

What influences Educational Achievement in Swedish Schools?

A Systematic Review and Summary Analysis



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Foreword

During the past decade, the general debate about schools has seen an increased focus on educational outcomes. One clear indication of this is the dramatic increase in interest in participating in international educational assessment. At the beginning of the 1990s, Swedish pupils fared well in international comparisons. In the interim, the performance of Swedish pupils has declined. Factors that might have influenced these changes have become a central issue in the debate.

This review has been prepared as a result of an initiative by the Swedish National Agency for Education.¹ The review is based on a broad sweep of research and contains a summary of findings that bring to light the impact of various factors on pupils' attainments at different levels, from the systemic to the classroom level. The text addresses factors such as societal change, educational reforms, available resources and the inner workings of schools. The report also builds on an in-depth review of changes in educational attainment based on various outcome measures. In a summary analysis, the Agency then attempts to relate the results of the systematic review to patterns of change in Swedish compulsory schools.

By widening the knowledge base, The Agency hopes that this report will contribute to a wider discussion about impacts on educational outcomes within Swedish compulsory schools, and will thus constitute a platform for the continued development of compulsory schools in Sweden.

Scientists from three different research groups are responsible for the various chapters: Jan-Eric Gustafsson, Eva Myrberg, Monica Rosén and Kajsa Yang-Hansen (University of Gothenburg); Henrik Roman (Uppsala University) as well as Jan Håkansson and Daniel Sundberg (Växjö University). Lena M. Olsson acted as project leader and wrote the analytical summary on behalf of the National Agency for Education. Marika Sanne was part of the project's introductory phase. The National Agency for Education's reference group included Birgitta Andrén, Kerstin Mattsson, Kristian Ramstedt, Camilla Thinsz-Fjellström, Anita Wester and Krister Sund. Eva Wirén contributed to the concluding phase of the project.

Stockholm – September, 2009

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1 Throughout this text, the terms "The National Agency for Education" and "The Agency/National Agency" are used interchangeably.

Contents

1	Introduction.....	8
	Advice on reading the text.....	10
2	Comprehensive Educational Reforms and Major Societal Changes.....	14
	Changes in Educational Outcomes	16
	Impact of the Reforms	17
	Choice of Themes for Deeper Analysis.....	18
3	Segregation.....	22
	Changes in School Management – Reforms in School Choice.....	22
	Increased Differentiation between Schools and Pupil Cohorts.....	22
	The impact of Segregation on Attainment.....	24
4	Decentralisation	28
	Changes in School Management – Municipalisation	28
	Resources based on Circumstance and Needs?.....	31
	The impact of Decentralisation on Attainment	32
5	Streaming.....	36
	Streaming solutions are common	36
	Understanding the Increased Scope of Special Needs.....	38
	The impact of Streaming on Attainment.....	39
6	Individualisation	44
	Changes in School Management – New Curricula, Syllabi, Grading Criteria	44
	Increased Individualisation.....	45
	The impact of increased Individualisation on Attainment	47
7	Summary Analysis	52
	References	60

Introduction

1 Introduction

International studies of educational attainment, since the middle of 1990s, have indicated a decline in performance by Swedish compulsory school pupils (Skolverket, 2009a). Declining results are most notable in mathematics and natural science, but are also apparent, though to a lesser degree, in reading comprehension. This raises the question as to how to explain these declining performance levels. How might Swedish compulsory schools have changed since the beginning of the 1990s? Can these observed changes be explained through research about those various factors that might have an impact on educational attainment?

The Swedish National Agency for Education is charged with the task of monitoring changes in educational outcomes and also with attempting to explain them. Understanding what lies behind these changes becomes ever more important as the schooling system faces a renewed period of major reform.

This publication is a summary analysis of the systematic review *What influences Educational Achievement in Swedish Schools?* The document is available in its entirety free of charge through our website, in print or as a downloadable PDF, at www.skolverket.se.

The systematic review contains a summary of research and evaluation studies that shed light on the significance of various factors that influence educational outcomes in Swedish compulsory schools. In addition, the review contains an in-depth survey and, using various outcome measures, a series of new analyses of how Swedish pupils' educational outcomes have changed over time. Outcomes are defined here as pupils' attainment levels and values in relation to stipulated goals for compulsory schools taken as a whole – both in terms of democratic and academic aspirations. These goals are formulated in curricula and syllabi but are also given expression within the framework of international studies. Other relevant aspects, also included in these outcomes, are pupils' attitudes towards, and interest in school, their self-esteem and self-assessment of their own physical and psychological health.

The review takes a broad approach and contains a summary on the significance of various factors within four main areas: **Societal Changes**, **Educational Reforms**, **Resource Allocation**, and the **Inner Workings of Schools**. The Agency has chosen to divide the review in this way in order

to shed light on schools and conditions for schooling at various levels – from the systemic to classroom level. The chosen structure of the report is intended to emphasize possible reasons for changes in attainment at compulsory school, their complexity, and also to show how various factors may interact at various levels. Reasons for variations in attainment are rarely found along a single dimension and are unlikely to be limited to a single explanatory factor.

This review was initiated by the National Agency for Education. The Project began in the spring of 2008 when the Agency asked all Swedish colleges and universities with relevant disciplines and orientations to submit a declaration of interest in compiling research within four areas impacting on the educational system. The inquiry awakened a great deal of interest and the Agency decided to allocate the task as follows:

The University of Gothenburg (Professor Jan-Eric Gustafsson, Dr. Eva Myrberg, Docent Monica Rosén, and Dr. Kajsa Yang-Hansen) were contracted to summarise research regarding Societal Changes and Resource Allocation, as well providing an in-depth analysis of changes in attainment in Swedish compulsory schools based on a range of outcome measures.

Uppsala University (Dr. Henrik Roman) and Växjö University (Dr. Jan Håkansson and Dr. Daniel Sundberg) were contracted to summarise research dealing with Educational Reforms and Inner Workings of the School.

The Agency's Summary Analysis builds on the research and findings as outlined in the chapters named above. The final text has been discussed together with the other researchers, but the Agency is entirely responsible for the content of the final summary. By the same token, the researchers themselves are responsible for content of and conclusions presented in their respective chapters.

The main emphasis in the whole text is on Swedish research and evaluation. However, in regard to certain factors, available Swedish research proved insufficient in order to be able to draw any conclusions about impacts on pupils' attainments. Thus, regarding these factors, the chapters build on the results of international research that is then discussed in the light of how findings might relate to Swedish conditions.

The review is also limited to one form of schooling, that is, Swedish compulsory schools, from first to ninth grade. Research and evalua-

tion studies focussing on Swedish compulsory schools are summarized. Compulsory schooling is fundamental and plays a crucial role in pupils' continued educational trajectories and choices in life. Though compulsory schooling is the central focus of this study, this does not exclude the possibility that research findings, conclusions and arguments may not be relevant to other school forms.

The timeframe for the study is restricted to research and evaluation conducted from 1990 onwards. An important reason for this specific timeframe is that a series of reforms affecting Swedish compulsory schools have been introduced since the beginning of the 1990s. These changes occurred concomitantly with various structural changes in society at large, all having an impact on schools in various ways. There is an additional reason for beginning with the early 1990s. Those Swedish pupils who last participated in internationally comparable evaluation studies have spent their compulsory school years from the 1990s onwards. In a sense, these pupils and their attainments are both a testament to and a measure of systemic changes and educational reforms within Swedish compulsory schooling.

Advice on reading the text

This Summary Analysis builds on the results and reasoning presented by researchers who authored review sections of *What influences Educational Achievement in Swedish Schools?* Thus, it is not to be regarded as a summary in the traditional sense where each chapter is summarised one at a time. The Summary Analysis cuts across all the review chapters and attempts to tie together key findings and central arguments. The review sections begin with a comprehensive description of societal changes and educational reforms, general arguments about the impact of these reforms and their influence on outcomes as well as a description of the Agency's choice of themes for analysis (Chapter 2). Thereafter, each theme is presented on its own: Segregation (Chapter 3), Decentralisation (Chapter 4), Streaming (Chapter 5) and Individualisation (Chapter 6).

Lastly, the Agency refers back to the main question – What influences educational achievement in Swedish schools? (Chapter 7), while summarizing the most important attainment indices and research findings.

In order to facilitate reading the Summary Analysis, where the National Agency for Education makes reference to the systematic review,

occasionally reference is also made to some of the specific studies mentioned in the review texts. In those cases where the Agency refers to results of studies not found in the review chapters, these are indicated in footnotes.

Comprehensive Educational Reforms and Major Societal Changes

2 Comprehensive Educational Reforms and Major Societal Changes

Several reforms were carried out at the beginning of the 1990s that, when taken together, might be described as the introduction of a systemic realignment of how schools function. A strong common denominator was decentralisation. One description of the changes taking place in Swedish education during the 1990s is that, within a short space of time, the school system changed from one of the western world's most centralised organisations to one of its most deregulated.² Municipalities were given authority for schooling and, within municipalities, further decentralisation took place, with responsibility being given to school districts and headmasters. New state guidelines took effect aimed at developing professional responsibility and leaving significant scope for teachers' own interpretations. Increased possibilities for pupils and parents to choose their schools as well as greatly increased opportunities for founding independent schools were other changes that took place during the same period. Last, but not least, a new outcomes-based grading system was introduced that stipulated a lowest possible level of attainment all pupils were expected to achieve.

Educational reforms are not isolated phenomena but ought rather to be understood as a mirror of ideologically grounded social change. Thus, changes within the schooling system took place parallel to a range of societal changes that, in various ways, may have had more or less of an impact on schools and conditions for schooling. In Sweden, long periods of the 1990s were characterised by a deep recession that led to decreased resources for schools and other publicly financed initiatives. The recession of the 1990s also had the effect of increasing unemployment and widening social differentiation. Residential segregation became more pronounced during the 1990s.

Demographic patterns were about to change. Immigration increased and included new groups of immigrants. However, one conclusion in the analysis is that increased immigration could only marginally explain the national decline in levels of attainment. Another demographic parameter saw a significant increase in birth rates during the late 1980s

2 See, for example, Björklund, A., Clark, M., Edin, P.-E., Fredriksson, P., & Krueger, A. B., 2005 as well as Lundahl, L., 2002.

leading to an unusually large increase in the number of pupils in compulsory school from the middle of the 1990s onwards. This increase in cohort size had, in turn, special implications for the allocation of resources. The large increase in numbers of compulsory school pupils meant a lowering of teacher–pupil ratios. Teacher–pupil ratio is one factor that influences pupils’ attainment levels, primarily for those pupils with less favourable study conditions.

Other changes had to do with changes in traditional family constellations. The number of divorces increased during the 1990s. There are studies indicating that children in single-parent households perform less well in school. However, these results are not unequivocal and performance is closely linked to the socioeconomic status of the parents (Jonsson and Gähler, 1997). Other studies indicate that a child’s time spent with his/her parents has decreased during the last 40 years, largely because of an increase in the numbers of both parents being employed. The effect of this specific factor on educational attainment is not particularly well researched. However, the amount of time younger children spend in their parents’ care has been eroded by time spent in pre-school and after-school care. Research results (primarily international) indicate a positive correlation between quality of childcare and results in compulsory school later on (see, for example, Sammons et al, 2004).

New technology has also resulted in new leisure habits, with computer-use increasingly competing with schools for pupils’ time. One study has shown a negative correlation between increased computer usage during leisure-time and changes in pupils’ reading comprehension (Gustafsson, 2008). This study concluded that it is not computer use as such that has impacted on reading performance, but, rather, that time previously devoted to reading has decreased.

The relationship between parents’ levels of education and pupils’ school results is surprisingly stable over time. In spite of a general increase in levels of education, where the great majority of parents now have at least an upper secondary school education, the general connection between parents’ educational background and their children’s school performance remains unchanged, both at individual and school levels. This connection is significantly stronger at school level where it has also been increasing. One conclusion of the Systematic Review is that the positive effects of increases in parents’ educational level have been negated by increased residential and between-schools segregation.

Several of the social changes that occurred during the 1990s have endured, while others have abated. As the economic recession passed (though, after an intermediary period of inflation, a new recession has occurred) other structural changes have remained into the 2000s. Understandably, several of these changes have had an impact on the conditions under which schools operate. However, the link between social forces and levels of attainment in school are significantly under-researched at both the national and international levels. One explanation for this is that direct measures of such variables are hard to identify, isolate, and observe. Another problem is the difficulty in predicting when societal factors will begin to impact on attainment. Long periods of time may elapse before social change begins to have repercussions on educational outcomes.

Changes in Educational Outcomes

There were several motives behind the educational reforms of the 1990s, foremost among which were raising the quality of education and improving outcomes. However, research into these reforms and their possible impact on attainment levels has been varied.

To a certain extent, trends in pupils' attainments can be seen as a measure of how successful the various reforms have been, and, with a relatively high degree of certainty, we can conclude that **grade point averages** within several central subject areas have declined over time. The National Agency for Education's own national evaluations (NU92 and NU03), as well as international studies, present a broadly consistent picture of Swedish school pupils' results in mathematics, natural sciences and reading comprehension in later years of compulsory school, showing a decline in performance since the beginning/middle of the 1990s. In the systematic review, a re-interpretation is made of the results of the international investigations conducted up to and including 1995. These new analyses indicate that levels of attainment in Swedish compulsory schools at the beginning of the 1990s were particularly high and that the decline is therefore more dramatic than earlier analyses have shown. The decline in performance of Swedish pupils has been from a previous high in international comparisons.

In addition to average grades having worsened in certain regards, the **spread of grade point averages** has widened over time. In other words,

the variation in results between schools and between various groups of pupils has become more pronounced. From 1993, attainment differentials have increased between various schools, particularly from 1998, when a new grade-setting procedure was introduced for the first time. The analyses have also pointed to increasing differences in grades attained by various groups of pupils (differentiated by social background, gender, and ethnicity) but most particularly between groups differentiated by parents' educational background.

In other regards, developments since the beginning of the 1990s have been more positive. The Agency's survey of attitudes (Skolverket, 2007a) has shown that the number of **pupils who are "happy" or "very happy"** in school has increased. Pupils' interest in schoolwork has increased, as has, in certain regards, pupils' participation in the running of schools.

Contrasting this positive development is a concomitant experience where many pupils in their senior years at compulsory school report poor health, a poor sense of well-being, and **elevated levels of stress**. This is clear from the National Institute for Public Health's investigation carried out for the WHO (Danielsson, 2006). This negative trend is especially pronounced among girls. Thus, in terms of certain health aspects, development has been negative since the mid-1990s, especially for girls. Elevated levels of stress and worsening self-reported health may be one negative consequence of higher levels of attainment for girls compared with boys.

Impact of the Reforms

What combined knowledge is there about how educational reforms have impacted on schools? Just as it is difficult to study the effects of social change, substantiating the consequences of any educational reform is equally problematic. Generally speaking, it is difficult to ascribe any reform impact, either in space or time, especially since reforms often do not have a clear beginning or end. Any reform, as its impact filters through, meets a schooling process with its own particular history that, in turn, has been formed by earlier school reforms and social traditions and changes.

Another difficulty is how to ascribe the impact of a specific reform where several other reforms have been put in train at approximately the same time. There is also the complication of separating out the effects of several reforms in relation to other social changes.

Those studies that have investigated the effects of the 1990s school reforms have grappled continually with these types of problems. Despite these difficulties, it remains nevertheless a reasonable premise that reforms actually do have an impact on pupils' attainments and in the systematic review *What influences Educational Achievement in Swedish Schools?*, the researchers conclude that an **increasing differentiation of levels of attainment** coincides with comprehensive changes in the Swedish school system that have occurred since the beginning of the 1990s.

Several Swedish researchers have pointed out that the intentions of various reforms are not always matched by their desired outcomes, and that it cannot be taken as a given that a specific reform will always work in the intended direction (see, for example, Rothstein, 1986, Sundberg, 2005, Rönnerberg, 2007). Within the international body of research on reforms, it is well known that reforms may often result in effects other than those which were intended. Reasons for such undesired effects might be weaknesses in implementation or that reforms have not had adequate support among affected groups, or that there may have been a lack of resources in the implementation phase, or that reforms have not carried sufficient impact because of competition from established patterns and traditions.³

Changes in Swedish compulsory schools can be said to be related to general societal change as well as to the educational reforms themselves. Concerning the central intentions of the reforms, certain developments may be interpreted as expressions of undesirable reform effects. One central question – based on evaluation research on the impact of educational reforms – is what these changes have meant for Swedish pupils' educational attainments in the long term?

Choice of Themes for Deeper Analysis

The National Agency for Education has chosen to categorize the developmental tendencies in Swedish compulsory schools into four broad perspectives or analytic themes, namely: segregation, decentralisation, streaming, and individualisation. This choice is based on the fact that there is strong support in Swedish research findings that the changes, as outlined above, have actually taken place. These themes recur in various ways, more or less explicitly, in all the research chapters of the systematic

3 Sarason, S.B. (1990) as well as Tyack, D. & Cuban, L. (1995)

review *What influences Educational Achievement in Swedish Schools?* In addition, from an educational governance perspective, these concepts are central. They can be linked to ambitions as underscored in school legislation and educational reforms. Thus, The Agency uses these perspectives in making a systematic review and summary of research relative to the developments that have taken place. The perspective is aimed at facilitating an understanding of critical factors behind developments in educational attainment at Swedish compulsory schools.

Segregation

3 Segregation

Changes in School Management – Reforms in School Choice

One aspect of changed structures for school management had to do with creating formal opportunities for different actors to found and manage schools. At the beginning of the 1990s, the system of grants and subsidies was changed, creating new conditions for the founding of independent schools. The number of independent schools has more than doubled since the mid-1990s and the number of pupils attending independent schools had risen to nine percent by 2007/2008. Independent schools are no longer seen as just complementing municipal schools, but have, to an ever increasing extent, become an integral part of the Swedish educational system (National Agency for Education, 2008a).⁴

School-choice reforms (that is, increased opportunities to found independent schools as well as increased opportunities for pupils to attend such schools) have been relatively well studied and are the basis of the greatest number of effects studies. These studies have tended to focus on the segregating and excluding effects of school-choice reforms. Even if the majority of Swedish studies have found that segregation of schools has increased, there is little agreement about the degree to which school reforms are the root cause. One confounding problem, alluded to in the systematic review, is that residential segregation has increased during the same period. This is a typical example of the earlier argument concerning the difficulty of separating out the various effects of any reform. Taken together, the studies in the review indicate that residential segregation is a crucial factor behind differences in pupils' attainments and educational choices, and there is a certain amount of support, from studies carried out in the 2000s, to indicate that school-choice reforms have also contributed to an **increase in segregation between schools**.

Increased Differentiation between Schools and Pupil Cohorts

Variation between schools in Sweden is relatively small, especially when compared to other countries. This is both in terms of integration of pupils from different socio-economic backgrounds and in terms of their school grades. Thus, in international comparisons, the Swedish school

⁴ National Agency for Education's status assessment 2008, report 324

system has been described as equitable. However, recent studies would appear to indicate that this picture has changed to a certain extent. Research findings largely concur in that the within school **composition of pupil cohorts has become more homogeneous**, while differences in attainment between various groups of pupils and between different schools have increased. That these differences have increased is based on several outcome measures –as measured by school grades and results from international tests.

In a previous study by the National Agency for Education (2006a), aspects of equity were examined more closely. Results showed that segregation between schools, using parents' socio-economic background as a measure, had increased by ten percent between 1998 and 2004. The report makes a distinction between *visible* segregation, as measured by factors such as social background, gender and ethnicity, and *invisible* segregation. The Agency, in agreement with other researchers, is of the opinion that invisible segregation between groups may also have occurred, having the effect that those more studious pupils within various groups may be drawn to and come to choose schools that are distinguished by having a higher percentage of pupils with Swedish parents with a higher levels of education.

In the same report, the Agency also found that differences in pupils' grade point averages between schools had increased between 1998 and 2004. Analyses of PISA results⁵ also indicate that variation among schools has increased between 2000 and 2006, and for all areas of competency (natural sciences, reading comprehension and mathematics). That **differentiation in attainment outcomes between schools has increased** during the 1990s is confirmed in the Systematic Review *What influences Educational Achievement in Swedish Schools?* This effect is particularly striking from 1998, when the first pupils with criterion-related grades left Swedish schools. It would seem that parents' level of education is the one factor that most heavily influences grade point average outcomes, having approximately double the explanatory value of pupils' gender and ethnicity. The analyses also show a **marked increase in between-group difference in grades**, once again explained predominantly by parental level of education.

5 PISA 2006 – 15 year-olds' ability to Understand, Interpret and Reflect in Natural Sciences, Mathematics and Reading Comprehension: Main findings. Summary: Report 306. National Agency for Education, 2007.

These results are confirmed in the trend studies of Swedish IEA-data that shed light on the relationship between pupils' socio-economic status and reading performance. This study shows that the **effect of pupils' social background** has notably increased between 1991 and 2001, as has the between-school variation (Yand-Hansen, 2008).

The impact of Segregation on Attainment

Parental level of education has had an increasingly significant effect on pupils' attainment outcomes. The link between the parents' levels of education and school results is approximately twice as strong at school level than at individual level and has been strengthening at school level over time.

The National Agency for Education (2006) has confirmed that **school-level effects have intensified** and that the specific school a pupil attends has gained increased significance for how a pupil performs. One reason for this may be related to contextual effects where a pupil's school results are influenced by extraneous factors in a positive or negative direction. Peer group effects and teacher expectations are examples of important contextual effects.

By **peer group effect** is meant that a pupil's grades are influenced by performance levels among friends and classmates. In international research, there is strong support for the existence of powerful peer group effects (see, for example, Hoxby, 2000, Hattie, 2009). In contrast, peer group effects have been infrequently studied in Sweden. Those results that have come to light, are in line with international research. Gustafsson (2006) carried out a systematic review of international research and has concluded that peer group effects do have a significant impact on pupil performance and, therefore, ought to do so in Sweden. A relatively recent Swedish study also confirms the impact of peer group effects, particularly for poorly performing pupils (Sund, 2007).

There has also been great interest among researchers in investigating what **teacher expectations** might mean for pupils' grades. Nowadays, researchers are agreed that actual expectation effects do exist (Jenner, 2004, see also, Hattie, 2009). That teachers' expectations can influence pupil performance is also confirmed in studies by the National Agency for Education (see, for example, Skolverket, 1995). However, it can prove difficult to explicate causal connections – are teachers' expectations

of pupils driven by *a priori* perceptions, or are such expectations a result of a teacher's day-to-day interactions with their pupils? If *a priori* teacher perceptions about various categories of pupils create special expectations (for example, a teacher might have greater expectations of Swedish pupils, especially for pupils of parents with higher education), then the increasing homogeneity within schools, in conjunction with other contextual effects, creates special systemic problems in delivering equitable education for all pupils.

Increased segregation and increased differentiation between schools and between various groups of pupils can also be related to other structural changes that have occurred since the beginning of the 1990s. Below, the transformation of schools following another broad theme, namely, decentralisation, is dealt with.

Decentralisation

4 Decentralisation

Decentralisation has played a central role in the transformation of Swedish schools in the 1990s and has to a great extent influenced the conditions at various levels under which schools operate. Notwithstanding this, Swedish studies aimed directly at investigating links between various elements of decentralisation and pupils' attainments are rare. Thus, there are limited possibilities for drawing definitive conclusions about what decentralisation, in its broadest sense, may have meant for patterns of development in educational outcomes. One dimension of decentralisation deals with resources and the principles by which resources are allocated to schools. These questions are of particular interest for research concerning how various aspects of resource allocation might impact on pupils' educational attainments.

Changes in School Management – Municipalisation

When schools were decentralised, municipalities were given responsibility for allocating resources to compulsory schools. A central notion behind the decentralisation reforms that took place at the beginning of the 1990s was that resource allocation would become more effective and that resources would be directed to where they were most needed. The compulsory school curriculum states that resources are to be allocated on the basis of pupils' abilities and needs, with the consequence that resources ought not to be equally distributed everywhere. Little research has been carried out into the effects of the municipalisation process – the same being true for both resource allocation and the impact of changes in resource allocation on attainments. One possible reason for this lack of research may be found in the difficulty of separating effects of municipalisation from other changes that took place during the same period.

A series of studies by the National Agency for Education indicates a plethora of variations. When it comes to resource allocation there are **major variations** both between and within municipalities.

Municipality costs per school vary. In 2007/2008 costs per pupil for a school year in municipal compulsory schools varied from about 60,000 kronor in the municipality with the lowest per pupil costs to about 108,000 kronor in the municipality with the highest costs (Skolverket, 2009b).

Teacher–pupil ratios have, on average, been lowered by about one teacher per 100 pupils between 1990 and 2007. At the beginning of the 1990s, the teacher–pupil ratio was 9.1 teachers per 100 pupils. This figure was lowered during the 1990s and reached its lowest value in 1997/1998 of 7.5 teachers per 100 pupils. Since then, the teacher–pupil ratio has increased and, by the 2006/2007 academic year, had reached 8.3 teachers to 100 pupils.

There are large variations in teacher–pupil ratios between municipalities. There are also large differences between schools where the teacher–pupil ratio varies from 5 to almost 16 teachers per 100 pupils. The majority of schools, however, have teacher–pupil ratios of between 8 and 10 teachers per 100 pupils. Variations in teacher–pupil ratios between schools and between the different school forms have been relatively constant during the period 1995–2006 (Skolverket, 2009b).

On a national level, the proportion of teachers with a teaching degree (without certification) has decreased by approximately 9 percent since the beginning of the 1990s – from approximately 94 percent in 1991 to just fewer than 85 percent in 2007/2008. The proportion of teachers with a teaching degree was at its lowest at the beginning of the 2000s (81 percent in 2002/2003). Since then, the proportion has increased a little for the majority of categories of teacher. There are also large variations between municipalities in terms of the number of certified teachers. In 80 percent of municipalities, the proportion of teachers with university teaching degrees varies between 72 and 90 percent. Analyses by the National Bureau of Statistics (SCB) show that these variations cannot be attributed to various types of municipality (for instance, number of inhabitants etc). One likely explanation is that different municipalities employ different strategies and interpret regulations differently.

Taken as a whole, there are **significant differences between municipalities** in terms of how resources are allocated to schools. The question is whether these differences have increased. Two Swedish studies cast light on the effects of the decentralisation reforms but reach contrary conclusions. Ahlin and Mörk (2005) analysed changes in municipal resource allocation to schools during the period 1989–2005. The focus of this investigation was whether the decentralisation reforms had resulted in greater variation in resource allocation to schools. The results indicated that between municipality variation in total resource allocation and

teacher–pupil ratios had decreased as a result of decentralisation reforms, a result which might be regarded as being unexpected.

The other study (Fredriksson and Öckert, 2007) came to the conclusion that the spread of teacher–pupil ratios between municipalities had increased up to the beginning of the 2000s and that the greatest decline in teacher–pupil ratios had been at the lower end of the distribution of ratios. These researchers concluded that decentralisation reforms have had significant impact on between-municipality variation.

There are other studies that also shed light on factors of importance for variations in pupil costs between municipalities. Jonsson (1993) has outlined a conceptual model that builds on a distinction between structural factors that municipalities have no influence over and those factors that municipalities can influence through their own decisions. A reasonable assumption, based on this model, is that variation in pupil costs between municipalities is to a large extent determined by structural factors, but that there is also room for making priorities at local level.

The Agency (1996) has made use of a similar conceptual framework in studying the importance of those factors that have a bearing on municipal variations in pupil costs. In this study, a distinction is made between structural and actor-related explanatory factors. Structural factors (such as demographic, geographic, social and economic factors) are unlikely to be influenced by local decisions, while actor-related explanations focus on the notion that municipalities do have their own sphere of influence. Results pointed to five factors that explained about half the variation in pupil costs: residential distance, that is, municipal population density (greatest explanatory value); proportion per municipality of children with foreign-born parents; political majority in the local government; school size; and strength of municipal tax base. Taken together, these results point to structural factors as being the most important and that actor-explanations do also have an impact.

In a study for the years 1995 to 2001, Fransson and Wennemo (2003) outlined a series of analyses based on various explanatory factors. Some of their results seemed to indicate that the relative importance of structural factors was diminishing as more and more decisions were being made at local level. However, an alternative interpretation might be that equalisation subsidies have had the effect of reducing the impact of structural factors.

It is difficult to be more precise about the relative importance of structural changes and actor explanations, but the findings would seem to indicate that variations in costs are to a great extent determined by factors not under the direct influence of municipalities.

Resources based on Circumstance and Needs?

Thus, there are relatively large differences between municipalities in the allocation of school resources. What, then, do we know about how these resources are distributed within specific municipalities?

The National Agency for Education has recently conducted a study of the principles on which municipal allocation of resources to compulsory schools are based (Skolverket, 2009b). One central question in the study was whether resources for schools are allocated according to the characteristics of the cohort of pupils and individual pupils' circumstances and needs. Results indicate that municipalities often distribute resources according to a capitation fee principle and that the dispensing of compensatory support, allocated on the basis of characteristics of the cohort of pupils (parental level of education etc), is relatively modest. Not even in the most segregated municipalities are schools always allocated extra resources. In only 60 percent of the most segregated municipalities were schools compensated on the basis of socio-economic factors, and, where compensation is allocated, it comprises, on average, only a small portion of the total budget (an average of six percent).

It is more common that municipalities allocate supplementary resources for special needs. However, the study indicated that special needs resources are evenly distributed within municipalities. Results indicate that schools where pupils have less chance of reaching expected goals (because of socio-economic disadvantage and foreign background etc.) are not allocated extra resources for special needs. One conclusion is that the need for special support is relative and that it becomes more difficult to access extra support in schools where needs are greatest. In the study, these results are regarded as surprising given that special support for pupils having difficulty in reaching attainment goals is regulated by educational legislation and national curricula.

Taken as a whole, there is substantial variation between municipalities in terms of resource allocation for schools. Obviously, this kind of variation is a sought for consequence in a decentralised system, but with the

intention that any variation would derive from local circumstances and pupils' various possibilities of reaching expected attainment goals. However, within municipalities, the **compensatory element is often modest** and is not linked to schools' actual attainments, even if there are exceptions. Given this background, it is worth investigating research into how resource allocation impacts on educational attainment.

The impact of Decentralisation on Attainment

As was mentioned in the introduction to this section, there are few Swedish studies that have directly investigated the connection between various aspects of decentralisation and attainment. This makes it difficult to draw definitive conclusions about how decentralisation, in a broad sense, has impacted on educational attainment. One aspect of decentralisation deals with resources and the principles on which resources for schools are allocated.

Swedish research into the impact of various aspects of resource allocation on pupils' educational attainments has not been especially extensive. International studies have predominantly focussed on resource factors such as class size, teacher–pupil ratios, and various dimensions of how teachers' competence impacts on pupils' attainments.

The Systematic Review *What influences Educational Achievement in Swedish Schools?* comes to the conclusion that **the general effect of teacher–pupil ratios is weak** and, therefore, that changes to teacher–pupil ratios cannot explain large changes in pupils' levels of attainment. On the other hand, resources in the form of class size and teacher–pupil ratios do have a significantly greater effect on pupils with lower academic possibilities and weaker support from home. Results from Swedish research are confirmed by both Nordic and international research. Given the result, that differences between schools have increased and that the profile of pupils within schools has become more homogeneous, resources and their allocation assume greater importance in understanding how variation in pupils' educational attainments has widened.

In addition to teacher–pupil ratios, teacher competence may be regarded as a resource. One form of teacher competence may be termed “performance related” and refers to teacher effectiveness in terms of how pupils perform. International research has shown that performance related competence varies dramatically (see, for example, Hattie, 2009).

At least 10–15 percent of variation in pupils' grades can be attributed to differences between teachers.

As a result of these differences, a number of international studies have focussed on factors that influence performance-related teacher competency, including factors that co-vary with teacher competence. The international research points to the predominant importance of **subject-related didactical competence** (ability to teach a given subject) and that this factor has far greater significance for pupil performance than teachers' specific subject knowledge.

However, research results are not comprehensive or unequivocal about what influences teacher performance. For instance, it is unclear to what extent teachers' performance-related competence is a result of formal competence (teacher training and subject knowledge) and how teacher training correlates with pupil performance. Even the Swedish studies that have been carried out have had difficulty in demonstrating unequivocal positive effects of formal teacher training. Several Swedish studies seem to indicate that different dimensions of teacher competence have varying significance for different groups of pupils. Results indicate that teacher training has more importance for pupils from higher educational backgrounds and that teachers' subject knowledge and cognitive ability means more for high performing pupils. These research areas, while interesting, are in their infancy and may need to be developed in the light of increased segregation.

Research results are unanimous when it comes to the connection between teacher competence and quality of instruction. There are even studies that would seem to point to the impact of more personal capacities, such as social competence, on pupil performance. Teacher competence manifests itself in classroom practice and it is not possible to separate teacher competence from delivery of instruction. Therefore, in order to understand what influences pupil performance, it is especially relevant to study classroom practice and how teaching is organised and delivered in the classroom.

Parallel with the municipalisation of schools, local decentralisation has occurred within municipalities where school districts have been given increased responsibilities and greater authority. Since the mid-1990s, in terms of prioritising and allocating designated resources, **the sphere of influence of schools, at local level, has greatly increased.** Even if the ma-

jority of municipalities, by 1995, had implemented a regime of school-level performance outcomes, resource utilisation was still in municipal control, at this point in time, and to a significantly greater extent than today (Skolverket, 2009b).

Resources are obviously an important requirement in the delivery of high-quality education. Notwithstanding this, research has shown that resources alone cannot explain differences in pupil performance, but, rather, how resources are utilised. Budget responsibility and responsibility for the management of teaching is, in principle, left totally to school districts and headmasters. Here, we find a link between decentralisation and another changing trend in compulsory schools, namely, streaming and homogenisation as organisational solutions in the framework of compulsory comprehensive schools.

Streaming

5 Streaming

Similar to other Nordic countries, Sweden has a tradition of a unified and lengthy compulsory school where tracking towards upper secondary school and other educational pathways takes place relatively late (Hanushek and Wössmann, 2006). In international comparative research, using an historical-comparative approach, delayed tracking is emphasized as a factor that increases pupils' opportunities to continue in higher education, regardless of social background. Compared with several other countries, the Swedish school system can, in this respect, be regarded as equitable, in spite of remaining differences in educational performance between social classes (see SOU, 1993:85). In the systematic review *What influences Educational Achievement in Swedish Schools?*, the evidence is that class differences have, in fact, increased. A conclusion near at hand would be that the introduction of compulsory comprehensive schools has not been sufficient to counteract this inequality.

In one piece of research, data from international studies was collated with the aim of comparing consequences for pupil performance of early and delayed tracking in different school systems (Hanushek and Wössman, 2006). The researchers found that early tracking leads to increased inequality in the sense that variation in performance increases between fourth and eighth grade. Despite delayed tracking in Sweden, variation in performance between these grade levels increases even here, which was not the case in other countries with delayed tracking onto other educational pathways.

That Sweden diverges from the prevailing pattern would seem to indicate that other differentiating factors are at work on different levels in Swedish compulsory schools. Variation between schools has increased and the manner in which schools organise and deliver instruction would seem to indicate that a new form of **tracking and streaming has evolved in compulsory comprehensive schools.**

Streaming solutions are common

Integration is a leading organisational principle in school statutes. The legislation for compulsory schools stipulates *integration/inclusion* as a guiding organisational principle for teaching pupils with special needs. This principle is founded on the notion that any group of pupils is heter-

ogeneous in various ways and that this in itself ought to be valued and be viewed as an asset in the creation of fruitful learning environments (Vinterek, 2006). This perspective regards difference as an asset in the teaching process. Special needs support ought primarily to be given within the classroom or group to which any pupil belongs (SOU, 2002:121).

The scope of special needs support in comprehensive schools increased during the mid-1990s. Teachers themselves describe this increase as one of the most tangible changes in teaching in compulsory schools (Skolverket, 2006b). A comprehensive study by the University of Gothenburg (Giota and Lundborg, 2007) has shown that 40 percent of pupils born in 1982 and 1987 were given special needs support at some time during their schooling and that this proportion increased during the 1990s. The study showed that special needs support was introduced early for the majority of pupils, most often by 3rd or 4th grade. Another study (Emanuelsson and Persson, 2003) confirmed that a large proportion of pupils (slightly under 40 percent) in compulsory schools have, at some time, been given special needs support. However, despite several studies seeming to indicate a large number of pupils receiving special needs support, other studies point to pupils not gaining access to such support, despite having been assessed as being in need of special support (Skolverket, 2008b).

The Agency (ibid.) has found that a pupil's need for support is influenced by classroom practice and teaching methods as well as by how schools organise teaching. In *What influences Educational Achievement in Swedish Schools?*, it was found that **schools often deal with pupils' special needs through streaming**, that is, in the form of special classes etc. A number of other studies indicate that other forms of streaming within comprehensive compulsory schools are relatively common. Four out of ten compulsory school pupils participate in streamed groups differentiated by attainment levels in one or several subjects (Skolverket, 2007a). Streaming by attainment level means that pupils are separated into various groups based on levels of attainment. Streaming is most common in mathematics, Swedish and English classes. When Lpo94 came into force, streaming by attainment level (in the form of general and special courses) in compulsory schools, as a principle for how schools are organised, was proscribed. However, in practice, streaming has been retained in many municipalities. The National Agency for Education has

stipulated that streaming and the creation of special needs classes must be both temporary and continually evaluated in order to avoid so-called **persistence effects**; that is, where streaming policies risk becoming permanent. In a number of studies, the Agency has noted that special needs support is seldom evaluated systematically (Skolverket, 2008b, 2009b).

Even the design of teaching materials can lead to sorting of pupils. Compared with other countries, reading material in Sweden is very much adapted to pupils' reading levels. A negative consequence of this can be that weaker pupils are not presented with sufficient challenges in developing their reading skills.

Understanding the Increased Scope of Special Needs

That ever more pupils are defined as needing special support (and, thus, as deviating from "normal") can be seen as one form of streaming of pupils. An important starting point for Swedish school legislation is that special needs arise at the interface of a pupil's capacities and the learning environment. From this perspective, one explanation for the increased demand for special needs support might be that the capacity of schools to adapt their teaching practice to the varying needs and abilities of their pupils has diminished.

Linked to this has been an increased tendency for individual pupils to be made responsible for their own schoolwork. Since the amount of **individual work has increased**, new demands are placed on the pupils where they are expected to be competent in planning and carrying out school work on their own. Some studies have testified to the fact that many pupils in need of special support have had difficulties in handling those more individual demands that are the result of being expected to do their schoolwork on their own (Skolverket, 2008b).

There are also studies suggesting that teaching practice has changed in regard to the degree to which instruction ought to be based on differences between pupils. Those remedial programs that are aimed at pupils in need of special support have been criticised by an array of researchers (Skolverket, 2008b). Above all, there is an emergent tendency to **individualise problems in a pupil's school situation**. This often causes problems with teaching environments to be overlooked where, in many cases, teachers regard their pupils as the sole source of learning difficulties. Common remedial suggestions are skills training in those subjects

where a pupil has been having difficulty. Homework is also suggested as a common remedy, thereby delegating responsibility for helping with homework to parents.

A further explanation for the increase in pupils being judged as being in need of special support may be the result of increasing extraneous demands being made on pupils, which, in turn, may be influenced by assessment research attempting to uncover possible consequences of changes in educational assessment strategies. The new criterion-related grading system, with the introduction of the minimum passing grades, tends to highlight those basic skills that pupils are expected to have acquired, with the result that greater attention is given to just those skills that pupils lack.

The impact of Streaming on Attainment

The review *What influences Educational Achievement in Swedish Schools?* outlines Swedish and international research showing how educational attainment does not benefit from school classes being homogeneous. Streaming, as a “catch-all” solution, has a negative impact on educational attainment. The positive effects possible through placing high attaining pupils in the same group are negated to a similar extent by low performing pupils being placed together in groups of their own. In addition, other negative consequences arise, such as diminished self-image in the so-called negatively differentiated classes.

In international research, results from a number of studies point to the occurrence of a **stigmatising effect** that is a consequence of special needs support, especially where the delivery of that support is organised in special classes. There is a negative impact on pupils’ self-awareness and motivation. According to the research, teachers tend to lower academic expectations and simplify their interpretations of curriculum intentions. In addition, it is often those less effective teachers who are given the task of teaching pupils with various learning disabilities and difficulties. In streamed classes, pupils are also influenced by **teacher expectations** and **peer group effects**, factors that have been shown to have a significant impact on attainment. Thus, those same mechanisms, as described in the section on Segregation (in Chapter 3), are seen to be active here, though at the school level rather than the classroom level.

There is relatively little Swedish research about the impact of special needs education on learning outcomes. The Swedish research that is available would seem to indicate, in general, that positive effects of special needs support are difficult to demonstrate. The wide-ranging Gothenburg Study (Giota and Lundborg, 2007) resulted in a negative correlation between special needs support and educational attainment. This means that those pupils who have been given special needs support are less likely to reach set goals than pupils who have not; that those pupils who had been given early special needs support were less likely to meet goals than those who received support later; and that pupils who have been given this special pedagogical support over an extended period reached set goals to a lesser extent than pupils who have been given such support for a shorter period. However, these results cannot be interpreted as indicating a causal effect, since the research designs used do not allow for such conclusions.

Researchers have pointed out that one possible reason for the absence of positive effects might be because these pupils begin from a significantly lower baseline. Special needs support may have had a positive effect, but this effect has not been sufficiently large to compensate for the initial lower baseline attainment levels. An alternative explanation is that the support in itself is found wanting, thus making it difficult to uncover any measurable effects. Giota and Lundborg (*ibid.*) point to the fact that the negative impact of streaming solutions is greatest for pupils at the lowest attainment levels.

Persson (2008) has concluded that the effects of classroom separation and streamed special needs classes in compulsory school (grades 1–7) appear to be fairly limited. It is more likely that an **early identification of learning difficulties will lead to alternative school programmes**, a form of “special education career”, based on, so called, ‘individual programs’ at upper secondary school level. Studies have shown that pupils with reading and writing difficulties, compared with other pupils, risk spending less time on schoolwork that might lead to improved grades, since special needs support is often given outside of ordinary classroom tasks and is based on assignments that are unlikely to lead to better grades.

On the other hand, there are studies that seem to indicate that the effect of special needs support on school grades may vary for different individuals. Pupils that have received special needs support, for longer

or shorter periods in compulsory school, may have either good or bad grades.

How can the wide variation in effects of special needs support be explained? In *What influences Educational Achievement in Swedish Schools?*, an extensive review of international research (Forness, 2001) showed that there was considerable variation between different kinds of support measures. One of the main conclusions was that teaching subject-related skills is of secondary value compared to giving pupils opportunities to develop capacities and specific learning skills (such as systematic memory training, strategies for reading comprehension, etc.). When it comes to the organisation of special needs support, flexible classroom groups, aimed at counteracting strict streaming, have been shown to lead to positive results.

Several studies have also demonstrated a connection between parental level of education and how well pupils in need of special support succeed in school (see, for example, Giota and Lundborg, 2007). Here, the explanation is that parents with higher levels of education have greater opportunities to influence school activities so that their children are given access to the right kind of support, and that these parents are better equipped to support their children's schoolwork. The latter is especially important, since, as mentioned above, assigning extra homework is often suggested as a remedy for pupils in need of special support.

The National Agency for Education is of the opinion that even if there are inherent problems with streaming and differentiating strategies, this should not be interpreted as an argument that *all* pupils in *all* environments benefit from integration. This would lead to another form of "catch-all" strategy that is equally undesirable.⁶

Teaching streamed classes and striving for homogeneous groups of pupils may be seen as an organisational and pedagogical solution to adapting teaching to pupils' varying abilities and needs (see Skolverket, 2008b). Streaming, as an organisational principle, can be interpreted as an expression of *individualisation*, which in itself is another powerful force for change, both in compulsory school and in society at large.

6 See Skolverket 2008: General Advice and Commentary: For working with remedial programs.

Individualisation

6 Individualisation

Changes in School Management – New Curricula, Syllabi, Grading Criteria

In line with changes in the management of compulsory schools during the 1990s, additional state guidelines and steering documents were introduced, including curriculum and syllabus changes as well as changes to the system of setting school grades. The steering documents were based on a principle of goal setting (outcomes-based) and, in contrast to earlier steering directives, did not build on guidelines for content and methodology. The directives gave greater scope for teachers' own interpretations of most appropriate teaching practice. A specific aim of the new guidelines was to increase teachers' autonomy and control over classroom practice. The fundamental idea behind the widening of local responsibility was that teaching practice ought to a greater extent revolve around pupils' own experiences, capacities and needs. Flexible and varied teaching practice, with a focus on pupils, would raise standards and, in the long term, increase the chances of goals being met.

Thus, guidelines and steering documents from the 1990s left a great deal of room for teachers' own interpretations and for teaching adapted to pupils' needs, which might be expected to increase the diversity of classroom practice and teaching instruction. However, in *What influences Educational Achievement in Swedish Schools?*, a series of studies would seem to indicate more **general and rote-like changes in teaching practice**, with increased individualisation in pupils' classroom work and a shift of responsibility from teacher to pupil, rather than teaching becoming more flexible and shaped on the basis of differences between pupils. One consequence of these changes in teaching practice is that home support for schoolwork (where parents' level of education and cultural capital are central) has gained increased importance for the performance of individual pupils.

There is a wide variety of research about how schools function. A great deal of research has been done on educational outcomes. However, in Swedish research, the focus, above all else, has been on teachers and teaching, not least on the effects of curriculum, syllabus and grade-setting changes.

Increased Individualisation

A strong force for change in Swedish compulsory schools can be summarised in the concept of individualisation. The concept includes a number of dimensions having to do with teaching, instruction and classroom practice in Swedish compulsory schools that have changed dramatically since the beginning of the 1990s. One direct result of individualisation is that more and more time is given to **work with lessons in the classroom**, while instruction for the whole class is allotted less time. Group work as a form of classroom practice happens less often and even when pupils do work in groups, the tendency is for their work to lead to individual assignments. Teachers spend less time explaining, instructing and correcting homework with the whole class. Instead, most classroom time is given to administration, information and instructions. Teachers are less likely to manage group assignments, while devoting more time to pupils' own planning of how and when assignments should be completed. In spite of this, studies have shown that, in practice, the influence of pupils on teaching content has not increased. On the other hand, pupils are to a greater extent better able to plan their time relative to assigned tasks.

Since the beginning of the 1990s, a major change in educational practice and classroom teaching has been the introduction of computers. That pupils' individual classroom work in Swedish compulsory schools has increased may be a reflection of the increased use of computers. However, research has shown that pupils require considerable support from their teachers when computers are used in teaching. Teachers play an important part in organising assignments and communicating knowledge content.

From several studies, it is evident that Swedish pupils in compulsory schools spend less time listening to longer presentations from their teachers than the EU/OECD average. In a systematic review of Swedish research on reading instruction (Skolverket, 2007b), the picture that emerges is that teaching reading and writing is based to a large extent on individual work. Pupils are thus expected to assume a great deal of responsibility for their own learning, and, for those in early school grades, this responsibility extends to their parents. According to the National Agency for Education (*ibid.*), this increase in individual work at compulsory school means that socio-cultural factors, such as **parents' level**

of education and cultural capital, assume ever increasing importance.

The same systematic review (op. cit.) discusses the inability of schools to adapt teaching practices for pupils with reading difficulties.

Taken as a whole, these changes mean that the benefits of teachers' knowledge, competence and specific skills have become less accessible for their pupils. Pupils are more and more left to their own devices and their ability to seek knowledge and attain their goals. Learning has become an individual endeavour.

The tasks of schools also include democratic goals where pupil participation constitutes an important dimension. In both Lpo94 and the curriculum texts, the importance of encouraging pupil participation in the teaching process is emphasised. Results from the latest national evaluation of compulsory schools (NU03, Skolverket, 2004a) indicate a definite shift towards increased pupil participation when compared with the beginning of the 1990s. The Agency's attitudinal studies confirm the picture of an increase in pupils' active participation over time. However, the NU03 study confirmed that pupils' influence was predominant in certain areas, such as exams and homework, and to a lesser extent in the content of lessons and classroom practice.

There are also indications that the democratic mission of schools has changed in the direction of increased individualisation. This is evident from an international comparative study on the democratic mission of schools (Skolverket, 2001a). The study shows that opportunities for pupils to exercise influence and have an impact on schools are relatively limited. Only a few pupils become actively involved in the democratic process and, even then, mostly along more informal lines. Case studies would seem to indicate a shift from collective to individual participation in decision making, which may primarily be expected to benefit those more resourceful pupils.

One explanation given in the study as to why pupil participation has become more individualised can be traced to how the democratic mission, as outlined in Lpo94, has changed from the collective and political mission as outlined in Lgr 80 to one involving individual and personal participation for pupils within a framework of the school as a democratic institution.

Generally speaking, the wide between-schools variation found in the study was attributed to decentralisation (ibid.). A doctoral dissertation

(Almgren, 2006), building on data from the international comparative study, concluded that schools differ in how they foster democracy. An open classroom environment, characterised by willingness for conversation and discussion, has a positive effect on pupils' political knowledge. Concomitantly, an open classroom environment is more often found in schools with higher grade point averages and a larger proportion of pupils whose parents have higher education.

On the whole, the mission of schools – both in terms of learning and democratic outcomes – has moved in the direction of greater individualisation. Several Swedish studies (Skolverket, 2004a, and Ekman & Todosijevic, 2003) indicate that curriculum changes and stipulation of outcomes has acted to enhance individualisation. This, in turn, can be linked to an increasing trend towards individualisation of schoolwork and in society at large. In these studies, it is argued that an all-too-strong movement towards individualisation makes it difficult for schools to realise the fundamental goals of values education.

The changes alluded to in regard to pupils' individual work have been interpreted differently by various researchers. For example, they are said to arise because of changes in discipline and pupils' self-regulation, but also because of teachers' possibilities for creating peace and quiet in the classroom.

All in all, in a more general sense, the research shows there has been a shift in responsibility from teachers to pupils in Swedish compulsory schools. This shift may be related to the fact that Swedish pupils report lower levels of well-being and increased levels of stress, according to the Swedish National Institute of Public Health. A reasonable premise would be that an increased level of responsibility for their own learning among Swedish school pupils has played some part this development.

The impact of increased Individualisation on Attainment

Despite the fact that major changes in teaching practice have taken place in compulsory schools, there are relatively few Swedish studies that have drawn attention to what the change towards greater individualisation has meant for pupils learning outcomes. Research has shown that individualisation can have both positive and negative impacts on learning outcomes, depending on how it is defined and put into effect in educational practice. The National Agency for Education aspires to a more nuanced

view of individualisation by distinguishing between pupils' individual work and the adapting of teaching practice to individual needs.

Individualisation meant as individual work

Lpo94 advocates pupils to be largely responsible for their own learning by being active in and being able to influence the learning process. The curriculum is based on the principles that learning happens inductively and that pupils ought to make their own discoveries as a means of reaching deeper understanding. One consequence of this is a perspective where a teacher's role in a pupil's acquiring of knowledge is reduced.

Based on this notion, individualisation may have the effect that, when working independently and at their own pace, pupils' own schoolwork will tend to increase, with the result, in practice, that pupils are **left more to themselves** without a teacher being actively involved.

Taken together, this research has shown that the shift towards more individual schoolwork has not enhanced pupils' knowledge development. A summary of research on individualisation in teaching practice (Vinterek, 2006) has shown that one consequence of having a large amount of individual schoolwork is that pupils become less involved in their work and that there is a correlation between increased amounts of individual work and lower levels of educational attainment.

Similar results are evident in a recently published systematic review of natural science teaching in Swedish compulsory schools (Skolverket, 2008c). It should not be taken as a given that schoolwork in small groups and independent investigation will necessarily benefit learning and understanding of the natural sciences. Many studies indicate the reverse, that special problems arise when pupils are left on their own to seek information or draw conclusions. Pupils need more teacher support in this endeavour than they actually get. According to the report, teachers who make "inductive assumptions" about teaching, where pupils are expected to discover things on their own, are ineffective. These results are in line with extensive international research (see Hattie, 2009).

The negative effects of individualisation, as evidenced in the various studies, can be linked to research (both Swedish and international) that draws attention to the importance of teachers for pupils' educational attainments. There is strong evidence that a teacher's competence is closely tied to both the approach taken to and delivery of teaching. Where a

teacher is active, driven and able to teach in a way that works for all the various pupils he or she meets, then the impact on outcomes is in a positive direction.

Individualisation meant as adapted to the individual

Lpo94 also advocates that teaching be based on pupils' experiences, needs, and capacities. This can be interpreted as a clearer directive towards individualisation and teaching practice where the individual is made the focal point.

In this sense, individualised teaching means that practice is shaped and delivered with a **focus on pupils' individual capacities and needs** so that teaching functions optimally for all pupils. This, in turn, requires a close relationship between teacher and pupil, where the teacher is fully aware how pupils function in various contexts, what their strengths, interests and previous experiences are. This close relationship between teacher and pupil and teachers' awareness of the needs of their pupils has been shown in research to have a meaningful impact on pupils' learning outcomes.

One area of education research described in *What influences Educational Achievement in Swedish Schools?*, so-called, effective schools, points to the impact on learning outcomes of various factors linked to school climate such as motivation, level of interest, and sense of belonging. The research results indicate that successful schools are characterised by a pupil-centred approach as well as being able to combine knowledge seeking with a caring environment (Grosin, 2004).

These factors are reiterated in the National Agency for Education's (2005) study of differences between schools and their impact on educational attainment. Here, several factors are described as having a significant impact on positive outcomes: a) focus and a combination of care and content; b) motivated, encouraging and caring teachers who maintain close and trusting relationships with their pupils in order to facilitate special support measures adapted to pupils' needs; c) schools that are characterised by "small-scale", either in their organisation or through a cap on numbers of pupils, or a combination of both.

The Agency has indicated reasons why pupils exit compulsory schooling with incomplete grades. The so-called "process factors" that emerge most clearly in terms of possible reasons for incomplete final grades from

compulsory school are as follows: schools' attitudes and approach to dealing with pupils and their parents; extent and type of special needs support; and delivery and adapting of teaching practice to pupils' capacities, including how schools clarify demands and expectations.

Individualised teaching in this sense requires teachers being active, having close contact with their pupils, being aware both of pupils' needs and capacities and being willing to meet these needs. There is also a presumption that schools are seen as being responsible for pupils' success as opposed to a position where pupils themselves are seen as being responsible for their own learning.

Summary Analysis

7 Summary Analysis

The aim of this systematic review has been to summarise research, primarily within a Swedish context, on the impact of various factors on educational outcomes in compulsory schools. How, then, might this research be summarised? Based on the broad scope of the review, divided into specific research areas, we can conclude that the field is interdisciplinary in character. The significance of various impact factors has been studied within a range of scientific disciplines, particularly within educational research but also by sociologists, political scientists, and economists. The research encompasses several methodological approaches, both quantitative and qualitative, with varied claims to generalisability. Throughout the period in question – from 1990 onwards, and especially since the 2000s – interest in studying the impact of various factors on educational attainment has been increasing. This shift is particularly evident in the field *The Inner Workings of Schools*. This is presumably a reflection of an increased focus on educational outcomes in the general debate on schooling; for example, in the way international attainment research has come more and more to the fore.

The systematic review describes a broad sweep of factors in evaluation research regarded as having a significant impact. These factors can be separated into different areas that are linked to individuals, the home, the school and teachers and teaching, which in turn are echoed in a recent, comprehensive summary of international research dealing with factors that impact on pupils' learning outcomes (Hattie, 2009).

In a range of studies, correlations between individual factors such as social background, gender and ethnicity and learning outcomes are well established. This pertains primarily to the impact of various aspects of pupils' social backgrounds (parents' level of education, cultural capital, etc.) on their school results. International research also links socio-economic status (family income, occupation, and education) to educational attainment. Other significant factors are parents' expectations and ambitions for their children, parents being involved in schoolwork and being able to "speak the language of schooling". Thus, there is strong evidence, in both Swedish and international research, that "the curriculum of the home" has a significant impact on learning outcomes.

An important political goal in education policy is that schools should help in minimising the influence of the home and provide all pupils with equal opportunities for reaching educational goals, as expressed in aspirations of equity. The National Agency for Education has identified a certain shift in the Swedish school system towards *segregation*. Along with other Nordic countries, Swedish compulsory schools are usually described as equitable with only small between-school variations. But Sweden is no longer top of the class among the Nordic countries.⁷ A number of studies have shown how the composition of pupil cohorts between schools has become more homogeneous; that is to say, that pupils from similar backgrounds have shown an increasing tendency to congregate in the same schools. There has also been an increase in differences in outcomes between schools and between various groups of pupils, particularly based upon social background. One conclusion is that the impact of parents' level of education on learning outcomes has assumed greater significance, including an increase in the impact of school choice. Research also supports the contention that stratifying pupils on the basis of school performance has a negative impact on general levels educational attainment (see Chapter 1 on Societal Changes).

Results from both Swedish and international research demonstrate that the impact of socio-economic background is significantly stronger at school level than at individual level. Where the composition of the pupil cohort is more homogeneous, the effects of social background are stronger. Research has identified factors in the form of peer group effects and teacher expectations that arise at school and classroom levels and that are strongly related to learning outcomes. There is even research that suggests that peer group effects and teacher expectations reinforce one another so that so-called "compounding effects" arise (Skolverket, 2006a).

The Swedish school system has also changed direction in a number of ways, towards *decentralisation*. One aspect of decentralisation is that municipalities have been given responsibility for the allocation of school resources. The National Agency for Education has been able to show significant differences between municipalities in how resources are allocated. Municipal costs for schools vary significantly, as do teacher–pupil ratios and numbers of certified teachers. However, the research does not

7 Northern Lights on PISA 2006

provide unequivocal answers regarding the extent to which municipalisation has contributed to these variations. The goal of municipalisation was a more effective redirection and allocation of resources to where resources were most needed. In general, research indicates that resource allocation has a significant impact on educational attainment, but that there is reason to distinguish between general effects (for all pupils) and specific effects for certain groups of pupils. When it comes to teacher–pupil ratios and class size, the consensus of Swedish and international research is that, in general, these effects are relatively weak. By way of contrast, these resources have a significantly greater impact on younger pupils as well as for those pupils with less favoured learning environments and weaker support from home. Given the background of increased segregation, it becomes relevant to relate municipal principles for resource allocation to trends in attainment outcomes. The study by the National Agency for Education has shown that municipal allocation of resources is only to a minor extent based on the varying needs of schools, which can further contribute to increased dispersion in levels of learning outcomes between schools.

A comprehensive compulsory school, with late tracking towards upper secondary school, and integration as a defining principle has been a characteristic of Swedish compulsory schools. However, in terms of educational organisation, Swedish studies indicate that *streaming*, as a means of dealing with individual differences between pupils, has evolved as an organisational principle *within* the unified compulsory school. Streaming solutions have become common. Pupils are often separated into different classroom groups based on special support needs or attainment levels, resulting in increasingly homogeneous groups. Research results indicate that such solutions generally do not have a positive impact on learning outcomes. Stigmatising effects often arise, leaving a negative impact on pupils' self-image and motivation. There are risks for persistence effects when placements in special groups become more permanent. In those groups where a lot of pupils have learning difficulties, teacher's expectations tend to be lower and positive peer group effects are weakened, which is the same mechanism that arises at school level in a segregated school system. Hattie (2009) suggests that low expectations of pupils become self-fulfilling prophecies. What is important is "teachers having expectations that all students can progress, that achievement for

all is changeable (and not fixed), and that progress for *all* is understood and articulated” (ibid p. 35).

A significant amount of research supports the view of the importance of teachers, but also points to significant differences in how well teachers succeed in helping pupils attain their grades. Subject-related didactic competence (the ability to vary teaching practice in a given subject) is of greater importance than knowledge only in that subject. In other words, a teacher’s competence is closely linked to how teaching practice is organised and delivered. Patterns of teaching practice in Swedish compulsory schools have moved in the direction of individualisation, which can be described in general terms as a shift of responsibility away from teachers to pupils and in the longer term as a move from the school to the home. There has been an increase in pupils’ responsibility for their own learning with the result that schoolwork is more individualised and teachers adopt more withdrawn roles. This, in turn, leads to an increase in the importance of home support for pupils’ educational attainments, where parents’ levels of education and their cultural capital assume even greater significance. Where individualisation is meant as individual schoolwork, the impact on learning outcomes has been shown to be negative. Pupils’ motivation and involvement is negatively affected. These findings can be related to Swedish and international research results all pointing to the importance of teachers being active and precise and with an ability to engage and encourage all pupils.

However, the concept of individualisation can be endowed with different meanings. There is research support for the notion of individualisation, meant as individually adapted practice, having a positive impact on learning outcomes. In this case, the intention is to shape teaching and design support measures based on pupils’ needs, capacities and experiences. Thus, it proves fruitful to make a distinction between the different meanings of the concept of individualisation, since research results have demonstrated different consequences for pupils’ learning outcomes.

When Swedish and international research results are compared, to a large extent, the same factors emerge as meaningful. When conclusions are drawn and measures are discussed, this is clearly a strength. The review at hand, aimed at mapping out various factors in a number of areas, takes the position that changes in learning outcomes can seldom be explained within one area only. Reasons for changes in learning out-

comes are complex, where various factors interplay at different levels. This is made abundantly clear when the evidence of the various chapters is combined.

Is our knowledge about the impact of various factors on levels of attainment sufficient? While a systematic review may provide a broad picture, certain lacunae are evident. In each of the research chapters, a number of areas requiring further research have been highlighted. The “map” of Swedish evaluation research presented in the review would seem to indicate a need for building a more long-range, systematic, and comprehensive knowledge base. Knowledge about how various factors co-vary in certain contexts needs to be developed. One theory base that might prove fruitful is so-called “frame-factor theory,” where relationships between goals, frameworks of prerequisites, processes and outcomes are studied. There are strong reasons for tracing change through the entire chain when systemic goal-setting and assessment practices are the target of reform. Research indicates that outcome measures in themselves have an impact on pupil performance and teaching practice.

It is evident from the systematic review that studies highlighting changes in Swedish compulsory schools from a perspective of equity are rare. Knowledge about what various factors mean for different groups of pupils as well as how schools can contribute to changing social patterns needs to be developed.

The summary analysis by the National Agency for Education points to four broad pathways to change in Swedish compulsory school that are well grounded in evaluation research, namely; segregation, decentralisation, streaming, and individualisation. The review has shown that these perspectives, based on educational assessment research, are valuable in summarising and explaining trends in levels of attainment in Swedish compulsory schools. They contribute, separately, to explaining changes in levels of attainment, while, in addition, a not unreasonable assumption is that these factors act to reinforce the impact of one another.

In terms of research on reforms, certain areas of development might best be regarded as unwelcome side-effects. A recurring theme throughout the educational reforms of the 1990s was decentralisation, where the general aim was adapting to local needs and circumstances. Research has shown that learning outcomes benefit from this kind of adaptability. The reforms, in this sense, were “well meant”, however, one interpretation of

subsequent developments is that the reforms, in their implementation, partially, took another direction. Rather than local adaptability, more rote-like solutions evolved (same per-pupil capitation fees, teaching organised in homogeneous groups, individual schoolwork, and more independent classroom tasks).

The National Agency for Education's choice of themes for analysis should be seen in the light of the fact that the Swedish educational system has entered a period of intense reform. The Agency is extensively involved in this process, through curriculum and syllabus development, through the development of national assessment tests, as well as through national development initiatives. The problem areas that have emerged in the systematic review form an important starting point in this process. It is the intention of the National Agency for Education, in future evaluations, to closely monitor national and international assessment research on patterns of change in educational outcomes. Through international studies, data is gathered which lends itself to in-depth analyses about how various factors interact. These studies also provide opportunities for longitudinal comparisons. In other words, useful opportunities will arise for following the effects, both anticipated and unanticipated, of future school reforms.

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What influences Educational Achievement in Swedish Schools? How can changes in learning outcomes be explained?

The Swedish National Agency for Education has initiated this systematic review with the aim of expanding the breadth and depth of knowledge about what factors might have an impact on educational attainment in Swedish compulsory schools. The report contains a summary of research in four broad areas; societal factors, reforms, resources, and the inner workings of schools. In addition, an in-depth review of developments in attainment levels in Swedish compulsory schools, based on various outcome measures, is presented. In the Agency's summary analysis, results and arguments from the different chapters are explicated.

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