering basic education are municipal, which means private schools and schools owned by the state only constitute 2 %.

Students who have successfully completed compulsory education are eligible for general and vocational upper secondary education and training. Practically all students acquire the leaving certificate at the end of basic education, and 96 % of the students continue to upper secondary education. The Finnish students are offered two types of upper secondary education: upper secondary general education and upper secondary vocational education and training, which they are can attend from the age of 16.

6.14.3 Examinations

Finland does not have a final examination for the graduating students as in some Nordic countries. In Finland the teachers assess the students during compulsory school, and in the end of ninth grade the teachers must make a final assessment of the students in all subjects. The task of the final assessment is to define how well the student has achieved the objectives of the basic education curricula in the different subjects.

The final assessment must be nationally comparable and treat students equally.

6.15 Teachers and teacher education

The teacher education is divided in two main tracks: class teachers who mainly work in grades 1–6 at primary level, and subject teachers who mainly work in grade 7–9 at lower secondary level. University departments of teacher education provide teacher educations for both tracks.

In 1995, training of kindergarten teachers was transferred entirely to universities as well.

Each teacher education unit has teacher training schools for teaching practice, experiments, research and continuing education. Teacher educations are offered at separate universities. However, some universities offer teacher education for all grades, including the pre-primary level.

The length of the kindergarten teacher education is three to five years and the class teacher education is five years. Class teachers studying at a relevant faculty can apply for subject teacher education. The teacher education is responsible for providing pedagogical studies, whereas the subject departments of different faculties provide education in the different subjects. The length of the subject teacher education is five to six years. The class teacher and subject teacher educations are Master's degrees.

6.15.1 *Teacher in-service training*

In Finland there is no law governing Continuing Professional Development (CPD), which means the obligation to participate in CPD is partly defined in collective agreements. The collective agreements oblige teachers to take part in CPD for one to five days. Local administrations are free to decide which programmes and forms can be accepted as CPD. In 2009, 77 % of the teachers of basic education participated in such educational programmes.

6.16 Initiatives in proportion to the strongest and weakest students

6.16.1 *Evaluation*

Assessment is an ongoing part of daily school life in Finland. Students are given reports at the end of each school year, and students may be given additional intermediate reports during the school year. In the first seven grades of compulsory school, report assessments may be given either verbally or numerically or in a combination of the two. However, after third grade the most common form of report is numerical.

Later assessment must be numerical, but can be verbally complemented. By using verbal assessment in reports, the teacher can also describe the student's progress and learning process in different areas of the subject.

Numerical assessment, scale 4–10, only describes the level of performance in relation to the objectives of the curriculum. The mark 4 on the scale is failed performance, whereas 5 is adequate, 6 moderate, 7 satisfactory, 8 good, 9 very good and 10 shows excellent knowledge and skills.

The assessment given in reports must be based on a diversity of evidence, not only exams.

Students' progress, work skills and behaviour are assessed in relation to the objectives of the curriculum.

The learning outcomes are also measured at a national level, as the Ministry of Education and Culture, in cooperation with the National Board of Education, constructs a plan for a period of four years. The plan determines which subjects and grades are assessed. Stratified random sample-based surveys, tests and/or national statistical sources are used to evaluate learning outcomes. Mathematics and mother tongue are assessed approximately every second year, and the tests are conducted in approximately 120 schools (approximately 5000 students).

The tests are produced in Swedish and Finnish, as well as Sami if needed.

Teachers are responsible for composing a learning plan. The learning plan includes the student's study programme and decides how the objectives of the curriculum are to be achieved. The learning plan also describes special need education if relevant.

For the students the purpose of the learning plan is to learn to gradually take more responsibility for his or her studies, commitment to them and be more focused in his or her learning. Furthermore, the learning plan aims to make differentiated instruction possible and help the school and teacher to ensure that the student gets the best chance of learning and progressing academically. The learning plan can be used as a basis for evaluation on the student's progress.

6.16.2 *Second language instruction*

A young immigrant of compulsory school age (aged 7–17) permanently residing in Finland has the right to the same basic education as Finns. For students with another mother tongue than Finnish or Swedish the schools offer Finnish/Swedish as a second language, which is a special education for bilingual students. Students can also be taught in their mother tongue.

Bilingual students have the right to receive education in their religion as well, if there are three other students from the same religion on the school.

6.16.3 *Teaching assistants*

Finnish schools are provided with two different types of teaching assistants. The teaching assistants are used for children with physical and mental disabilities who need support during the teaching. The teaching assistants are also used as support in a regular class as an extra resource, and they are mainly used on larger schools.

Teaching assistants are employed as apprentices the first year they work at the Finnish schools.

6.17 Development Plan 2007–2012

Every four years the Finnish Government adopts a development plan for education and research. The areas relevant for basic education are elaborated below.

6.17.1 *Equal opportunities in education and training*

The Government aims to secure equal opportunities for quality education from early childhood to university throughout the country. Finland strives to raise the population's education and knowledge level close to the world top.

Furthermore, the Government aims to level out gender differences and differences between regions and age groups.

6.17.2 *Quality of education and training*

As the attitudes, knowledge and skills acquired in basic education provide the basis for future learning, the Government finds it particularly important to ensure a high quality of basic education. Consequently, the Government prioritizes to reduce group sizes and reinforce remedial teaching and special needs education. Furthermore, the Government wishes to increase the focus on children's wellbeing.

6.17.3 Teachers as a resource

The Finnish Government finds it impossible to raise the level of education and the quality of education and training without highly competent teaching staff. Consequently, the Government wishes to improve teachers' working conditions and improve teachers' opportunities for systematic competence upgrading.

6.18 Emphasis on Finnish initiatives of improving reading literacy

6.18.1 National curriculum on reading

The curriculum on reading is related to the students' mother tongue, and the curriculum described in the following is for students with Finnish as their mother tongue.

The key task of mother tongue and literature instruction in first and second grade is to continue the language learning that has begun at home and in early, especially pre-primary, education. The instruction must consist of comprehensive oral and written communication that is connected with the students' daily life, encompass all areas of language and support the students' personal language learning. The instruction must make allowance for the fact that the students may be at very different stages of their learning processes.

In grades 3–5, the main goal of instruction in mother tongue and literature is to learn fundamental skills in the given language. The objectives of the instruction are to learn fluent reading and writing techniques, a deepening of reading comprehension and the argumentation of information acquisition skills. The student is guided in listening to, speaking, reading and writing various types of texts.

In grades 6–9, the core task of instruction in mother tongue and literature is to broaden the student's text skills from those needed in the immediate environment to the requirements of both the standard language and types of text that are new to the student. The students are expected to improve as text analysts and critical interpreters and should be able to produce the necessary texts in different types of communication situa-

tions. The task of the instruction is to encourage the student to read and evaluate literature, including various media texts. The instruction guides students in acquiring a general knowledge of literature and motivates them to study language.

6.18.2 Reading instruction and instructional material

In Finland, reading is not taught as a separate subject during compulsory school. This means that reading and writing is a part of the mother tongue instruction.

The municipalities and schools are free to decide the materials of instruction. Consequently, there are no regulations on the choice of materials. However, the content of the materials is supposed to be framed by the national core curriculum.

6.18.3 Use of technology

The use of technology is seen as a part of basic education, which means it is integrated in the instruction in the various subjects. The use of technology is supposed to support the students' reading, writing and communication skills. Consequently, the use of technology is emphasized in the content and aims of the national core curriculum of the various subjects.

6.18.4 Reading Finland

Reading Finland was a priority project of the Finnish National Board of Education implemented in 2001–2004. The objectives of the project were to improve the reading and writing skills of students in basic and general upper secondary education and to increase their knowledge of literature.

Good reading skills are considered a means to prevent social exclusion, and they constitute the most significant factor in academic success.

The development project aimed to work with the following points.

- Raise the skills and knowledge of the weakest performing quartile
- Develop methodologies to increase reading among boys
- Improve methods for teaching writing skills

- Have pupils read more, both at school and in their leisure time
- Develop school libraries and increase collaboration between schools and municipal libraries
- Increase school visits of authors
- Increase cross-curricular activity in the areas specified in the project
- Improve deductive reading skills
- Bring all the teachers together to improve reading comprehension and writing skills
- Improve the methodological skills of primary teachers
- Familiarize teachers better with literature aimed at children and young people
- Strengthen cooperation between homes and schools to support reading and writing skills
- Develop the teaching of Finnish as a second language and the teaching of their mother tongue to immigrant children

6.19 Initiatives according to reading disabilities

6.19.1 *Reading specialists*

For children with reading disabilities the school offers a special needs teacher specialized in speech, reading and writing.

6.19.2 *Special needs education*

A student who has minor learning or adjustment difficulties is entitled to remedial teaching alongside regular education.

Students who cannot follow education owing to a disability, illness, delayed development or some other reason can be admitted or transferred to special needs education. Whenever possible, special needs education is integrated into, or given in, a special class associated with the regular education. Each student with special learning needs has an individual teaching and learning plan.

6.20 Time line on school policy in Finland 1990–2010

1991

Finland participated in an international survey conducted by IEA.

The 1991 reading literacy test was designed to measure reading achievement. Students from grades 3 and 8 participated.

Finland was the best performing country with highest score of both grade 3 and 8.

1994

This year the national core curriculum was reformed, which included decentralization. Consequently, more authority was delegated to municipalities and schools, as only broad guidelines were outlined in the national core curriculum.

School-based curricula became important, and teachers participated actively in the development of both the school and the municipal curriculum.

1995

Training of kindergarten teachers is transferred entirely to universities.

1998

The comprehensive reform of school legislation in 1998 and the new Basic Education Act aim to guarantee educational equality and equal educational services for anyone subject to compulsory education. The old disintegrated legislation based on institution forms was replaced by a more centralized legislation based on the objectives and contents of education, levels and forms of education and the rights and responsibilities of students.

1999

The Government presented the Development Plan, 1999–2004. The development plan emphasized the knowledge and skills that were supposed to result in equally distributed regional benefits and guarantee Finland's competitive potential internationally. All citizens are also guaranteed equal opportunities for a good education and general cultural development.

2000

National core curriculum for pre-primary education was reformed.

Finland participated in the PISA survey. Finland was placed as the best performing country in reading literacy, and the students were in top in mathematics and science as well.

2001

General National Objectives and Distribution of Lesson Hours was reformed.

Finnish National Board of Education implemented the project “Reading Finland”, which focused on improving reading and writing skills of students in basic and general upper secondary education. Furthermore, the project aimed to increase the students’ knowledge of literature.

2003

The Finnish Government presented the Development Plan, 2003–2008. One of the key concepts of the plan is equity. The government wants everyone to have equal rights to education and training irrespective of their abilities and special needs and personal development and irrespective of their financial means. Furthermore, the Government wants to improve the quality of the upper secondary schools. The aim was to decrease the dropout rate.

Finland participated in the PISA survey. Finland was placed as the best performing country in reading literacy, and the students were in top in mathematics, science and problem solving as well.

2004

This year the national core curriculum was reformed, which included centralization. The Finnish society was becoming more multicultural and heterogeneous, and an economic recession had worsened the economical situation of the municipalities, which also widened the educational gap between them. Consequently, the national core curriculum from 2004 contained stronger national guidelines for municipalities and schools.

In 2004, learning plans were implemented in the Finnish schools.

2006

Finland participated in the PISA survey. The students performed as second best country in reading literacy. Among the OECD countries, the Finnish students were best performers in mathematics and science.

2007

The Finnish Government presented the five-year Development Plan for Education and Research. The plan for 2007–2012 is:

- Equal education opportunities
- High quality education and research
- Access to skilled labour
- Higher education development
- Competences of the teaching staff.

2009

Finland participated in the PISA survey. Regarding to reading literacy, Finland was placed as second best among the OECD countries and third best among all participating countries. In comparison to the previous PISA survey, the students' score points were decreased.

2010

National core curriculum for pre-primary education was reformed.

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6.21 Iceland

6.21.1 Language

Icelandic is the official language of Iceland. The language evolved from Old Norse and belongs to the northern branch of the Germanic languages. The Icelandic language is used in all aspects of daily life in Iceland, including the Government, schools, business and mass media. Second languages in primary schools include Danish, beginning in eighth grade and English beginning in fifth grade.

6.22 Overview of the education system

The Icelandic parliament is legally and politically responsible for the educational system. All education comes under the jurisdiction of the Ministry of Education, Science and Culture.

The Ministry of Education, Science and Culture acts as one unit and is divided into three Departments and four Offices. The department responsible for compulsory education is the Department of Education. The Department of Education handles educational matters at preschool, compulsory school and upper secondary school levels. It issues curricula for the above and is responsible for matters regarding continuing education. The department directs and takes part in preparing a general policy in these areas and supervises its implementation and handles general administrative affairs. Furthermore, the department has the initiative for development in innovation in education, including distance learning and publishing of teaching materials.

Local authorities hold the main responsibility for operating schools and implementing the Compulsory School Act. Municipalities are responsible for providing schools with educational services, such as special education advice and school psychologists.

6.22.1 *Pre-primary education*

Preschool is available for children from their 18th month. However, only 15 % of children are enrolled at that age. The number of children enrolled in preschool increases for children aged two-five, as about 92 % of that age group is enrolled in preschool.

The Ministry of Education, Science and Culture formulates the education policy for preschools, which is outlined in the National Curriculum Guide. The Curriculum Guide specifies the aims that preschools are to follow and describes the basic means and attitudes that apply in the education of young children. Preschools are not required to assess the performance or the progress of each child.

However, such an assessment is made by the preschool staff or specialists if any suspicion of deviation from normal development arises within the preschool period.

The majority of preschools are public and funded through the municipal budget and parental fees.

6.22.2 *Structure of the education system*

Compulsory school in Iceland begins the calendar year the child turns six and ends at the close of the spring term the year in which the child reaches the age of 16. Parents can apply or give permission for their child to begin schooling earlier or later than its peers.

Compulsory school encompasses grades 1–10, which means grades 1–7 are considered the primary grades and grades 8–10 are considered lower secondary. In 2007, there were 173 compulsory schools, mainly state run. Four of these were specialized schools for students with developmental problems or/and mental disabilities. Furthermore, there are seven private schools attended by 1 % of compulsory school students. Approximately 60 % of the Icelandic students are attending schools in Reykjavik or schools in the suburbs of Reykjavik.

Upper secondary education begins the year the student turns 16 and is typically completed the year the student turns 20. There are four main types of upper secondary schools in Iceland, which include Grammar schools, Industrial-vocational schools, Comprehensive schools and Specialized vocational schools.

Compulsory education and teaching materials are free of charge in Iceland.

6.22.3 Examinations

The nationally coordinated examinations at the end of compulsory schooling are optional. This means students can choose if and how many coordinated examinations they wish to take. Since 2002, students have been able to choose between the following subjects: Icelandic (including reading comprehension and spelling), mathematics, English, Danish (or Swedish or Norwegian), natural sciences and social sciences. The National Testing Institute develops, marks and organizes the tests. The marks range from 1–10, 10 being the highest. Students' scores are used when applying for upper secondary education.

At the end of compulsory school, all students receive a certificate stating their marks on both the nationally coordinated examinations and all other courses completed in the final year at school.

6.22.4 Teachers and teacher education

In Iceland there are three kinds of teachers' education: pre-primary, primary and lower secondary school teachers' education. The different kinds are: completion of the Matriculation Examination, training as a general teacher at the University of Education, the University of Akureyri or Iceland Academy of the Arts in a three-year program. Furthermore, it is possible to receive long distance training, which lasts four years.

To become a teacher at the lower secondary level special training is provided at the University of Iceland. The teachers' training lasts one year, and a bachelor's degree is required.

From August 2011, the teachers' education becomes a MA degree. This includes teachers in pre-primary, primary and lower secondary level. The teachers' education will last five years.

At primary level, the same teacher instructs a class in most subjects, whereas the teachers at lower secondary level teach one or more subjects to different classes.

Teachers are employed by the municipalities.

6.22.5 *Teacher in-service education*

Each year, teacher training institutions offer a variety of courses for in-service training. The courses include training and use of new material or teaching aids or enhancement of skills in computer science, syntax, grammar, music and classroom management. In-service training is considered an offer and is non-compulsory.

6.23 Initiatives in relation to the strongest and weakest students

6.23.1 *Evaluation*

Standardized national examinations are conducted in fourth and seventh grade in October. The examinations are intended to serve the following purposes:

- Evaluate to what extent the goals of the National Curriculum Guide have been reached
- Provide a guideline to determine which students need special education support
- Provide an overview of educational accomplishments for individual students, parents and schools
- Show how individual schools stand in relation to each other

The examinations (except the national examinations) and other forms of assessment are carried out by individual teachers and schools. Assessment is not standardized between the different schools and teachers. The way in which the reports on students' progress are compiled varies greatly. Consequently, the assessment could be in the form of a numerical or letter grade, or an oral or written commentary. Reports are given at regular intervals throughout the school year and at the end of each year. Students are automatically promoted to the next grade in primary school.

Only a few standardized reading tests have been used in the Icelandic schools. The tests are mainly used to identify reading difficulties and are administered to whole classes in first and second grade.

The law stipulates that each school is to introduce methods, which will make it possible to evaluate its own educational work. This evaluation must include, among other things, teaching and administration, communication within the school and relationships with external parties. Each school's methods of self-evaluation are to be assessed externally every five years.

6.23.2 *Second language instruction*

The schools offer Icelandic as a second language instruction for students who have insufficient Icelandic language skills. According to the National Curriculum Guide, second language instruction should be modified to the students' educational situation, as well as their linguistic and cultural background. Consequently, some students are exempted from studying different subjects or from taking national examinations. A special curriculum applies to these students, in which a final goal, intermediate goals and sub goals in reading and writing are defined.

6.24 Emphasis on Icelandic initiatives of improving reading literacy

The National Curriculum Guide defines and describes the common study objectives for compulsory schools as well as specifies the number of instructional hours for individual subjects, including reading and writing. For the first four years of primary school the curriculum emphasizes the importance of basic literacy and numeric skills.

6.24.1 *National Curriculum on reading*

Final objectives in reading and writing are outlined in the National Curriculum Guide. The final objectives should be reached by the end of compulsory school. Furthermore, the final objectives are divided into intermediate objectives, which should be reached by the end of grades 4, 7 and 10. The intermediate objectives are meant as guidelines for the instruction and are tested in the compulsory national examinations.

The instruction in grades 1–4 emphasizes basic training in reading and writing.

The goals related to mastering basic reading skills by the end of the fourth grade are elaborated below:

- Reading aloud and in silence at a reasonable speed
- Reading and understanding simple stories and poetry
- Understanding and using basic punctuation
- Reading Icelandic subtitles accompanying foreign material

The student will use reading skills for educational and entertainment purposes, including:

- Reading and understanding texts appropriate for their level
- Using books to gather information for assignments and projects
- Reading and following simple instructions

Furthermore, the students are supposed to obtain a positive attitude towards reading, which means the students will read on their own initiative.

For students ending compulsory education in grade 10, the goals include the following:

- Knowing necessary concepts and symbols regarding reading and grasping various types of reading
- Being interested in reading and having a positive attitude towards reading
- Realizing the importance of literacy in today's information-based society
- Using reading skills to acquire information
- Being familiar with reading texts on a computer monitor and on the Internet
- Reading texts critically
- Reading texts from various historical periods

6.24.2 Reading instruction and materials

Reading literacy is considered a basis for general education in Iceland. Consequently, 19 % of the instruction time during compulsory school is used on Icelandic. Students in grades 1–4 have six lessons per week in Icelandic language, and students in grades 5–10, have five lessons per week on Icelandic language.

The National Centre for Educational Materials provides schools with course materials and teaching aids. The centre provides a variety of teaching material consistent with the national curriculum, such as books, online material, videos and CDs. The majority of the publications are textbooks and workbooks in Icelandic.

Online educational materials increase every year as the government emphasizes the use of information technology in schools.

6.24.3 Use of technology

Information communication technology (ICT) is emphasized in the National Curriculum Guide as the basis for lifelong learning. The aim is that students become independent in their search for information in all kinds of media. In connection to reading instruction, ICT is used as a supplement to other methods. By the end of the fourth grade the students should be able to:

- Use computers to write their own text
- Read text on a screen with the same result as when reading a book
- Read hypertext
- Use educational software as a supplement in all subjects
- Make simple web pages
- Differentiate between literary text and informational text
- Search the Internet and a simple encyclopaedia

6.24.4 Reading specialists

Reading specialists play a minor role in the instruction in primary schools. General teachers receive reading instruction training during their education, and they are responsible for teaching literacy in primary schools.

Furthermore, special education teachers are responsible for special instruction, which includes teaching of students who have reading disabilities. Special education teachers are also capable of supervising general class teachers if necessary.

6.25 Initiatives according to reading disabilities

6.25.1 *Diagnostic testing*

It is fairly common for children beginning first grade to take a general screening test to identify if any of the students are likely to have learning difficulties. Additionally, only a few diagnostic tests are used in compulsory school. Most of the tests are used by special education teachers to diagnose reading difficulties and identify areas of teaching emphasis for individual students with serious reading difficulties.

Furthermore, the national examinations are sometimes used to identify students with reading disabilities that have not already been diagnosed.

6.25.2 *Special education*

Compulsory school students experiencing academic or social difficulties are offered a considerable amount of remedial instruction, once the students' academic difficulties have been diagnosed. This instruction can take place in two different ways; either the remedial teacher cooperates with the regular teacher in the classroom, where he or she assists the student, or the student is taken out of the classroom and tutored by the remedial teacher on an individual basis or in a small group. A number of schools also have special departments for students with severe learning disabilities.

6.26 Time line on school policy in Iceland 1990–2010

1991

Iceland participated in an international survey conducted by IEA.

The 1991 reading literacy test was designed to measure reading achievement. Students from grades 3 and 8 participated.

The Icelandic students performed above the OECD average.

The curriculum for compulsory education was reformed.

The education Act for compulsory school was reformed. Compulsory schooling was extended to ten years instead of nine, i.e. it became mandatory for all children to start school at the age of six. It also contained provisions for an increased measure of decentralization, more influence of parents and the introduction of school counselling.

A formal curriculum for teachers' education became effective. Earlier there were only guidelines for the teachers' education.

1994

The first national curriculum for pre-primary schools became effective.

1995

In 1995, legislation concerning compulsory schools was passed. In comparison with previous legislation, the greatest change meant that municipalities took over the operation of schools at the compulsory level.

1999

A new National Curriculum Guide was published at pre-primary, primary and secondary level. The new curriculum was very detailed and object-oriented. The curriculum included final goals, intermediate goals for grades 4, 7 and 10, and a number of objectives for all grades.

2000

Iceland participated in the PISA survey. The students' scores in mathematics and reading were above the OECD average, whereas the students' scores in science were around the OECD average.

2003

Iceland participated in the PISA survey. The students performed above the OECD average in mathematics, around the OECD average in reading and below the OECD average in science.

2006

Iceland participated in the PISA survey. The students performed below the OECD average in science and reading. In mathematics the students' score were above the OECD average.

2007

A new Act on compulsory school took effect. The changes included the following:

- The provision that the average duration of a teaching period shall be 40 minutes was removed. Provision was only made for minimum duration of weekly teaching, in minutes, and not in teaching periods.
- The mandated right of parents' committees to be heard was clarified, so that it extends to prospective major changes in school operations and activities.
- Special emphasis was placed upon the increased role of pupils in the work of the school, by legislation that each compulsory school shall have a pupils' board, whose role was expanded
- The head teachers are authorized to grant a pupil an exemption from compulsory education in a specified subject, and to recognize study outside compulsory school as equivalent to study in a compulsory subject.

The curriculum for compulsory school was reformed. The objectives for all grades were removed, and the final goals and intermediate goals were kept.

A fusion of the teachers' education institutions was made.

Three main institutions were established:

- University of Education
- University of Akureyri
- Academy of the Arts

2008

The Education Act for teachers' education, pre-primary school and compulsory school were renewed. After the economic crisis in Iceland a new government was chosen. The thought behind reforming the educational legislation was a new understanding of the Icelandic society.

A great emphasis is placed on the general well-being of students and the inclusion of all children in the school, irrespective of origin or handicap. At the same time, a framework was established to develop more individualized learning and greater flexibility for the student.

2009

Iceland participated in the PISA survey. The Icelandic students performed around the OECD average.

2011

The teachers' education becomes a master degree and lasts five years. The educations are more focused on the different subjects in which the teachers specialize.

The Education Act is reformed.

A new curriculum at preschool, primary and secondary level becomes effective in August.

The curriculum is introduced with an ideology on the fundamental principles of the education in Iceland. The objectives in the curriculum are seen as guidelines on how the subjects in different grades supplement the ideology.

The curriculum focuses on competence instead of knowledge and skills. Furthermore, the municipalities become more responsible for the local curriculum.

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6.28 Norway

6.28.1 *Language*

In Norway the main spoken language is Norwegian, which has a variety of dialects. Bokmaal is one of the official written forms of Norwegian and is written by more than 80 % of the Norwegians. Nynorsk or New Norwegian is the other official written form of Norwegian and is used by 13 % of the population. Both languages have been official nearly 100 years and both languages are taught in the Norwegian schools. Consequently, instructional materials must be available in both languages. In addition, Sami students have the right to be educated in their own language during compulsory school. English is taught from first grade.

In 2010–2012, the Norwegian Directorate for Education and Training has an innovation on foreign language instruction for grades 6–7. Some of the languages of instruction are German, French and Spanish.

6.29 Overview of the education system

The Ministry of Education and Research (Kunnskapsdepartementet) is responsible for the Norwegian school system including pre-primary education. Individual municipalities are responsible for managing pre-primary, primary and lower secondary schools, whereas the county authorities are responsible for the upper secondary schools.

In 2004, as an executive agency for the Ministry of Education and Research, the Directory of Education and Training was established. The Directorate is responsible for developing primary and secondary education, which includes responsibility for supervising education and the governance of the education sector. Furthermore, the Directorate is responsible for the implementation of acts and regulations as well as managing Norwegian Support System of Special Education, state-owned schools and the educational direction of the National Education Centres.

Norway has a centralized curriculum for all subjects, grades 1–13. The curriculum is approved by the parliament based on a process initiated by the Ministry of Education in which expert groups develop proposals fol-

lowed by a hearing among teachers, teacher educators and various institutions. Within the framework set by the curriculum, considerable freedom is given to local schools and teachers to make decisions on organization and instructional methods.

6.29.1 *Pre-primary education*

Kindergarten or pre-primary school (barnehage) is voluntary in Norway and is not free. The Ministry of Education and Research is responsible for preschool education. In preschool there is a focus on the linguistic competence of the children. Consequently, children with linguistic difficulties are supposed to receive help at an early stage.

The Government strive for all preschool children to attend kindergarten. The number of children receiving pre-primary education is increasing, which means about 88 % of all children, from one to five years, attended kindergarten in 2009. Out of the 270,200 children, 25,000 have Norwegian, Sami, English, Swedish or Danish as their mother tongue. The attendance rate in kindergarten is lower for the younger children and rises as they get older.

6.29.2 *Structure of the education system*

The Norwegian children have a legal right to 13 years of education. The first ten years of schooling are compulsory and free in Norway. Children enter first grade the calendar year they turn six years and finish their compulsory education in grade 10, the calendar year they turn 16. The next three years of education, grades 11–13, are non-compulsory. However, the Ministry of Education and Research focuses on increasing the attendance rate.

Compulsory education in Norway includes primary level, grades 1–7, followed by the lower secondary level, grades 8–10. Together, the two stages constitute basic school.

The majority of students attend the additional and non-compulsory three years at upper secondary level, grades 11–13. The students take certain basic subjects and choose between a variety of vocational and general study programmes that qualify for tertiary studies.

About 2 % of the students attend private schools during basic schooling. The number is slightly higher at the upper secondary level.

6.29.3 Examinations

Assessments in grades 1–7 do not involve marks. The use of marks is introduced at the lower secondary level, beginning in grade 8 in the form of a 6–1 scale, 6 being the top mark.

At the end of basic school in grade 10, students receive an overall mark in every subject set by the subject teacher in cooperation with the headmaster. Furthermore, the students are selected to take a written exam either in English, mathematics or Norwegian. The examination papers are prepared centrally and the students are informed about their subject only a few days beforehand. The written exam is set and graded at a national level. Students may also be selected to take an oral examination that is prepared and graded locally.

6.30 Teacher and teacher's education

The teacher education in Norway exists in two basic types. One is at University College, which is a general teacher education that lasts four years, and the other type of education is offered at University, which are subject teacher educations. The four years of education at University include one year of teacher training and practice.

In 2010, a new teacher training programme for compulsory school-teachers was introduced. Student teachers will either chose a course of studies that qualifies them to teach grades 1–7, or they may select a course of studies that qualifies them to teach grades 5–10.

Teachers qualified to teach preschool are also allowed to teach in grades 1–4, if they complete an additional year of teacher training.

Teachers with a university education only have permission to teach the subjects they have studied. Consequently, they are often employed as subject teachers at the lower secondary level. In upper secondary school all teachers are subject specialists. The academic or vocational subjects

each teacher is qualified to teach will determine the school and the type of class where he or she will teach.

Central guidelines are given for the subjects, but it is up to the individual college to construct the concrete curriculum.

The present curriculum regulations were given by the Ministry of Education and Research in 2003. The reform meant that the teacher education includes a compulsory module: basic education in reading, writing and mathematics. One year of full-time study equals 60 academic points; the new compulsory module is a 10-point module.

Previously, the teachers were declared competent by the institutions that educated them. Now, when a teacher applies for a job, it is up to the school administrators to assess the teacher's competencies under the guidelines published by the Ministry of Education and Research.

6.30.1 Teacher in-service training

In-service training for further teacher professional development is encouraged. A wide range of courses is offered by universities, state teacher colleges and a number of public and private institutions. The in-service training is non-compulsory and the teachers' attendance varies greatly.

6.31 Initiatives in relation to the strongest and weakest students

6.31.1 Evaluation

The Norwegian schools are required to conduct diagnostic tests (kartleggingsprøver) the first three years of compulsory school. Reading tests are compulsory in grades 1–3 and arithmetic tests are compulsory in second grade and optional in third grade.

The aim of the diagnostic tests is to become aware whether students have special needs. The tests are used in combination with other information on the individual student.⁹

In 2004 and 2005, the first national tests were conducted in Norwegian schools. The tests were met with severe critique since critics thought the tests were of low quality. After a year with no tests, improvements on the test were made, and the tests were reinstated as a compulsory part of the instruction in 2007.

The Norwegian schools use national tests in reading, arithmetic and English for grades 5 and 8. National tests for grade 9 include reading and arithmetic. The reading tests are framed by inspiration from the PISA surveys. The tests aim to measure the level of the students' basic skills in comparison to the objectives in the subject curricula.

Furthermore, the tests are used as a tool for cooperation on the students' development between teachers, students and parents. The tests are constructed nationally with external assessment.

The results of the national tests are found on the website of the School Portal (Skoleporten), administered by the Directorate of Education and Training. The website contains information for professionals, students and parents.¹⁰

Teachers regularly write progress reports on every student, and parents are regularly summoned for meetings at the school.

6.31.2 Homework support

From June 2010, all Norwegian schools are required to offer homework support to all students in grades 1–4. The homework support is established to improve all students' opportunity for development and to even out social inequalities. The individual schools are responsible for organizing homework support as it depends on the students' needs. Homework support serves on a voluntary basis as a free offer.¹¹

⁹ <http://www.udir.no/Tema/Kartleggingsprover/Kartleggingsprover-grunnskolen/>

¹⁰ <http://skoleporten.utdanningsdirektoratet.no>

¹¹ <http://www.udir.no/Tema/Kvalitet-i-skolen/Leksehjelp/>

6.31.3 Gender equality

The Government aims to attain gender equality in the Norwegian schools, both concerning students and teachers. The heads of all Norwegian schools are responsible for ensuring that work on gender equality is given high priority. However, the Government is aware that major gender balance differences are detectable both in terms of staff and the results students achieve in academic assessments, i.e. in PISA surveys. Especially in reading, the gender differences have become more marked in favour of the girls.

6.31.4 Teaching assistants

Teaching assistants are used in Norwegian schools. The assistants are used to support students individually as well as a general support in the classroom. Teaching assistants do not necessarily have an educational background as they are assisting the class teacher. To what extent teaching assistants are used in the Norwegian schools is not clarified.

6.32 Emphasis on Norwegian initiatives of improving reading literacy skills

6.32.1 National curriculum on reading

The Knowledge Promotion Reform (KPR), a comprehensive curriculum reform, was introduced in autumn 2006. The reform covers primary, lower secondary and upper secondary education and training.

The reform places increased focus on basic skills and knowledge promotion through outcome-based learning.

The National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training (LK 06) comprises:

- The core curriculum
- The quality framework
- Subject curricula
- Distribution of teaching hours per subject
- Individual assessment

The subject curricula contain five basic skills integrated into the competence objectives for each subject's own premises. These five basic skills contain: being able to read, being able to express oneself verbally, being able to express oneself in writing, numeracy and digital and computer literacy. When they are incorporated in the subject curricula it gives all teachers a responsibility to enable students and apprentices to develop the basic skills through the subjects.

The Knowledge Promotion aimed to improve students' opportunity to participate in the knowledge society by developing their fundamental skills. In the Norwegian schools the goal is that everyone should be included, and all students will have equal opportunity to develop their abilities. Knowledge Promotion, with its special focus on learning, is supposed to promote differentiated teaching.

The changes of the reform included:

- Strengthening of basic skills
- Emphasizing reading and writing from first grade
- Creating new syllabi in all subjects, clearly indicating what students and apprentices are expected to learn
- Redistributing teaching hours per subject
- Reorganizing available choices within the education programmes
- Initiating freedom at the local level with respect for work methods, teaching materials and the organization of classroom instruction

Through differentiated education there is an expectation that all students in various degrees are able to attain the goals in the subject curricula. Special education is established for students not benefiting properly from the regular education.

At the end of fourth grade there are goals for oral, written and combined texts. In fourth grade, the students should be able to read children's literature and textbooks with comprehension, describe their own choice of literature and demonstrate basic skills in examining language elements and comparing different texts. Furthermore, the students are expected to write stories, poems, letters and texts dealing with facts.

6.32.2 Reading instruction and instructional material

Reading is not taught as a separate subject in compulsory school. However, reading and writing are included in every subject as they are included in the basic skills.

Textbooks used for instruction should comply with the objects of the curriculum. Teachers can choose different books for classroom instruction, but often the teachers at the same school use the same textbooks. In addition to the new curricula, new textbooks have been developed for all grades.

6.32.3 Use of technology

The use of IT is of high priority in the Ministry of Education and Research. The use of digital tools is seen as a basic skill and is incorporated in all subject curricula. This means that all Norwegian schools are supplied with PCs and are able to implement digital tools in the instruction. However, the use of IT in the schools varies greatly.

6.32.4 Make space for reading

The PISA surveys have had great influence on the Norwegian subject curriculum, especially in relation to the increasing focus on reading literacy. Previously, reading instruction was associated with the early years of school and special education, whereas reading in the latest years has been implemented in the teaching of all subjects by strengthening the basic skills during compulsory school.

After unsatisfying results from both national and international studies on students' reading skills, the Ministry of Education and Research made a national plan called *Make Space for Reading!*, 2003–2007.

The Directorate for Primary and Secondary Education had the responsibility for the plan that contained the following goals:

- To improve reading skills and motivation to read among children and youths
- To improve teachers' skills at teaching reading, communication of literature and use of school libraries

- To increase society's awareness of reading as a basis for other learning, cultural skills, quality of life and participation in working life and a democratic society

The action plan presented specific proposals for projects at primary school, lower and upper secondary schools, libraries and colleges. The project activities included teachers, students and teacher students. Activities at system level included school strategy work, developing curricula and assessing reading skills and behaviours through participation in national and international surveys. Furthermore, the plan aimed to encourage collaboration and networking among schools, and with communities and organizations outside of schools that are committed to the promotion of reading, such as librarians, publishers and authors.

In 2004, the Centre of Reading Research at the University of Stavanger was designated as the National Centre for Reading Education and Research. The centre offers support and guidance to local authorities, libraries and schools. Furthermore, the centre develops national reading and writing tests and instructional material for teachers and parents. The centre was responsible for a number of measures included in the plan, *Make Space for Reading*.

6.32.5 Second language instruction

In the Norwegian schools, proficiency in the mother tongue is considered essential for the acquisition of a second language. Consequently, some students with a foreign language background receive Norwegian as a second language instruction and if possible they receive mother tongue instruction. Students with special needs can receive extra training in the Norwegian language. As soon as the students have sufficient mastery of the Norwegian language they are able to receive instruction in the language.

In Sámi administrative districts, a special Sámi *Knowledge Promotion* reform is used as the Sámi students have the right to receive all primary and lower secondary education in Sámi.

6.33 Initiatives according to reading disabilities

6.33.1 *Diagnostic testing*

The Norwegian schools use diagnostic tests to measure the level of the students' reading skills. The compulsory tests in reading are conducted in grades 1–3. Diagnostic tests detect needs for individual follow-up and adaptation.

6.33.2 *Reading specialists*

Class teachers are responsible for improving reading literacy skills in basic school. The teachers are expected to handle the instructional needs of most students as the teachers' education comprises instruction and practice in teaching reading. Teachers for students with special needs do not function as reading specialists exclusively. However, teachers can receive in-service training in reading instruction to improve their knowledge and expertise.

6.33.3 *Instruction for children with reading disabilities*

Children lagging behind in reading receive special attention from the class teacher as a first step. Several schools have a teacher or a team of teachers engaged in special needs education from which the class teacher can recruit assistance. If the reading difficulties are more severe, the student is referred to the educational and psychological counselling service available in every municipality. The educational and psychological counselling service is supposed to make a comprehensive assessment and suggest how the teacher can plan and structure the learning process.

6.33.4 *Special needs education*

Education in school is to be adapted to the individual student's abilities and capabilities. Students who do not, or cannot, achieve a satisfactory learning curve from the ordinary teaching, have a right to special needs education. Special needs education is as far as possible to be planned in

collaboration with the student and parents. Special needs education can be given within the classroom setting, in smaller groups or as individual training.

6.34 Time line on school policy in Norway 1990–2010

1991

Norway participated in an international survey conducted by IEA.

The 1991, reading literacy test was designed to measure the reading achievement. Students from grades 3 and 8 participated.

Grade 3 students performed well above the average of the countries, whereas students from grade 8 performed around the average.

1997

Reform 97 had great influence on basic schooling in Norway. The main changes encompassed the following: compulsory education increased from nine to ten years. Children attend grade 1 in the calendar year they turn six.

A new curriculum, usually referred to as L97, was presented. The new national curriculum was more detailed and there was a focus on quality development.

2000

All Norwegian schools are required to use screening tests in reading for grades 2 and 7 in a 4-year trial period.

Norway participated in the PISA survey. The Norwegian students performed around the OECD average in reading, mathematics and science.

2001

The Norwegian Committee for Quality in Primary and Secondary Education was established. The committee was established to evaluate the content, effectiveness and organization of basic education in Norway.

2003

General teacher education was reformed to include a compulsory module: Basic education in reading, writing and mathematics.

Ministry of Education and Research made a national plan called *Make Space for Reading!*, 2003–2007.

The Directorate for Primary and Secondary Education had the responsibility for the plan that contained the following goals:

- To improve reading skills and motivation to read among children and youths
- To improve teachers' skills at teaching reading, communication of literature and use of school libraries
- To increase society's awareness of reading as a basis for other learning, cultural skills, quality of life and participation in working life and a democratic society.

Norway participated in the PISA survey. The Norwegian students scored around the OECD average in reading, science and mathematics. However, the students scored below students in the other Nordic countries.

2004

In 2004, the national quality assessment system (NKVS) was developed as Norway lacked systematic data on learning performance in a form that was useful to educational institutions, school owners and the national level. Furthermore, schools and school owners lacked tools to evaluate learning outcomes and processes. Elements of the systems were:

- *National tests* that aim to ascertain the extent to which student skills are in accordance with the aims of the curriculum.
- *The School Portal* (Skoleporten) was established so that school owners, parents, students and other stakeholders have access to relevant and reliable key figures for basic education.
- *User surveys* where students, teachers and parents may express their opinions on learning and well-being at school.
- *Inspections* that ascertain whether the actions of school owners comply with the statutory requirements that are the theme of the inspection.
- *International tests* that evaluate Norwegian student competence compared to other countries

The Centre of Reading Research at the University of Stavanger was designated as the National Centre for Reading Education and Research.

2004

The first national tests were conducted in the Norwegian schools in 2004 and 2005. The tests were criticized for lacking quality.

2006

Knowledge Promotion (Kunnskapsløftet) was launched in 2006 and is the latest reform in education that influences the substance, structure and organization in all grades.

The changes of the reform in 2006 included

- Strengthening of basic skills
- Emphasizing reading and writing from first grade
- Creating new syllabi in all subjects, clearly indicating what students and apprentices are expected to learn
- Redistributing teaching hours per subject
- Reorganizing available choices within the education programmes
- Initiating freedom at the local level with respect to work methods, teaching materials and the organization of classroom instruction

In 2006 there was a break in the use of national tests.

Norway participated in the PISA survey with insufficient results. Norwegian students scored below the OECD average in science, mathematics and reading.

2007

New national tests were implemented autumn 2007.

Students in grades 5 and 8 participated in three compulsory national tests in Norwegian reading proficiency, English and Arithmetic.

2008

Subject curricula for Norwegian schools were reformed. The aim of the reform was to strengthen the reading instruction and clarify the development of reading skills and reading strategies in basic school.

New diagnostic tests introduced.

Furthermore, the numbers of instruction hours in Norwegian were increased by two hours in grades 1–4.

2009

Norway participated in the PISA survey. The scoring was increased in all subjects, which meant the students performed around the OECD average in reading, mathematics and science.

2010

All students, grades 1–4, are offered homework support.

Ninth grade participates in the compulsory national tests, autumn 2010.

In 2010, a new teacher training programme for compulsory school-teachers was introduced. Student teachers will either select a course of studies that qualifies them to teach grades 1–7, or they may select a course of studies that qualifies them to teach grades 5–10.

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6.35 Sweden

6.35.1 *Language*

Swedish is the main language in Sweden and is spoken by the majority of the population.

Additionally, there are five official minority languages in Sweden: Sami, Finnish, Meänkieli, Romani chib and Yiddisch.

English is taught in the Swedish schools from first grade. Furthermore, students are offered foreign language instruction in, for example, German, French and Spanish in the lower secondary education.

6.36 Overview of the education system

Curricula, national objectives and guidelines for state schooling in Sweden are defined by the Parliament and Government. The government guides educational decisions by establishing the goals in the Swedish Education Act that relates to curricula, course syllabi and schedules. The municipalities are free to decide how the municipal schools are managed within the regulations in order for them to see to that the students achieve the goals.

Three authorities are responsible for the management and evaluation of preschool and basic education in Sweden.

Swedish National Agency for Education (Skolverket) is responsible for the supervision of the school system. Its foremost responsibilities include nationwide monitoring, national steering documents, national tests, evaluation, follow up and supervision of all school activities.

The Educational Inspectorate is responsible for the supervision of pre-school activities, the welfare of school children, schools management and adult education. The Educational Inspectorate ensures that local authorities and independent schools follow existing laws and regulations. The aim of the Educational Inspectorate is to ensure all children's equal right to a good education in a safe environment, where everyone can achieve their maximum potential and at least pass all subjects.

The National Agency for Special Needs Education and Schools operates three national and five regional special needs schools. The regional schools offer education corresponding to the compulsory nine-year comprehensive school for students with deafness or impaired hearing. The national schools cater for students with visual impairment and additional disabilities, deafness or impaired hearing combined with severe learning disabilities or congenital deaf-blindness and severe speech and language disabilities. The function of the agency is to offer support to school management in matters relating to special needs education, promote access to teaching materials,

run special needs schools and allocate government funding to students with educational disabilities and to education providers.

On the basis of the Education Act, the curricula and a local school plan are composed to describe how schooling is to be funded, organized, developed and evaluated.

The headmasters are obliged to make a local work plan in consultation with teachers and other staff as well as representatives of students and parents, based on the national goals and the municipal local school plan. The local work plan defines course content and organization.

The individual teacher decides on the appropriate teaching methods, the selection of topics to be covered in the lessons (within the framework of the syllabus and local plans) and the choice of teaching materials.

6.37 Pre-primary education

Pre-primary education and care is offered at preschools, family day-care centres and through open preschools. The activities aim to create favourable learning conditions for the children to stimulate their physical and mental development. In 2006, 77 % of all children aged one to three years attended pre-primary education, whereas the percentage was 97 for the children aged four to five. The pre-primary education is funded through the municipal budget and parental fees.

Municipalities are required to organize and provide preschool for all children when they turn six until they enter compulsory education. In 2007, 96 % of all children attended preschool. Preschool is voluntary and free.

6.37.1 *Structure of the education system*

Compulsory schooling in Sweden comprises grades 1–9 for children aged seven to sixteen. If parents wish, their child can start in preschool at the age of six. Compulsory education is offered at municipal, national or independent schools, although almost 90 % of the students attend municipal schools. Furthermore, compulsory education is offered at Sami-schools for Sami-speaking children from grades 1–6 and at very few schools for students with impaired hearing and/or vision.

Compulsory schools are free and are regulated by the Education Act as well as the curriculum. At the end of compulsory school students obtain a Compulsory School Leaving Certificate, which qualifies the students to apply for upper secondary education.

Progression from year-to-year in compulsory school is automatic. The students do not pass examinations to promote to the next level. Grades are given from the eighth grade on a three-grade scale: pass, pass with distinction and pass with special distinction. From autumn 2011, a new grading scale will become effective and students will be graded from sixth grade.

Students who do not achieve the goals stated in the syllabus do not receive a grade, but receive a written assessment instead.

The majority (98 % in 2006–2007) of students leaving compulsory school attend upper secondary school. Upper secondary education is divided into 17 national 3-year programmes and is regulated by the Education Act and curriculum. The programmes are based on providing a broad education and aim to result in eligibility for further studies in higher education, post secondary level.

6.37.2 Examinations

At the end of ninth grade, compulsory national tests are administered to assess students' achievement level in four subjects: Swedish (including Swedish as a second language), English, mathematics as well as biology, physics and chemistry. The tests provide support for teachers in grading for the school-leaving certificate.

6.38 Teachers and teacher education

All teacher training is conducted at university level.

Teacher training takes from 3½–5 years to complete. Teachers of lower grades receive the lowest amount of training, whereas teachers of older students receive longer training.

The required qualifications are obtained through a combination of initial training, professional development and practical training during the induction period. Teachers can either complete a university degree in education

or complete a degree programme within an appropriate subject area. For university study programmes that provide knowledge of one subject area only, the teacher must acquire pedagogical knowledge through a postgraduate, a non-degree course leading to teaching qualification.

As a consequence of the general decentralization of the education system, universities have a high degree of freedom in arranging the education within the regulation framework set up by the Government.

In the teacher training programmes introduced in 2001, all teachers have some training in special needs education. There are possibilities to specialize in special needs education within the basic teacher training programme.

6.38.1 *Teacher in-service education*

The Head of the school is responsible for providing teachers with an opportunity for in-service education. The teachers are expected to spend a minimum of 13 days per year on education. Freelance consultants, universities and other institutions provide the courses, lectures and study visits.

6.39 Initiatives in relation to the strongest and the weakest students

6.39.1 *Evaluation*

To assess the students' achievement level in third grade, compulsory tests are conducted in mathematics, Swedish and Swedish as second language. In addition to measuring the students' achievement level, the tests are seen as a help for the teacher to organize the instruction.

National tests for fifth grade students are also available in Swedish, Swedish as second language, mathematics and English. These tests are voluntary, which means it is up to the local school whether they are conducted or not.

Swedish National Agency for Education provides diagnostic materials for the teachers to use in all grades, when suitable. The diagnostic screening is used to highlight the students' strengths and weaknesses in each subject.

The teachers are required to make annual progress reports on every student, which frames a meeting between the teacher, student and the student's parents. The meeting is a development dialogue, which means the teacher, student and the student's parents discuss the student's progress and how learning can be stimulated and supported. Furthermore, the teachers are required to design an individual development plan in cooperation with the students and parents. The plan states what the student is supposed to strive to achieve. Evaluation of the plan is made on the meetings described above.

6.39.2 *Second language instruction*

Students with another mother tongue than Swedish have the opportunity to receive Swedish as a second language instruction, regardless of their age. The goal is for students to acquire a functional mastery of the Swedish language comparable to that of students who have Swedish as their mother tongue. Through instruction the students are expected to be provided with experiences that help them develop their ability to speak and listen, as well as read and write in different situations. Ultimately, the students should attain a first language level in Swedish.

6.40 Emphasis on Swedish initiatives of improving reading literacy

The Swedish government attaches great importance to reading literacy. Sweden has a nationwide system of libraries, which almost all students have access to. Other initiatives offered by the government are the publication of subsidized books through the programme *A Book for All*. Moreover, the Swedish Art Council provides support of improving reading literacy, and the Swedish National Agency for School Improvement organizes networks of local representatives for language development.

Furthermore, the local authorities focus on reading literacy, as they give newborn children a "children's book", and in connection with World Book Day, selected students receive a copy of a novel.

6.40.1 National curriculum on reading

The syllabi for each subject contain “goals to aim for” and “goals to be attained”. Goals related to literacy development are stated in terms of those to be attained at the end of the fifth and ninth year in school.

Swedish (mother tongue) and Swedish as a second language share the same overarching goals. The main differences between the two subjects are the instructional approach, and Swedish as a second language has emphasis on the functionality of the Swedish language.

The goals of Swedish specify that students should acquire knowledge of the Swedish language and its ongoing development, structure, origins and history through compulsory school. Furthermore, the goal is to develop the students’ understanding of why people write and speak differently.

By the end of third grade in compulsory school, the students should have attained the following goals:

Concerning reading

- Be able to fluently read texts that are familiar and closely related to specific contexts
- Be able to read literary texts related to their specific contexts
- Be able to re-tell the story line orally or in writing
- Be able to read factual texts and instructions that are related to specific contexts
- Be able to describe and use the contents, orally or in writing

Concerning writing

- Be able to write legibly
- Be able to write narrative texts with a clear story line
- Be able to write simple and factual texts and instructions related to their specific contexts where the content is clear
- Be able to correctly spell words they often use when writing and words, which frequently recur in texts related to specific contexts
- Be able to use capital letters, full-stops and question marks in their own texts

Concerning speech and dialogue

- Be able to relate and describe everyday events so that the content and story lines are clear
- Be able to give and receive simple oral instructions
- Be able to talk about questions and subjects based on their own and others' experiences
- Be able to talk about texts and pictures by phrasing questions, expressing their views and giving comments

By the end of fifth grade in compulsory school, the students should have attained the following goals:

- Be able to propose ideas for crafts and with help be able to plan, choose working methods and carry out a task
- Under supervision, be able to choose colour, form and materials as well as give the reasons for the choices
- Be able to handle appropriate tools and instruments as well as carry out work in textiles, wood and metal
- Be able to follow instructions and take responsibility for their work
- Be able to describe their work and comment on processes in the crafts

By the end of ninth grade in compulsory school, the students should have attained the following goals:

- Be able, through words and pictures, to present ideas as well as plan their tasks in crafts
- Be able to choose material, colour and form taking into account costs, environmental and functional aspects
- Be able to work in accordance with different instructions, choose appropriate working methods as well as handle tools and instruments in a functionally effective manner when carrying out their work
- Be able to take initiative and personal responsibility in the craft process

- Be able to describe the craft process and give the reasons for the choices they make during the course of the work from initial idea to finished product
- Be able to evaluate their work and how it has affected the result

6.40.2 *Reading instruction and instructional materials*

Reading is not taught as a separate subject in compulsory school, but reading and writing is a part of Swedish language instruction beginning in first grade. However, with awareness of the importance of improving literacy skills, reading and writing are seen as essential in all subjects. Consequently, all teachers are responsible for the students' development of literacy skills.

In Sweden there are no overall rules for group instruction, which gives some schools the opportunity to work in mixed-age groups particularly with students in grades 1–3.

Teachers are free to choose materials for reading instruction, according to the regulation set by the government and the financial circumstances of the local school authorities. Consequently, there are no lists or recommendations for educational materials at any level.

6.40.3 *Use of technology*

The development of students' ability to use computers is stated as a goal in the syllabus. However, the use of technology in beginning reading varies, as it depends on the financial resources available on the respective schools.

The use of technology should provide the students with knowledge of the language and the functions of media, as well as develop their ability to interpret, critically examine and evaluate different sources and their contents.

Furthermore, from an early age the students are encouraged to seek information on the Internet when working on various assignments.

6.41 Initiatives according to reading disabilities

6.41.1 *Reading specialists*

Reading specialists can organize the instruction in several ways, depending on the students' needs. Specialists may opt for one-on-one sessions for a number of hours per week, small group instruction or individual assistance in the classroom, depending on resources and the students' needs.

6.41.2 *Instruction for children with reading disabilities*

In recent years, municipalities have set up special education teams that offer advice to both teachers and parents, in-service training for teachers and short-term assistance at local schools. Furthermore, regional centres are established where specialists can diagnose dyslexia and other reading disabilities as well as give advice on instructional materials and aids. In case of children with dyslexia, special assistance in terms of materials, computer programmes and instruction is offered.

The computer is considered a valuable tool in special education of students with reading and writing disabilities.

6.41.3 *Special education*

Most students in need of special support are taught in regular classes in compulsory and upper secondary school. Teaching assistants are used as an support for these children.

Remedial classes are offered to children with functional disabilities and students with social and emotional problems. These classes are located in connection to the regular basic school.

A "special school" is a 10-year programme for children who are deaf or partially deaf with secondary disabilities. The programme is planned as close as possible to the regular compulsory education. Compulsory schooling for children with learning disabilities contains compulsory school and training school.

6.42 Time line on school policy in Sweden 1990–2010

1991

Sweden participated in an international survey conducted by IEA.

The 1991 reading literacy test was designed to measure reading achievement. Students from grades 3 and 8 participated.

The Swedish students performed above the international average of the 32 participating countries.

1994

Curriculum for compulsory education was reformed (lpo 94). The curriculum now included goals to attain, which described goals that students, as a minimum, were supposed to have reached by the end of basic school.

Municipalities are responsible for the attainment of the goals in the curriculum, and the schools (especially the headmaster) are responsible for how to attain the goals. Consequently, the responsibility of the headmaster was increased.

In the curriculum concerning Swedish language instruction it is emphasized that teachers are responsible for developing students' reading, writing and communication skills.

The grading scale was changed to: pass, pass with distinction and pass with special distinction. The scale was valid until autumn 2011.

1996

National tests are offered in fifth grade in Swedish, Swedish as a second language, mathematics and English. The tests are voluntary.

2000

Sweden participated in the PISA survey with sufficient results, as the Swedish students performed above the OECD average reading, science and mathematics.

2003

Sweden participated in the PISA survey. The students' score in reading literacy was unchanged compared to 2000, whereas the score in mathematics and science was decreased since 2000. However, the Swedish students still performed above the OECD average in all subjects.

2006

Children are able to attend compulsory school at the age of six if the parents want them to.

Sweden participated in the PISA survey. The students' score in science and mathematics was at an average level of OECD, whereas the score in reading was above OECD average.

2008

The Schools Inspectorate was established. The Schools Inspectorate is the central Swedish agency responsible for the supervision of preschool activities, the well-being of schoolchildren, schools management and adult education. The aim of the Schools Inspectorate is to ensure equal right of all children to a good education, in a safe environment, where everyone can achieve their maximum potential and at least pass in all subjects.

The National Agency for Special Needs Education and Schools is established for the purpose of coordinating governmental support for special needs education.

2009

Sweden participated in PISA 2009, which mainly focused on reading. Performance levels for the Swedish students decreased as the reading literacy level in 2009 was at an average level. In PISA 2006, the Swedish students' performances were above the average level of OECD countries. Furthermore, the PISA results indicated that Sweden ranged lower in connection to equality than in the previous surveys.

2010

National tests are conducted in third grade in mathematics, Swedish and Swedish as a second language.

2011

In 2011/2012 changes will be implemented in the Swedish education system. Some of the changes are listed below:

- A curriculum reform to make the national goals for the education in curriculum and syllabi clearer.

- National tests will be reformed – extended in content and changes in the grades being tested.
- Teacher registration – every teacher needs identification of the grades and subjects the individual teacher is allowed to instruct.
- A new grading scale – the new grading scale will contain six levels and a seventh code to indicate that a grade cannot be awarded.
- Reformed upper secondary education

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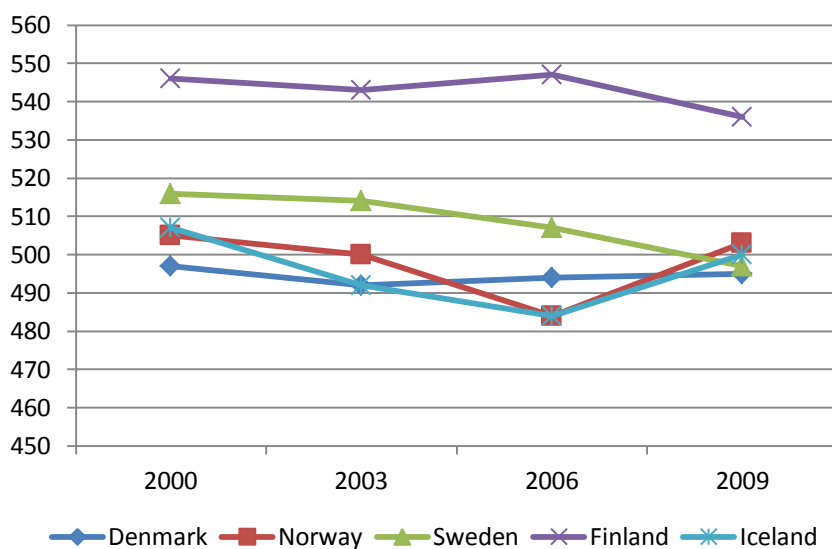
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7. Trends from 2000 to 2009

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Denmark, the Faroe Islands, Finland, Iceland, Norway and Sweden have participated in all the PISA cycles since 2000. The Faroe Islands were only part of PISA in 2006 and 2009 after a pilot study in 2005. Reading results from the five Nordic countries, with participation in all four cycles, are seen in the figure below.



The diagram shows that Finland achieves by far the best result in all four PISA cycles. There is a slight and insignificant dip in 2003 compared with 2000 and 2006, and a more pronounced lower score (11 points) in 2009. The difference between 2000 and 2009 is minus 10 points.

Sweden, coming out as number two among the Nordic countries in 2000, shows a gradual reduction over all four cycles with 2 points from 2000 to 2003, 7 points from 2003 to 2006 and 10 points from 2006 to 2009. The total reduction from 2000 to 2009 is 19 points.

Iceland is number three in 2000 but declines by 15 points in 2003, followed by a further reduction of 8 points in 2006. However, 2009 sees a rise with 16 points bringing Iceland back to only 7 points below the 2000 result.

Norway was placed as number four in 2000, but saw a reduction of 5 points in 2003 and a further 16 points in 2006; in total a fall of 21 points in the six-year time span. 2009 showed an amazing rise of 19 points bringing Norway back to 2 points from the 2000 level.

Denmark has by far the most stable results over the total nine-year time frame. There was a reduction of 5 points from 2000 to 2003, followed by an increase of 2 points in 2006 and further 1 point in 2009. The difference between 2000 and 2009 is minus 2 points.

In total, all five Nordic countries have reduced the reading performance from 2000 to 2009. Norway and Denmark account for the smallest reductions of 2 points followed by Iceland with 7 points, Finland with 10 points and Sweden with 19 points.

The Faroe Islands obtained a reading score of 409 points in 2006 and 436 points in 2009. The scores are well below the rest of the Nordic countries and bring the Faroe Islands on par with countries such as Uruguay in 2006 and Serbia in 2009. There is no official explanation to this relatively poor performance; whether it is the result of many years of brain drain to Denmark, UK or Canada, low academic expectations in schools, a cultural focus on traditional values (especially fishery with high income potentials) or a society where family bonds are deemed more important for career than formal education is yet unknown.

7.1 Changes in school policy reforms and societal changes

PISA results may show trends over time and these can be dependent of a multitude of factors. It must, however, be remembered that PISA results are based on cross sectional studies, which cannot produce evidence

about causation. The ultimate method in research on causation is RCT studies (Random Controlled Trials). They are difficult to perform in actual educational practice, as they will inevitably be influenced by bias, since placement in experimental vs. control groups are known to everybody in the study.

Any relation between changes in school policy and/or societal changes is therefore based on correlations and must be seen as hypotheses. For the same reason, causational relations are seldom discussed in PISA reports or articles produced by PISA researchers. Suggestions and hypotheses are sometimes mentioned in interviews with newspapers and magazines, and on a more informal basis they may be discussed by PISA researchers at meetings and seminars – often between sessions and with no wish to put forth written statements.

A general societal factor that has to be taken into account when assessing reading performance is the change in students' attitudes and behavior within the domain of reading. PISA 2009 has shown that students' reading activities expressed as reading for enjoyment is a powerful predictor of reading performance. When we look at the Nordic results concerning the variable reading for enjoyment in 2000 and 2009, all Nordic students, but particularly the Finnish students, show a reduction in reading for pleasure.

Another societal factor is the percentage of immigrant students in the country. With respect to PISA results, the most important measurement is the percentage of immigrant students in the PISA sample, which has risen in all the Nordic countries; mostly in Denmark with 2.4 %, and secondly in Norway with 2.2 %. After this comes Iceland with 1.6 %, Finland with 1.3 % and lastly Sweden with 1.2 %.

Below is an overview of school policy and/or societal changes in the Nordic countries coupled with trends in PISA results in accordance with relations and possible causations that have been estimated by PISA researchers on formal or informal basis. Due to the informal basis of the estimations, no official citations are given in this overview.

7.1.1 Denmark

The Danish school system has seen a significant number of school policy reforms since 1990, such as a higher focus on differentiated instruction, teaching of reading, common goals, increased number of lessons, national tests, individual student plans and reading consultants in most schools. PIRLS 2006 showed that in fourth grade, reading performance had increased with the equivalent of one school year since 1991, but no changes in reading scores from PISA 2000 to PISA 2009 have been recorded. Instead, the reading results show an impressive stability over the years; a stability that is absent in the mathematics and science results. The difference between 2000 and 2009 is minus 2 points.

One possible explanation for the absence of progression despite reforms may be that basic reading skills, which are all strong predictors of reading competence (Arnbak, 2012), are no longer in focus when subject teaching, including increased attention to literature in the teaching of Danish, is introduced from third grade and assigned crucial importance from seventh grade. Other possible explanations could be a rise of 2.4 % from 2000 to 2009 in number of students with immigrant background, the fact that students read less for enjoyment and that more schools have a high proportion of immigrant students and native students from poor social backgrounds.

7.1.2 The Faroe Islands

The Faroe Islands have only participated in the PISA 2006 and PISA 2009 surveys, wherefore long-term trends cannot be observed. There have been rather few political reforms until 2006, where the number of lessons in Faroese language instruction was increased from seven to eleven lessons per week and national tests were introduced in grade 4 and 6. The reforms were direct results of the poor performance in a PISA pilot test in 2005, published in May 2006 shortly after the collection of data for PISA 2006. The difference from 2006 to 2009 is plus 25 points.

The very significant increase in reading performance can most certainly be attributed to the 2006 reforms, but another causational factor may be a more positive attitude towards PISA-testing among teachers and students.

7.1.3 Finland

Finland has implemented few and rather moderate school policy reforms since 1990, and the reforms have mainly served to maintain high quality and equal opportunities. Core curriculum has been adjusted with stronger national guidelines. The Finnish school system is characterized by its high level of teacher education and a strong evaluation culture. Though 2009 saw a significant drop in reading competence, it is still profoundly higher than the level in the other Nordic countries. The difference between 2000 and 2009 is minus 10 points.

The official explanation is a decline in reading for enjoyment, especially among boys. In 2000, one in five students said they did not read for pleasure, and in 2009 the figures were one in three for girls and one in two for boys. This decline is the highest among the Nordic countries. Another possible explanation is an increased number of students with non-western immigrant background.

7.1.4 Iceland

There have been rather few educational reforms in Iceland since 1999 where a new national curriculum guide was published. There was much political disappointment with the results in 2003 and 2006 as Iceland declined by 15 points in 2003 followed by a further reduction of 8 points in 2006. Following this decline, an important reform was implemented in 2007 where the curriculum was changed and only intermediate and final goals were kept. Moreover, special emphasis was placed on the increased role of students' democratic participation. In 2008, a framework for more individualized learning and greater flexibility for students was established. After reductions in performance results in both 2003 and 2006, 2009 saw a rise of 16 points bringing Iceland back to only 7 points below 2000.

There may be several reasons for the improvement in 2009. The director of the National Testing Institute has mentioned that soon after the relatively poor 2006 results were announced, schools around the country used them to improve their teaching. Schools in Reykjavik have been especially effective in this respect. The changes in 2007 and 2008 may also have had a positive influence on the 2009 test results.

7.1.5 Norway

Norway has seen several and very profound reforms in the recent years. One was the programme Make Space for Reading in 2003–2007, others were the introduction of national tests, the School Portal and the establishment of a National Centre for Reading Research in 2004. Finally, the Knowledge Promotion (Kunnskapsløftet) fully changed the substance, structure and organization in all grades and pointed at the need for teaching or reading skills in all subjects. Norway showed a reduction of 5 points between 2000 and 2003 and a further reduction of 16 points in 2006; a decline of 21 points in total in the six-year time span. The PISA 2009 test showed an amazing rise of 19 points bringing Norway back to 2 points from the 2000 level.

The decline from 2000 to 2006 has been explained with reference to classroom observations identifying as results from a degrading teaching culture: low academic expectations, classroom activities without clear goals and much time used for non-learning activities. The massive positive increase in reading performance in 2009 is empirically due to a significant reduction of the percentage of weak readers. This can probably be related to the programme Make Space for Reading from 2003 to 2007, the combined effect of the organizational changes in 2004 and not at least the Knowledge Promotion.

7.1.6 Sweden

The most pronounced educational reforms were instigated in Sweden in 1994 and 1996. In 1994, the curriculum for compulsory education was reformed to include goals that students, as a minimum, were supposed to have reached by the end of basic school, and the grading was changed. In 1996, national tests were introduced, and Sweden was thus the first Nordic country with national tests. It is remarkable that Sweden, coming out as number two among the Nordic countries in 2000, has shown a gradual reduction in performance over all four cycles with 2 points from 2000 to 2003, 7 points from 2003 to 2006 and 10 points from 2006 to 2009. In total the reduction from 2000 to 2009 is 19 points.

This decline in performance is related to a rise in the proportion of students at low performance levels giving an increased difference be-

tween the best and the poorest performing students. At the same time, the difference between schools has increased from 2000 to 2009 resulting in a reduced equity. The following factors have been mentioned as possible explanations: a) a rising number of schools with a high proportion of immigrant students and native students from poor social backgrounds, b) a rising number of private and independent schools and c) a rising number of parents choosing another school than the local school. All three factors result in a growing segregation reducing positive peer effects.

8. Conclusion

Niels Egelund, professor, Department of Education, Aarhus University

PISA has run four test cycles from 2000 to 2009. Thus we now have a firm basis, in the form of data from almost a decade, for assessing students' preparedness to meet the challenges of the future. Moreover, reading skills that provide the foundation for achievement in almost all subject areas in secondary and tertiary education and full participation in adult life were the main focus in 2000 and again in 2009, which allows us to analyse trends over time. Longitudinal studies of PISA 2000 students in Australia, Canada, Denmark and Switzerland have established the validity of PISA as an indicator of success in life.

PISA Northern Lights IV focuses on reading in the following areas: 1) Basic reading skills (word decoding and vocabulary) as predictors of reading literacy, 2) Gender issues, 3) Weak readers and 4) Impact of immigrant background. Moreover, PISA Northern Lights IV provides a synoptic overview of the school systems and school reforms over the last 20 years in the Nordic countries. Finally, the publication is attempting to connect Nordic trends in reading results with politically induced changes and societal changes in general.

8.1 Basic reading skills

Reading is a complex cognitive skill involving a number of basic and more advanced sub-skills and processes. The most basic skills are word decoding and vocabulary; skills that are the main focus in early training of reading but tend to receive less attention in the later school years, where analysis of content and subject knowledge become the core activities. Tests of

word decoding and vocabulary were introduced as national options in Denmark in PISA 2009 and are also used in PISA 2012.

Results produced by Elisabeth Arnbak show that basic reading skills still have a great impact on students' reading skills at the end of lower secondary school. Vocabulary knowledge is by far the strongest predictor of functional reading skills, and a strong relation between students' socio-economic background and reading seems to be largely mediated by language skills. If the size of the group of weak readers is to be reduced, it is crucial to work with basic skills and especially vocabulary knowledge from an early age, preferably already in preschool. Schools must also continue to train basic reading skills and meta-cognitive strategies in upper and lower secondary. Furthermore, schools must be prepared to remediate students with reading difficulties at all levels of compulsory schooling.

8.2 Gender issues

The PISA tests show profound gender differences in reading in all Nordic countries. In all cases, the differences are in favour of the girls. The highest difference is found in Finland with 55 points followed by Norway (47 points), Sweden (46 points), Iceland (44 points) Denmark (29 points) and the Faroe Islands (26 points).

Astrid Roe and Karin Taube show that the number of students who do not read for enjoyment has decreased in all the Nordic countries. PISA 2009 has asked students about their online reading activities, and although this measurement was not used in 2000 it can be hypothesized that online reading has increased and has probably taken time from traditional reading activities. The highest reduction in reading has been for the Finnish boys. Finnish girls have the most positive attitudes towards reading and Norwegian boys have the least positive attitude towards reading. The correlation between time spent on online reading and the results in the PISA paper-based reading is very weak in all the Nordic countries, which indicates that both weak and strong readers are users of the Internet. We also see a gender difference when it comes to reading material; a higher percentage of girls than boys read magazines and fiction while the opposite is true for comic books and newspapers. There is a strong relation

between time spent on for reading and reading performance, there is also a relation between time spent on reading and interest in reading as well as a relation between diversity of reading materials and reading performance. The analysis suggests that successful teaching of reading must include reading skills, reading strategies and reading engagement.

Lastly, the authors present the interesting conclusion that teachers, especially those who are struggling to engage the most reluctant boys in reading, should be particularly aware of these boys' need for diverse reading materials as alternatives to the traditional text books at school. Moreover, they state that since women constitute the majority of language teachers in lower secondary school, they will never be able to act as genuine role models for young boys, regardless of how splendid teachers they are. Good role models have strong effects on young people. Therefore boys should be given opportunities to meet engaged male readers who can share their delight in reading with them and ignite their curiosity.

8.3 Weak readers

Fredriksson, Rasmusson and Sundgren have found considerable differences between the Nordic countries. The percentage of weak readers varies from 8 % in Finland to 17 % in Iceland and Sweden.

They too find considerable gender differences. The percentage of boys who are weak readers is higher than 60 % in all the Nordic countries. In Finland more than four fifths of the weak readers are boys. Regarding socioeconomic status, the average value of the PISA ESCS index is above the OECD average for all students in all the Nordic countries. The average for weak readers is lower in all the Nordic countries than the average for all students. With the exception of Iceland, the majority of students live in small towns or towns in all the Nordic countries. The majority of weak readers are also found in small towns and towns, with the exception of Iceland.

In all the Nordic countries, the weak readers are not as positive towards reading as the general students. The weak readers in Finland and Norway seem less positive about reading than the weak readers in the other Nordic countries.

A majority of students in all the Nordic countries have attended pre-school more than one year. This is also true for the weak readers. Remarkably, only a small percentage of all students had participated in remedial lessons. Though the percentage of weak readers who had participated in remedial lessons is higher than among all students, it still does not constitute the majority of the weak readers.

In Finland and Norway the average for all students and for weak readers on the index of teacher-student relations is below the OECD average. On average, the weak readers have lower values on the index of teacher-student relations than all students. With the exception of Norway, the difference between Finland and the other Nordic countries regarding proportion of weak readers below the first quartile is significant at the 5 % level.

Summing up, the composition of the group of weak readers seems to be alike across the Nordic countries. Despite the many similarities between the Nordic countries in the respect, Finland seems to be the country that differs mostly from the other Nordic countries. One reason may be that the group weak readers is much smaller in Finland than the other Nordic countries, and this affects the representativity of the group composition.

8.4 Immigrant background

A distinctive result from the PISA 2009 Ethnic study, performed by Ege-lund and Nielsen, is that students with an immigrant background obtain lower cognitive results compared with native Nordic students in all the countries. Moreover, first-generation immigrant students obtain a lower score than second-generation students in Denmark, Finland, Norway and Sweden, while the number of second-generation students in Iceland is too low to draw any valid conclusions about generational difference. Three explanations are possible. One is influence from language, where the language of instruction is different from the students' mother tongue. The second is influence from parents' social, economic and cultural background. The third is impact of peer effect at school with a high share of immigrant students. Immigrant students who primarily speak the host country's language at home perform better in the cognitive test compared with immigrant students who speak another language than the host coun-

try's language at home. When parents' social, economic and cultural background is taken into consideration, about one third of the reading gap is explained. We also see a statistical significant influence from the share of immigrant students at the school. Yet, a great part of the variance remains unexplained.

This means that the main explanation for these differences must be due to other factors than those discussed here. Such other factors could be student characteristics not captured by the PISA ESCS index. Other possible explanations may be conditions at schools with particularly high shares of immigrant students that somehow have negative influences on the immigrant students' reading skills, but apparently do not influence native Nordic students' reading skills. Schools with very high proportions of immigrant students, all things being equal, face various teaching challenges, language-related and cultural, which schools with very few immigrant students do not. The evidence from PISA Ethnic 2009 suggests that schools with a great share of bilingual students face challenges not only related to students having relatively weak socio-economic backgrounds, but also challenges related to establishing conducive learning environments.

At policy level, the results point to two important issues. First of all, schools with very large shares of immigrant students should be avoided. This calls for incentives to encourage immigrant families to place their children in schools where immigrant concentration is relatively low and to avoid large ethnically homogenous housing areas. Secondly, immigrant families should be encouraged to stimulate the language skills of their children for instance by engaging in reading activities at home and by participating in day-care, school and extra-curricular activities.

8.5 School systems and reforms from 1990 to 2010

The Ulvseth synoptic presentation of Nordic school systems and their reforms over the last twenty years shows several differences. In three countries, the Faroe Islands, Finland and Sweden, there have been relatively few or moderate reforms.

The Faroe Islands have had rather few political reforms until 2006 where number of lessons in Faroese language instruction was increased

from seven to eleven lessons per week and national tests were introduced in fourth and sixth grade. Additionally, the national learning centre, NÁM, was established in 2010 to improve the quality of learning and teaching in the Faroese educational system.

Since 1990, Finland has also had rather few and moderate school policy reforms, and the implemented reforms mainly served to maintain the high quality and equal opportunities. Moreover, core curriculum has been adjusted with stronger national guidelines. The Finnish school system is characterized by its high level of teacher education and a strong evaluation culture.

Sweden reformed the curriculum for compulsory education to include goals that students, as a minimum, are supposed to have reached by the end of basic school in 1994, and at the same time the grading system was changed. From 1996, national tests were introduced, and Sweden was thus the second Nordic country with national tests. In this way, Sweden was the first Nordic country to join the international accountability movement, which was a result of the New Public Management movements in the 1980s. Since 1996, there have been relatively few comprehensive educational reforms, but Sweden has undergone other important changes. Parents have won the right to choose schools, and the number of private and independent schools has risen in the last twenty years.

While the above-mentioned countries have seen few and moderate reforms, three Nordic countries have undergone relatively massive reforms.

The Danish school system has undergone a very significant number of school policy reforms since 1990. A higher focus on differentiated instruction, teaching of reading, common goals, increased number of lessons, national tests, individual student plans and reading consultants in most schools were enforced from the mid 1990s to 2006.

In this respect Iceland stands out as it has had a long tradition of testing procedures. As far back as 1946, Iceland adopted nationally coordinated final examinations in primary education, replaced in 1977 by similar examinations for fourth and ninth grade and used them to decide whether pupils should progress to the next grade. In 1999, Iceland published a new national curriculum. In 2007 an important reform changed the curriculum and only intermediate and final goals were kept. Moreover, special emphasis was placed on the increased role of students' democratic participa-

tion. A framework for more individualized learning and greater flexibility for students was established in 2008.

Norway has seen several and very profound reforms in recent years. One was the programme Make Space for Reading from 2003 to 2007. Others were the introduction of national tests, the School Portal and the establishment of a National Centre for Reading Research in 2004. Lastly, the Knowledge Promotion (Kunnskapsløftet) completely changed the substance, structure and organization in all grades and pointed at the need for teaching or reading skills in all subjects.

8.6 Are the effects of reforms reflected in PISA results?

PISA is designed as a cross sectional study, and though trends over time can be measured it is impossible to make conclusions about effects on a scientific basis. However, correlations can be studied, and they can be used to produce hypotheses about the influence from school policy reforms. This has been done in all the Nordic countries and possible explanations have been suggested in the national debates, on a formal or informal basis, and they are referred by Egelund.

The Faroe Islands has seen a massive increase in PISA reading scores over the two cycles of participation in 2006 and 2009. This is probably due to the 2006 reforms and a major focus on reading in all primary and secondary schools. Yet, another probable causational factor could also be a more positive attitude towards PISA testing among teachers and students.

One Nordic country has seen very stable PISA reading results over time. This country is Denmark, where a rise in score could have been expected because of the significant number of school policy reforms since 1990. One possible explanation for the absence of progression despite reforms may be that basic reading skills, such as word decoding, vocabulary, awareness of strategies for understanding and remembering information as well as summarizing information, are not of primary interest when literary focus in the teaching of Danish and subject teaching are introduced in third grade, and even less so when subject teaching constitutes the main focus from seventh grade. Other possible explanations are

a rise of 2.4 % from 2000 to 2009 in the number of students with immigrant background, that students read less for pleasure and a rising number of schools with a high proportion of immigrant students and native students from poor social backgrounds.

Two countries, Iceland and Norway, have seen declines in scores from 2000 to 2006, followed by a sharp rise in 2009. In Iceland the curriculum reform in 2007 together with a special emphasis on the increased role of students' democratic participation plus the 2008 framework for more individualized learning and greater flexibility for students may have had a positive influence. Moreover, the relatively poor 2006 pilot test results seem to have been used by the schools to improve the teaching, especially in Reykjavik.

In Norway "Make Space for Reading" from 2003–2007, the introduction of national tests, the School Portal, the National Centre for Reading Research and not at least the efforts of the Knowledge Promotion (Kunnskapsløftet) can be expected to be behind this rise.

Two countries, Finland and Sweden, have experienced reductions in their reading performance; in Finland from 2006 to 2009 and in Sweden progressively over all PISA cycles. In Finland the official explanation is a decline in reading for enjoyment, especially among boys, the decline is the highest among the Nordic countries. Another possible explanation is an increased number of students with non-western immigrant background. In Sweden the fall in performance is related to a rise in the proportion of students at low performance levels resulting in an increased difference between the best and the poorest performing students, and at the same time the difference between schools has increased from 2000 to 2009. Thus over all, equity has been reduced. The following three factors have been mentioned as possible explanations: a rising number of schools with a high proportion of immigrant students and native students with poor social background, a rising number of private and independent schools and a rising number of parents choosing another school than the local school. All three factors have led to increased segregation, which reduces positive peer effects.

9. Sammenfatning

9.1 Ti år med PISA I Norden

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9.2 Hvad er PISA?

PISA står for Programme for International Student Assessment. PISA måler, hvor godt unge mennesker er forberedt til at møde udfordringerne i dagens informationssamfund. PISA ser ikke på de unges kompetencer i forhold til ministeriets læseplaner. PISA ser i stedet på, hvor godt de unge kan bruge deres kunnen, når de møder udfordringer senere i livet.

De unge står i dag over for et globaliseret videnssamfund, hvor muligheden for at kunne fortsætte i uddannelsessystemet eller grundskolen er af afgørende betydning dels for det enkelte menneskes jobmuligheder, indtjening og livskvalitet, dels for samfundets fortsatte vækst og velfærd. Derfor er PISA designet til at forsyne uddannelsespolitikere, uddannelsesadministratorer og praktikere med en omfattende vurdering af de 15-åriges elevers læringsresultater i slutningen af den undervisningspligtige periode. PISA tester de 15-årige elever inden for tre områder: Læsning, matematik og naturvidenskab.

9.2.1 Næsten ti års undersøgelser giver en solid viden

PISA-undersøgelsen er blevet til i et samarbejde blandt regeringerne i OECD-medlemslandene, og undersøgelsen er nu gennemført fire gange med tre års mellemrum. Den første i 2000, den anden i 2003, den tredje i 2006 og den seneste i 2009. I 2000 var der ekstra fokus på læsning, i 2003 var det matematik, der blev undersøgt grundigere, og i 2006 var det så

naturvidenskab. I 2009 har der igen været ekstra fokus på læsning. Med næsten ti års undersøgelser på bagen har PISA-forskerne derfor nu fået en solid viden om elevernes beredskab til at møde fremtidens udfordringer.

PISA fokuserer på læsefærdighederne, fordi læsning er grundlaget for, hvor godt eleverne præsterer i alle andre fag, på ungdomsuddannelserne og i voksenlivet – hvad enten det drejer sig om uddannelse, job eller private gøremål.

9.3 Hvad er PISA Northern Lights IV?

PISA Northern Lights IV er den fjerde nordiske forskningsrapport. Rapporten gennemgår de 15-åriges læsefærdigheder i de nordiske lande: Danmark, Færøerne, Finland, Island, Norge og Sverige. Rapporten ser også på forskelle i læsefærdighederne hos drenge og piger, hos de svage læsere og hos elever med- og uden indvandrerbaggrund.

Desuden giver PISA Northern Lights IV en oversigt over udviklingen af skolesystemer og skolereformer gennem de seneste 20 år i de nordiske lande. Endelig forsøger forfatterne at forbinde udviklingen i de nordiske læseresultater med konkrete politiske initiativer og samfundsmæssige forandringer i almindelighed.

9.3.1 *PISA og PIRLS er vigtige redskaber*

Store internationale læseundersøgelser, som PISA og PIRLS, er yderst vigtige redskaber i styringen af dansk uddannelsespolitik. Men disse undersøgelser fortæller ikke noget om årsagerne til de utilstrækkelige læsefærdigheder, ej heller hvad der skal til for at mindske antallet af dårlige læsere i niende klasse. I PISA Northern Lights IV, kommer læseforskerne alligevel med nogle mulige forklaringer og bud på, hvad man kan gøre for at hjælpe de dårlige læsere.

9.4 Læsning er en vigtig forudsætning for viden

Hvorfor er det vigtigt at sætse på læsning? Og hvorfor er det vigtigt at stimulere læselyst? Fordi læsning er en forudsætning for at kunne tilegne sig viden, for at kunne dele viden og for at kunne deltage i samfundslivet.

PISA tester læsefærdigheder i forskellige hverdagssammenhænge. Har elever i niende klasse tilstrækkelige færdigheder til at finde og uddrage informationer? Kan de sammenkæde og fortolke informationer, og kan de reflektere over dem? Er de i stand til at vurdere de informationer, de tilegner sig?

PISA-forskerne anvender begrebet „funktionel læsekompetence“, som betyder, at en person kan forstå, anvende, reflektere over og engagere sig i indholdet af teksten – med det formål at udvikle sin viden, se sine muligheder, nå sine mål, og deltage aktivt i samfundslivet.

I Danmark er PISA udvidet med en test, der undersøger to centrale færdigheder i læsning: *ordafkodning* og *ordkendskab*. Disse to færdigheder lærer og træner eleverne i begyndelsen af grundskoleforløbet, hvor de skal lære at læse. Men træningen bliver mindre og mindre, indtil den i de senere skoleår forsvinder til fordel for andre undervisningsaktiviteter som for eksempel tekstanalyse. Test af de grundlæggende læsefærdigheder som ordafkodning og ordforråd blev indført som en national valgmulighed i PISA 2009 i Danmark. Denne testdel bliver gentaget i 2012.

9.4.1 *Finland i toppen – Danmark i bunden*

Blandt de nordiske lande ligger Danmark lavest. Norske og islandske elever klarer sig bedre end ved sidste test i 2006, mens Sverige er gået tilbage og næsten ligger på det danske niveau.

Danmark har i 2009 15,2 procent elever, der ikke har funktionel læsekompetence, mens der i Finland kun er 8,1 procent uden funktionel læsekompetence. Både Island og Sverige har flere elever uden funktionel læsekompetence end Danmark. Det skal dog tages i betragtning, at Danmark har ekskluderet flere elever på grund af særlige behov end de øvrige lande.

Danmark er også karakteristisk ved, at der er færre meget dygtige læsere end de øvrige nordiske lande. Sagt med andre ord er spredningen i læsekompetence ret lille i Danmark.

9.4.2 Sammenhæng mellem læselyst og læsefærdigheder

Der er ikke overraskende en positiv sammenhæng mellem elevers læselyst og deres læsefærdigheder. 45 procent af de danske elever oplyser, at de kun læser, når de er nødt til det. I Finland er læselysten betydelig højere end i Danmark, Island og Norge. Sverige ligger i midten.

Læsning i fritiden har en klar, nærmest eksponentiel sammenhæng med læsekompetencen. 9,7 procent af de danske elever læser mere end en time dagligt, mens den tilsvarende andel i Finland er 15,9 procent. Blot en halv times læsning i fritiden betyder en markant forøgelse af læsekompetencen.

9.4.3 Grundlæggende læsetræning har stor betydning

Hvad skal man gøre for at forbedre læsekompetencen hos niende klasse eleverne? Læseforskerne peger på, at man er nødt til at finde effektive måder, der kan forebygge læsevanskeligheder. Det handler især om at forbedre elevernes grundlæggende færdigheder på alle klassetrin. Det har stor betydning for elevernes læsefærdigheder og læselyst i slutningen af skolen. Et stort ordforråd er nødvendigt for at opnå gode funktionelle læsefærdigheder. Helst skal børnene allerede starte i børnehaven. Skolen skal også fortsætte med at træne læsefærdigheder op gennem klasserne. Skolerne skal være parat til at hjælpe elever med læsevanskeligheder på alle niveauer af den obligatoriske skolegang. Sker det ikke, risikerer elever med utilstrækkelige grundlæggende færdigheder at halte bagefter deres jævnaldrende kammerater i alle fag, hvor læsning er en forudsætning for at lære. Og i sidste instans betyder det en større risiko for frafald på ungdomsuddannelser og arbejdsløshed.

Det er derfor vigtigt, at man gør en indsats for at finde materialer og metoder, der virker inspirerende for læsesvage elever – og især for drenge. Det er også vigtigt at involvere forældrene i indsatsen. Resultater fra PISA Etnisk 2009 viser, at for alle elever – med og uden indvandrerbaggrund – gælder det, at de børn, hvis forældre læste for dem hver eller næsten hver dag, da de gik i 1. klasse, klarede sig bedre i PISA-læsetesten som 15-årige.

9.5 Store kønsforskelle i de nordiske lande

Der er store kønsforskelle i de nordiske lande, når det gælder læsefærdigheder og læseengagement. I alle lande læser piger markant bedre end drenge. Den største forskel mellem piger og drenge læsefærdigheder finder man i Finland, derefter følger Norge, Sverige og Island. Danmark og Færøerne har den mindste forskel mellem piger og drenge, men forskellen er stadig markant.

De finske drenge har haft det største fald i læsefærdighederne. Men de læser stadig markant bedre end danske drenge. De finske piger har bevaret læseglæden og har i 2009 den mest positive holdning til læsning. De norske drenge har derimod den mest negative holdning til læsning.

Kønsforskellene var store i 2000 og er det igen i 2009 både i forhold til læsefærdigheder og i forhold til læseengagement. I 2009 tilbringer de 15-årige nordiske drenge mindre tid med fritidslæsning, end de gjorde i 2000. Til gengæld tilbringer de mere tid med at være online. Selv om der ikke blev spurgt direkte til læsning online i 2000, er det et kvalificeret gæt, at denne form for læsning er steget og formentlig har taget tid fra de traditionelle læseaktiviteter. Samtidig tyder resultaterne på, at både stærke og svage læsere er brugere af internettet.

Set i et kønsperspektiv er det vigtigt, at en vellykket undervisning i læsning for det første indeholder undervisning i læsefærdigheder som ordafkodning og læseforståelse, for det andet, at der er udarbejdet læsestrategier og for det tredje, at læreren også arbejder med en udvikling af læseengagementet hos eleverne.

9.5.1 *Vigtigt med forskellige typer læsestof*

Det er i den forbindelse værd at bemærke, at der er kønsforskelle, når det kommer til typen af læsestof. Flere piger læser blade og fiktion, mens flere drenge læser tegneserier og aviser. PISA-resultaterne viser også en tydelig sammenhæng mellem den tid, eleverne bruger på læsning og på interessen for læsning. Der er samtidig også en sammenhæng mellem mangfoldigheden af læsestof og læsefærdighederne.

Lærerne bør i udviklingen af læseengagement hos drengene være særligt opmærksomme på de forskellige typer af læsestof, som drengene kan

lide, og de skal kunne tilbyde disse typer som alternativ til de traditionelle lærebøger. Det er et faktum, at størstedelen af sprog lærerne i grundskolen er kvinder, og selv om de er glimrende lærere, vil de aldrig være i stand til at handle som ægte rollemodeller for drenge. Gode rollemodeller har stor indflydelse på unge mennesker, derfor skal drenge have reelle muligheder for at møde engagerede mandlige læsere, der kan dele deres glæde for læsning med dem og anspore deres nysgerrighed.

9.6 Svage læsere i de nordiske lande ligner hinanden

Der er stor forskel på, hvor mange svage læsere, der er i de enkelte nordiske lande. Finland har kun otte procent svage læsere og er dermed det land, der tegner sig for det markant laveste antal. De andre nordiske landes procentdel er faktisk dobbelt så høj. Danmark og Norge tegner sig for 15 procent og Sverige og Island har 17 procent. Antallet af svage læsere er steget i Finland, Island og Sverige fra 2000 til 2009, mens antallet er faldet i Norge og Danmark.

9.6.1 *Hvem er de svage læsere?*

Der tegner sig et meget ens billede i de nordiske lande. Der er flere drenge end piger i denne gruppe. Faktisk udgør drengene mere end 60 procent af de svage læsere i de nordiske lande. I Finland er mere end fire femtedele af de svage læsere drenge.

Der er flere elever med indvandrerbaggrund blandt de svage læsere og flere elever med en lav socioøkonomisk baggrund. Der er også flere svage læsere, som ikke er positivt stemt over for læsning, end elever i almindelighed er.

Derudover er der flere svage læsere, der enten overhovedet ikke har gået i børnehaver eller anden type daginstitution eller har gjort det i mindre end et år. Endelig har de svage læsere også et mindre godt forhold til deres lærere end andre elever.

Det kommer ikke som nogen overraskelse, at den procentdel af svage læsere, der har deltaget i specialundervisning er større end procentdelen af alle elever i niende klasse. Men det er bemærkelsesværdigt, at det kun

en lille procentdel af de svage elever har deltaget i specialundervisning. Umiddelbart skulle man tro, at de fleste svage læsere har deltaget i specialundervisning, men sådan er det altså ikke.

Selvom de nordiske lande ligner hinanden, adskiller Finland sig mest. Der er færre svage læsere, end i de andre lande. Finland har flere drenge i gruppen af svage læsere. De svage læsere i Finland og Norge er mindre positive over for at læse end de svage læsere i de øvrige nordiske lande. De er i øvrigt også mindre positive stemt over for deres lærer.

Som billedet ser ud i dag, er der et stort behov for at finde ud af, hvordan man kan støtte læseaktiviteter hos drenge, elever med indvandrerbaggrund, og elever med lav socioøkonomisk baggrund.

9.7 Elever med indvandrerbaggrund

I de nordiske lande er der ganske store forskelle i læsefærdigheder mellem elever uden indvandrerbaggrund og elever med indvandrerbaggrund. Helt overordnet ligger de tosprogede elever 61 PISA-point under dansksprogede elever i læsning, og 37,6 procent af de tosprogede elever mangler funktionelle læsefærdigheder, mens tallet for elever, der taler dansk i hjemmet, er 12,6 procent. Derudover er der også forskel 1. og 2. generationsindvandreres læsefærdigheder.

I Danmark skyldes cirka en tredjedel af efterslæbet indvandrer elevernes socioøkonomiske baggrund, mens resten skyldes andre forhold, som har med indvandring at gøre. Island og Danmark er de lande i Norden, hvor der er størst socioøkonomisk forskel mellem elever med og uden indvandrerbaggrund. Efterslæbet er i øvrigt mindst for elever, der taler testsproget i hjemmet (dvs. dansk i Danmark, svensk i Sverige osv.).

Danmark har, sammenlignet med de øvrige nordiske lande, forholdsvis få indvandrer elever, der ligger helt i top. Blandt de nordiske lande er andelen af svage læsere i 1. generation lavest i Norge og højest i Sverige. Af svage læsere i 2. generation har Finland den laveste andel, Danmark den største.

I Danmark – såvel som i de øvrige nordiske lande – er indvandrer drenge den gruppe, der har den laveste læsescore, men de læser lige så godt som drenge uden indvandrerbaggrund

Det er for de nordiske lande et fælles mønster, at 1. generationselever, der er kommet til værtslandet i førskolealderen klarer sig lige så godt som 2. generationselever. Desuden er der kun i Danmark klare tegn på, at der er et efterslæb i forhold til læsescorer mellem tidligt og sent ankomne 1. generationselever, når der er taget højde for forskelle i socioøkonomisk baggrund.

I Danmark scorer elever uden indvandrerbaggrund, som går på skoler med 40 procent eller flere tosprogede, markant lavere i PISA's læsetest sammenlignet med elever uden indvandrerbaggrund, som går på skoler med under 10 procent tosprogede. På skoler med op til 40 procent tosprogede er der dog ikke de store forskelle på læsescorer for elever uden indvandrerbaggrund. Blandt indvandrer elever, klarer de elever, som går på skoler med under 10 procent to-sprogede, sig bedst – men de ligger dog stadig langt under elever uden indvandrerbaggrund, på samme type skole.

9.7.1 Forklaringer på forskellene

Der er flere forklaringer på de store forskelle i læsefærdighederne. En forklaring kan være, at det sprog, der bliver undervist i, er et andet sprog end elevernes modersmål. En anden forklaring kan være, at forældrene har en lavere socioøkonomisk baggrund. En tredje forklaring er indflydelsen fra en høj koncentration af elever med indvandrerbaggrund.

9.7.2 Heterogene skoler opnår bedre resultater

Resultaterne peger på to vigtige politiske emner. For det første bør man undgå skoler med mange elever med indvandrerbaggrund. Dette kræver, at man tilskynder indvandrerfamilier til at placere deres børn i skoler, hvor koncentrationen af indvandrere er forholdsvis lav. Derudover skal man undgå store etnisk homogene boligområder. For det andet skal indvandrerfamilier tilskyndes til at stimulere de sproglige færdigheder hos deres børn ved fx engagere sig i læseaktiviteter i hjemmet og ved at deltage i dagtilbud, skole og fritidsaktiviteter.

9.7.3 *Betydning af sprog talt i hjemmet*

Når man ser på betydningen af elevernes etnicitet, er det samtidig vigtigt også at se på, hvilket sprog eleven taler derhjemme. I PISA har man en variabel, som fortæller, om det sprog, der hovedsageligt tales i elevens hjem, er et andet end testsproget. Det viser sig, at hvis man taler et andet sprog end testsproget derhjemme, resulterer det i dårligere læsefærdigheder.

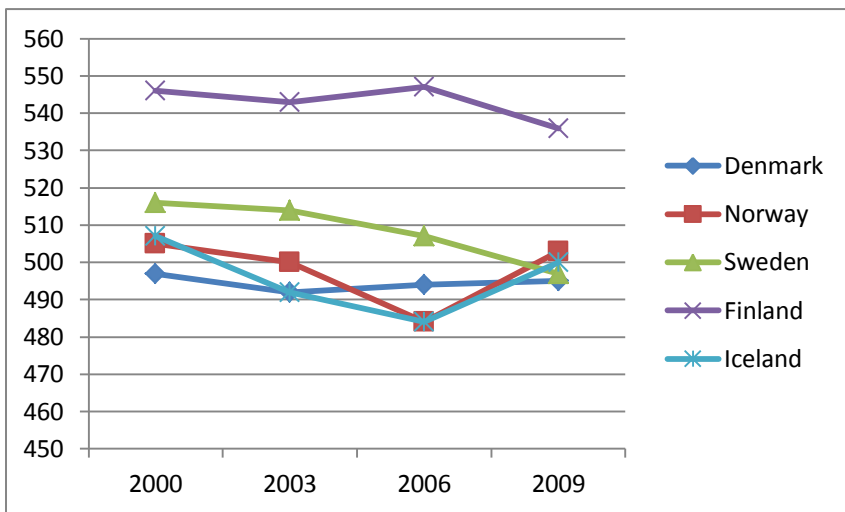
9.7.4 *Forældrene har betydning*

Resultaterne viser, at for alle elever – med og uden indvandrers-baggrund – gælder det, at de børn, hvis forældre læste for dem hver eller næsten hver dag, da de gik i 1. klasse, klarer sig bedre i PISA-læsetesten som 15-årige. Blandt indvandrereløvere på skoler med 40 procent tosprogede eller flere, viser resultaterne, at de elever, hvis forældre læste hver eller næsten hver dag for dem, da de var mindre, opnår en læsescore i PISA, som var 35 point højere end de indvandrereløvere, hvis forældre nøjedes med at læse for dem en til to gange om ugen. En pointforskel af denne størrelsesorden svarer næsten til det, der på OECD-plan opnås på et helt skoleår.

9.8 Udvikling i læseresultaterne 2000–2009

Danmark, Finland, Island, Norge og Sverige har alle deltaget i PISA siden 2000. Læseresultaterne fra de fem nordiske lande ses i figuren nedenfor.

Alle fem lande har oplevet dårligere læseresultater fra 2000 til 2009. Diagrammet viser, at Finland har langt det bedste resultat i alle fire PISA-målinger. Sverige, der kommer ud som nummer to blandt de nordiske lande i 2000, viser en gradvis tilbagegang fra 2000 til 2009. Island er nummer tre i 2000, men går derefter tilbage i 2003 og i 2006. I 2009 tegner Island sig for en pæn stigning og kommer dermed meget tæt på niveauet fra 2000.



Norge og Danmark har den mindste tilbagegang. Norge, der var nummer fire i 2000, oplevede også et fald i de næste seks år. Men i 2009 viser resultaterne en stigning, der bringer Norge næsten tilbage på niveauet i 2000. Danmark står for den mest stabile udvikling over de seneste ni år.

Færøerne er ikke med i diagrammet, da de først kom med i PISA-undersøgelsen i 2006. Færøerne ligger et godt et godt stykke under de øvrige nordiske lande. De ligger på niveau med lande som Uruguay i 2006 og Serbien i 2009. Der er ingen officiel forklaring på disse relativt dårlige resultater. En anden mulig forklaring kan være mange års hjerneflugt til Danmark, Storbritannien og Canada. Desuden kan det måske også hænge sammen med, at der er lave akademiske forventninger i skolerne, fordi Færøerne har en kultur, der fokuserer på traditionelle job som fiskeri, og at Færøerne er et samfund, hvor forpligtelser over for familien er vigtigere end karriere og formel uddannelse.

9.9 Har skolepolitiske reformer forbedret PISA resultaterne?

Har de skolepolitiske reformer haft en effekt på PISA-resultaterne? Det er et spørgsmål, man efter ti års PISA-undersøgelser selvfølgelig er nødt til at stille. Det er også spørgsmål som tit bliver diskuteret blandt forskerne. PISA-resultaterne viser udviklingen i de 15-åriges læsefærdigheder over de sidste ti år. Men resultaterne kan ikke sige noget om årsagerne. Når forskerne skal forklare PISA-resultaterne, ser de på ændringer i landenes skolepolitik og samfundsmæssige forandringer. Ud fra disse forandringer kan man opstille antagelser og betragtninger om, hvad der kunne være sandsynligt.

Men først er der to generelle samfundsmæssige faktorer, der også skal tages i betragtning, når man vurderer de unges læsefærdigheder. Den første handler om ændringen i elevernes læselyst. PISA 2009 viser en tilbagegang i læselysten over perioden 2000 til 2009. Det betyder faldende læseaktiviteter i fritiden og dermed dårligere læsefærdigheder. Den mest markante tilbagegang finder man i Finland.

Den anden samfundsmæssige faktor er, at antallet af elever med indvandrerbaggrund har været stigende i alle de nordiske lande. Højest er Danmark med 2,4 procent. Norge er nummer to med 2,2 procent. Efter dette kommer Island med 1,6 procent, Finland med 1,3 procent og Sverige med 1,2 procent.

Nedenfor er en oversigt over skolepolitik og samfundsmæssige forandringer i de nordiske lande sammenholdt med udviklingen i PISA-resultaterne. De nordiske skolesystemer og de skolepolitiske reformer, der er blevet indført i løbet af de sidste tyve år viser flere forskelle.

Færøerne

Færøerne har deltaget i PISA i 2006 og 2009. Færøerne har haft en massiv stigning i læsescoren fra 2006 til 2009. Dette er sandsynligvis forårsaget af de skolepolitiske reformer, der blev indført i 2006. Disse reformer drejede sig om at forbedre læsning i grundskolen og på ungdomsuddannelserne. Antallet af timer i faget færøsk blev øget fra syv til 11 om ugen og nationale test bliver udført i 4. og 6. klasse. Reformerne var den direkte følge af de dårlige resultater fra en PISA-pilottest i 2005. En anden forklara-

ring kan også være en mere positiv holdning til PISA-test blandt lærere og elever og at der generelt blev sat fokus på læsning i alle skoler og på alle klassetrin.

Finland

I Finland har der været få skolepolitiske reformer siden 1990. Reformerne har tjent til at opretholde den høje kvalitet i den finske skole og sikre lige muligheder for alle i det finske skolesystem. Det grundlæggende pensum er blevet justeret med stærkere nationale retningslinjer. Det finske skolesystem er kendetegnet ved sin høje standard i læreruddannelsen og en stærk evalueringskultur. I 2009 har der været et markant fald i læsefærdighederne, men det er stadig det højeste af alle de nordiske lande. Den officielle forklaring er et fald i læselysten, især blandt drenge. I 2000 var der én ud af fem elever, som sagde, at de ikke læste for fornøjelsens skyld, og i 2009 er tallet en ud af tre og et ud af to for drenge. Faldet er den højeste blandt de nordiske lande. En anden mulig forklaring er et øget antal elever med indvandrerbaggrund.

Sverige

Det er bemærkelsesværdigt, at Sverige, der var nummer to blandt de nordiske lande i 2000, har vist en gradvis tilbagegang frem til 2009. Faldet hænger sammen med, at der er kommet flere dårligt præsterende elever. Samtidig er forskellen mellem skolernes resultater blevet større fra 2000 til 2009. En mulig forklaring kan være, at fra 1996 har det været muligt for forældrene frit at vælge, hvilken skole, deres barn skal gå på. Antallet af friskoler og private grundskoler er steget i de sidste tyve år. Det har betydet, at et stigende antal forældre vælger en anden skole end den lokale. Det resulterer i en større adskillelse af dårligt og godt præsterende elever. Et frit valg af skoler og øget søgning til de private skoler betyder derfor, at det gennemsnitlige niveau falder.

Danmark

I Danmark er PISA-læseresultaterne stort set uændrede siden 2000. Man kunne have forventet en stigning i scoren på grund af de mange skolepolitiske reformer siden 1990. Det gælder tiltag som et større fokus på differentieret undervisning, undervisning i læsning, fælles mål, øget antal timer, nationale test, individuelle elevplaner og læsekonsulenter. PIRLS

2006 viste, at i fjerde klasse var læsepræstationerne steget med hvad der svarer til et skoleår siden 1991, men der har ikke været ændringer i læsescoren fra PISA 2000 til PISA 2009. I stedet viser læseresultaterne en imponerende stabilitet over år, en stabilitet, som ikke er til stede i resultaterne for matematik og naturvidenskab.

En mulig forklaring på, at stigningen er udeblevet er, at de grundlæggende læsefærdigheder ikke har været i fokus op gennem mellem skoleforløbet og er blevet en helt afgørende faktor fra syvende klasse. Andre mulige forklaringer er, at antallet af elever med indvandrerbaggrund er steget med 2,4 procent fra 2000 til 2009. Dertil kommer, at eleverne læser mindre for fornøjelsens skyld end de har gjort tidligere. Endelig er der et stigende antal skoler med et højt antal elever med indvandrerbaggrund og elever med dårlig social baggrund.

Island

Island har oplevet et markant fald fra 2000 til 2006 efterfulgt af en kraftig stigning i 2009. Der er sikkert mange årsager til forbedringen i 2009. Det dårlige 2006-resultatet foranledigede en læseplansreform i 2007 med et særligt fokus på elevernes demokratiske deltagelse. Yderligere ændringer i 2007 og 2008 kan også have haft en positiv indflydelse. Desuden kan 2006-resultatet have været en medvirkende årsag til, at de enkelte skoler forbedrede undervisningen. Skoler i Reykjavik har været særligt effektive.

Norge

Norge har, ligesom Island, oplevet et markant fald fra 2000 til 2006 efterfulgt af en kraftig stigning i 2009.

Norge har sat massivt ind med flere og meget dybtgående reformer i de seneste år. Ud over indførelsen af nationale test, kom læseindsatsen fra 2003–2007, der blev oprettet et Nationalt Center for Læseforskning i 2004. Endelig indførte Norge „Kunnskapsløftet“, der formentlig har betydet de største og mest grundlæggende ændringer. Blandt andet handler det om indførelse af grundlæggende læse og skrivefærdigheder fra første klasse samt nye læreplaner i alle fag med tydelige mål for, hvad eleverne skal lære.



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Northern Lights on PISA 2009 – focus on reading

This report aims to identify and analyze specific Nordic reading results and trends from 2000 to 2009. There is focus on weak readers and gender issues, and there are results from an analysis of two Danish national options; one covers tests of basic reading skills, word decoding and vocabulary knowledge, while the other presents results from analysis of oversampling of students with immigrant background. The publication also gives an overview of the school systems in the Nordic countries with a timeline of politically induced changes from 1990 to 2010 – the years of the PISA assessments. An overview of such changes has never previously been provided. The documented changes are used to form possible explanations for trends in PISA reading results in the respective countries.