Magnus Henrekson
Johan Wennström

Dumbing Down

The Crisis of Quality and Equity in a Once-Great School System—and How to Reverse the Trend

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Dumbing Down

"This much-needed new book does a superb job of showing that the post-war, post-modern version of education has been a misfortune for Sweden and for every nation that has adopted these ideas. We now know that this anti-authoritarian 'child-centered' theory has led to miseducation and severe knowledge deficits, and therefore a *greater* susceptibility to authoritarianism."

—E.D. Hirsch, Jr. *Professor emeritus of education and humanities, University of Virginia, and author of* Why Knowledge Matters

"A bold, brilliant, and controversial book, blaming the decline of Swedish schools on the 'post-truth' social constructivism that has guided Swedish school policy since the 1940's in combination with an extreme marketization of Swedish education."

—Leif Lewin, *Professor emeritus of eloquence and government, Uppsala University, and formerly the Swedish government's special investigator of school policy*

"This is the book that explains why students entering top university programs in Sweden are increasingly ignorant of fundamental facts of science, unable to construct correct sentences, and helpless in face of basic mathematical problems."

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"Henrekson and Wennström's masterful documentation of the decline of Swedish education provides an important lesson: What ails Western education will not be solved by simply introducing market competition through charter schools or vouchers. The crux of the problem runs much deeper. It lies in foolish ideas about the nature of knowledge and truth."

—David C. Rose, *Professor of economics, University of Missouri-St. Louis, and author of* The Moral Foundation of Economic Behavior *and* Why Culture Matters Most

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Magnus Henrekson
Research Institute of Industrial Economics
Stockholm, Sweden

Johan Wennström
Research Institute of Industrial Economics
Stockholm, Sweden

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Preface

In many Western countries, school systems are in deep crisis. Average results are disappointing, differences across schools and neighborhoods are increasing, and a student's family background and gender have become more decisive for how well he or she fares. Under these circumstances, it is hardly surprising that the attractiveness of the teaching profession has fallen, making it increasingly difficult to recruit academically gifted and pedagogically talented teachers.

At the same time, the need for well-educated and knowledgeable citizens is greater than ever. The challenges to be dealt with in the decades to come are huge. The aftermath of the coronavirus pandemic, climate change, an aging population, increasing inequality, and a looming health crisis are a few prime examples. The solutions to these problems, and the advancement of the exceedingly complex and technologically advanced societies that we have created and depend on, require a highly skilled workforce, judicious stewardship, and citizens equipped with effective models and tools to understand and interpret reality.

The good news is that there is now broad consensus that high-quality education is crucial not only because of the need for human capital but also in its own right. The latter aspect is crucial for ensuring that future generations of adults are provided with opportunities to discover their own callings and lead satisfactory lives in productive interaction with their fellow human beings as well as preserve and further the culture they have inherited.

How should high-quality education best be achieved? What are the recipes for success, why have so many countries experienced setbacks, and what should be done to escape the current predicament? Is more money the way forward? More competition and pluralism? More centralization and tighter regulation?

To shed light on and, in our view, provide a large part of the answer to these fundamental questions, we offer an in-depth analysis of Sweden's experience. The Swedish school system has gone through extraordinary swings in education policies, regulatory frameworks, and national curricula. These include a radical marketization of primary and secondary schooling that is currently unparalleled in any wealthy Western country.

In this book, we draw heavily on many years of our own research published in peer-reviewed journals, Johan's Ph.D. thesis, and Magnus's interdisciplinary project involving a professor of neuroscience (Martin Ingvar), a humanities professor (Inger Enkvist), and a Ph.D. student in the history of ideas and sciences (Ingrid Dunér, formerly Wållgren) as well as numerous popular essays and books in Swedish.

Numerous friends and colleagues, most importantly Gabriel Heller Sahlgren, Henrik Jordahl, Glenn Nielsen, Johan Tralau, and Mark Weiner have helped us develop our thinking on the many themes covered in this book and/or commented on earlier versions of the manuscript. Three anonymous reviewers and our editor at Palgrave Macmillan, Wyndham Hacket Pain, have helped us correct remaining weaknesses.

We gratefully acknowledge financial support from the Catarina and Sven Hagströmer Foundation, *Jan Wallanders och Tom Hedelius stiftelse*, the Marianne and Marcus Wallenberg Foundation, and the research program The Economics of the Service Sector at the Research Institute of Industrial Economics (IFN).

Finally, it is worth mentioning that this book, and the research it builds on, was produced during perhaps the darkest days of the Swedish school system since the 1960s and early 1970s. As we conclude the writing of the book, there are some hopeful signs of improvement. However, that improvement was made possible only because of a limited and reluctant return to the very pedagogical techniques we suggest in these pages.

Stockholm, Sweden
September 2021

Magnus Henrekson
Johan Wennström

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About the Authors

Magnus Henrekson is a professor of economics and Senior Research Fellow at the Research Institute of Industrial Economics (IFN) in Stockholm, Sweden. He resigned as IFN President in October 2020 after 15 years of service. Until 2009, he held the Jacob Wallenberg Research Chair in the Department of Economics at the Stockholm School of Economics. After receiving his Ph.D. in 1990 from Gothenburg University with his dissertation titled *An Economic Analysis of Swedish Government Expenditure*, he led several projects that aimed to explain cross-country growth differences. Since the turn of the new millennium, his primary research focus has been entrepreneurship economics and the institutional determinants of the business climate. In addition to his academic qualifications, he has extensive experience as an advisor, board member, and lecturer in many different contexts, in both the business sector and the public sector. Personal web: https://www.ifn.se/mh.

Johan Wennström, Ph.D. (Political Science), is a Research Fellow at IFN. He received his Ph.D. in 2019 from Linköping University with his dissertation titled *Interpreting Policy Convergence Between the Left and the Right: Essays on Education and Immigration*. His primary research focus is the moral foundations of policymaking. He has previously worked as a political advisor to the Swedish government on issues of social insurance and as an editorial writer at the national daily *Svenska Dagbladet*, where he is presently a regular contributor to the culture pages. His academic work

and essays have been published in, among others, *City Journal*, *Critical Review*, the *Independent Review*, the *Journal of Education Policy*, the *Journal of Institutional Economics*, and *Quillette*. Personal web: https://www.ifn.se/jw.

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CHAPTER 1

Introduction: The Rise and Puzzling Fall of the Swedish Educational System

The Miracle

In the half-century before 1914, Sweden experienced an extraordinary economic surge that was sustained over nearly a hundred years. Due to a long-term rate of growth surpassing that of virtually all other nations, the country spectacularly transformed itself from an impoverished agrarian society—indeed, one of the poorest in Europe—to one of the richest and technologically most advanced industrialized countries in the world.[1] All Swedish citizens, including those belonging to the lower social classes, enjoyed the fruits of this extremely rapid economic progress in terms of a significantly improved standard of living.[2]

What prompted this miraculous turnaround? According to the economic historian Lars G. Sandberg, Sweden's takeoff during the second half of the 1800s would not have been possible without a high-quality system of schooling. Sandberg writes, "Mid-nineteenth century Sweden had a strikingly large stock of human and institutional capital. … Sweden was a poor but sophisticated country."[3]

Literacy was common as early as the late 1600s, in no small part because Swedish Lutheran priests were responsible by law for ensuring that every young person in their parish was able to read religious works

[1] See, e.g., Henrekson, Jonung, and Stymne (1996, p. 242).

[2] See, e.g., Gårdlund (1942); Lewin (1967).

[3] Sandberg (1979, p. 225).

M. Henrekson and J. Wennström, *Dumbing Down*,
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and even to write.[4] Crucially for the success of this educational mission, according to Sandberg, the Swedish clergy was numerous, university trained, and composed to an unusually high degree of descendants of the peasant population it was charged with tutoring. Thus, "the countryside was covered by influential educated persons, perhaps half of them no more than two generations away from peasant status, whose legal duty and ideological convictions required them to assure the universal literacy of their flocks."[5]

Another significant factor was Sweden's long history of appreciation for learning. Writing in 1631, the seventeenth-century mathematician Anders Bure observed that the inhabitants of the sparsely populated northern parts of the country were "so fond of letters that, although public schools are very few, nevertheless the literate instruct the others with such enthusiasm that the greatest part of the common people and even the peasants are literate."[6]

Sweden was the most literate country in Europe by 1850, with only about a 10 percent rate of adult illiteracy. By this time, formal schooling was also rapidly becoming widespread, implying that the ability to read primarily religious texts and write was accompanied by other knowledge.[7] "By the late 1860s, at the latest," Sandberg notes, "Sweden had a system of universal elementary education, and the supporting structure of teacher-training institutions, in full operation."[8] Hence, Sandberg argues that when industrialization began, the highly literate and knowledgeable Swedish workforce could seize new opportunities, including technological advancements, with superior skill and determination. In combination with the liberalization of trade and other areas, Sweden's economic development thus "took off like a rocket."[9]

This story is not commonly known because ever since the publication in 1936 of the U.S. journalist Marquis Child's book *Sweden: The*

[4] Several recent studies have established a direct connection between Protestantism and human capital accumulation. See, e.g., Becker and Woessman (2009, 2010) and Boppart, Falkinger, and Grossmann (2014).

[5] Sandberg (1979, p. 230).

[6] As quoted in Cipolla (1969, p. 54).

[7] Johansson (2009).

[8] Sandberg (1979, p. 230).

[9] Lidström (2015, p. 65).

Middle Way, many foreign observers of Sweden have attributed the country's socially inclusive economic growth to the expansion of the Social Democratic welfare state.[10] However, as we have suggested here, this analysis overlooks the fundamental causes of Sweden's economic takeoff and expansion in which everyone prospered.[11] The crucial feature that Sweden exhibited was, in fact, its uniquely large and evenly distributed stock of human capital even before the onset of rapid industrialization and modernization in the late 1860s. Compared to other European countries at the time, Sweden, in this sense, enjoyed a "free ride."[12]

In the United States in the late nineteenth and early twentieth centuries, Swedish immigrants also fared better in the job market than other European national groups (as well as native-born white U.S. citizens),[13] which is strong evidence that Sweden's high human capital levels were, indeed, a decisive factor in the country's sudden economic transformation. The rise of the welfare state in later years ultimately had far less to do with it than is customarily assumed.

If education was the key to growth and the great equalizer in Sweden, then the recent decline of the Swedish educational system should be cause for serious concern about the country's future. We have therefore written this book, which examines the symptoms and causes of this decline as well as the lessons to be drawn from it for Sweden and other similar nations.

After providing a brief overview of the problems with regard to schooling in Sweden, as well as the history we explore in later chapters, we return to the purpose and outline of the book.

Sweden's Educational Crisis

The heritage of the "impoverished sophisticates," as Sandberg calls the poor but knowledgeable peasantry in Sweden, survived well into the 1950s.[14] In the general population, particularly in the working and lower

[10] See Childs (1936) and more recently, e.g., Sachs (2006).

[11] As shown by Roine and Waldenström (2008), Swedish income distribution was unusually even as far back as 1920, i.e., long before the introduction of the redistributive tax and transfer systems.

[12] Sandberg (1979, p. 231).

[13] Sandberg (1979).

[14] See, e.g., Ohrlander (1981).

middle classes, a strong sense remained that classical knowledge was essential and that the individual's successful mastery of it contributed to a national project of modernization. Schools also generally reflected these values and encouraged students, even those of humbler backgrounds, to pursue careers in science and in professions requiring higher education. However, there were also competing forces at work.

After World War II, the significance of classical knowledge and the traditional instructive pedagogy in Swedish schools was openly questioned by public intellectuals and Social Democratic politicians. It was, in the words of an influential 1948 government report on the future of schooling in Sweden, "increasingly more obvious how seldom acquired knowledge can be considered fixed."[15] The school system of Nazi Germany was also grossly misinterpreted to justify a view that in addition to being obsolete, the teaching of classical knowledge could potentially be subversive to democracy.[16]

It was therefore determined that the main purpose of public education henceforth should be to help students develop the (perceived) general ability of critical thinking, a "democratic" mindset, and the social skills to make friends across class and ability tiers. In line with this new philosophy of education, which was written into national curricula and other governing documents of the school system, it was deemed appropriate to stipulate that the responsibility for schooling should be transferred step by step from the teachers to the students themselves.

Despite a determined effort in the postwar years and the 1960s and 1970s to radically transform the content and methods of education, the Swedish school system remained rather impervious to change and continued, for a long time, to be relatively good. In fact, when large-scale comparative international testing of students' knowledge began in the mid-1990s with the first worldwide TIMSS assessment in mathematics and science in 1995, Swedish students in the final year of secondary education came out on top in science and second in mathematics (the Netherlands was first). Swedish students also outperformed U.S. students across the entire ability distribution.

Moreover, in the first cycle of the OECD's PISA survey, measuring reading ability and mathematics and science proficiency, in 2000, Swedish

[15] SOU 1948:27 (p. 148).

[16] See Heller Sahlgren and Wennström (2020).

students performed above the international average. It seemed that Sweden's school system was one of the best performing and most equitable and, simultaneously, a model for privatization given that Sweden in the 1990s had implemented the most extensive and liberal voucher system in the world. However, more than a decade of manifestations of deep-seated and overlooked problems followed.

Sweden's performance in international assessments began to steadily deteriorate. For example, in the TIMSS study, Swedish average results fell by 56 points between 1995 and 2011, which was the largest decline among all participating countries. Despite the well-known deficiencies in the U.S. school system, U.S. students now outperformed Swedish students across the entire distribution in mathematics. Perhaps most alarmingly, the decline was relatively greater for students at the bottom of the ability distribution, who had previously fared comparatively well in the Swedish educational system. Mirroring the development observed for the TIMSS, the Swedish PISA results also progressively worsened until a low point was reached in the 2012 survey. The overall score was well below the OECD average, and in each area of PISA, i.e., reading, mathematics, and science, only three OECD countries performed worse than Sweden.

Paradoxically, during the very period in which the TIMSS and PISA results fell sharply, the average merit rating in the final year of elementary school markedly improved. In other words, the worse Swedish students performed in international knowledge assessments, the more their grades improved. This incongruous evolution of test results and grades can be explained only by widespread grade inflation in schools.

There were numerous other signs of trouble. It became clear that Sweden was facing a crisis in the teaching profession. A survey found that only five percent of Swedish teachers deemed that their work was considered prestigious, and barely half of the respondents agreed that they would choose the same occupation again.[17] In recent years, many teachers have left the profession, and the dropout rate from teacher-training programs has skyrocketed due to dissatisfaction. Moreover, there have been symptoms of a deep malaise among students, including the highest rate of truancy in the OECD and significantly rising rates of mood disorders and ADHD diagnoses.

[17] Swedish National Agency for Education (2014a).

In sum, something happened in the run-up to the 2000s that negatively affected educational achievement, grading practices, teacher satisfaction, and student well-being. No comprehensive policy response has yet been formulated because there is no consensus among politicians or scholars on how the problems arose, let alone how to resolve them. However, we argue that one potent force, caused by the combination of two seemingly unrelated factors, cuts across all these concerns, offering both an explanation for the challenges to educational quality in Sweden and the prescriptions for addressing them.

The Purpose of the Book

As we have suggested, Sweden no longer offers an example of a high-quality and equitable school system, as particularly liberal-minded observers of Sweden have tended to believe. Nor does it offer an exemplary model for privatizing education, as advocates of school vouchers and school competition have often claimed. The purpose of this book is to explain these puzzling outcomes.

Our analysis is a novel one. We argue that the origin of Sweden's educational decline is attributable to a phenomenon that we refer to as "post-truth" schooling; that is, an education based on a postmodern social constructivist view of truth and knowledge, the antecedents of which can be found in the education policies of the postwar decades. This view contends that knowledge is socially constructed and fluid, as opposed to being mostly objective and reliable, and therefore is impossible to transfer from teacher to student.

"Post-truth" schooling matured into its current form slowly but steadily. By the early to mid-1990s, it had become the ruling ideological paradigm of the educational system. (For cultural and institutional reasons, explained later in the book, it was not possible to accomplish the desired paradigm shift before that point in time.) These educational ideas were then, in a highly idiosyncratic fashion, combined with the concurrent marketization of education. This combination led to a shift in focus not only in theory, but also in practice, away from classical knowledge in schools. Ultimately, this resulted in a loss of dignity and self-worth for teachers and a lacking sense of direction for students, causing them psychological distress. The chief mechanism was the creation of powerful incentives for both public and independent voucher schools to compete in dimensions other than educational quality. To be clear about our point:

"post-truth" schooling and the drive to marketize education are two independent forces, but as we will show in subsequent chapters, they are mutually reinforcing and have in tandem created the negative conditions for teachers and students in Sweden. It was through this marriage with the market system that the aim of the postmodern social constructivist view of knowledge to redirect schools from the purpose of teaching in the classical sense could be fully achieved.

Advocates of the current system will no doubt claim that this argument ignores other important and complex processes, and other scholars will propose alternative explanations for the decline in educational quality. However, in our judgment, the stipulated view of knowledge is the most crucial institution of any school system, from which virtually everything else is derived. If there are deficiencies in this regard, there will be ripple effects on the content of curricula and the pedagogy used as well as on the behavior of the various agents involved in the educational system, including students, parents, teachers, school principals, school owners, the central government, and the concerned government agencies. A telling example pertains to the large immigration to Sweden in recent years. It may well be the case that the increase in the share of foreign-born students "mechanically" explains a part of the fall in students' knowledge, as at least one study has suggested,[18] but in an appropriate institutional setting they would not necessarily have performed worse than Swedish students.[19] Against this background, a focus on the stipulated view of knowledge must be at the heart of any viable analysis of major weaknesses in school systems. Likewise, a successful reform strategy to improve the quality of education must take this factor prominently into account. In Sweden's case, we argue that a paradigm shift in the stipulated view of knowledge has the potential to yield radical improvement.

Our book adds to previous attempts to study the effects of postmodern social constructivist learning approaches on the quality of education

[18] According to Heller Sahlgren (2015a), 29 percent of the overall decline in the average PISA score from 2000 to 2012 can be explained by the change in student composition.

[19] There is now considerable evidence regarding which teaching methods are efficient, and research shows that by using these methods children from underprivileged environments can also perform well. See, e.g., Chabrier, Cohodes, and Oreopoulos (2016), Fryer and Dobbie (2013), and Woessman (2013).

and students' knowledge in other societies—for example, the Canadian province of Québec, the United Kingdom, Finland, and France.[20] However, with its amalgamation of "post-truth" schooling and a firm commitment to voucher schools and school competition, Sweden offers a unique opportunity to study this subject. The consequences of combining institutionalized postmodernism with full-fledged marketization of education have not previously been examined in detail. Our analysis is, therefore, pioneering and shows that this combination negatively affects the quality of education, suggesting that caution is necessary for countries that have a tradition of postmodern social constructivist pedagogy and are now considering implementing or expanding market-based school reforms.

Outline

Following this introductory chapter, the rest of the book consists of eight chapters. While we do not claim that there has ever been a golden age in Swedish education, we do believe that there was a "silver age" that preceded the present problems and began approximately in the second half of the nineteenth century. This history is presented in Chapter 2.

In Chapter 3, we provide a detailed presentation of what is known about the performance of Swedish students before the first TIMSS assessment and the subsequent decline in international tests.

In Chapter 4, we discuss the emergence of a systemic malaise in the Swedish school system that includes grade inflation, increasing differences in performance between boys and girls, problems of well-being, and a peculiar increase in undemocratic attitudes among students. We also discuss the deterioration of working conditions for teachers and the flight from the teaching profession. Interestingly, it has not been possible to stop this flight despite recent sizable increases in teachers' relative wages.

In Chapter 5, we begin to approach the question of what has gone wrong and why we are seeing these problems in schools. We outline two conflicting and competing visions of knowledge: the classical view and the postmodern social constructivist view. We argue that the classical view is consistent with both modern scientific research and received

[20] See Christodoulou (2014); Haeck, Lefebvre, and Merrigan (2014); Heller Sahlgren (2015b); Hirsch (2016). We return to some of these examples in the final chapter of the book.

wisdom. However, as the remaining chapters show, Sweden embraced the postmodern social constructivist view.

In Chapter 6, we describe the evolution of the view of knowledge and the ensuing pedagogy within the Swedish school system. We begin in the immediate postwar years and end the chapter in the early 1990s with a discussion of the most radical national curriculum that had been enacted up to then, which consolidated the paradigm of "post-truth" schooling.

In Chapter 7, we show how this educational trend continued into the twenty-first century. We discuss the market of school choice in Sweden and describe how it interacts with postmodern social constructivist ideas. Moreover, we offer a close reading of the national curriculum that was in force at the time of writing (early 2021).

In Chapter 8, we summarize the main findings and consider the effects of "post-truth" schooling in combination with marketized education on students and teachers.

We end the book in Chapter 9 by providing some reflections on the way forward for Sweden and Western education in general.

CHAPTER 2

The Silver Age of Swedish Education

Due to the country's rapid development from poverty to affluence in the late nineteenth and early twentieth centuries, history came to be regarded with mistrust and suspicion in Sweden.[1] As the author Gunnar Ohrlander has observed about his upbringing during the optimistic and modernizing 1950s, everything old was considered to be "trash" and an unwelcome reminder of the recent hardship.[2] There was seemingly no point to history and nothing to be learned from it—a sentiment encouraged by the long-governing Social Democrats in their ambition to achieve cultural hegemony, as the historian Åsa Linderborg has demonstrated.[3] Instead, "progress" became the national *leitmotiv*. Today, this once partly understandable view of the past as having little to offer continues to pervade attitudes toward many issues in Sweden, not least education.

The general understanding of the old school system is essentially that presented in the movie *Torment*, set and produced in 1944, in which a cruel teacher inflicts pain on his students when they cannot recite Latin grammatical forms. The scriptwriter Ingmar Bergman, who later became a world-renowned film director, claimed to hate "school as a principle, as a system, and as an institution" and used the movie as a vehicle to express

[1] See, e.g., Englund's (2015) discussion of this point.

[2] Ohrlander (1981, p. 20).

[3] Linderborg (2001).

M. Henrekson and J. Wennström, *Dumbing Down*,
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his resentment of organized education.[4] Over the years, however, the propagandistic aims of the film were forgotten. Instead, *Torment* came to be seen as an accurate, almost documentary representation of school life in Sweden before the end of World War II and the start of the reforms that led the educational system down the path of "post-truth" schooling.[5] An iconic black-and-white screenshot from the movie in which the fictional teacher menacingly pokes a terrified adolescent with a meter-long rattan cane, is often used as an illustration of the historical teacher–student relationship in Swedish schools—and, more or less implicitly, as an argument in favor of the postmodern social constructivist educational system.

However, the now established view of the school system that directly preceded the one discussed in this book as mechanical and authoritarian is deeply misleading. During the period between roughly 1860 and 1960, Sweden instead had a (for its time) modern and sophisticated educational system, which we describe in this chapter to dispel the notion that what came before the postmodern social constructivist education paradigm was of little value or even harmful to students—undermining their innate creativity, dulling their motivation to learn, and making them susceptible to authoritarian ideologies. It should, of course, be noted that this system was not perfect. Indeed, we are keenly aware of the danger of falling into the trap of false nostalgia and golden-age thinking. Borrowing from the U.S. educationalist E.D. Hirsch's description of the predecline era of U.S. schooling,[6] we therefore call this period in Swedish education "the silver age."

The Pedagogy of the Old School System

The obedience-based education that is depicted in *Torment* was not an inherent part of the school system to which we refer. The movie's criticism is better directed at the so-called Bell-Lancaster method, which most Swedish schools practiced when formal schooling was first enacted nationwide (in the so-called *folkskola*) by the Elementary School Act of 1842.[7]

[4] See the Wikipedia entry on Bergman: https://en.wikipedia.org/wiki/Ingmar_Bergman.

[5] We return to these reforms in Chapter 6.

[6] Hirsch (2016, p. 6).

[7] For the historical information on schooling in Sweden in this chapter, we draw mainly on Heller Sahlgren and Sanandaji (2019), Lidström (2015), and Andersson (1986).

In this rather primitive and factory-like form of education, older or more gifted students—referred to as "monitors"—transmitted what they had learned to younger or weaker students, while teachers signaled changes between subjects and exercises with whistles and bells and responded to even minor transgressions with corporal punishment.[8] One example of a monitor was the renowned Swedish painter Carl Larsson (1853–1919). In his posthumously published autobiography, he writes that upon entering elementary school, "I was immediately deemed so knowledgeable that I was—in accordance with the Lancaster system—elected to be a 'monitor' for some puppies even more ignorant than myself, and I did this so well that at the end of the semester I was awarded one *daler* and 24 shillings."[9]

It is clear that by making it "possible for a single teacher, with the help of students who were more advanced and extreme discipline, to impart the legally required education to an excessive number of students," the Bell-Lancaster method offered economic benefits to early-nineteenth-century Sweden.[10] However, once the economy improved in the mid-1860s, this educational model was officially abandoned in elementary schools. Direct teacher instruction for every student was introduced, and in a significant departure from the Bell-Lancaster method, teachers were then expected to explain and demonstrate what was taught rather than to have their students merely repeat information without necessarily understanding it. This change is corroborated by a vast number of written recollections submitted by former students in elementary, intermediate, and college-preparatory schools.[11] Indeed, what is common to most students' accounts of schooling is that their teachers engaged them with an authoritative and demanding yet vivid and lively approach from which the students learned knowledge and skills for a lifetime.[12] This teaching

[8] At least, this was how the Bell-Lancaster method was practiced in the elementary schools for mass education, which the majority of children in Sweden attended. A less strict version of the monitorial system appears to have been used in the theoretical intermediate and college-preparatory schools (Larsson, 2016).

[9] Larsson (1953 [1931], p. 49).

[10] Andersson (1986, p. 39). One teacher, whose recollections were recorded in print, remembered teaching 112 pupils at one time (Thedéen, 1941).

[11] See Hall (1941).

[12] For example, a former pupil in elementary school reported of the teacher Anders Berg that he believed that "education must strive to support development of thinking"

ideal was widely accepted and promoted in educational circles until the end of the 1950s.[13]

Alongside this innovation, students were systematically sorted into classes according to ability instead of all being congregated on long benches in the same large hall. Inside the new classrooms, the students were, for the first time, placed behind separate desks with space in between, which meant that "[e]ach student came to be distinguished from the mass … and emerge as an individual."[14] This offered students the possibility of greater self-awareness and a means of cultivating self-regulation. Hence, there was a move away from the traditional view of discipline as synonymous with the imposition of external constraints and punishments.[15] Instead, a more liberal conception of discipline as emanating from within the person took root in the educational system, and considerable value was placed on the inculcation of noncognitive skills such as attentiveness, conscientiousness, honesty, reliability, and perseverance.[16] (Notably, the instillment of such character strengths was ultimately fundamental to Sweden becoming a universal welfare state.[17])

These and other changes to the school system were to a large extent, although not entirely, adopted from the pedagogical principles introduced by the early nineteenth-century German philosopher Johann Friedrich Herbart.[18] He believed that every child had an inner potential that could be realized through intellectual self-improvement and that the key to such realization was a structured and teacher-led education focused

and often said that "to read and not know is to plow and not sow" (Hall, 1941, p. 213). Another former pupil writes of his old teacher Alfred Dalin, "His instruction in history was animated and sparked interest. In particular, it gave him joy to open for us, working-class children of a simple background, the gates to the antique world of gods and heroes" (p. 248). Yet another former pupil writes of the teacher Per Mauritz Sjöstrand, "The teacher threw all his energy into teaching and was always indefatigable in his efforts to teach and explain. … I felt both lucky and happy to be able to learn that which I did not previously know. And the teacher *did not hammer knowledge into the minds of the pupils* … he *taught* us" (p. 259; emphasis in original).

[13] Sjöberg (2014).

[14] Andersson (1986, p. 81).

[15] Within the next few decades, corporal punishment ceased to be practiced in most schools and stages (Qvarsebo, 2006).

[16] Andersson (1986, p. 82).

[17] Bergh and Björnskov (2011).

[18] Heller Sahlgren and Sanandaji (2019, p. 38) and Andersson (1986).

on imparting knowledge. The idea was not that the students would mechanically follow the teachers' prescriptions but rather that they would internalize knowledge and learn to apply it by repetition and practice under the teacher's instruction and supervision, as was the case in Sweden, beginning in the 1860s.

The Herbartian teaching ideal thus closely resembled modern pedagogical notions about the importance of the teacher, not as an agent of control or a mere "facilitator of learning" but as someone who leads the work in the classroom by virtue of his or her knowledge.[19] Such an education, Herbart believed, would "protect the child from a game of chance"—in other words, from random environmental influences—and develop his or her ability to choose the "beautiful and good" over the "tasteless and unethical."[20] It was, in part, this idea that knowledge-rich instruction went hand in hand with the development of self-discipline and virtuous habits that led to the new forms of schooling in Sweden.

However, Herbart's pedagogy did not receive wide recognition until the German educator Tuiskon Ziller wrote about it in an influential work[21] and—together with his disciple Wilhelm Rein—developed it in even more practical and tangible ways. As a result, this educational philosophy came to be known as Herbart-Zillerism. In particular, Ziller added the notion that education must be adapted to the individual student's level of maturity and refined Herbart's thoughts about the planning of lessons. Herbart-Zillerism thus proposed five formal stages associated with teaching (which were meant to be followed flexibly rather than rigidly): (1) *preparation*—a process of arousing students' interest in a topic; (2) *presentation*—presenting new material in a concrete manner and rehearsing it with students; (3) *association*—through comparison and contrast with previously acquired knowledge; (4) *generalization*—a procedure especially important to the instruction of older students and designed to permit more abstract comprehension; and (5) *application*—using acquired knowledge so that it becomes part of the functional mind. "In this manner," Wilhelm Rein wrote, "a child's acquired idea may be so

[19] See, e.g., Biesta (2017) and Linderoth (2016).

[20] As cited in Siljander (2012, p. 96).

[21] Ziller (1865).

developed, so welded together in firm, systematic, comprehensive association, that all his knowledge becomes a reliable, personal possession."[22] Compared to the Bell-Lancaster method, at least as it was practiced in Swedish elementary schools, Herbart-Zillerism was a giant theoretical leap forward in thinking about education and whom it should benefit.

The amalgamated philosophy of Herbart and Ziller quickly gained popularity in the mid-nineteenth century. It is noteworthy that it was keenly embraced in countries that would later, in the years leading up to World War I, become the scientifically and technologically most advanced societies, including Germany, Japan, the United Kingdom, and the United States.[23] In Sweden, Herbart-Zillerism continued to exert significant influence over education in the last decades of the 1800s and after the turn of the century.[24] One example of this continued influence is that Wilhelm Rein was invited to Stockholm in 1895 to give a series of pedagogical lectures to the Swedish educational establishment. The first truly national curriculum, which was enacted in 1919 and remained in effect until 1955,[25] also clearly reflected the Herbart-Zillerist approach by emphasizing genuine content mastery through teacher-led presentation, repetition, and practice and by matching the sequence of topics to the student's maturity and prior knowledge. The whole structure of the curriculum was in keeping with Rein's point, made in one of his lectures in Sweden, that "[t]he new thought material must be anticipated by the old, and the previously imparted knowledge must be retained in order to be able to receive the new."[26] According to the curriculum, the goal of such an instruction- and repetition-based educational process was to make "the children's progress apparent to themselves and instill a joy of work."[27]

The Herbartian moral philosophy of education, in which knowledge is envisioned to enhance the individual's character, also remained embedded

[22] As cited in Da Garmo (1895, p. 137).

[23] For a description of how this type of pedagogy was implemented in the United States, see, e.g., Dunkel (1969a, 1969b). Herbart's influence on the development of Japanese education is discussed in Duke (2009).

[24] Heller Sahlgren and Sanandaji (2019) and Jedemark (2007).

[25] Swedish National Board of Education (1920).

[26] As cited in Kaleen (1979, p. 70). See also Kilpatrick and Johansson (1994, p. 11) on this point.

[27] Swedish National Board of Education (1920, p. 50).

in the Swedish educational system. An emblematic example is a 1954 civics textbook for elementary school in which the point is repeatedly made that knowledge is the key to a life well lived and being a person of integrity and substance.[28] For instance, in a moralizing short story in the book, a father warns his son, who wants to quit his education to go into farming, that "a farmer needs plenty of knowledge—in biology and chemistry, for instance—in order to become something of worth" and not remain an order-taking "stooge" all his life.[29] Another short story conveyed, in a moving narrative, the benefits and character-building aspects of completing a Ph.D. degree. The latter is quite remarkable considering that the textbook, as mentioned, was intended for use in elementary education. Many children in Sweden at this time, particularly those from poor families or who lived in remote rural municipalities, expected the six-year elementary education to be the only formal schooling that they would receive before entering working life; however, all students were taught that the option of pursuing theoretical studies was both virtuous and available to them.

At the same time, conditions were changing, and participation in higher learning was increasing. After World War II, "the numbers of students continuing past the first six years exploded,"[30] and a considerably larger share of every age group went on to the theoretical intermediate school (the *realskola*) and the college-preparatory school (the *läroverk*) within Sweden's parallel schooling system,[31] which had a liberal arts curriculum and was of exceptional educational quality.[32] It has been noted that "[i]n 1929 9% of the age group continued in the *realskola*; by the

[28] Rosén and Jonsson (1954).

[29] Rosén and Jonsson (1954, p. 88).

[30] Lidström (2015, p. 73).

[31] Before 1962, education after elementary school (*folkskola*) was divided into two separate, voluntary tracks: (i) intermediate school (*realskola*), which could be followed by college-preparatory school (*läroverk*), and (ii) vocational schooling.

[32] Syllabi and examination questions in the *läroverk*, which have been preserved in facsimile (Thorén, 1963), show that the education provided in the college-preparatory school was of an extraordinarily high standard. Even as late as 1957, some of the questions for the higher certificate examination (the *studentexamen*) invite comparison to the highly competitive test for admission to the diplomatic training program in the Swedish Ministry of Foreign Affairs.

end of the fifties it exceeded 40%."[33] Similarly, enrollment at the college-preparatory level "increased from 17,000 in 1945 to 63,000 in 1962."[34] This educational "explosion" was an effect of increasing prosperity,[35] which allowed a much larger and more diverse portion of the population to advance in the educational system. Many parents in the working and lower middle classes understandably jumped at the opportunity for their children to more easily acquire further knowledge that had been hard-won by themselves only through correspondence courses and other means of self-education.[36]

The theoretical intermediate school was, however, not equipped to handle the growing numbers of students and became strained under the pressure of the sharply increased demand. An expansion of the number of places would likely have been possible, but, as several scholars have noted,[37] the Social Democratic government at the time considered it a problem that so many chose theoretical studies and opted for another solution. In the early 1960s, the old parallel schooling system was abolished, and the so-called unity school, in which all children would study together for nine years, was enacted. As we discuss later in this book, the unity school did not have the same orientation toward knowledge and rigorous academic standards. Consequently, it did not value its teachers as highly as the previous educational system had.

The Teachers

The educational trend of Herbart-Zillerism, with its emphasis on the importance of the teacher in the learning process, influenced the selection and training of teacher candidates in Sweden in the late nineteenth and early twentieth centuries.[38] The state went to enormous lengths to ensure that teachers were qualified for their task of providing instruction

[33] Spolton (1967, p. 156).

[34] Spolton (1967, p. 156). In percentage terms, this means that enrollment at the college-preparatory level rose from six percent of the relevant age cohorts in 1945 to approximately 21 percent in 1962.

[35] Hadenius (1990).

[36] Ohrlander (1981).

[37] See, e.g., Hadenius (1990) and Richardson (1978) on this point.

[38] Jedemark (2007) and Kaleen (1979).

and setting an example for their students. The demands on intellectual agility were high, and only the best were admitted into the profession.[39] Before starting their teaching career, people underwent seven demanding years of *realskola* and college-preparatory school plus at least three and a half years at the university. Indeed, as in neighboring Finland, where Herbart-Zillerism had also taken root in the educational system at the time, "[t]eachers were supposed to be model citizens."[40] When applying for a teaching position in an elementary school, teachers were ranked according to merit and experience in competition with others, similar to how university positions are filled today. They were sometimes also required to give trial lectures.[41]

The rigorous training that took place in teacher seminars, which included many practical exercises in Herbart-Zillerist pedagogy, contributed to the emergence of a professional ethos that became a significant motivating factor for Swedish teachers.[42] Virtues such as duty, engagement, and self-sacrifice formed the core of this ethos, and teachers consequently saw themselves as public servants committed to an ideal of service above self. They even dressed the part, as is evident in photographs of impeccably groomed teachers accompanying birthday eulogies and obituaries published in old teachers' journals from before and after World War II. The latter described deceased teachers as fallen warriors in a kind of culture war against ignorance and oblivion.

The extrinsic reward in the form of salary was not considered as important.[43] In an emblematic formulation of the professional ethos of teaching, Alfred Fridén, a Swedish teacher and school inspector in the early 1900s, wrote, "Other [professional] avenues may offer more gold and a more comfortable existence … however, nothing of that belongs to what matters in life, to that which is of lasting worth."[44]

[39] Sjöberg (2006b).

[40] Paksuniemi, Määttä, and Uusiautti (2013, p. 1).

[41] Sjöberg (2010).

[42] Sjöberg (2006a, 2006b) and Wennström (2016).

[43] In this context, it is noteworthy that the relative wage of teachers at the time was high (Ljungberg, 2013). For further details on this issue, see Chapter 4.

[44] Cited in Sjöberg (2014, p. 127).

In the terms of the U.S. political scientist James Q. Wilson's analysis of public professions,[45] the ethos of Swedish teachers provided them with an intensely felt "sense of mission." This meant that teachers, as has typically been the case for physicians, police officers, and scholars, could be trusted to perform to the best of their abilities without supervision or codified rules.[46] Hence, Swedish teachers had considerable autonomy in their work and were, for instance, not obligated to be present at the school where they taught during nonteaching hours. Indeed, it was widely understood that "[t]he teacher needed much free time in order to improve him- or herself. A teacher was expected to think and read a lot, and not least reflect on his or her students and teaching methods, prepare lessons, and find new pedagogical approaches."[47] Teachers' commitment to their task was simply taken for granted, and there was no perceived need for bureaucratic interference.

Thus, during "the silver age" of Swedish education, teaching was not just an occupation but a vocation that was separate and different from ordinary paid work and was considered to be more important than the individual. This selfless dedication to knowledge and education, which was strongly encouraged by the Swedish state, brought teachers respect and social esteem. Together with the professional freedom of teaching, the high status that teachers enjoyed in society attracted some extremely talented individuals to the profession.

In Sum

As we noted in Chapter 1, Sweden went from being one of the poorest countries in Europe to one of the three richest by the mid-1960s.[48] As for any country that has gone from being backward to becoming rich and technologically advanced, this advancement would not have been possible without the development of a high-quality educational system. This resulted in both a high general level of education in the population at large for its time and world-class college-preparatory schools that gathered the most academically gifted students and put them on a track

[45] Wilson (2000 [1989], p. 95).

[46] Sehested (2002) and Wilson (2000 [1989]).

[47] Helldén (2002, p. 146).

[48] Maddison (1982).

for future positions as leading scientists, technicians, entrepreneurs, and managers.

We have shown in this chapter how Sweden developed such a high-quality educational system beginning around 1860 and how that system gradually evolved so that an increasing share of young cohorts were offered excellent educational opportunities. After World War I, a truly national curriculum was introduced that imparted relevant knowledge and skills to students based on the principles of teacher-led presentation, repetition, and practice and by matching the sequence of topics to each student's maturity and prior knowledge.

A significant part of the success of this system must be ascribed to the teachers. A key element in the modernization of the educational system was the state's preoccupation with ensuring that highly qualified and motivated persons were attracted to the teaching profession. Teacher training was rigorous and contributed greatly to the emergence of a forceful professional ethos that turned teaching into a vocation rather than an occupation. As a result, teachers were allowed considerable autonomy in their work. Their sense of mission also functioned as an important source of inspiration for students to become equally competent and develop important noncognitive skills, such as reliability and perseverance.

CHAPTER 3

Educational Performance in Swedish Schools—What Are the Facts?

The quality of a country's school system is a crucial determinant of its economic performance and hence of its capacity to enhance social welfare. A well-educated workforce enables a country to produce goods and services requiring highly skilled labor, and if the school system manages to greatly enhance the knowledge level of the most talented and motivated students, this enhancement is likely to promote innovation and technical change, which have been shown to be by far the most important components of economic growth.[1] However, a reasonably equal distribution of the resulting increases in real income cannot be achieved unless the school system also imparts a great deal of knowledge to students who are not academically gifted or come from underprivileged circumstances.

The Swedish school system from the late nineteenth century to the early 1960s, the "silver age" of Swedish education, did very well on both counts. As suggested in the introductory chapter, this was the major reason why the country progressed from being one of the poorest in Europe in the mid-1800s to being one of the richest countries in the world, with the most equal income distribution of all countries. Therefore, we see the quality of the educational system as the most important factor for the development of Sweden's social welfare, both historically

[1] See, e.g., Baumol (2010). Based on a broad reading of the available evidence, Baumol's assessment is that at least 80 percent of economic growth since the onset of the Industrial Revolution is due to innovation and the ensuing entrepreneurship in the form of firms producing goods and services based on a continuous flow of innovations.

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3_3

and in the future. Further support for this view is provided later in this chapter.

This view does not imply that we deny the crucial role played in economic growth by the quality of institutions such as the rule of law, stable property rights, and a high level of generalized trust, which is widely considered to be the prime explanation for cross-country differences in economic performance.[2] However, good institutions favoring innovation and development cannot simply be imposed on a country. Instead, they *evolve* as a result of a myriad of economic, political, and noneconomic private interactions among people and are more likely to evolve if the population is well-educated.[3] In Western-type democracies, the kind of institutions favored by the electorate will of course largely reflect the knowledge level of voters. Hence, in the longer term, if the knowledge level of voters deteriorates, it likely becomes more difficult to develop and maintain high-quality institutions.

Against this background, it is important to confront and analyze the decline in knowledge among Swedish students, as measured primarily by results in internationally comparable tests. We do so in this chapter, which is divided into three sections. We first account for why these tests are important and should be taken seriously. Second, we present the known facts about the deterioration of knowledge in Sweden's educational system. Third, we draw on other researchers' estimated effects of results in internationally comparable tests on economic performance to assess how the declining results have affected and will affect the Swedish economy.

We cannot report all aspects. Our main focus is the steep decline in knowledge levels during the first decade of the twenty-first century, but we also discuss the slight increase in results in the most recent international assessments and its likely causes. We focus on older students; the results for the youngest students are mentioned only in passing. The present chapter has a more technical character than some other parts of the book; however, it is crucial that we detail the problems in academic performance before we begin to discuss their causes. The lay reader

[2] See, e.g., Rodrik, Subramanian, and Trebbi (2004) and Acemoglu and Robinson (2012).

[3] Glaeser et al. (2004).

may jump ahead to the chapter's concluding section, which contains a summary of the most central aspects addressed here.

Test Results and National Economic Performance

What explains economic growth and, hence, social welfare at the country level? In the 1950s and 1960s, it was widely believed that the growth rate was determined largely by capital investment as a share of GDP. This view was so entrenched that arguably even the most influential economist in the entire postwar period, Paul A. Samuelson, predicted that the Soviet Union would overtake the U.S. in terms of GDP per capita.[4] However, over time, it became increasingly clear that the share of GDP used for capital investment could explain only a small share of per capita growth, perhaps as little as 10–20 percent. In the 1980s, the theoretical breakthrough in what became known as *endogenous growth theory* brought human capital to the fore.[5] Human capital is the stock of habits, knowledge, and social and personality attributes (including creativity) embodied in the ability to perform labor to produce economic value. In other words, it refers to the skills and personal traits that enhance a person's ability to produce valuable goods and services.

A problem arose when policy- and opinion-makers began to equate human capital with formal schooling. As a result, governments and international organizations emphasized formal schooling as *the* means to achieve higher growth and raise real incomes, especially among those with the lowest relative incomes and the weakest labor market positions. Sweden was no exception. For example, in 1999, the Social Democratic government set a goal that "at least half of every age group should have begun studies at institutions of higher learning by 25 years of age."[6] A few years earlier, in 1994, the previous distinction between vocational and college-preparatory programs in secondary school had been eliminated; all

[4] In the 1961 edition of his best-selling *Economics* textbook, based on the fact that the investment rate in the USSR was allegedly almost double the U.S. rate, Samuelson claimed that the USSR would surpass the U.S. in 1984 (Samuelson, 1961). Even though the year when the USSR would overtake the U.S. was pushed forward in later editions, the prediction was retained for quite some time. In the 1980 edition, Samuelson predicted that it would happen at some point between 2002 and 2012.

[5] The seminal articles are Romer (1986, 1990) and Lucas (1988).

[6] Government Bill 1999/2000:100, p. 31.

programs from then on made a student eligible for college or university entrance even if he or she was studying to be a car mechanic, electrician, or nursing assistant.[7]

Large cross-country differences in the average scores in internationally comparable tests (see Box 3.1 for a presentation of the different tests)[8] among students with the same number of school years provide compelling evidence that it is, in fact, the quality of the educational system that is important. For example, in the 2011 PISA test in mathematics for 15-year-olds, the average score was 611 in Singapore and 425 in Tunisia. This result implies that only one out of every 27 students in Tunisia performed above the Singaporean average.

Box 3.1: Internationally Comparable Tests—An Overview

International assessments of knowledge and skills in certain subjects began to be developed in the early 1960s, with the aim of facilitating comparisons between countries as well as over time. Since the mid-1990s, there have been comparable tests for a large number of countries in mathematics and science, and, since the turn of the millennium, also tests to measure levels and trends in students' reading comprehension.

There are currently two different organizations that largely test the same kinds of competencies. The International Association for the Evaluation of Educational Achievement (IEA) conducts the *Trends in International Mathematics and Science Study* (TIMSS), the *Progress in International Reading Literacy Study* (PIRLS), and the *International Civic and Citizenship Education Study* (ICCS). The Organization for Economic Co-operation and Development (OECD) conducts the *Programme for International Student Assessment* (PISA) of mathematics, science, and reading, and since 2003 also tests problem solving.

TIMSS has been repeated every four years since 1995, PIRLS every five years since 2001, and PISA every three years since 2000. ICCS has so far only been carried out twice (2009 and 2016). TIMSS is conducted in grade 4 and 8, as well as at secondary level (for a select group), PIRLS in grade 4, and ICCS in grade 8. PISA is conducted at age 15. In 2012,

[7] This change was reversed in 2009.

[8] The very first test, *First International Mathematics Study*, was conducted by IEA in 1964 in 11 countries. The first IEA studies in science and reading were conducted in 1970–71 and 1970–72, respectively. See Hanushek and Woessmann (2015, Chapter 2) for further details.

the OECD also started measuring the literacy and numeracy skills of the adult population in the *Programme for International Assessment of Adult Competencies* study (PIAAC).

This observation is in line with the empirical evidence. Studies focusing on the effect of the average number of years of formal schooling across countries have not been able to establish any robust effect on economic growth.[9] An effect, if any, can be found only among developing countries, but it may just as likely be due to reverse causality, i.e., that economic growth triggers more schooling.[10]

In contrast, empirical research shows a strong positive relationship between the results of internationally comparable tests and economic growth. This is especially true for developed countries. Indeed, when the results from such tests are included in analyses aiming to explain economic growth, the estimated effect of the number of years of schooling invariably becomes nonsignificant.

Moreover, the estimated effect is large. The economists Eric Hanushek and Ludger Woessmann conducted a number of studies estimating the effect and its robustness that are synthesized in their 2015 book *The Knowledge Capital of Nations*. In their analysis of 50 countries during the period 1960–2000, they find that an increase of one standard deviation in the average test results in mathematics and science, i.e., 100 points, "is associated with approximately two percentage points higher annual growth in GDP per capita."[11] The estimated effect for just OECD countries is only slightly smaller, 1.8–1.9 percentage points.[12]

One possible reason for the large estimated effect could be that results on cognitive tests are strongly correlated with institutional quality (e.g., rule of law, individual rights, and the quality of government) or even that institutional quality determines the quality of the educational system as measured in international tests. In that case, average test scores function merely as proxies for institutional quality, which, as already mentioned,

[9] Krueger and Lindahl (2001); Gennaioli et al. (2013).

[10] Castello-Climent and Hidalgo-Cabrillana (2012).

[11] Hanushek and Woessmann (2015, p. 40). To give an example: the average result in Mathematics 2015 was almost exactly 100 points higher in Sweden than in Oman.

[12] Hanushek and Woessmann (2015, p. 147).

has been found to be instrumental to long-term growth.[13] However, the effect remains when Hanushek and Woessmann control for the quality of institutions, although the estimated effect is reduced to approximately 1.3.

Hence, the quality of the educational system, or, more precisely, its ability to impart knowledge to students, rather than the number of years of schooling per se is crucial for economic growth.

We should also point out that the function of a high-quality school system is not just to impart a great deal of knowledge to students but also to instill noncognitive skills, such as self-discipline, perseverance, reliability, and emotional maturity. Indeed, noncognitive skills have been shown to be important not only for productivity and other social outcomes at the individual level[14] but also for economic growth.[15] International tests also capture such skills, suggesting a double-dividend effect of a high-quality school system: A school system that imparts a great deal of valuable knowledge to students cannot succeed in doing so without at the same time teaching them noncognitive skills, such as ability to focus, diligence, and perseverance.

The Swedish economists Gabriel Heller Sahlgren and Henrik Jordahl updated Hanushek and Woessmann's studies, adding results from the PISA and TIMSS tests in mathematics and science through 2015 to explain average GDP growth per capita in the 50 countries for the period 1960–2016.[16] Thus, this analysis includes the years after the financial crisis of 2007–8. Their results are presented in Fig. 3.1, which shows a strong positive relationship between the test results and economic growth when average years of schooling and initial GDP per capita are controlled for. The estimated effect is substantial: one standard deviation higher average test results—corresponding to 100 PISA or TIMSS points—is associated with an increase in the GDP growth rate of 1.3 percentage points. In contrast, the corresponding calculation between number of years of schooling (controlling for the effect of initial GDP per capita and test results) shows no effect, which is in line with earlier results.

[13] Acemoglu, Robinson, and Johnson (2005).

[14] See, e.g., Heckman, Stixrud, and Urzua (2006).

[15] Balart, Oosterveen, and Webbink (2018).

[16] Heller Sahlgren and Jordahl (2021). Data on GDP per capita growth are from the most recent update of the Maddison Project Database (Bolt et al., 2018) and data on average number of years of schooling are from Barro and Lee (2013).

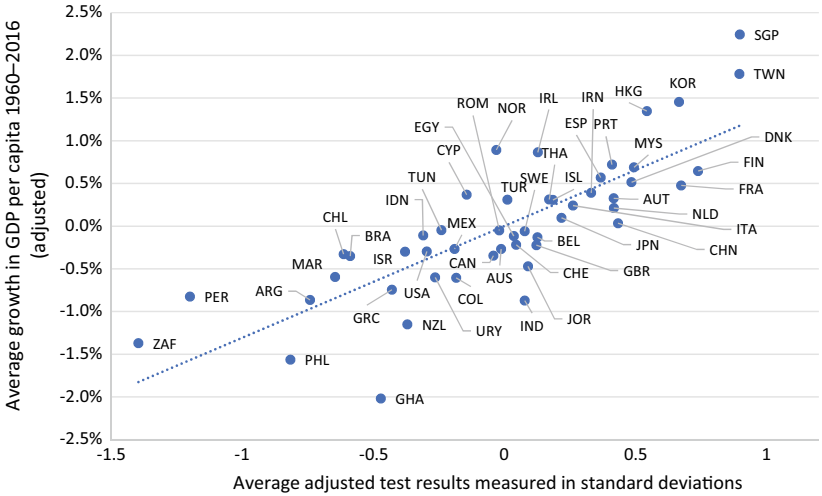

Fig. 3.1 The relationship between international test results and growth in GDP per capita, 1960–2016 (*Note* Added Variable Plot showing the relationship between average growth in GDP per capita and average test score after having removed the estimated effect of initial GDP per capita and average years of schooling. The values on the *x*- and *y*-axes thus indicate the difference between the actual results and what is projected by the two control variables. *Source* Heller Sahlgren and Jordahl [2021])

After having documented the crucial importance of average test results on long-term economic performance, it is worth exploring whether a large share of high achievers is more important or whether it makes more sense to try to push as large a share of students as possible above a minimum threshold. We follow Hanushek and Woessmann in defining the share of students who attain a basic minimum level as those who score at least 400 points—i.e., one standard deviation below the OECD average—in the PISA and TIMSS tests. The share of high-performing students is defined as those who attain at least 600 points—i.e., one standard deviation above the OECD average.

Based on the updated data by Heller Sahlgren and Jordahl (2021) used in Fig. 3.1, this analysis shows that both shares are important for economic growth, but the share of high-performing students is substantively more important. While an increase of 10 percentage points in the

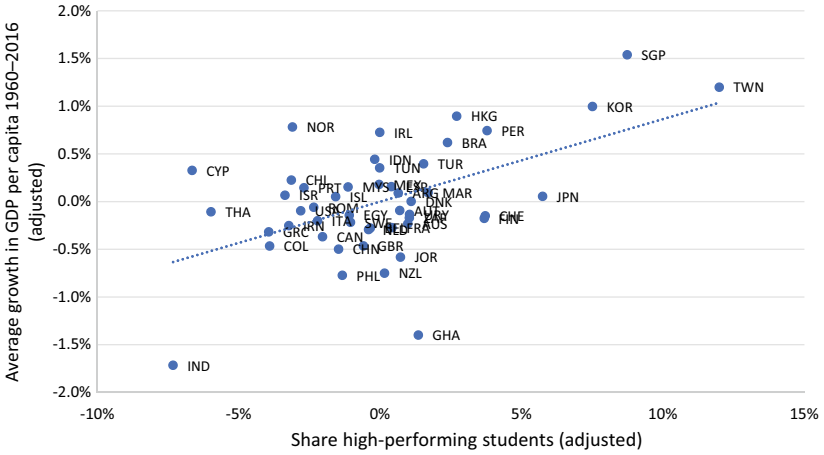

Fig. 3.2 The relationship between the share of high-performing students and growth in GDP per capita, 1960–2016 (*Note* Added Variable Plot showing the relationship between average growth in GDP per capita and average test score and the share of high-performing students after having removed the estimated effect of initial GDP per capita, average years of schooling and the share of students attaining a result of at least one standard deviation below the OECD mean (400 points). The values on the *x*- and *y*-axes thus indicate the difference between the actual results and what is projected by the three control variables. *Source* Heller Sahlgren and Jordahl [2021])

share of students who achieve basic skills is associated with an increase in the GDP growth rate of 0.18 percentage points, an equal increase in the share of high-performing students is associated with an increase of 0.87 points. The latter effect is displayed graphically in Fig. 3.2.[17]

There are several reasons why the share of high-performing students is especially important to economic development and social welfare. High scorers are more likely to support growth-friendly policies and institutions and to hold politicians accountable for abuse and malfeasance.[18] A highly

[17] Hanushek and Woessmann (2015, pp. 62–63) also find (for the period 1960–2000) that the estimated effect of the share of high-performing students is more than four times the estimated effect of the share of students with basic skills. They differ from the estimation here in that they find a larger effect (1.3 vs. 0.3 percentage points).

[18] See, e.g., Jones and Potrafke (2014) and Rindermann, Sailer, and Thompson (2009).

educated population is generally more likely to resolve disputes through negotiations and informed democratic decision-making than through violent conflict and coercion.[19] Other reasons why high scorers are particularly important are that they tend to save more, be more cooperative, be more innovative and more successful at using highly productive team-based technologies (e.g., open-heart surgery and corporate finance), and be more prone to imitate and adopt productive behaviors and solutions used by others.[20]

In summary, there are significant cross-country differences in the test results, and those differences are associated with large variations in long-term growth rates in GDP per capita. The question of what factors drive such differences is one that we return to in later chapters; in a sense, it is the topic of the entire book. Next, we closely examine Sweden's results.

Sweden's Downward Trajectory

Since the 1960s, there has been intense debate about the quality of Swedish education. Views on how well the educational system works and whether the trend is upward or downward have differed widely. One reason for these diverging assessments is differing beliefs concerning the mission of school as an institution and, as a result, the type of results that should be measured. Another reason is that no metrics have ever been developed that enable educational performance in Sweden to be measured over time,[21] either before or after the transition to the nine-year unity school system in the early 1960s. As noted by Erik Lidström, a researcher on educational reform, "precious few measures were obtained when the old system was wound down."[22] It was not until the international knowledge assessments started in the run-up to the 2000s that Sweden was able to properly measure its own students' performance and skills. Comparisons with other countries could then also be made, and as the same tests were repeated several times, it became possible to compare trends over time.

[19] See the research of Glaeser et al. (2004), who find that growth in income and human capital causes institutional improvement.

[20] Jones (2016).

[21] Gustafsson, Cliffordson, and Erickson (2014). See Holmlund et al. (2014) for the scanty evidence and lack of comparability over time.

[22] Lidström (2015, p. 152).

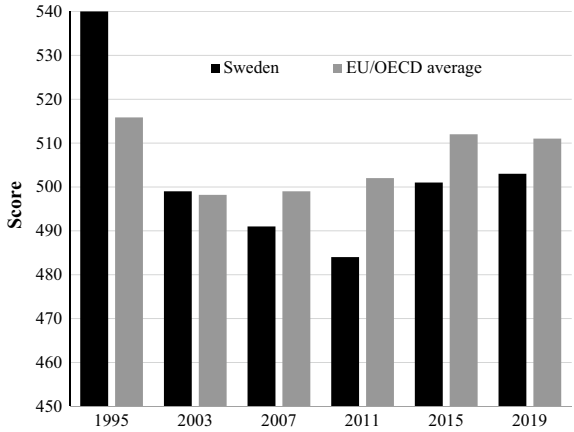

Fig. 3.3 Sweden's and the EU/OECD's average score in TIMSS Mathematics from 1995 to 2019 for students in grade 8 (*Source* Mullis et al. [2004a, 2008a, 2012a, 2020])

As the following sections show, Sweden initially performed well in these tests. However, a significant decline in results then followed. Here, we highlight key aspects of the TIMSS and PISA results and present results from three other tests that shed further light on the development: the PISA assessment of creative problem solving in 2012; OECD's PIAAC study, which measures the literacy and numeracy skills of the adult population; and the results of diagnostic tests in mathematics taken by new students starting engineering programs at Chalmers University of Technology in Gothenburg.

TIMSS

As shown in Fig. 3.3, the first year that Sweden participated in the TIMSS, Swedish 8th graders performed far above both the international average and the EU/OECD average in both mathematics and science. However, between 1995 and 2011, the Swedish average results deteriorated by 56 points, which was the largest decline among all participating countries.[23] In the 2015 TIMSS cycle, Sweden's average result improved

[23] Swedish National Agency for Education (2012a).

by 17 points. However, because the EU/OECD average also improved, Swedish 8th graders still performed well below that average. In 2019, the Swedish average improved by two points (not a statistically significant change). However, although the average was roughly unchanged, dispersion increased compared to 2015. Moreover, absenteeism increased by three percentage points from 2015 to 2019 (from 6 to 9 percent), and the exclusion rate increased from 5.4 to 6.3 percent.

Figure 3.4 shows the corresponding development in the science assessment. In 1995, Swedish students distinguished themselves even more in science than in mathematics, with an average result exceeding the EU/OECD average by as much as 37 points. In three subsequent assessments, the results fell continuously, although they remained above the mathematics level. The 2015 increase of 13 points in the average score once again made the Swedish average somewhat higher than the EU/OECD average. The average remained unchanged in 2019, while dispersion increased; i.e., the results improved at the top of the distribution and declined among the weakest students.

The TIMSS study also shows the percentage of students who achieve various proficiency levels in the tests. To reach a certain proficiency level,

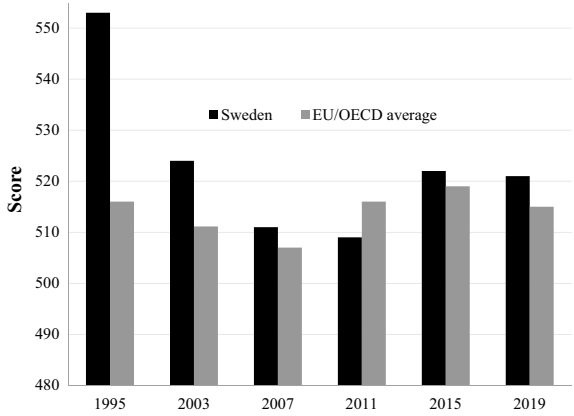

Fig. 3.4 Sweden's and the EU/OECD's average score in TIMSS Science from 1995 to 2019 for students in grade 8 (*Note* Sweden did not participate in the TIMSS 1999 cycle. *Source* Mullis et al. [2004b, 2008b, 2012b, 2016b, 2020] and Martin et al. [2016])

students need to achieve a certain number of points and to solve certain tasks that are specifically designed to measure their understanding of mathematics. The TIMSS defines four levels of proficiency: low (400–474 points), intermediate (475–549 points), high (550–624 points), and advanced (≥625 points).

Additional insight into Sweden's performance can, therefore, be gained by reviewing how many Swedish students achieve a certain level and how these percentages have changed over time. In 1995, the percentage of students who attained the advanced level was 12 percent. This share fell sharply to three percent in 2003; in 2011, only one in 100 students attained the advanced level, and the percentage improved somewhat in 2015, to one student in 35. The share of students who did not reach even the lowest level (<400 points) more than doubled from four to ten percent between 1995 and 2019.

To obtain a clearer picture of the extent to which Sweden has fallen behind, we now compare the results of Swedish students with the results of the top societies, as measured by the share of students who achieve the advanced proficiency level. In TIMSS Mathematics, these societies are Taiwan, Singapore, South Korea, Hong Kong, and Japan. Figure 3.5 shows how the share of students who achieve the advanced proficiency level has changed in these societies and their performance in relation to Sweden. It is particularly noteworthy is that the figures are of an entirely different order of magnitude and that it is not possible to identify any downward trends in any of the other societies except for a slight dip for Taiwan and South Korea in 2015.

Sweden and the U.S. are relatively similar in terms of culture, level of education, and economic development. However, because of the well-known weaknesses in the U.S. education system[24] and the existence of privately funded schools, we should expect not only a considerable variation in results among U.S. students but also that the weakest students will perform particularly poorly. In fact, Table 3.1 shows that the weakest U.S. students (defined as the fifth percentile in the distribution) performed significantly better than the weakest Swedish students on the TIMSS Mathematics in 2011. In 2015, the weakest U.S. and Swedish students performed identically. In all other percentiles, U.S. students outperformed Swedish students, and the difference widens as one moves upward

[24] See, e.g., Murray (2008).

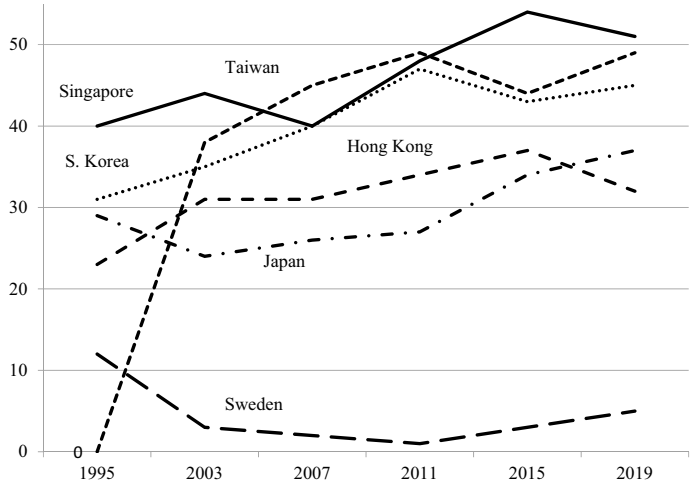

Fig. 3.5 Percentage of students in Sweden and the top-five societies at the advanced proficiency level in 8th grade in TIMSS Mathematics, 1995–2019 (*Note* Sweden did not participate in the TIMSS 1999 cycle. *Source* Mullis et al. [2012a, 2016a, 2020] and Swedish National Agency for Education [2016b])

in the distribution. In contrast, Swedish students outperformed their U.S. peers across the entire distribution in 1995, and the Swedish advantage was larger in the lower half of the distribution. However, this pattern changed in the 2019 assessment. Although the U.S. average of 517 was significantly higher than the Swedish average, the weakest U.S. students once again did considerably worse than the weakest Swedish students. For 2019, the U.S. results consistently exceeded the Swedish results from roughly the 27th percentile and onward. At the 95th percentile, the gap increased to as much as 45 points in the U.S. favor.

TIMSS Advanced

The International Association for the Evaluation of Educational Achievement also conducts comparative studies, called the TIMSS Advanced, of educational achievement at the secondary school level (Mullis et al., 2016b). In this study, final-year secondary school students are tested

Table 3.1 Comparison between the U.S. and Sweden on the TIMSS Mathematics in 1995, 2011, 2015, and 2019, disaggregated by percentile points

	Percentile						
	5th	*10th*	*25th*	*50th*	*75th*	*90th*	*95th*
1995							
Sweden	384	414	460	515	579	597	661
USA	356	360	435	494	563	584	653
Sweden–U.S	+19	+54	+25	+21	+16	+13	+8
2011							
Sweden	368	395	440	487	532	569	590
USA	381	409	457	511	562	607	635
Sweden–U.S	−13	−14	−17	−24	−30	−38	−45
2015							
Sweden	378	406	452	504	553	590	613
USA	378	408	461	521	577	624	651
Sweden–U.S	0	−2	−9	−17	−24	−34	−38
2019							
Sweden	373	401	449	505	556	601	626
USA	348	385	448	518	588	642	671
Sweden–U.S	+25	+16	+1	−13	−32	−41	−45

Note To ensure that the Sweden–U.S. differences are statistically significant we applied the Kolmogorov–Smirnov test (e.g., Daniel 1990, pp. 319–330). The null in this test is that two distributions are equivalent. We performed the test for three individual years: 1995, 2011, and 2015. The null of equality was rejected for all three tests (p-value < 0.00). Thus, the between-country differences are statistically significant, and a plot of all observations in the two samples clearly shows that all observations for Sweden is above the corresponding U.S. observation in the distribution in 1995, while the reverse is true in 2011. For 2015 (2019) the U.S. results consistently exceed the Swedish results from roughly the 9th (27th) percentile and onwards

Source Beaton et al. (1996), Mullis et al. (2012a, 2016a, 2020)

in mathematics and physics. Sweden has participated in three assessment rounds—in 1995, 2008, and 2015—and it is possible to make fair comparisons between them.

The tested groups consist of students who have completed secondary school courses with a particular focus on mathematics and physics. Indeed, participants in the TIMSS Advanced belong to a highly select group of students who attend the most demanding secondary school programs. Sixteen countries participated in the two specialist studies in 1995. However, some of the participating countries did not meet the criteria deemed necessary to allow their national results to be reliably

compared to other countries' results. Ten countries met the comparability criteria in mathematics, and 11 countries met them in physics.

Swedish students performed well in the 1995 specialist mathematics and physics studies. France and Switzerland were the only two countries that performed significantly better than Sweden in specialist skills in mathematics. Sweden's average score was 512 (compared to the international average of 500). In physics, Sweden performed at the top, along with Norway.[25] Sweden's average score was 573 (compared to the international average of 500).

The TIMSS Advanced was conducted again in 2008.[26] Only ten countries participated, in comparison with the 1995 cycle, in which 16 countries participated. Sweden, together with Russia, Slovenia, and Italy (in mathematics) and Russia, Slovenia, and Norway (in physics), was one of the few countries that participated in both cycles. However, according to a report by the Swedish National Agency for Education, the percentage of final-year students participating in the study decreased sharply in Sweden between 1995 and 2008. In other words, there were far fewer Swedish students studying advanced mathematics and physics courses at secondary school.

The difference in Sweden's scores between the two assessment rounds was dramatic, both in physics and in mathematics. The average score in mathematics fell by 90 points. This was by far the largest decline among all countries (Italy was second, with a decline of 34 points). The Swedish decline in physics, 81 points, was almost as large. After Sweden, Norway suffered the greatest deterioration in physics, with a decline of 47 points. The Swedish score in mathematics recovered somewhat in 2015 (although the score was second from the bottom), while it continued to fall in physics. Figure 3.6 shows how the performance of Swedish students changed between 1995 and 2015. The dark column shows average mathematics scores, while the light column shows average physics scores.

Hidden behind this decline in advanced knowledge is a wide dispersion in terms of the share of students at different proficiency levels. The levels are defined in exactly the same way as in the TIMSS studies for 8th grade students, with the only difference being that the lowest level is excluded.

[25] There was no significant difference between the two countries.

[26] Swedish National Agency for Education (2009).

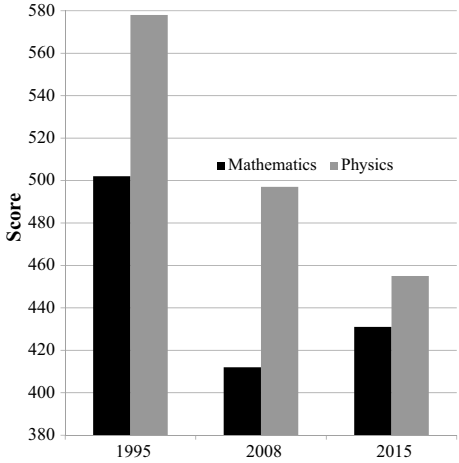

Fig. 3.6 Sweden's average scores in mathematics and physics in TIMSS Advanced in 1995, 2008, and 2015 (*Note* TIMSS Advanced was not done in the TIMSS 2019 cycle. *Source* Swedish National Agency for Education [2009, 2016a] and Mullis et al. [2016b])

Table 3.2 Percentage of Swedish students achieving various proficiency levels in TIMSS Advanced in mathematics and physics in 1995, 2008, and 2015

	Proficiency level in points			
	≤474	*475–549*	*550–624*	*≥625*
Mathematics				
1995	36	34	24	6
2008	71	21	7	1
2015	66	32		2
Physics				
1995	8	26	41	25
2008	38	32	23	7
2015	54	40		6

Note The two intermediate categories for 2015 were aggregated in the source
Source Swedish National Agency for Education (2009, 2016c)

The proficiency levels are, therefore, defined as follows: below average (≤ 474 points), intermediate (475–549 points), high (550–624 points), and advanced (≥ 625 points). Table 3.2 shows how these percentages changed in mathematics and physics between 1995 and 2015.

The table shows a dramatic drop in the percentage of students who achieved both the highest and the second-highest levels. Only one in 100

students attained the advanced level in mathematics in 2008, and this number increased to one in 50 in 2015. The percentage of students who attained the advanced or high levels in mathematics fell from 30 to eight percent from 1995 to 2008, i.e., a decrease of almost three-quarters. In physics, the share of students who achieved the two highest proficiency levels was as high as 66 percent in 1995 and was more than halved, to 30 percent, in 2008. The percentage who failed to achieve the intermediate level in mathematics doubled between 1995 and 2008, and despite a small uptick in 2015, two-thirds of students in their final year of secondary school, taking courses with a science and technology focus, still did not attain the intermediate level in mathematics. In physics, 54 percent, i.e., more than half of the students, failed to achieve the intermediate level—a sevenfold increase compared to 1995.

PISA

Swedish 9th graders have participated in all PISA assessments since the tests began in 2000. We begin by presenting the period of decline in Sweden's PISA results and then present the results of the two most recent assessments. We do so for two reasons: (i) our main interest here is the period of decline in knowledge results in the early 2000s, and (ii) there is reason to doubt the comparability of the results of the 2015 and 2018 assessments with those of earlier assessments.

Mirroring the developments observed for the TIMSS and the TIMSS Advanced, Swedish students performed above the international average in the first PISA cycle, but after that, and as shown in Fig. 3.7, Sweden's results steadily deteriorated in all three PISA areas—reading, mathematics, and science—until a low point was reached in the 2012 survey. The Swedish average score was well below the OECD average, and in each area, only three OECD countries performed worse than Sweden.

As Fig. 3.8 shows, performance fell across the entire distribution compared to 2000, when Swedish students outperformed the OECD average across the entire distribution. The decline in mathematics was most significant for high-performing students, while the decline in science and reading was largest for low-performing students. To gain a sense of the magnitude of the decline among low-performing Swedish students, we note that as late as 2006, this group scored 17 points above the OECD average in reading, while six years later, it scored 35 points below. Sweden's overall decline in science and reading relative to the OECD

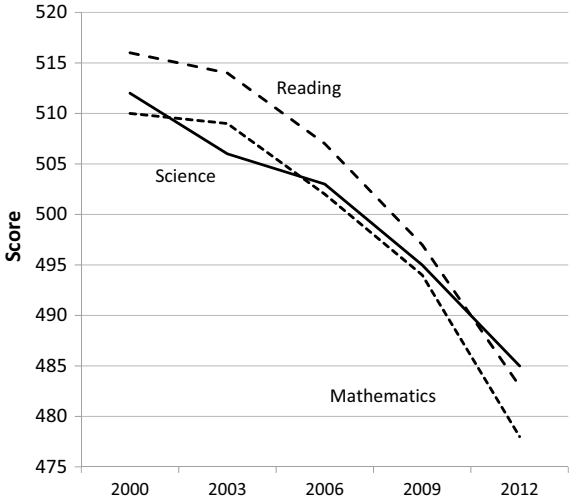

Fig. 3.7 Sweden's average scores in PISA in each respective subject area, 2000–2012 (*Source* Swedish National Agency for Education [2001, 2004a, 2007, 2010, 2013a] and OECD [2014b])

during the 2000–2012 period can thus be attributed mainly to the low-performing group, while for mathematics, the fall is disproportionately explained by high-performing students doing worse.

The decline in science was also significant for high-performing students. The score of students in the 95th percentile went from eight points above the OECD average in 2000 to 6 percent below this average in 2012.

With respect to reading, students across the entire distribution greatly outperformed the corresponding OECD average in 2000, and more so at the lower end of the distribution. The change in the ensuing years was dramatic. The students in the 5th percentile went from scoring 20 points above the OECD average to scoring 35 percent below in 2012, while the students at the top end declined by only six points relative to the OECD average. Thus, while students at the top end still performed above the OECD average, students below the 90th percentile of the distribution performed below the OECD average, and the weaker the students were, the more they lagged behind the corresponding OECD average.

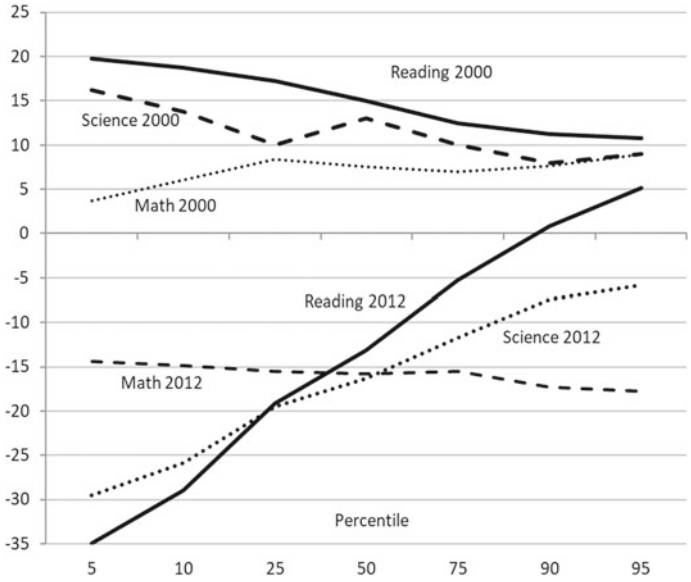

Fig. 3.8 Sweden's results as percentiles compared with the corresponding percentiles for the OECD average, 2000–2012 (score difference relative to the OECD) (*Source* Swedish National Agency for Education [2013a])

To gain further insights into students' proficiency, both PISA and the TIMSS study the percentage of students who attain a certain score; e.g., all students who score at least 625 points are considered to have attained the advanced level and so forth. The Swedish National Agency for Education compared the percentage of students who scored above a certain predefined level (out of a possible six) in 2012 compared to 2003. This comparison is presented in Table 3.3. It shows that the share of students performing at the two highest levels was halved from 16 to eight percent. The percentages attaining Levels 3 and 4 also decreased. The share of students who did not achieve Level 2 increased by ten percentage points, from 18 percent in 2003 to 28 percent in 2012. A large proportion of those students did not even achieve the lowest level; the share that did not achieve even Level 1 almost doubled from six to 10 percent.

As discussed at the beginning of this chapter, research shows that the performance at the top of the distribution is of central importance to

Table 3.3 Percentage of Swedish students achieving different proficiency levels in PISA mathematics in 2003 and 2012

Year/level	*<1*	*1*	*2*	*3*	*4*	*5*	*6*
2003	6	12	21	25	20	12	4
2012	10	18	24	24	16	6	2
Change	+4	+6	+3	−1	−4	−6	−2

Source Swedish National Agency for Education (2013b)

economic growth. Table 3.4 compares the scores of the five percent of highest-performing students in 2003, when the top Swedish students performed best in mathematics and science, to their scores in 2012. The decline was greatest in mathematics and science, by 35 PISA points, while it stopped at eight points in reading. The decline, relative to the OECD average, was considerably higher in mathematics (35 points) than in science (13 points) because the OECD scores in science also fell but remained unchanged in mathematics. In 2012, the top Swedish students were still slightly better than the OECD average in reading, but when the OECD average remained the same between the two assessments, the scores of Sweden's highest-performing students in reading also declined relative to the OECD average.

How this group fares in Sweden can be further illuminated by comparing the average results of the five percent of the best-performing students to the results for the corresponding group in countries where the top five percent of students, on average, obtained 700 points or more

Table 3.4 Averages for Sweden and the OECD for the top five percent of students in PISA 2003 and 2012, and changes in Sweden's scores relative to the OECD's average between the two years

Subject	*Sweden 2003*	*OECD 2003*	*Sweden 2012*	*OECD 2012*	*Change relative to OECD 2003–2012*
Mathematics	696	691	661	691	−35
Science	711	709	676	687	−13
Reading	691	678	683	678	−8

Note The OECD average is based on the OECD countries that participated in each respective assessment
Source OECD (2001, 2004, 2007, 2010, 2013a)

Table 3.5 Countries with an average of at least 700 PISA points among the top five percent in each respective subject in 2012

Mathematics		*Science*		*Reading*	
Country	*Score*	*Country*	*Score*	*Country*	*Score*
South Korea	746	Finland	725	Japan	722
Hong Kong	739	Japan	725	Finland	703
Switzerland	717	Australia	718	France	702
China (Macau)	717	New Zealand	718	Canada	700
Japan	716	UK	706		
Belgium	710	Hong Kong	706		
Poland	707	Canada	705		
Australia	700	Poland	702		
		Germany	701		
		Ireland	700		
Sweden	661	Sweden	676	Sweden	683

Source OECD data (2013c) analyzed by Tuomas Pekkarinen

in each subject.[27] Table 3.5 shows the results of this comparison. The gap between Sweden and the best countries was greatest in mathematics, where there was a difference of 85 PISA points against South Korea, which was at the very top. Even in European countries, such as Belgium and Poland, the best students performed extremely well compared to their Swedish counterparts. In science, Finland and Japan shared first place with a gap of 49 points between them and Sweden. In reading, there were only a few countries where the top 5 percent scored an average of 700 points or more, and the gap between Sweden and the top-performing countries was clearly smaller than in mathematics and science.

The standard deviation of the scores among the top 5 percent of Swedish students was almost exactly 30, which means, for example, that only 16 percent of the top 5 percent of Swedish students scored better than the OECD average for the top 5 percent in mathematics in 2012. The average score for the top 5 percent was almost three standard deviations higher for South Korean than for Swedish students. Provided that the results are normally distributed, this means that only one in 400

[27] A score of 700 points is two standard deviations above the average among all students in all countries who have taken the test. Thus, a student who scores 700 points is among the 2.27 percent best-performing students.

Table 3.6 Sweden's and the OECD's average PISA score in 2012, 2015, and 2018

	Mathematics	*Science*	*Reading*
Sweden 2012	478	485	483
Sweden 2015	494	493	500
Sweden 2018	502	499	506
2015–2012	+16	+8	+17
2018–2012	+24	+14	+23
OECD 2012	494	501	496
OECD 2015	490	493	493
OECD 2018	489	489	487
2015–2012	−4	−8	−3
2018–2012	−5	−12	−9

Source Swedish National Agency for Education (2016a)

students in Sweden reached that level. Similarly, only one in twenty of the top Swedish students scored better in science than the average for the corresponding top students in Finland.

Later Results and Comparability to Previous PISA Assessments

As Table 3.6 shows, Sweden's average results improved in all three areas in PISA 2015. The extent of the improvement was such that the average results almost exactly reverted to the level in PISA 2009. At the same time, the OECD average fell slightly, which improved Sweden's results relative to the OECD somewhat more. The results also improved somewhat in 2018, which meant that the overall results returned to the 2006 level except in science.

From 2012 to 2018, the share of students at the two lowest performance levels decreased from 27 to 18 percent in mathematics, from 23 to 18 percent in reading, and from 22 to 19 percent in science. The share performing at either of the two highest levels increased by roughly eight to 13 percentage points in reading and mathematics and eight to nine percentage points in mathematics.[28]

An examination of the results of Swedish students across the entire performance distribution relative to the corresponding percentile results

[28] The difference between Sweden (and most other OECD countries) and Singapore is huge. In Singapore, 37 percent of students in mathematics and 21 percent in science score at one of the two highest levels.

in the same pattern as that shown in Fig. 3.8. Except in mathematics, where the curve is relatively flat with just a minor dip for the weakest students, the curves slope steeply upward. In other words, Swedish students now perform slightly better than the OECD average, but this improvement is driven by an above-average performance of students at the higher end of the distribution, while students at the lower end of the distribution continue to lag.

Thus, ostensibly, it appears that Sweden has recovered a large part of the decline that lasted until 2012. There are, however, some serious caveats. The comparability of the 2015 and 2018 results with results from earlier years is impaired by the fact that beginning in 2015, the PISA tests were taken on computers and not by using paper and pencil. This difference may have affected the results. In fact, this possible difference has been suggested in research on country results in mathematics in PISA 2012.[29] The results often differed markedly at the country level when the regular test was compared to a computer-based test that was tried on an experimental basis for the first time. For example, the Polish average fell by 28 points, while the Swedish average improved by 12 points among students who took the test on a computer compared to those who used paper and pencil. The largest difference was found for China-Shanghai, where the results were 50 points lower in the computer-based test. The reading test was also administered on an experimental basis on computers, and the Swedish results improved by 15 points.

Countries that use computers a great deal in the classroom appear to have been favored by the change. Strikingly, several high-performing societies dropped sharply in PISA 2015. Hong Kong dropped 32 points in science, while Taiwan's and Japan's reading results declined by 26 and 22 points, respectively. Moreover, South Korea dropped 30 points in mathematics.[30] There were also large declines in several European countries in some areas. For example, the results in science fell by 15–25 points for Ireland, Poland, and Germany. These changes are extreme and correspond to between 50 and 100 percent of what an average student learns in one school year.[31] Thus, it is highly unlikely that these large drops

[29] Jerrim (2016).

[30] In fact, the share of students reaching the advanced level in mathematics (≥625 points) decreased from 2012 to 2015 in all six societies that were top ranked in 2012.

[31] According to the OECD, 30 PISA points correspond to what a student learns in one school year.

reflect an actual deterioration in students' knowledge and skills. These declines are of the same order of magnitude as Sweden's decline during the twelve-year period from 2000 to 2012.[32] The fact that there was no corresponding decline in the TIMSS further supports the presumption that the change to computer-based testing affected the results and that the decline was not a genuine decline.

The Swedish National Agency for Education has acknowledged that the use of computers may have affected Sweden's results in PISA 2015, writing that "Swedish students performed relatively better on the digitally administered tests both in 2009 and 2012 relative to the usual PISA tests."[33] Andreas Schleicher, who organizes the PISA tests, has also admitted that the results of the 2015 cycle may not be fully comparable with those of previous assessments.[34]

These indications of bias have not been contradicted by more recent evidence. On the contrary, in his analysis of the OECD's field study in which students were randomly allocated to either a computer- or a paper-based (identical) PISA test, John Jerrim, an educational researcher at University College London, showed that the use of computers *did* affect the validity of cross-country comparisons.[35] Students in Ireland, Sweden, and Germany performed considerably worse when they took the tests on a computer. The differences were greatest in Germany, followed by Ireland and Sweden. When Jerrim used the OECD's official method to control for differences between the two test methods, the differences remained to some extent, but countries were affected differently: While the results for students in Ireland and Germany were still 11 and 19 points lower, respectively, the difference was eliminated for Sweden. This finding indicates that Sweden may have benefited in relative terms, at least compared to Ireland and Germany, but to draw a more definitive conclusion, analyses of a larger number of countries are called for.

[32] The Swedish average fell by 23 points in mathematics, 27 points in science, and 33 points in reading from 2000 to 2012 (Henrekson and Jävervall, 2017).

[33] Swedish National Agency for Education (2016a, p. 7).

[34] Andreas Schleicher is quoted as saying (in Ward, 2017), "It remains possible that a particular group of students—such as students scoring [high marks] in mathematics on paper in Korea and Hong Kong—found it more difficult than [students with the same marks] in the remaining countries to perform at the same level on the computer-delivered tasks."

[35] Jerrim (2018) and Jerrim et al. (2018).

Another factor that may have played a part in Sweden's improvement in PISA 2015 is external pressure on the students to perform well on this particular test. The dramatic decline in the previous round of PISA in 2012 produced a political and cultural shock in Sweden. Improved results in 2015 were, therefore, widely perceived as crucial to the future of the country's educational system, and it is unlikely that students were unaware of the significance of PISA. This view is also supported by the fact that students' motivation to do well on the PISA test increased considerably after the 2012 test.[36]

In the 2018 cycle of PISA, yet another change was made to the test. The OECD introduced a (crude) form of computer-adaptive testing, meaning that students did not take the same test.[37] Students who answered the first questions correctly received harder questions as the test moved forward, and weaker students received easier questions. This makes comparability with the old pen-and-paper tests even more difficult. Indeed, in a blog post published on the eve of the release of the 2018 results, John Jerrim urged caution and noted that "we should be keeping a close eye on how this change to the test design has been handled (and if comparison to previous PISA results is really possible)."[38]

Against this background, it appears that the OECD is not emphasizing comparability over time to the extent that it once did. The purpose of the PISA test also seems to be changing. According to a news report, Andreas Schleicher and the OECD are making sure that PISA "reflect[s] changes in what is considered to be important in education," which means "moving away from traditional knowledge testing."[39] In the view of Schleicher, "the modern world doesn't reward us for what we know, we can get that from Google."

Most importantly, Sweden excluded one-ninth of its population of 15-year-olds (11.1 percent) in the PISA 2018 test,[40] which was the highest exclusion rate of all OECD countries and double the rate in PISA 2015 (5.7 percent). The average exclusion rate in the OECD in 2018 was 4 percent. This increase in the exclusion rate is believed to have been due

[36] Heller Sahlgren and Sanandaij (2019, pp. 142 and 160).

[37] Yamamoto, Jeong Shin, and Khorramdel (2019).

[38] Jerrim (2019).

[39] Singhal (2019).

[40] Swedish National Agency for Education (2019a).

to a large increase in immigration. However, the exclusion rate is likely to be approximately five percentage points too high, and in Germany, which also had a large influx of immigrants, the exclusion rate was a mere 1.9 percent. Moreover, absenteeism was extremely high among those selected to participate at 13.5 percent.[41] As a result, almost one-fourth of the population of 15-year-olds were either excluded or absent. There are strong indications that those who were erroneously excluded or absent would, on average, have performed poorly.[42] Even fairly modest assumptions regarding the likely average results of those students are sufficient to erase the improvement in average results from 2015 to 2018.[43]

Thus, in summary, we do not believe that the PISA tests in 2015 and 2018 are fully comparable with the tests conducted between 2000 and 2012. Therefore, they may not reflect an actual substantive change in students' academic achievement.

The PISA Assessment of Creative Problem Solving

As the objective of PISA is to assess how well national education systems prepare students for higher education and future working life, it is also appropriate to test their creative problem-solving skills. This can be seen, moreover, as a test of students' ability to practically apply the formal knowledge that is measured in the tests in mathematics, science, and reading. In 2003, for the first time, a separate section was included in the PISA study that was designed to test students' problem-solving skills. It was omitted again in the assessments conducted in 2006 and 2009 but reintroduced in PISA 2012. The test questions are based on everyday problems that are not directly linked to school subjects but indirectly require good academic knowledge. In 2012, the test was computer based, while in 2003, it was taken using paper and pencil. The results for these two years are, therefore, not strictly comparable. We choose to focus on the 2012 study, as it tested students' creative skills more extensively.[44]

[41] Hellberg (2020).

[42] This is also the judgment of the Swedish National Agency for Education (2019a, p. 63): "Since other studies have shown that students who, for various reasons, do not participate in a test tend to be relatively low-achieving on average, there is reason to suspect that this is also the case for PISA."

[43] See Hellberg (2020).

[44] OECD (2014a).

Table 3.7 Countries with better scores than Sweden in PISA's computer-based problem-solving test in 2012

Country	*Score*	*Country*	*Score*
Singapore	562	Netherlands	511
South Korea	561	Italy	510
Japan	552	Czech Rep	509
China-Shanghai	536	Germany	509
Taiwan	534	USA	508
Canada	526	Belgium	508
Australia	523	Austria	506
Finland	523	Norway	503
UK	517	Ireland	498
Estonia	515	Denmark	497
France	511	Portugal	494

Source OECD (2014b)

The problem-solving skills of Swedish students are interesting and relevant in the context of Sweden's decline in academic knowledge. In the past, poor levels of substantive knowledge among Swedish students have often been excused by arguing that this problem was offset by students' strong performance in other important aspects, such as creativity. For example, the chairman and the vice president of one of the largest corporate school groups in Sweden claimed that PISA 2012 did not show the whole picture of students' strengths because it did not measure creativity.[45] However, this claim is contradicted by the aforementioned assessment of problem-solving skills. Such skills are indeed measured by the OECD, and the results are not encouraging.

As we are unable to compare Swedish students' problem-solving skills over time, we instead analyze average scores in comparison with the OECD average. The average OECD score in the problem-solving section is 500 points; Sweden's score was 491, i.e., below average. In fact, Sweden was ranked 20th out of 28 participating countries. Table 3.7 shows the countries that performed better. In addition to the 19 OECD countries, the list includes Singapore, Taiwan, and China. It is noteworthy that countries that excel in academic knowledge are clearly ranked at the top in this test as well.

[45] Emilsson and Eiken (2013).

Table 3.8 The correlation between the different OECD countries' PISA rankings in the four subjects that were tested in 2012

	Mathematics	*Science*	*Reading*
Science	0.93		
Reading	0.84	0.88	
Problem-solving	0.72	0.73	0.79

Note The correlation coefficients are calculated for countries with averages for all four subject areas. A perfect correlation, i.e., if all of the countries' ranking positions are exactly the same for two subjects, gives a correlation coefficient equal to 1. The correlations are based on the 28 OECD countries. For the United Kingdom, England's scores in problem solving are used because the United Kingdom's average is missing
Source OECD (2014a, 2014b)

The test distinguishes between static and interactive tasks. In static tasks, students are given all the information needed to solve the problem from the outset. In interactive tasks, however, students are required "to uncover useful information by exploring the problem situation" in order to be able to solve the problem.[46] When both parts are taken into account, the total percentage of correct answers for Swedish students is 43.8 percent, which is lower than the OECD average of 45 percent. When the percentage of correct answers is divided between static and interactive tasks, the distribution of results changes: Swedish students complete static (and less demanding) tasks better than interactive tasks, performing 0.6 percentage points higher than average on static tasks but 2.2 percentage points lower than average on interactive tasks.[47] A greater level of self-control and critical and inventive thinking is needed to complete the interactive tasks than to complete the static tasks. Sweden's score in this test, therefore, does not support the claim that Swedish students' poor results in tests of pure knowledge could be offset by their superior creative or critical thinking skills.

Finally, we examine how well OECD countries' scores correlate across the three subjects and problem-solving skills. Table 3.8 shows the correlation coefficients for the countries' rankings in each subject. Rankings in the different subjects show a strong positive correlation.

[46] OECD (2014b, p. 29).

[47] OECD (2014b, p. 166).

Other Relevant Comparisons

In this section, we complement our analysis of Swedish elementary and secondary school students' competencies by reviewing trends in the competencies of the adult population. This enables us to analyze how performance in childhood and youth "translates" into performance in adulthood.

With the help of the international PIAAC comparison, we present evidence strongly suggesting that the knowledge and skills of the adult population have deteriorated over time. We also show that deficiencies in students' knowledge at the compulsory level during the 2000s have a direct negative impact on the knowledge and skills that students have when they reach adulthood.

Alongside the PIAAC, we present a summary of how university students' prior knowledge of mathematics has changed. Diagnostic tests conducted with students starting engineering courses at one of the country's two largest technical universities, Chalmers University of Technology in Gothenburg, show that the level of knowledge in mathematics in this group began to fall steeply in the early 1990s.

PIAAC

The Programme for International Assessment of Adult Competencies (PIAAC) was developed to provide decision-makers with information about the skills and abilities of the adult population.[48] PIAAC tests individuals between 16 and 65 in several areas, such as literacy, numeracy, and problem solving, in technology-rich environments.[49] The results are presented according to age group. Sweden is one of 23 countries participating in the test.

As PIAAC has been carried out only once, in 2012, we cannot compare how the skills of the adult population have changed over time. However, it is possible to see how the students who participated in various PISA

[48] OECD (2013b).

[49] Problem solving in technology-rich environments is defined as (OECD, 2013a, p. 47) "using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. … [It] focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans and accessing and making use of information through computers and computer networks."

assessments progressed as they grew older. The groups of students who participated in the four PISA tests can be identified by the following age groups in PIAAC:

- PISA 2000: 26–28 years old in PIAAC
- PISA 2003: 23–25 years old in PIAAC
- PISA 2006: 20–22 years old in PIAAC
- PISA 2009: 17–19 years old in PIAAC

As PIAAC assesses numeracy and literacy, we can compare these two areas with PISA. Figure 3.9 shows comparisons of the average results of the different age groups. The results appear to mirror Sweden's trend in the PISA assessments almost perfectly. Swedish students who participated in PISA 2000 performed well in both reading and numeracy in PIAAC twelve years later. Swedes who took the PISA in 2003 achieved the best results overall. For the 20–22 and 17–19 age groups, i.e., those who took the PISA tests in 2006 and 2009, the average scores were lower, indicating that they were not able to compensate for deficiencies in knowledge at the elementary level through increased learning at a later stage. (This finding applies to both literacy and numeracy.) Indeed, as noted in the *Long-Term Survey of the Swedish Economy*, poor results at age fifteen "remain unchanged at least twelve years after elementary education."[50]

The students who participated in PISA 2012, i.e., those with the worst PISA scores both absolutely and relative to other countries, did not participate in the PIAAC study. However, given the strong correlation between PISA scores and PIAAC scores, there is ample reason to believe that this cohort of students will perform weakly in a future PIAAC study.

Sweden's scores for different age groups in PIAAC can also be compared to the corresponding averages for all 23 participating countries.[51] Proficiency in numeracy is relatively higher in Sweden for older people. In literacy, the positive differential relative to the average for all countries appears between the youngest group and the 35–44 age group. After that, to Sweden's advantage, the differential remains constant. This finding suggests that the decline in mathematics, relative to other countries, began earlier than the decline in literacy. Those who attended

[50] Löfbom and Sonnerby (2015, p. 71).

[51] See Henrekson and Jävervall (2017, pp. 36–37).

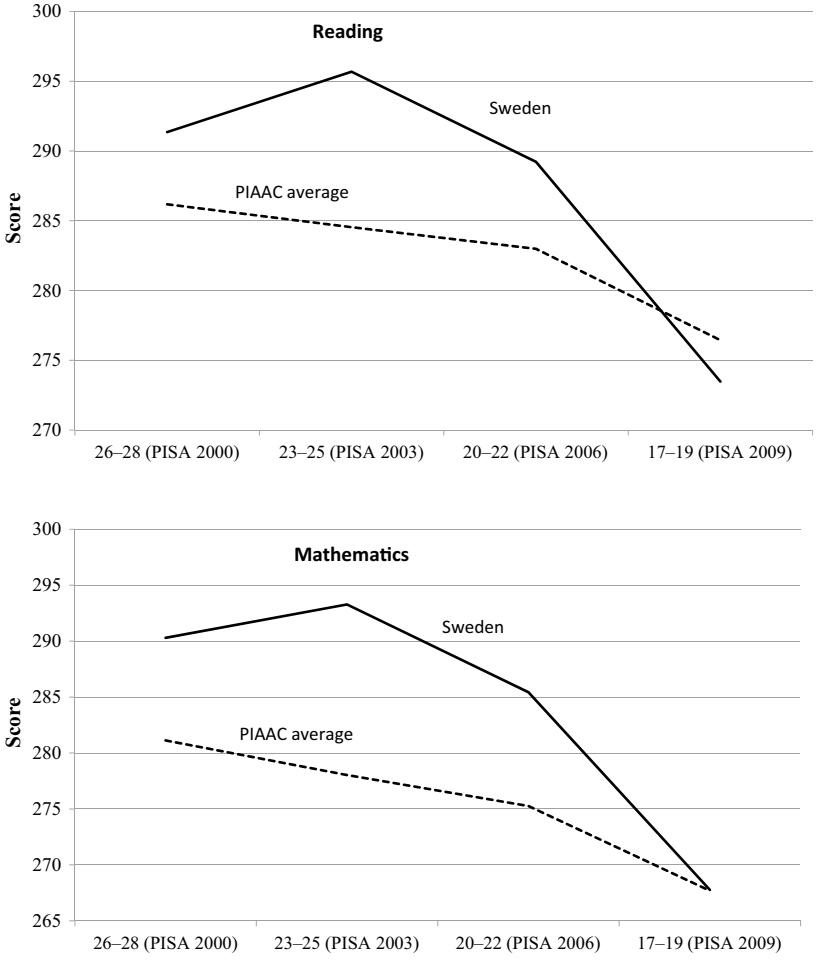

Fig. 3.9 Average scores for Sweden in reading and mathematics and PIAAC averages for the age groups 26–28, 23–25, 20–22, and 17–19 (*Source* OECD [2013b])

lower and upper secondary school in the 1970s (the 45–54 age group) were already relatively weaker than those who went to elementary and secondary school in the 1960s.

The Diagnostic Test in Mathematics at Chalmers University of Technology

One indicator of the quality of Swedish elementary and secondary education is the prior knowledge of new students starting at university. Comparable tests in mathematics have been conducted every year since the early 1970s (beginning in 1973) with students starting engineering courses at Chalmers University of Technology. This provides us with an excellent opportunity to study proficiency levels earlier than in the 1990s.

The test was designed and administered for almost 40 years by Senior Lecturer Rolf Pettersson and is now administered by Associate Professor Jana Madjarova. The test consists of nine standard questions taken from a bank of 30 questions. We have direct access to the results for the whole 1973–2019 period for two parts of the test: logarithms and quadratic equations.[52] The latter are taught in elementary school and have also featured in PISA tests. Mathematics courses including logarithms are taught in secondary school and are a prerequisite for admittance to Chalmers' engineering program.

Figure 3.10 shows the percentage of correct answers to questions involving logarithms and quadratic equations. Between 1973 and 1991, the percentage of correct answers for logarithms hovered around 50 percent. In 1994, the scores began to fall steeply, and this decline continued for the rest of the 1990s. From 2001 on, the scores flattened out and stabilized at a level of 20 percent. A slight increase of approximately three percentage points can be discerned in the last five years, but it also remained within the range of normal variation after 2000.

[52] We have had access to the whole time series for only two of nine subsections of Chalmers' diagnostic tests. However, the scores on these two subsections are a good reflection of the overall trend for the combined test results of all the subsections (Pettersson, 2015), which also include calculations using fractions, polynomial division, trigonometry, trigonometric equations, linear equations, the chain rule, and the derivation of the quotient rule.

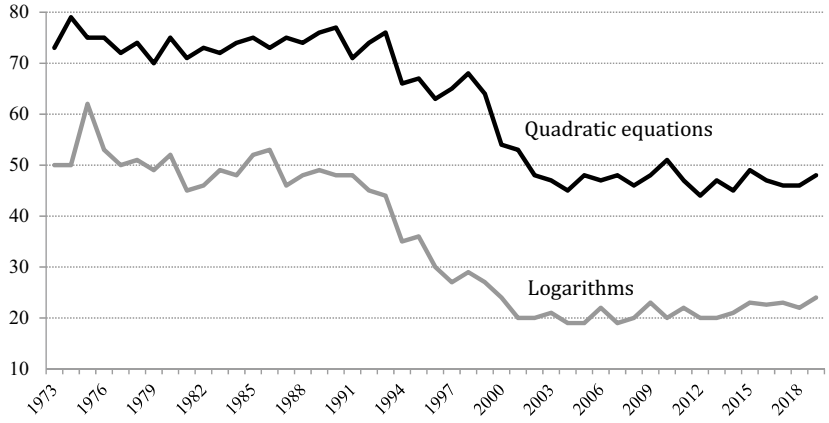

Fig. 3.10 Percentage of correct answers in the section on logarithms and quadratic equations in Chalmers' diagnostic tests in mathematics, 1973–2019 (*Source* Pettersson [2015], and updates received directly from Associate Professor Jana Madjarova, who succeed Rolf Pettersson as responsible for Chalmers' diagnostic tests in mathematics)

For quadratic functions (elementary school knowledge), the percentage of correct answers lay at around 75 percent until 1993. Then, it followed the same steep decline as for logarithms. The series hit its lowest point in 2004 at 45 percent. Looking closely, we can identify a rise of a few percentage points in the following years, although the trend did fluctuate. The fact remains that the scores need to improve by approximately 50 percent to return to the levels of the early 1990s.

An analysis of all subsections shows that, except for quadratic equations and polynomial division, the percentage of students who answered correctly was reduced by at least half from the 1970s and 1980s to the early 2010s.[53] The average percentage of correct answers in 2015 was 25 percent.

An average score may hide a significant dispersion in results among the new students. Table 3.9 shows the percentage of students about to begin studying in the *Biotechnology*, *Chemical Engineering*, or *Chemical Engineering with Physics* program who achieved a certain number of correct

[53] Pettersson (2015).

Table 3.9 Percentage of students that get a certain number of correct answers in Chalmers' test for new students studying *Biotechnology*, *Chemical Engineering*, or *Chemical Engineering with Physics* in 2013

Percentage of correct answers																
0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	8	9
19.4	4.3	19.9	5.4	11.8	6.4	10.2	3.8	5.4	2.1	4.8	1.1	1.1	1.6	2.2	0.5	0
Cumulative distribution																
0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	8	
19.4	23.7	43.6	49.0	60.8	67.2	77.4	81.2	86.6	88.7	93.5	94.6	95.7	97.3	99.5	100	

Note The number of students in the three programs that did the test was 186. The sample of students in the table was determined by data availability
Source Associate Professor Jana Madjarova, responsible for Chalmers' diagnostic tests in mathematics

answers in the 2013 test. The table shows that a large percentage of the students had very poor scores. Almost one in five students did not solve a single problem correctly, and almost exactly half of the new students had a maximum of 1.5 correct answers out of a possible nine. A very small percentage had very good results. Only one in nine students (11.3 percent) solved at least half of the problems; only one student out of 186 solved more than seven of the nine problems; and a mere 6.5 percent of the students earned a score that exceeded the average from 1973 to 1993. Not a single student solved all of the problems correctly.

To be eligible for a place in one of the engineering programs, students must have completed a science- and technology-based program in secondary school and taken the course Mathematics Level D (at least). To be admitted on the basis of their school-leaving grades, as most students were, the following admission points were required for these programs in the fall semester of 2013: 19.95, 18.20, and 18.80, respectively.[54] With few exceptions, places were granted only to those with the highest grade in all subjects in secondary school. Despite the fact that the students had high formal qualifications, their scores on the diagnostic tests were poor. This suggests that the relationship between a student's

[54] See http://statistik.uhr.se. The highest grade you could earn in this system was 20 points.

grade and his or her actual level of knowledge is tenuous, an issue that we explore further in the next chapter.

The Macroeconomic Effects of the Knowledge Decline

In the middle of the nineteenth century, Sweden was among the poorest countries in Europe. Approximately 80 percent of the population was engaged in the agricultural sector. An improvement began in the 1850s, and in the early 1870s, industrialization provided a base for sustained economic growth that continued largely uninterrupted for one hundred years. Swedish productivity growth was exceptional in the period 1870–1950 compared to that in other rich countries.[55] It is fair to say that this would not have been possible without a high-quality education system that resulted in rapid human capital formation.

In the first section of this chapter, we presented evidence of a strong positive effect of school quality as measured in internationally comparable tests on economic growth. Based on the most up-to-date data, one standard deviation higher in the results—i.e., 100 points in TIMSS and PISA—in mathematics and science is associated with an increase in the growth rate of GDP per capita of 1.3 percentage points.

Based on this estimate, how much can we expect the recent decline in the results of Swedish students to affect economic growth? To arrive at an approximate answer to this question, we focus on the declining results in mathematics and science in TIMSS since 1995. As shown in Table 3.10, the results declined sharply from 1995 to 2011, recovered somewhat in 2015, and remained at that level in 2019. The average decline in mathematics and science from 1995 to 2015 was 34.5 points, or 0.345 standard deviation. Thus, based on the estimated effect, this decline can be expected to reduce the average growth in GDP per capita by 0.45 percentage points (0.345×1.3), which is a substantial effect.

We also documented that the estimated growth effect was substantially larger if the share of high-performing students increased relative to an increase in the share who attained a basic minimum knowledge level. We

[55] Maddison (1982).

Table 3.10 Average results in TIMSS Mathematics and Science in Sweden in 1995, 2011, and 2015

	1995	*2011*	*2015*	*2019*
Mathematics	540	484	501	503
Δ (2011–1995)		−66		
Δ (2015–1995)			−39	
Δ (2019–1995)				−37
Science	553	509	522	521
Δ (2011–1995)		−44		
Δ (2015–1995)			−31	
Δ (2019–1995)				−32
Average of Mathematics and Science				
Δ (2011–1995)		−49		
Δ (2015–1995)			−35	
Δ (2019–1995)				−34.5

Source Beaton et al. (1996), Mullis et al. (2016a)

can use those estimates to calculate the estimated positive growth effect if Swedish students managed to attain the same proportions in the basic and advanced levels, respectively, as Singaporean students. In PISA 2015, 80 percent of Swedish students attained the basic level and 10 percent attained the advanced level. The corresponding shares for Singapore were 91 and 26 percent, respectively. If the share attaining the basic level increased to 91 percent, the growth rate would be expected to increase by 0.2 (1.1 × 0.18) percentage points, while an increase from 10 to 26 percent in the share attaining the advanced level would be associated with an increase in the growth rate of GDP per capita of a whopping 1.39 (1.6 × 0.87) percentage points. Even if we should take the estimate with a grain of salt, it clearly shows that there is much greater growth potential in increasing the share of top-performing students.

In Sum

It may come as a surprise to international readers that no metrics have ever been developed to measure educational performance in Sweden over time before the tests that began in the mid-1990s that are comparable

internationally and over time. Sweden performed relatively well in the earliest assessments conducted around the turn of the century. Swedish secondary school students then performed significantly better than the average in both PISA and the TIMSS.

In the 2000s, Swedish elementary and secondary school students' scores began to fall in every subject and assessment but one, which suggests both a long-term and substantial weakening of the Swedish school system.

This downward trend in attainment is a result of deteriorating scores across the board, from the highest-performing students to those who obtain the lowest scores. The decline in reading literacy and science in PISA is particularly great among those who perform the least well.

At the same time, it is important to emphasize that a significant part of the decline has been driven by a deterioration in the performance of the very best students. In PISA Mathematics for 15-year-olds, for example, the relative decline in performance is greatest for the highest percentile group. It is also evident that a smaller percentage of Swedish students are achieving higher proficiency levels and that the scores of the top 5 percent of students are declining. The decline among the top five percent was particularly large in mathematics; in 2012, the Swedish scores were a full standard deviation below the average of the top five percent in the OECD, and only a tiny proportion of Swedish students achieved the average obtained by the top five percent of the best-performing countries.

The TIMSS measures trends in mathematics and science achievement in the fourth and eighth grades. In TIMSS 2011 and 2015, even U.S. students, both at the top and at the bottom, performed better than Swedish students in mathematics, in contrast to eighth grade scores in 1995, when Swedish students performed better than U.S. students across the whole distribution.

Poor scores in the cognitive tests in PISA and the TIMSS are not offset by good results in the computer-based PISA assessment of creative problem-solving skills in 2012. Sweden lies below the OECD average and is in 20th place out of the 28 OECD countries. Singapore, Taiwan, and China also perform a great deal better than Sweden. These three countries are at the top, together with Japan and South Korea.

The indication that there has been a large decline in knowledge among the top students is reinforced by the TIMSS Advanced, a study that

measures the level of knowledge in mathematics and physics of final-year upper secondary students specializing in technology and science. Sweden was the top-performing country in the first comparison in 1995. In the 2008 study, Swedish scores in mathematics and physics fell sharply, both absolutely and relative to other countries. Only one student in one hundred achieved an advanced level in mathematics, and 71 percent did not attain the intermediate level.

The level of knowledge that students have at age 15 significantly affects the level they attain when the same group is tested again as adults. This effect is demonstrated in the differences in scores between various age groups in the OECD's PIAAC survey of adult skills and in a comparison of PISA and PIAAC scores for the age groups that took both tests.

Diagnostic tests in mathematics taken by new students at Chalmers University of Technology provide an opportunity to gain an understanding of how performance in mathematics has evolved since the early 1970s. The results of these tests show large differences in students' levels of prior knowledge depending on when they attended elementary and secondary school.

A large proportion of new students at Chalmers University of Technology obtain extraordinarily poor scores in the diagnostic test in mathematics despite high school-leaving grades. This suggests that the final-year grades are not a good measure of the level of knowledge they have attained. Second, it shows that it is possible to spend 12 years at a Swedish school, the last three years of which are spent specializing in mathematics and the natural sciences in secondary school, obtain high grades—and still, have limited mathematics proficiency.

Although there is a considerable lag, the decline in knowledge among Swedish students is likely to have strong effects on future economic growth. A rough calculation based on updated cross-country estimates suggests that the Swedish growth rate per capita may fall by 0.4–0.5 percentage points. Furthermore, the positive growth effect is expected to be substantially larger if the share of students attaining the advanced level is increased compared to an equally large increase (in terms of percentage points) in the share who attain the basic minimum level.

CHAPTER 4

The Malaise in the School System

As shown in the previous chapter, student performance in Sweden, as measured primarily by the large-scale PISA and TIMSS international assessments, has deteriorated considerably since the 1990s and early 2000s. However, at the time of writing, a significant drop in students' knowledge and skills is not the only problem facing the school system. In addition, there is a deep malaise within Swedish education that takes many forms and affects both students and teachers.

The present chapter explores this malaise. We begin by reviewing the symptoms that relate to students, including systemic grade inflation, conspicuous differences in performance between boys and girls, a surge of undemocratic attitudes, pervasive problems with bullying, disruptive classroom behavior, truancy, and, finally, a significant rise in mental health problems. We then discuss the poor state of the teaching profession, which is marred, among other things, by low social status, a high dropout rate among students in education degree programs, and the loss of its professional ethos. We attempt to answer the question of the causes of these symptoms in later chapters of this book.

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The Students

Grade Inflation

While the results of PISA and the TIMSS strongly indicate a decline in knowledge and skills among Swedish students, final grades paint a different picture. Paradoxically, during the very period in which the PISA and TIMSS scores fell sharply, the average merit rating (based on grades) in the final year of elementary school improved markedly (see Fig. 4.1).[1]

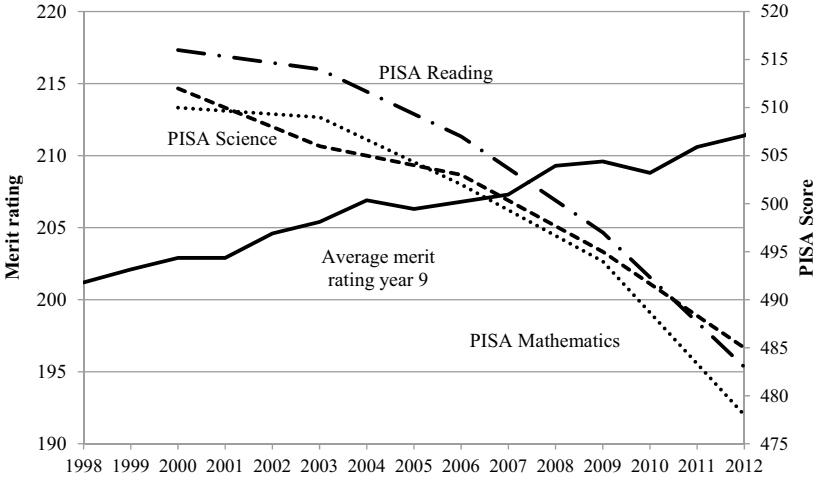

Fig. 4.1 Average merit rating 1998–2012 and PISA scores, 2000–2012 (*Source* Swedish National Agency for Education [2001, 2004a, 2007, 2010, 2013a, 2014b] and OECD [2015]. *Note* Sweden changed its grade system in the fall of 2012, which makes comparability with previous grades difficult and explains why our figure does not include later years. It may be noted that the Swedish National Agency for Education's [2014b] comparison shows that grade inflation was not halted by the introduction of a new grading system. They found that the average merit rating increased from 211.4 to 214.8 from 2012 to 2014)

[1] The merit rating in elementary and secondary school is calculated based on the pupil's grades. Pupils are ranked for admission to programs available in secondary school/higher education according to this merit rating. Sweden changed its grading system in the fall of 2012, which makes comparability with previous grades difficult and explains why Fig. 4.1 does not include later years.

This change is highly suspicious. Indeed, the disconnect between international assessments of Swedish students' performance and their grades is compelling evidence of rampant grade inflation in Swedish elementary schools, and the same problem is evident in secondary education, according to research by the Swedish economist Jonas Vlachos.[2] The declining results in the diagnostic tests in mathematics taken by new students starting engineering programs at Chalmers University of Technology, who were accepted on the strength of their high grades, is another strong sign that the connection between knowledge and grades is equally tenuous at the secondary level.[3]

In terms of grading, Sweden appears to have returned to where it was at the beginning of the twentieth century, when "marks in Swedish schools had been unified in expression but not in meaning."[4] In the early 1930s, the Swedish psychologist and mathematics educator Frits Wigforss noted that the situation in regard to grading at the elementary level had become "chaotic" and that some measure needed to be taken to improve it.[5] In response, Wigforss helped to design standardized tests as a means to regulate grades and make them comparable across schools, and these tests were implemented in the late 1940s. "The purpose would be not to dictate the assignment of marks to any student but rather to show teachers how the marks they were giving compared with those of other teachers."[6] The average results on the standardized tests in a class determined the average grade in the class, while the grade of an individual student could deviate both upward and downward from his or her test result. This norm-referenced approach imposed some needed order and moderation in the grading system and remained in effect as intended by Wigforss until the 1980s.

[2] See Vlachos (2010, 2016). Henrekson and Vlachos (2009) report that the number of students who graduated from high school with the top grade in all subjects increased by 2800 percent from 1997 to 2007, and in some schools, more than ten percent of the graduates attained the maximum average grade, as compared to a national average of 0.7 percent.

[3] See Chapter 3.

[4] Kilpatrick and Johansson (1994, p. 21).

[5] Cited in Kilpatrick and Johansson (1994, p. 19).

[6] Kilpatrick and Johansson (1994, p. 17).

Grading at the secondary level was, after the early 1860s, moderated and controlled by the formal final examination (the *studentexamen*).[7] Under this examination system, traveling external examiners who were appointed by the Crown—often university professors—arrived at schools and conducted or oversaw oral examinations in different subjects (complemented by written examinations). This form of examination continued to exist until the 1960s and was considered a success. On its centennial in 1962, a historical review observed that it provided a uniquely fair system for awarding grades.[8] Nonetheless, in 1968, the last group of students took the final examination, in part due to the rapid expansion of the number of secondary school students after World War II.[9] After that, standardized testing became the method of preventing arbitrary grading decisions and grade inflation at the secondary level as well.[10] As an additional form of control, secondary school teachers were required to justify in writing why they wanted to assign grades that greatly diverged from the results of the standardized tests.[11]

The purpose of this historical digression is to show that for a long time, the Swedish school system ensured that grades were fair and comparable. Research shows that students learn less when grading is not stringent,[12] but accurate grades are particularly important in a country such as Sweden, where grades are the most important selection criterion for higher education. Until 1991, they were the *only* selection criterion for people entering higher education below age 25. However, the inconsistencies that we describe above clearly indicate major flaws in the way

[7] Lundahl (2015). This examination form replaced the previous "double" examination that had been used in Sweden since the late 1600s, in which pupils underwent exams both at the end of secondary school and before entering university. This previous system was frequently misused, perhaps particularly by the universities, and plagued by nepotism and arbitrary decision-making.

[8] Thorén (1963, p. 71). It should be noted that the pupil's overall performance and progress in secondary school was also weighed into his or her final grades.

[9] See Chapter 2.

[10] Lost in this change, however, was the ability to administer external examination tests at the end of secondary school. Empirical studies show a robust causal relationship between external examination tests and pupils' results in international academic assessments, suggesting that such tests have an important effect on knowledge acquisition. See, e.g., Bishop (1997) and Woessman (2003).

[11] Swedish National Agency for Education (2005).

[12] See Betts and Grogger (2003); Figlio and Lucas (2004); Bonnesrönning (2004).

grades are awarded in Sweden's schools today, resulting in substantial arbitrariness and unfairness in admission to tuition-free institutions of higher learning.

Boys versus Girls

Another noteworthy development in the educational system pertains to the academic performance of boys versus girls. As noted by the Swedish National Agency for Education at the time, the fall in performance in PISA 2012 was significantly (in statistical terms) greater among Swedish boys than girls. Compared to 2003, the overall result for boys declined in mathematics by 35 points (−26 points for girls), in science by 23 points (−14 points for girls), and in reading comprehension by 41 points (−26 points for girls).[13] In TIMSS 2011, compared to TIMSS 1995, the overall result in science for boys in 8th grade fell by 51 points (−35 points for girls), while there was no significant gender difference in the decline in mathematics since 1995.[14]

In PISA 2015, as in the previous cycle, there was no gender difference in mathematics.[15] However, in the OECD as a whole, boys outperformed girls in mathematics. The same appears to have become true in science. In PISA 2012, Swedish girls outperformed boys in science for the first time,[16] and a small, nonsignificant advantage was observable in 2015 as well, while in the OECD as a whole, boys held a significant advantage over girls. In regard to reading comprehension, Swedish boys raised their results compared to girls in PISA 2015. In the previous cycle, the gap was a staggering 51 points in favor of girls, and the share of boys not reaching baseline proficiency Level 2 exceeded 30 percent. In 2015, this gap in reading comprehension, while still very large, had shrunk somewhat to 39 points, but the switch to a digital test likely influenced that result.[17] These facts lend indirect support to the presumption that, on average, boys are disadvantaged relative to girls in the Swedish school system.

[13] Swedish National Agency for Education (2013a).

[14] Swedish National Agency for Education (2012).

[15] Swedish National Agency for Education (2016b).

[16] Swedish National Agency for Education (2013a).

[17] Aftonbladet (2016).

Table 4.1 Share of students who did not reach the minimum knowledge requirements in at least one subject in 2019 in grade 9 and the educational attainment of their parents (%)

Parents' education	*Girls*	*Boys*
Less than secondary school	59.9	66.9
Secondary school	28.2	35.0
Post-secondary education	12.3	15.3

Source Swedish Association of Local Authorities and Regions (2019, p. 10)

If we turn to Swedish measures of academic performance, the pattern of boys falling behind girls persists. A higher share of girls than boys reaches the knowledge requirements of each course; girls, on average, receive higher grades than boys in every subject; and girls leave elementary school with a higher average merit rating than boys. Interestingly, in this context, parents' level of education does not seem to matter. As shown in Table 4.1, even among children of parents with the highest level of education, girls outperform boys.[18] It is also noteworthy that a staggering two-thirds of boys with parents in the lowest educational category failed at least one subject in the final year of elementary school.

Clearly, the gender differential in grades partly reflects a substantive gender difference in knowledge attainment. However, there is also evidence to suggest that there is a grading bias in the educational system that affects boys negatively. A 2019 study compared students' final mathematics grades in elementary school with data from a secondary school introductory test in mathematics administered yearly in the municipality of Stockholm to evaluate the quality of Stockholm's elementary schools. There was a substantial difference between boys' final grades and test results, indicating that boys are given lower grades than they deserve.[19] Thus, it seems likely that boys' lower grades are explained by a combination of lower performance and discrimination in grading.

[18] For further details and the development over time, see Swedish Association of Local Authorities and Regions (2019).

[19] Berg, Palmgren, and Tyrefors (2020).

Undemocratic Attitudes and "Fake News"

As we show in Chapter 6, one of the motives for abandoning the old educational system in Sweden and replacing it with the unity school in the 1960s was the Social Democrats' hope that the change would foster more "democratically minded" citizens.[20] The responsibility of schools to inculcate democratic values in students is also laid down in Swedish law.

Ostensibly, Swedish schools appear to do a good job of educating students in democracy. In the latest (2016) round of the International Civic and Citizenship Education Study (ICCS), which examines the civic knowledge and attitudes of 8th grade students, Sweden stood out as one of the top countries.[21] However, if we examine other available evidence, a completely different picture emerges. It turns out, for example, that a majority of Swedes aged 16–25 (with recent experience of the school system) support the idea of a technocracy in which power resides with an elite of experts.[22]

In 2011, the political scientist and then leader of the World Values Survey–Sweden Staffan Lindberg reported in an op-ed in a national newspaper that 21 percent of Swedes aged 18–29 answering the WVS survey were willing to sell their democratic vote, and 28 percent were willing to electorally support a candidate standing for political office in exchange for a promise of a paid job.[23] Moreover, approximately 23 percent answered that they were indifferent about living in a democracy versus a dictatorship, and 26 percent supported the idea that Sweden should be ruled by "a strong leader who did not have to care about Parliament or elections." In his op-ed, Lindberg compared the results to attitudes in less developed countries, such as Ghana, and pointed out that only a minuscule minority of older Swedes, who had their own memories of European dictatorships, wanted to discard democracy. He also noted that a mere 7 percent of young people in neighboring Denmark were prepared to sell their vote,[24] thus suggesting that such antidemocratic sentiments may be more widespread in Sweden.

[20] Richardson (2010).

[21] Swedish National Agency for Education (2017a).

[22] Göthberg (2018).

[23] Lindberg (2011a).

[24] Lindberg (2011b).

In a 2007 survey conducted among young people in Sweden aged 15–20, a majority (56 percent) answered "Don't know" when asked whether societies based on Western market economic concepts are democratic.[25] Moreover, 40 percent believed that the practice of Communism has led to increased wealth, and 22 percent supported the claim that Communism represents a democratic form of government. In general, the survey appeared to show "a significant uncertainty among the students on the meaning of basic concepts such as democracy and dictatorship."[26] That was also the impression given by a 2005 report on the democratic competencies of Swedish 9th graders, which noted that the students' understanding of fundamental democratic institutions was so weak that the high proportion of passing grades in civics should be subject to scrutiny.[27]

In more recent years, "fake news" and internet hoaxes have increasingly become a topic of concern to democratic societies. However, when the abilities of Swedish secondary school students aged 16–19 to display so-called civic online reasoning and separate credible and vetted information from false news and advertisements were tested, the results indicated that a majority of students struggle to do so. "While most students rate themselves as quite skilled at finding and scrutinizing online information," a 2019 study found, "most of them (88 percent) could not separate news from advertisements in Sweden's most-read newspaper."[28] Moreover, less than half of the students (44 percent) identified a news text from Swedish public radio as more credible than what the study described as a propagandistic "right-wing populist text," while 35 percent rated the texts equally credible. Thus, secondary school students appear to be "not very skilled at determining credibility in critical and constructive ways."[29]

A Dysfunctional Work Environment

The psychosocial environment in the classroom, and in the school more widely, plays an important part in children's learning. A lack of structure

[25] Hjemdahl and Andersson (2007).

[26] Hjemdahl and Andersson (2007, p. 6).

[27] Oscarsson (2005, p. 35).

[28] Nygren and Guath (2019, p. 28).

[29] Nygren and Guath (2019, p. 32).

and peace causes students' survival instincts to react to perceived dangers and crowd out cognitive capacity for knowledge acquisition.[30] In the long run, exposure to disruptive peers has been shown to significantly reduce future earnings.[31] Against this backdrop, it is disconcerting that every seventh student in the final year of elementary school in Sweden, in total 15,000 students, does not feel safe in school.[32] Expressed in other terms, this means that three to four students in each class do not find school a safe place.[33] In some schools, as many as one-quarter of the students feel unsafe.[34]

One reason for this state of affairs may be that bullying is on the rise. The share of students aged 11–15 who have recently experienced bullying in school increased from 12.6 percent in the 2013/14 school year to 19.4 percent in the 2017/18 school year,[35] and approximately one-quarter of all elementary school principals in Sweden report that abuse and violence take place in their schools every week.[36]

There are also symptoms of a general social disorder in schools that affects students' sense of safety and well-being and, ultimately, their chances of learning and performing well. Large groups of students in both (lower and higher) elementary and secondary education feel that there are severe problems with rule-following and norm-accepting behavior in their schools. For example, 50 percent of students in the final year of elementary education complain that rules are not being followed by other students. Moreover, 34 percent of students in year 9 of elementary school say that they find it challenging to work during lessons because of classroom disruption. These results are reinforced by the fact that one out of three elementary school teachers (33 percent) reports that the problem of maintaining order in the classroom cuts into a significant proportion of his or her teaching time.[37] More than one-fifth of 9th grade teachers

[30] Ingvar (2017). For more evidence, see, e.g., Lee, Lee, and Kim (2017).

[31] Carrell, Hoekstra, and Kuka (2018).

[32] Swedish Schools Inspectorate (2018).

[33] Skogstad (2019).

[34] Swedish Schools Inspectorate (2018).

[35] Statistics Sweden (2019).

[36] Swedish National Agency for Education (2018b).

[37] Swedish Schools Inspectorate (2018).

also report having to wait a long time for students to quiet down before being able to even begin their lessons.[38]

Other sources of disruption to the social order in school and student performance are late arrivals in the morning and truancy.[39] Sweden has one of the largest proportions of students who arrive late for school—more than one in two 15-year-old students (54 percent)—among OECD countries.[40] The propensity among Swedish students to skip classes during the school day also exceeds the OECD average.[41]

In this normless environment, many students face educational failure. Indeed, one-quarter of all students at the elementary level leave school without having met the knowledge requirements for a passing grade in at least one subject, and more than 15 percent leave without a passing grade in one of the three core subjects, Swedish, English, and mathematics, meaning that they are ineligible for secondary school entrance.[42] Among students at the secondary level, roughly one-quarter fail to graduate within the normal three-year period.[43] For those students, the consequences are severe because "[t]he Swedish labor market is particularly unforgiving of those with weak qualifications."[44] Less than 70 percent of those who have failed to graduate from secondary school are employed, and their incomes are only 60 percent of the median income of 45-year-olds, compared to an average employment rate at age 33 exceeding 90 percent and incomes averaging 80 percent of the median of 45-year-olds.[45]

[38] Swedish National Agency for Education (2018b).

[39] See, e.g., Buscha and Conte (2014) for evidence that truancy negatively impacts student performance.

[40] Measured as having arrived late for school at least once in the two weeks prior to the PISA test (OECD, 2016a).

[41] OECD (2015).

[42] Ekonomifakta (2019).

[43] Swedish National Agency for Education (2018a).

[44] Nordström Skans, Eriksson, and Hensvik (2017, p. 93).

[45] Nordström Skans, Eriksson, and Hensvik (2017).

Mental Health

The final symptom of a malaise in Swedish education that relates to students is an increasing problem with mental health. For example, depression and anxiety among children aged 10–17 increased by more than 100 percent from 2006 to 2016. According to the National Board of Health and Welfare, the reasons for this dramatic increase are most likely linked to schooling and the transition from school to adult life.[46] Similarly, physicians have suggested that the soaring prescriptions for ADHD drugs in Sweden, where in several municipalities as many as 13 percent of boys are medicated for ADHD,[47] are related to factors within the school system.[48]

More recent studies of students' mental health also suggest that stress is becoming more prominent. For instance, in the 2017/18 school year, 73 percent of 15-year-old girls and 49 percent of 15-year-old boys reported feeling stressed or very stressed by their schoolwork, which was the highest rate recorded since the late 1990s.[49] Other milder psychiatric conditions, such as irritability, dejection, nervousness, and insomnia, have also significantly increased in prevalence since the mid-1980s among schoolchildren, particularly among girls.[50]

The Teachers

The Low Status and Shortage of Teachers

An extensive body of literature documents the existence of "teacher effects" on students' educational achievement.[51] Hence, one would expect teaching to be a respected and attractive profession in Sweden, as was the case during "the silver age" of Swedish education.[52] However, in 2013, only 5 percent of Swedish teachers deemed that their profession was considered prestigious, and barely half said that they would

[46] National Board of Health and Welfare (2017).

[47] Blume (2019).

[48] Engström and Gustavsson (2016).

[49] National Board of Health and Welfare (2018).

[50] National Board of Health and Welfare (2018).

[51] For an overview, see, e.g., Blazar and Kraft (2017) and Hattie (2009).

[52] See Chapter 2.

choose the same occupation again.[53] It is also clear that fewer people want to be teachers. Indeed, it would not be an exaggeration to speak of a crisis in teacher recruitment in Sweden. Approximately 10 percent—13,000 teachers—leave the profession every year due to retirement or (more often) career change to another field, while the annual number of newly graduated teachers is merely half as large.[54]

The main reason for the shortage of teachers is a high dropout rate among students in education degree programs, which have by far the largest dropout rate of all comparable college programs.[55] Among those training to become a teacher in the upper grades of elementary school and secondary school (*ämneslärare*) or a teacher in the lower grades of elementary school (*grundlärare*), 35 percent and 26 percent, respectively, drop out at an early stage, and a mere 47 percent and 60 percent, respectively, eventually graduate.

Another significant component of this crisis, reflecting the lack of status afforded to teaching at the time of writing, is the number and selection of applicants to education degree programs. In the early 1980s, there were approximately 10 applicants per place; in more recent years, however, the number of applicants has varied nationally between 1.2 and 1.9 per place.[56] The number of applicants for mathematics and natural science programs is particularly low.[57] This suggests that the most talented Swedish students are no longer attracted to teaching as a career. Indeed, a sizable share of applicants have left secondary school with low grades.[58] One-quarter of the applicants who began teacher training

[53] Swedish National Agency for Education (2014a). This was the lowest share among all countries participating in the 2013 cycle of the OECD's Teaching and Learning International Survey (TALIS), in which the question was asked. In the latest round, conducted in 2018, the share of teachers answering that their profession is considered prestigious, while still low and below the average for the OECD, had increased to 11 percent (Swedish National Agency for Education, 2019b).

[54] See Henrekson (2017). Teachers with less than three years of work experience are the group with the strongest inclination toward career change among those groups employed in Sweden's public sector (Calmfors et al., 2016).

[55] Svensson and Berlin Kolm (2017).

[56] Båvner (2018).

[57] Henrekson (2017).

[58] Not only secondary school grades but also cognitive ability and leadership skills have declined among new teachers (*ämneslärare*) since the early 1990s (Grönqvist and Vlachos, 2016).

during the 2000s had a score of less than 12 points (out of a maximum of 20 points) on the university entrance scale, which is a substantially higher share than the average for students attending higher education in general.[59]

The share of students with a working-class background and parents with low educational attainment has also increased, but perhaps the most noteworthy statistic is the share of teaching students whose parents were teachers themselves. In the early 1990s, 24 percent of male and 22 percent of female teaching students were children of teachers, but in the late 2000s, the share dropped to 12 percent and merely 10 percent, respectively.[60] In fact, children of teachers have fled from teaching at a higher rate than children of any other professional group,[61] suggesting that many teachers have become deeply unhappy in their work and do not feel that they can recommend that their children follow in their footsteps.

Working Conditions

Teachers are one of the least satisfied groups in the Swedish labor market. In a 2006 survey, almost one-quarter of teachers reported being moderately or very unhappy,[62] and judging by more recent information, the situation has not improved. More than half of Swedish teachers experience stress in the workplace, sick leave due to psychiatric disorders is more common among teachers than in other professional groups,[63] and four out of ten active teachers are considering leaving the profession.[64] Moreover, in international comparisons, such as the OECD Teaching and Learning International Survey (TALIS) and the surveys of teachers in the TIMSS studies, Swedish teachers are the least positive about their working conditions.[65]

[59] Bertilsson (2014). A grade point average of 12 or less means that the student was in the bottom 15 percent of graduates from secondary school.

[60] Bertilsson (2014).

[61] Bertilsson, Broady, and Börjesson (2014).

[62] Stenlås (2009).

[63] Swedish Teachers' Union (2014). Sick leave due to depression is 50 percent and 25 percent more common among elementary and secondary school teachers, respectively.

[64] Swedish National Agency for Education (2016a).

[65] OECD (2016b). The 2011 TIMSS included questionnaires for teachers regarding their working conditions. Swedish teachers were the most negative; a mere 10 percent

The problem does not seem to be primarily a question of low pay. The relative wage of teachers stopped falling in the late 1980s[66] and has increased sharply in recent years. From 2010 to 2016, the average salaries for teachers in elementary and secondary schools increased by 27.5 percent and 24.2 percent, respectively, while the average increases for full-time white-collar workers and engineers (with a master's degree) in the private sector were 14.5 percent and 12.4 percent, respectively. In other words, teachers' relative wages increased by approximately 12 percentage points relative to comparable groups in the 2010s.[67] The primary sources of discontent are therefore likely to be found elsewhere.

One of the more likely reasons for teachers' unhappiness is that threats and violence directed against teachers became increasingly common during the first decade of the 2000s.[68] Since then, abuse in schools has escalated. According to the Swedish Work Environment Authority, the number of reported threats made by students in elementary and secondary school increased by 35 percent from 197 to 266 between 2014 and 2018, and the number of reported physical abuse cases increased by 89 percent from 319 to 602 during the same period.[69] The actual number of threats and attacks against teachers is significantly higher, as less than every tenth case is reported.[70]

Unsurprisingly, against this background, one in five teachers say they go to work with trepidation,[71] and as many teaching students have considered dropping out of their training because of concerns over the surge of threats and violence in schools.[72] Add to this the pressure imposed by many parents on teachers. According to the Swedish Teachers' Union, 70 percent of teachers have been pressured by parents to make changes to their teaching or award a better grade to an individual student,

indicated that there were "no or almost no problems" related to working conditions (Håkansson and Sundberg, 2016, pp. 65–66).

66 Persson and Skult (2014).

67 Ekonomifakta (2017); Swedish Association of Graduate Engineers (2017); Swedish Association of Local Authorities and Regions (2017).

68 Jelmini (2014).

69 Letmark (2019).

70 Fahlén (2018).

71 Fahlén (2018).

72 Skogstad (2019).

and more than half (54 percent) have been threatened with reprisals for not complying with the parents' demands.[73]

A number of public administration reforms have also changed teachers' work environment and led many of them to lament lost autonomy and influence over working conditions.[74] Here, we refer to the controversial introduction of "new public management" (NPM) doctrines in Swedish schools (see Box 4.1). Since the beginning of the 1990s, tight controls on teachers and monitoring in line with NPM have increased, reflecting similar developments in other public professions.[75] Typical of the decline in teachers' autonomy is that they are now obligated to remain on the school premises even when they are not teaching. They are expected to spend much of their nonteaching time documenting what they do in the classroom and the intellectual trajectory of individual students in their classes. These demands have reduced the share of work time at school spent teaching to barely one-third,[76] and the time available for preparation has dwindled. Thus, to the detriment of teacher satisfaction, teaching has become micromanaged and "proletarianized."[77]

Box 4.1: New Public Management, NPM

New Public Management, customarily abbreviated NPM, a term first attributed to political scientist Christopher Hood (1991), refers to an effort to correct perceived shortcomings of the "old" public management through the use of private-sector norms and techniques (Dunleavy and Hood, 1994).

Beginning in the late 1970s, variants of this agenda began to appear among Western countries and grew widespread in the 1980s and 1990s. The public-sector reforms that were implemented typically included some or all of the following seven elements (Hood, 1991, 1995): hands-on professional management; explicit standards and measures of performance; output controls coupled with rewards and incentives; disaggregation of units in the provision of public services; stress on private-sector styles of management practice; and discipline and parsimony in resource use.

[73] Bergling (2016).

[74] Helgoy and Homme (2007, p. 240).

[75] Jansson, Nitz, and Wedin (2013).

[76] Lewin (2014).

[77] Bottery (1996, p. 180).

By the early 1990s, this international trend had reached Sweden; NPM measures were then introduced into core areas of welfare provision, not least education (Jarl, Fredriksson, and Persson, 2012).

A Lost Professional Ethos

While the reduced autonomy of Swedish teachers contrasts sharply with the traditional understanding of the profession,[78] it might not have happened if teachers themselves (and their trade union representatives) had not changed their attitudes and abandoned the old professional ethos of teaching. As previously discussed,[79] older generations of teachers' strong commitment to nonpecuniary goals and values afforded them considerable autonomy and freedom from bureaucratic encumbrances in their work. There were of course exceptions, but on the whole, teachers could simply be trusted to perform to the best of their abilities because they were driven by an intrinsic motivation to impart knowledge, which also endowed them with social status.

However, for some reason, Swedish teachers and their trade unions, by and large, lost that intrinsic motivation and came to emphasize extrinsic, particularly monetary rewards. Indeed, Swedish teachers believe, to a greater extent than their colleagues in neighboring Norway, that "individual pay motivate[s] them to do a good job."[80] As an interviewed teacher and union representative explained, "One needs [individualized salaries]. If not, nothing happens."[81] Swedish teachers are also more inclined to behave individualistically and (often abruptly) change schools, causing disruption to students and colleagues, than teachers in the other Nordic countries.[82] Research also suggests that the relative wage is a key factor in the decision to stay or leave.[83]

[78] Helldén (2002); Sehested (2002).

[79] See Chapter 2.

[80] Helgoy and Homme (2007, p. 241).

[81] Helgoy and Homme (2007, p. 241).

[82] Swedish National Agency for Education (2019b).

[83] Calmfors et al. (2016).

When a traditional public-service ethos is lacking, other management principles, such as NPM, become necessary.[84] That is how NPM found its way into the Swedish school system. But why did Swedish teachers demote teaching, which previously was viewed as a vocation, to a regular job with primarily extrinsic rewards? Why, more generally, is the educational system at all levels, from the teachers down, in such poor shape? The remaining chapters provide some answers.

In Sum

We have shown in this chapter how a number of serious problems have emerged in Swedish schools in recent decades. A first obvious indication of a malaise is that the falling results in international assessments were not reflected in average merit ratings, which instead increased. As a result, what had been an excellent grade point average a few years before and had ensured admission to attractive university programs was no longer competitive. Moreover, boys' grades became substantially lower. This reflects that girls perform better than boys, but there are also signs of boys being discriminated against in grading.

Among students, there is evidence of declining civic mindedness and inability to distinguish between credible information and "fake news." Moreover, the work environment is marred by several problems, including rising levels of bullying, unacceptable levels of norm- and rule-breaking, truancy, and a high incidence of mental health problems.

The malaise is not restricted to students; teachers are also afflicted. Teachers self-report that their professional status is low in society, teacher-training programs do not attract top-level students, roughly half of the students in those programs drop out, and a substantial share of those who graduate leave the profession after a couple of years. A sharp rise in the relative wage of teachers in recent years has not succeeded in improving matters more than marginally. Absenteeism, psychiatric disorders, and exposure to threats and violence are far higher than in other comparable professions. Finally, the wholesale introduction of NPM methods has robbed teachers of the professional autonomy that used to be a key element of the profession's attractiveness.

[84] This has been argued by, among others, Hood (1991).

CHAPTER 5

Two Views of Knowledge and Teaching

It is well known that laws, regulations, norms, and other formal and informal institutions affect and incentivize individual behavior and human interaction.[1] The Nobel Prize-winning U.S. economic historian Douglass North even defined institutions as "the humanly devised constraints that shape human interaction."[2] Therefore, an explanation of agents' behavior and the outcome of their joint efforts in an area of study must identify the most relevant institutions and their incentive effects. This is no less true for the educational sector. Thus, in order to account for the deterioration in students' knowledge and other signs of a malaise in the provision of elementary and secondary education in Sweden, we need to examine the institutional setting of the Swedish school system. That is the task of the remainder of this book. We begin this chapter with a discussion of what we consider to be a critically important, arguably the single most important, institution for the functioning and development of any school system, namely, the stipulated view of knowledge.

Given that there is virtually unanimous agreement today that the goal of a national school system should be to enable students to gain the knowledge and skills necessary not only to sustain themselves but also to flourish and contribute to the advancement of the society in which they are expected to live as adults, the matter may seem simple.

[1] See, e.g., Acemoglu, Robinson, and Johnson (2005); North (1990); Schotter (2008).

[2] North (1990, p. 3).

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3_5

However, it is precisely here that differences of opinion appear. There is no consensus on what knowledge should be taught or how it should be taught. School systems, in fact, diverge widely in their perspectives on these issues, causing significant disparities in what students leaving school actually know as well as in the working conditions experienced by teachers.

The divergence boils down to what are essentially two different—indeed, irreconcilable—views of the nature of knowledge. During the period of educational modernization in Sweden and the industrialized world more broadly that we have previously referred to as "the silver age," it was taken as a given that objective knowledge specific to various fields exists, that it is accessible through systematic study directed by competent teachers, and that it serves as a precondition for the development of a number of important skills. We call this the classical view of knowledge.

The classical view is still predominantly accepted in Asian societies, but many school systems elsewhere in the world have in recent decades come to adopt another view, which, when taken to its most extreme form, considers all knowledge claims to be subjective and ultimately nontransferable from teacher to student. The emphasis is, therefore, on self-learning of content that students themselves deem relevant to their schooling and training in critical thinking, a skill that is assumed to be generic in nature and divorced from the acquisition of domain-specific knowledge. As the next chapter shows in some detail, this newly emerging view of knowledge was in some ways anticipated by the ideas of the progressive pedagogical reform movement of the 1930s and 1940s. However, it is more rightly identified as a postmodern social constructivist stance, so we use that term throughout the book.

We define "view of knowledge" in terms of the Polish philosopher Ludwik Fleck's concept of "thought style,"[3] which served as an important inspiration for Thomas Kuhn's later concept of "paradigm." Thought styles, simply put, are manners of thinking that link the members of a particular social unit, a "thought collective," to draw on Fleck's terminology, and determine how they interpret phenomena relevant to their interests. We thus regard views of knowledge as thought styles that shape how individuals (for example, scholars, pedagogues, and education policymakers) belonging to different thought collectives within the broadly

[3] Fleck (1979 [1935]).

conceived field of education understand what knowledge is and what formal education can and should do to help students acquire it.

Views of knowledge are informal institutions, but they can be and are, in fact, codified into explicit rules that determine the course a school system takes, such as national curricula, teaching instructions, and grading criteria. That is why we suggest that the adopted view of knowledge is one of the most fundamental institutions of schooling. It is also, we argue, a key determinant of the success of the educational system. Indeed, depending on which of the two main conflicting views of knowledge is emphasized, the system will produce either high-quality education or the kind of problems outlined in the previous chapters. For us, it is clearly the classical view that gives rise to the first outcome, while the alternative view leads down an educationally destructive path.

We return to that argument later in the book; for now, we examine the different views of knowledge and their implications for pedagogical practice in schools. We first more fully present the classical view of knowledge and then describe the postmodern social constructivist view that has unseated and replaced the former perspective in much of contemporary education.

The Classical View

Our species, *Homo sapiens*, would not have been able to dominate Earth if our innate ability for learning had not been extraordinary.[4] However, if we actually have such natural talent for learning, why do we make people spend most of their youth in classrooms? According to adherents of the classical view of knowledge, there is a straightforward reason, although it may have been intuited for a long time rather than clearly formulated[5]: namely, that formal education is a technology developed and applied to compensate for what the human mind is innately able to do only poorly.

One does not need to attend school to learn how to walk, run, play, recognize the objects and the people one depends on, speak well enough

[4] See, e.g., Henrich (2016).

[5] The pedagogy of the old Swedish school system, discussed in Chapter 2, was, for example, clearly very much in line with the notions described in this section, even though its practitioners were not versed in modern evolutionary psychology.

to function within the family and among close neighbors, or immediately tell how many items there are in a set of up to four.[6] Learning and perfecting such skills is typically done voluntarily and found enjoyable by children because it is a *biologically primary* task. In other words, the human brain is designed to spontaneously learn to perform this task. However, learning to master knowledge and skills such as reading and writing, arithmetic, and science is a very different matter.[7] Those kinds of knowledge and skills are *biologically secondary* in nature since they are not normally applied in the everyday life of a child and in any case were discovered only fairly recently in the history of our species. As a result, an innate talent to acquire them in the same effortless way has not yet evolved—if it ever will.[8]

Attaining biologically secondary knowledge and skills requires deliberate practice, and since it does not come naturally to human beings, the learning process is not always pleasurable.[9] On the contrary, we learn, for example, a mathematical skill only with great effort, and we have to repeat and repeat and repeat this new skill before it can become automatic and second nature. We can then use it to learn a more advanced skill in the same area, and so on. In the classical view, the purpose of schools is to provide an arena for the acquisition of such hard-won, biologically secondary knowledge and skills. As the Australian educational psychologist John Sweller writes, "We invented schools in order to teach biologically secondary knowledge because, unlike primary knowledge, it is unlikely to be acquired without the functions and procedures found in educational establishments."[10]

Particularly important in this context, according to the classical view, is the teacher's explicit instruction in the attainment of biologically secondary knowledge and skills and his or her encouragement of

[6] Henrich (2016).

[7] See Pinker (2002, pp. 224–236).

[8] Geary (2007, 2011).

[9] In fact, recent research has suggested that the active promotion of "student well-being" in schools may negatively impact academic performance (see Heller Sahlgren and Sanandaji, 2019). See, e.g., Jürges and Schneider (2010) for further evidence that a tradeoff exists between learning and happiness.

[10] Sweller (2016, p. 293).

students to practice with diligence and perseverance.[11] The reason is that humans "have evolved to learn [biologically secondary information] from others."[12] Since our ability to do so is a biologically primary skill that is lacking in most other animals, explicit instruction is considered by far the most natural and efficient teaching method.[13] *Cognitive load theory* suggests that the alternative model for learning, in which novice students are expected to find and rehearse biologically secondary information themselves, leads to the working memory quickly becoming overloaded.[14] As a result, one summary explains, "focus is lost, the mind wanders, and the task is abandoned."[15] Disturbance of the working memory can, as was discussed in the previous chapter, also arise from perceived threats to safety, which is why the classical view of knowledge emphasizes the importance of structure and peace in the classroom for achieving successful learning outcomes, with the teacher as a social leader and norm setter.[16]

The terms knowledge and skills are deliberately combined in this account because, in the classical view, they are tightly interwoven. This belief is supported by research showing that skills, in fact, are dependent on domain-specific knowledge. As the U.S. educationalist E.D. Hirsch, an emblematic exponent of the classical view of knowledge, notes, "The domain specificity of skills is one of the firmest and most important determinations of current cognitive science."[17] Even as basic a skill as reading comprehension requires domain knowledge, as has been demonstrated by studies showing that students who are considered "poor readers" on the basis of scores on reading tests outperform "good readers" in cases where the former happen to have more knowledge about the subject matter.[18] Interestingly, from an equity point of view, this also remains true when IQ

[11] See, e.g., Heckman and Rubenstein (2001) for a discussion of how such noncognitive skills facilitate the attainment of knowledge.

[12] Sweller (2016, p. 300).

[13] See further, e.g., Hattie (2009); Jerrim, Oliver, and Sims (2019); Kirschner, Sweller, and Clark (2006); Mayer (2004).

[14] Sweller, Ayres, and Kalyuga (2011).

[15] Dehn (2014, p. 497).

[16] Ingvar (2017). For more evidence, see, e.g., Lee, Lee, and Kim (2017).

[17] Hirsch (2016, p. 13).

[18] Recht and Leslie (1988).

is taken into account.[19] The evidence thus suggests that anyone's reading comprehension will quickly degenerate when a topic is unfamiliar, regardless of the text's complexity.[20] Consequently, it is logical that other, more advanced skills, such as problem solving and critical thinking, have also proven to require large amounts of domain-specific knowledge or even expertise in an area.[21]

Against this background, adherents of the classical view of knowledge reason that the key to developing cross-topic reading comprehension and other vital skills is having, in Hirsch's words, a "well-stocked mind."[22] Hence, schools should offer students a broad curriculum. According to the classical view, such a curriculum should be organized around traditional subject areas. Moreover, it should be detailed and sequenced in a cumulative manner to ensure that students learn the foundations of a subject before proceeding to subsequent levels. The design of the curriculum is thus considered a critical success factor, and research corroborates this notion. A well-thought-out curriculum and high-quality teaching materials can, in fact, be even more important to student learning than teacher quality.[23]

What underlies the classical view of the curriculum is the idea that humanity through scientific inquiry has discovered and developed a body of knowledge about how the world is constituted and how it works that young students need to master, or at least have some basic understanding of, if they are to successfully live in that world. Such knowledge, for example, the rudimentary principles of physics and biology, is held to be objectively true, given the strength of the evidence in its favor that scientists have collected by observation and experimentation and by formulating and testing different hypotheses.[24] By virtue of being true, in this sense, that body of knowledge has spread to the point that it has

[19] Schneider, Körkel, and Weinert (1989).

[20] Arya, Hiebert, and Pearson (2011).

[21] For studies about problem solving, see, e.g., Larkin et al. (1980) and Simon and Chase (1973). For a discussion about critical thinking, see, e.g., Willingham (2010).

[22] Hirsch (2016, p. 81).

[23] See further Chingos and Whitehurst (2012); Whitehurst (2009).

[24] See Okasha (2002) for a discussion about the philosophical concept of probability and the "logical interpretation of probability," which is congruent with the view of truth presented here.

become shared or, in Hirsch's term, "communal."[25] It is, in other words, taken for granted that everyone has possession of it. Thus, to be ignorant of communal knowledge is to be an outsider unable to comprehend, build on, or challenge what others know. Therefore, schools must, according to the classical view, teach communal knowledge to every student.

Hannah Arendt crystallized this point in her 1954 essay "Crisis in Education" when she stated, "[Education] is where we decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chance of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world."[26] The same principle applies not just to the verifiable facts of the hard sciences and the tools invented to make use of them (e.g., mathematical methods) but also to communal knowledge that is enabling for the individual within the national context and essential to cultural identity, such as language grammar and other culturally shared concepts as well as literature, history, and geography. Even ethical concepts that the individual can rely on to make normative judgments are part of this communal knowledge. Without it, adherents of the classical view argue, students will not be able to fully take part in and help renew the society that they have been born into. As Arendt observed, "because [the world] continuously changes its inhabitants, it runs the risk of becoming as mortal as they. To preserve the world against the mortality of its creators and inhabitants, it must be constantly set right anew."[27] To fulfill this task, every new generation must be introduced to the knowledge of the old world.

The reader may be forgiven for thinking that this classical view of knowledge is widely accepted in educational systems throughout the world, but that is not so. Instead, a completely contradictory view of the nature of knowledge, pedagogy, and curricular principles has become much more influential in educational circles.

[25] Hirsch (2016).

[26] Arendt (1954 [2006], p. 193).

[27] Arendt (1954 [2006], p. 191).

The Contradictory View

This is the postmodern social constructivist view, to which we now turn our attention. Postmodernism as a philosophical movement can be understood as "a reaction to and rejection of modernity,"[28] meaning, not least, its foundation in Enlightenment ideals such as reason and science.[29] Postmodern theorists have, from the late 1960s onward, claimed that these ideals are not as reliable, valid, and unbiased as they may seem. On the contrary, they should be regarded as inevitably partial and highly subjective "metanarratives,"[30] which, in their attempt to sweepingly explain the world, as postmodernism sees it, are comparable to normative "grand theories" such as Christianity or Marxism. The "knowledge" and "truths" that the purportedly scientific narratives have produced are, therefore, not truths at all but rather "dominant discourses" or "regimes of truth."[31] In other words, they are nothing but hegemonic ways of speaking about things.

As the use of such terms suggests, postmodernism believes that what is regarded as known and true by modern, conventional standards is inextricably linked to power. Indeed, one of the most significant contributors to postmodern thought, Michel Foucault, explicitly preferred to refer to knowledge as "power-knowledge."[32] The power in this context is perceived to be held and wielded by what postmodernism considers to be privileged cultures and groups, principally Western culture and white, heterosexual men.[33] However, these groups exercise power not straightforwardly and visibly from above, postmodernism argues, but quite subtly and insidiously through language—through assertions of

[28] Pluckrose and Lindsay (2020, p. 22; emphasis omitted).

[29] In the following account of postmodernism, we rely heavily on Pluckrose and Lindsay (2020) and other secondary sources that attempt to summarize postmodern thought, albeit from a critical stance. This approach is necessary mostly because of postmodernism's notorious resistance to acknowledging itself as a coherent philosophy adhering to a distinct set of principles.

[30] See further Lyotard ([1979] 1986).

[31] Foucault ([1970] 2002).

[32] Foucault (1980).

[33] Lundberg (2020); Pluckrose and Lindsay (2020).

knowledge or through "expectations of civility and reasoned discourse, appeals to objective evidence, and even rules of grammar and syntax."[34]

Because of the indirect and nebulous character of this system of oppression, postmodern theorists claim that we all more or less unconsciously participate in and perpetuate it through our habits of speaking and thinking. Hence, according to postmodernists, the only way to escape and dismantle the system is to scrutinize and resist the language that is widely accepted as normal and to challenge or, in the French postmodern philosopher Jacques Derrida's term, "deconstruct" favored discourses.[35] A key aspect of this proposed "hermeneutics of suspicion"[36] is the rejection of all established and generally acknowledged boundaries, categories, and hierarchies, which postmodernism regards not only as arbitrary and thus illegitimate but also as operating in the service of power.[37]

The epistemological basis for these beliefs is social constructivism. There are, we should note, different varieties of social constructivism.[38] Indeed, as noted in a seminal article by the U.S. philosopher of education D.C. Phillips, social constructivism has "many faces,"[39] but, for the sake of clarity, it is useful to distinguish broadly between two main versions: mild and radical social constructivism.[40] The former version, for example, holds that many expressions of human thinking and behavior, such as language, gestures, and interpretations of different objects and phenomena, are collectively constructed and influenced by nonuniversal cultural factors.[41] Radical social constructivism, on the other hand, goes so far as to deny our ability to reach objective truth, and it is this strand that informs—indeed, has merged with—postmodern theory.[42]

[34] Pluckrose and Lindsay (2020, p. 36).

[35] See, e.g., Derrida (1976).

[36] Wållgren (2017, p. 69).

[37] Hassan (1987); Pluckrose and Lindsay (2020).

[38] Often the terms "social constructi*vism*" and "social constructi*onism*" are used interchangeably or are explicitly presented as synonymous. "Social constructivism" is allegedly the more widely familiar term (Hacking, 1999); therefore, we use it throughout the book.

[39] Phillips (1995).

[40] This is in keeping with the distinction offered by Linell (2006).

[41] See, e.g., Berger and Luckmann (1966); Linell (2006).

[42] Berger (1992); Elder-Vass (2012); Linell (2006).

In contrast to both its milder cousin and the classical view of knowledge, radical social constructivism does not believe that we can come to know how the world is, or most likely is, constituted through rational reasoning and the empirical, evidence-based scientific method. The reason is that radical social constructivism, at the very least, holds that truth claims cannot be measured against an objective reality because such a reality will always be unknowable due to our inherently partial perspectives. As one account of this radical epistemology explains, "The scientific method, in particular, is not seen as a better way of producing and legitimizing knowledge than any other, but as one cultural approach among many, as corrupted by biased reasoning as any other."[43] However, other interpretations suggest that radical social constructivism is even more uncompromising than that, positing that objects and phenomena can, in fact, change depending on the ways in which we think and talk about them and how we choose to determine knowledge and truth.[44] The conclusion is nevertheless the same, namely, that there are no real truths.

This reliance on radical social constructivist epistemology is what enables postmodernists to claim, as we have seen, that the quest to establish knowledge is nothing more than an attempt to further the power of dominant groups. It also explains why postmodernists argue that we should interrogate the shared language and concepts of society and subvert traditionally understood boundaries, such as the boundary between the objective and the subjective.[45] Moreover, this radically social constructivist epistemological underpinning leads postmodernists to take a very specific view of teaching and education.

Perhaps the most elementary and important principle in this view is that the students themselves—not the teacher—should direct the learning process in the classroom. The reasoning is that because there are no objectively existing facts, there is no knowledge that can be legitimately transferred from teacher to student. Any attempt by a teacher to do so would, in effect, be an act of indoctrination and unwarranted social

[43] Pluckrose and Lindsay (2020, p. 32).

[44] Elder-Vass (2012); Linell (2006).

[45] An emblematic example of this reasoning is provided by Hasso (1997, p. 15) in her dissertation on nationalism, feminism, and modernity in contemporary Palestine: "My research indicates that these socially constructed and subjective narratives are as important and 'real' as 'facts'."

control,[46] as would any effort to correct children's mistakes or maintain a structured classroom environment conducive to learning in the classical sense.[47] Similarly, because there is no way to objectively measure what students know, traditional assessment and grading practices are considered to be inherently judgmental and ideological.[48]

Instead, the postmodern social constructivist view of teaching holds, students must be free to determine their own knowledge and reality, building on personal life experiences rather than culturally prescribed truths, and find their own ways of studying and monitoring their progress. Students should, in this view, also be encouraged to independently deconstruct dominant discourses in different fields—science, history, art, etc.—through collaborative verbal discussions and the development of critical thinking. In contrast to the classical view, critical thinking is here regarded as a general skill that can be acquired, and indeed exercised, without possessing domain-specific knowledge, for instance, through comparing diverse sources of information, evaluating arguments, and exposing hidden agendas.[49]

It follows that the postmodern social constructivist view of teaching does not recognize the necessity of a detailed curriculum organized around traditional subject areas that every student is expected to learn in a particular order. On the contrary, all such curricula are considered biased and oppressive.[50] Instead, students should be allowed to work with content that is personally meaningful and interesting to them. In other words, this view has little time for Hirsch's and Arendt's concept of "communal knowledge"; its focus is, perhaps not solely but primarily, on what the individual subjectively values. The postmodern social constructivist view does allow for a curriculum to be used. However, it should not be organized along subject lines and in a hierarchical, cumulative way but—in line with postmodernism's emphasis on blurring boundaries—should

[46] For instance, a popular postmodern textbook featured on many university education departments' reading lists, Kelly's *The Curriculum: Theory and Practice* (2004, p. 32), states that "one must see the imposition of any one version of knowledge as a form of social control and as a threat to all of the major freedoms identified as essential constituents of a free and democratic society."

[47] See, e.g., Carnell (2000); Herr (2005).

[48] Kelly (2004).

[49] Wikforss (2019).

[50] See, e.g., Kincheloe (2008); Kelly (2004).

rather aim to transgress and undermine the conventional demarcations between subjects and break down their internal structures.[51]

Ultimately, and to end this section, the postmodern social constructivist view is a complete negation of the classical view with which we began this chapter. In the next two chapters, we show how, step by step, it became the dominant thought style of the Swedish educational system, resulting in fundamental changes in teaching methods and the working conditions of schoolteachers.

In Sum

In this chapter, we juxtapose two very different views of knowledge. According to what we call the classical view, the purpose of formal schooling is to give students the kind of valuable knowledge and skills, including relevant knowledge of the wider culture in which they are expected to spend their lives as adults, that they normally cannot acquire in any other way. Since the world a child is born into is so different from the one humankind has been exposed to in all but a tiny part of its evolutionary history, it is particularly important to provide students with the cognitive tools necessary to survive that differ the most from innate human intuitions, such as reading and writing ability and more advanced knowledge in, for example, economics, biology, and mathematical statistics.

The postmodern social constructivist view, on the other hand, rejects the existence of objective and neutral knowledge. Proponents of this view also tend to reject ordered thinking and the structure and hierarchy of knowledge within disciplines. In the context of schooling, this translates to, among other things, a rejection of the primacy of the teacher in the learning process and a preference for student-directed pedagogy, the mixing or breaking up of disciplines, and an emphasis on developing generic critical thinking rather than on acquiring domain-specific knowledge.

Proponents of both views believe, of course, that it is desirable for students to develop interpersonal skills, creativity, and critical thinking. The contentious issue is not whether such abilities are desirable per se but what means are most effective for acquiring them. Proponents of

[51] Doll's (1993) concept of a chaotic, "dancing" curriculum is arguably one of the more pronounced expressions of this idea.

the classical view maintain that such skills are acquired by systematic and cumulative learning following a detailed and sequenced curriculum organized around traditional subject areas. Since the postmodernist social constructivist view rejects the structure imposed by such a detailed and sequenced curriculum, these desired abilities must be acquired through direct training decoupled from a systematic, knowledge-based curriculum.

Depending on which view of knowledge becomes institutionalized in a country's educational system, the system will either produce high-quality education or highly problematic learning conditions. This issue is further elaborated upon in the remainder of the book.

CHAPTER 6

The Rise of "Post-Truth" Schooling

We showed in Chapter 2 of this book that by the 1940s, Sweden had established a well-developed, high-quality system of education that attracted rising numbers of students to continue their schooling after the compulsory six-year primary stage. However, in the immediate postwar years, the very same educational system came under question, and steps were taken to have it dismantled and replaced by the nine-year so-called unity school, the *enhetsskola*.

As previously discussed, part of the reason for the change from the parallel system was the increasing strain on the theoretical intermediate school, the *realskola*. However, a factor of far greater import, as the present chapter shows, was a suspicion of classical education that was augmented by the experience of National Socialism in Germany. Because of misinterpretation of the National Socialists' educational aims and of pedagogical practices in Nazi German schools, it became widely believed among intellectuals and politicians that the traditional emphasis in Swedish schools on teacher authority and the individual's acquisition of shared knowledge (what E.D. Hirsch terms "communal knowledge"[1]) should be abandoned in favor of a radically student-centered model of education that emphasized student choice and critical thinking skills. The values that characterized the old educational order in Sweden were, in

[1] Hirsch (1987, 2016).

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3_6

other words, rejected as obsolete or even undesirable, and a new school system was deemed necessary.

It is here, in Sweden's immediate postwar education policies, that we find the earliest antecedents of the postmodern social constructivist paradigm. While the ideas that fueled the reforms of the Swedish school system were adopted from the progressive pedagogical reform movement, there is, as we shall see, a remarkable continuity between those ideas and postmodern social constructivism. They may, in fact, be treated as one "thought style," in Ludwik Fleck's term,[2] whose rise and progress over the decades, including its embrace by both the Left and the Right, are traced in this chapter to the point of its consolidation in the early 1990s. The next chapter then discusses its development in the twenty-first century and its hazardous integration with unfettered school competition between public schools and for-profit voucher schools.

The End of Herbartian Education

As already noted at some length in Chapter 2, the school system that was introduced in Sweden during the 1860s was modeled largely on the German system and the pedagogical ideas of Johann Friedrich Herbart and his disciple Tuiskon Ziller. This system was built on a knowledge-based curriculum, student discipline (particularly self-discipline), and teacher authority. The fact that it was modeled along German lines was hardly surprising since Germany, then and long after, was Sweden's most important source of inspiration. Indeed, as the historian Johan Östling noted, "almost every cultural and social sphere in Sweden was shaped by German conditions" during the period from the mid-1800s until World War I.[3]

Over time, a broad political consensus emerged on the pedagogical aims and means of this German-inspired school system. The two successive education ministers during the 1930s and early 1940s, the prominent Social Democrat Artur Engberg and the Conservative Party leader Gösta Bagge, for example, both strongly supported Herbartian educational principles.[4] Nevertheless, toward the end of and immediately after World War

[2] Fleck (1979 [1935]). See Chapter 5 in this book.

[3] Östling (2016, p. 236).

[4] Heller Sahlgren and Sanandaji (2019, pp. 68–70).

II, the school system to which those principles had given rise was called into question and targeted for reform.

A crucial reason was the realization of the full extent of the Holocaust and related Nazi crimes, which led to a sudden stigmatization in Swedish public debate not only of all things German but also of conservative and traditionalist social attitudes.[5] Even critical comments about the victory of modernism in literature and music were now considered beyond the pale. According to Östling's research, the reason was that National Socialism was interpreted in Sweden as a reactionary and authoritarian ideology "determined to crush the free and critical spirit" and an outgrowth of the conservative institutions and ideals that had dominated Germany before the Nazi era.[6]

The evidence provided by such scholarly observers of National Socialism as the political scientist Franz Neumann and the historian Timothy Snyder,[7] as well as by the German conservative intellectual Hermann Rauschning, who broke with Nazism in its early years,[8] suggests that National Socialism may be more aptly described as a revolutionary, almost anarchistic ideology that sought to dissolve conservative institutions (including, as Snyder argues, even the nation-state). However, in Sweden, a different analysis was influenced by what could arguably be called the deceptive superficial features of National Socialism, which quickly brought many previously influential and well-regarded beliefs, cultural personalities, and social institutions into disrepute—not least the school system, with its traditional teacher-centered pedagogy and educational virtues.[9] The misgivings about the German-inherited school system were amplified by the fact that the National Socialists outwardly presented an image of their schools as strictly disciplined, harshly run by teachers, and ultimately a kind of continuation of the Herbartian educational order that had preceded Nazism.

In practice, the opposite was true. As demonstrated by the historian Daniel Horn, and in line with the characterization of National Socialism as a revolutionary movement, the Nazi leadership sought to undermine

[5] Östling (2016, pp. 116–168).

[6] Östling (2016, p. 184).

[7] Neumann (2009 [1944]); Snyder (2015).

[8] Rauschning (1939).

[9] For a longer discussion, see Heller Sahlgren and Wennström (2020).

the old educational order by tacitly approving a youth rebellion in schools that was led by the *Hitlerjugend* and was comparable to the nihilist behavior of the adolescent Red Guards during the Chinese Cultural Revolution.[10] Indeed, soon after the National Socialist accession to power in 1933, students across Germany were rejecting the authority of their teachers and refusing to do the schoolwork assigned to them under the banner of *Hitlerjugend* slogans such as "Youth must be led by youth." The students' revolt "kept schools in perpetual turmoil, disrupted the educational process, undermined the status and prestige of the teachers, and brought about such a catastrophic decline in academic quality that it placed Germany in jeopardy of losing its technical and industrial preeminence."[11]

In reality, it did not matter to the Nazi leadership what happened to Germany's academic prowess. The political culture of National Socialism had a strong anti-intellectual slant, and Adolf Hitler himself "was filled with a juvenile contempt for all formal education and learning," which he termed "mere pumping of useless knowledge," as well as for the teaching profession, which he declared "fit only for incompetents and women."[12] Official declarations that the future of Germany depended strongly on the quality of its educational institutions and that teachers were to tolerate no dissent from students were, in other words, mere window dressing for an entirely different purpose. Indeed, what was deemed important in Nazi Germany was inflaming generational tensions and directing the aggressive instincts of the young against the institutions and organizations of the old social structure with the ultimate goal of transferring children's loyalty from parents, teachers, and other natural authority figures to the National Socialist movement.[13]

The National Socialists' efforts to win the hearts and minds of the young were successful. As, for instance, the historian Mary Fulbrook noted, German youth displayed an exceptional degree of fanaticism, whereas many adults "seem to have simply withdrawn into a more-or-less sullen silence."[14] It was predominantly also young men and women

[10] Horn (1976).

[11] Horn (1976, p. 426).

[12] Horn (1976, p. 426).

[13] Horn (1976).

[14] Fulbrook (2011, p. 138).

who—after many of them had first learned to transgress moral boundaries in Germany's rebellious classrooms—both carried out the November 9th pogrom in 1938 and other acts of street violence in German cities during the prewar years and perpetrated the mass shootings and guarded the concentration camps in eastern Europe during the Holocaust.[15]

Education in Nazi Germany, as it actually existed in practice, was thus far removed from the Herbartian educational tradition. If National Socialism and its crimes had any pedagogical underpinning at all, it was so-called war pedagogy (*Kriegspädagogik*), which disrupted the established pedagogical practices of many primary and secondary schools in Germany during the period 1914–1918 and aimed to turn students into avid supporters of the German effort in World War I.

Despite its militaristic name, war pedagogy favored "active, child-centered methods," which were found to "amplify the students' zeal for the war by engaging students more personally and bringing the present into the classroom"[16] and encourage children's natural aggressive traits.[17] Importantly, exposure to this amalgamation of permissive, child-centered approaches and "intense nationalism" has been highlighted in historical research as a key explanation for why young men, particularly of the birth cohorts 1900–1908 (school age during the war), were overwhelmingly present in various proto-Nazi organizations and the Nazi Party itself before 1933 and why many of them (e.g., Martin Bormann, Reinhard Heydrich, Heinrich Himmler, Rudolf Höss, and the Hitlerjugend leader Baldur von Schirach) later became leading figures in the Third Reich.[18]

However, in Sweden, many believed that the school practices of the Third Reich were closely related to those of the old educational order in Germany and thus indirectly also to practices in Sweden at the time.[19] The Swedish school system was consequently brought into what Johan Östling calls a "Nazi sphere of association,"[20] the reach of which was, in actuality, based more on perception than on fact. The hit movie *Torment*, mentioned previously in Chapter 2, suggested, for example, that Swedish

[15] Fulbrook (2011); Lower (2013); Rich (2018).

[16] Donson (2006, p. 342).

[17] Kay (2014).

[18] Donson (2006); Donson (2010, pp. 60–61).

[19] Heller Sahlgren and Wennström (2020).

[20] Östling (2016, p. 128).

schoolteachers were influenced by the Nazis,[21] although teachers were in fact largely immune to Nazi propaganda and teacher organizations rejected National Socialism as a creed.[22]

More generally, as we showed before, the Swedish school system was inherently different both from the official image of Nazi Germany's schools as bastions of authoritarian repression and from the disorderly reality. Importantly, the underlying pedagogical philosophy of the modern Swedish school system, Herbartianism, was an individualist one that valued knowledge as a road to character building and envisioned the teacher-student relationship as humane and akin to that of apprentice and master. Nonetheless, a connection was made between National Socialist education and the practices of Swedish schools, providing a tremendous impetus for school reform plans. Certainly, the movement in favor of such plans and its ideas, which rejected the "European *Bildung* tradition" and were instead heavily influenced by the progressive child-centered pedagogy of the U.S. educator John Dewey and the Austrian psychologist Elsa Köhler as well as by Rousseau's idealistic view of children, predated the Third Reich.[23] However, the controversy surrounding the mistaken educational lessons drawn from National Socialism created both a political opportunity structure that could be exploited to realize those ideas in practice and a strong sense of urgency regarding the mission of the movement.

Indeed, while the parallel schooling system had long been criticized, "virtually all the contributions to the debate about the problems of education in the post-war period made reference to totalitarian experience, above all to the experience of Nazism."[24] The need for a new kind of school was now perceived as overwhelming by leading intellectuals of the era, among others the sociologist Alva Myrdal, an influential thinker in the Social Democratic Party. Together with her husband, the prominent economist Gunnar Myrdal, she had spent time in America during the late 1930s and early 1940s and been greatly influenced by Dewey's work and

[21] Almgren (2019, p. 282).

[22] Almgren (2019); Höjeberg (2016).

[23] See Carlgren et al. (2006, p. 302); Heller Sahlgren and Sanandaji (2019); Richardson (1978).

[24] Östling (2016, p. 190).

by progressive pedagogy in general.[25] These intellectuals wanted to make a wholesale break with the past and move toward a more "democratic" form of education, no longer aiming to produce individuals who, in the reformers' eyes, were ready to blindly follow orders from teachers and other authority figures but instead to develop a free and critical personality in children and adolescents.

Along with other prominent Social Democrats, Myrdal was appointed in 1946 to a parliamentary commission set up to reshape the course of Swedish education. It was the Schools Commission that proposed, in its final report, published in 1948, the creation of the unity school, in which all students would be taught together for nine years. Myrdal authored the rough sketch of this proposal more or less on her own.[26] The Schools Commission was highly critical of the existing system: It harshly denounced prevailing pedagogical methods, calling the practice of teacher-led instruction "authoritarian to its core,"[27] and turned against the educational content. Traditional humanistic subjects, for instance, were said to be concerned with "dead matter that lacked significance both to an understanding of cultural development at large and to a better understanding of the problems of our own age."[28]

The Schools Commission's final report represented a complete turnaround from and rebuttal of Herbartian educational principles. Indeed, in the proposed unity school system, teachers were to step back from their traditional role as knowledgeable authority figures charged with leading the work carried out in the classroom. The Schools Commission instead wanted to "promote students' independence and critical thinking, their will to work and to work independently, their sociality and capacity to co-operate" and allow "students to develop activities and initiatives themselves."[29] Moreover, anticipating the postmodern social constructivist view of knowledge that was to emerge later, the Schools

[25] On the influence of Dewey on both Alva and Gunnar Myrdal, see, e.g., Jackson (1990, pp. 105–106).

[26] Hederberg (2004).

[27] SOU 1948:27 (p. 5).

[28] SOU 1948:27 (p. 30).

[29] SOU 1948:27 (p. 5).

Commission called for a curriculum that was grounded in students' everyday experiences and a reduced common core of learning, arguing that it was "increasingly obvious how seldom acquired knowledge can be considered fixed"[30] and that systematic and rigorous learning inspires obedience and submission.[31]

According to Stellan Arvidson, another influential member of the 1946 Schools Commission, the proposed new school system would instead, in line with Deweyan educational philosophy, offer a more "natural" education, catering to the particular interests and personality of each child. The students would henceforth, Arvidson wrote in 1958, "*not* be trained in the art of writing traditional essays, *not* be trained in writing grammatically correctly in foreign languages, *not* be exposed to traditional numerical assignments."[32] The Schools Commission's final report contained similar language, stressing that "the individuality of the student" should always be "the starting-point of … education."[33] The formulation reflected not just the legitimate view that students' level of maturity should be considered but also that respect should be shown for the feelings of the individual student and his or her degree of interest in the schoolwork and that collective educational norms and practices should be eliminated.[34] Indeed, as Arvidson later explained, the ideal was that 30 children in a classroom would study from 30 different curricula.[35]

What had happened that could produce such a sea change in education policy in just a few years? A key part of the answer is, as discussed above, the erroneous association between the crimes of Nazism and the kind of teacher-led instruction on which the established Swedish school system was based. As the Schools Commission's first chair, Education Minister (later Prime Minister) Tage Erlander, wrote in his memoirs, "We had during the years of Nazi rule in Europe become aware that one of the most important tasks of the school system is to educate people so that

[30] SOU 1948:27 (p. 148).

[31] Östling (2016).

[32] As cited in Enkvist (2016, p. 27; emphasis in original).

[33] SOU 1948:27 (p. 3).

[34] Ohrlander (1981, pp. 122–123).

[35] Ohrlander (1981, p. 130).

they … do not become blind to what is happening in society. The school system must provide youths … with a sense of participation in the shaping of society. … If so, schools cannot at the same time be organized in an authoritarian fashion."[36]

The Unity School

Compelling evidence that the unity school system proposed by the 1946 Schools Commission would not be as conducive to learning as the incumbent system became apparent during the trial period ordered by the Social Democratic government in the 1950s. The Swedish National Board of Education was at this time commissioned to administer tests comparing knowledge levels in 8th grade in trial schools to the corresponding class in the *realskola*.[37] Twelve such tests were given in 1954, and the *realskola* students performed significantly better than students in the trial schools in all of them. For instance, "in 1954, the students in 9g, the unity school class for continuing to high school, were given the English exam for the *realskola*. Overall, 61.5 percent of the boys and 53.3 percent of the girls failed the exam, compared to 6–7 percent of the students in the *realskola*."[38]

Here, it is worth mentioning that the trial schools were given the option of differentiating students according to ability in 7th and 8th grades and splitting them into three streams in the ninth and final year: (i) an academic stream to prepare them for high school, ending in an exit exam; (ii) a general stream; and (iii) a vocational stream containing 22 hours per week of vocational training of various orientations. Contrary to government expectations, almost all trial schools chose this option.[39] Indeed, "[t]he only exceptions were schools that were so small that they had too few students to be able to [split them into] separate classes."[40] Thus, the students in 9g who took the English exam referred to above

[36] Erlander (1973, p. 237).

[37] This was the so-called Stockholm Study led by Torsten Husén at the Stockholm Institute of Education. The main results of the study were presented in Svensson (1962).

[38] Lidström (2015, p. 105).

[39] The shares of trial schools that utilized the option to differentiate in 7th and 8th grades were 93 and 97 percent, respectively. See Hadenius (1990, pp. 119–120).

[40] Lidström (2015, p. 105).

were, in fact, streamed. This suggests that if all students had truly been taught together, the results on the exam would have been even worse,[41] that the pedagogy of the old *realskola* was superior in promoting learning, and that its selective nature does not fully explain its success.

Moreover, it was not certain that the planned unity school system would be able to meet its ambitious social goals. Two leading psychology researchers, Ingvar Johannesson and David Magnusson, were commissioned to examine whether the abolition of streaming into different school forms would turn students into better collaborators. As stated in the final report of the 1946 Schools Commission, this was an important aim of the unity school reform. Since almost no trial school decided to refrain from differentiation and streaming, this hypothesis could not be properly tested, but in their comprehensive survey of international experiences, Johannesson and Magnusson were unable to find any evidence that teaching all students together would improve their ability to collaborate and interact socially with each other.[42]

The trials were discontinued prematurely, and the publication of the unfavorable results was postponed until 1962, when the final decision to introduce the unity school had already been made by parliament. Moreover, when the results of the knowledge tests and the psychological study were eventually published, they were "interpreted in a misleading way in favor of the unitary organization."[43] Thus, ultimately, it did not matter to the school reformers that the proposed new school system had significant academic deficiencies compared to the old system or that their social ambitions were not grounded in evidence. What ultimately mattered was that the ideas presented by the 1946 Schools Commission were given full sway, which is also what happened.

Indeed, the first two national curricula of the new system advanced practically the same ideas about the purpose of schooling. For example, while students in the Herbartian philosophy were believed to mature through the self-disciplined study of domain-specific knowledge, the 1962 curriculum indicated that such traditional teaching was at risk of being dull, stultifying, or even antidemocratic. The curriculum instead stressed that schools "should work from norms that the students accept

[41] See Hadenius (1990, p. 124); Lidström (2015, p. 105).

[42] Hadenius (1990, pp. 163–166).

[43] Hadenius (1990, p. 170).

and rules that they help to develop."[44] The second national curriculum, enacted in 1969, even more explicitly emphasized that teacher-led instruction and the imparting of knowledge were of less importance than stimulating students' active role in the learning process.[45] All terms associated with classical knowledge-based schooling, such as "culture" and "education," were consequently removed from the curriculum by the Ministry of Education.[46]

Additionally, and in line with the then emerging postmodern social constructivist view of knowledge, the 1969 curriculum called for a breakup of the structure and hierarchy of the traditional subject disciplines, suggesting that any subject "could for some students be given a more concrete and practical content, while other students could study the subject on a more theoretical level."[47] The curriculum explicitly stated that it was not necessary for all students to study all parts of subjects. Moreover, all types of knowledge measurement were discouraged: "If one only measures the easily measurable, the goal of the school system will once again be reduced to simple cognitive memory functions … and cramming of facts."[48]

The new direction for Sweden's schools caused significant dissatisfaction within the teaching community. As early as the start of the 1970s, many teachers (including 49 percent of those in the upper grades of elementary school) wanted to leave the profession.[49] The root of their dissatisfaction was the new role envisioned for teachers in the unity school system, which was a far cry from the old teacher ethos. Indeed, as discussed in Chapter 2, Swedish schoolteachers were traditionally motivated by a professional ethos built around imparting knowledge and virtues such as engagement and self-sacrifice to new generations. However, they were now told that teachers were no longer considered necessary in their long-standing function as persons knowledgeable in their subject matter. This message to teachers was crystallized in a report

[44] Swedish National Board of Education (1962, p. 13).

[45] See Swedish National Board of Education (1969).

[46] Hadenius (1990, p. 228).

[47] Swedish National Board of Education (1969, p. 44).

[48] Swedish National Board of Education (1969, p. 73).

[49] Wennström (2014, p. 48).

submitted by Alva Myrdal to the 1969 Social Democratic Party congress, a de facto government document, which declared[50]:

> The role of the teacher is undergoing a material change. … The teacher's primary task will not be to act as an authority in his or her field, but to be an inspirer and coach to the students and gradually try to broaden their fields of interest.

The aim during the 1970s was, in fact, to create an exchangeable "comprehensive teacher" who, instead of specializing in particular subjects, could work in all classes and at all grade levels.[51]

However, it was not just the teachers' commitment to knowledge that was being refuted; the very idea of teachers being guided by a professional ethos, which had been at the heart of teacher training during the "silver age" of Swedish education, was soon also being questioned. Starting in the late 1960s and continuing into the 1980s, the Social Democrats, in tandem with the trade and labor union movement, challenged the notions of vocation, personal responsibility, and self-sacrifice in public-sector professions such as teaching and instead emphasized extrinsic rewards and rights. Teaching was to be considered not as a vocation but as an ordinary job, the Social Democrats argued.[52] Incidentally, similar views were advanced by the liberal-conservative Moderate Party and others on the free-market Right, who claimed that the behavior of public servants, such as teachers, is always motivated by self-interest.[53] (This belief would play an important role in the effort to marketize Swedish education, an issue that we deal with at some length in the next chapter.)

Nevertheless, although the values that were important to many teachers were undermined, a sufficient number of teachers of the old tradition remained in the unity school so that, in practice, the methods used in Swedish classrooms changed only marginally during the first

[50] Myrdal (1969, p. 69).

[51] Wennström (2016, p. 14).

[52] See Wennström (2014, 2016).

[53] Wennström (2014, 2016).

decades of the new system.[54] The traditional organizational culture of the National Board of Education, the public agency that was expected to implement the Social Democratic school policies, also proved hard to reconcile with the reforms, which was another contributing factor to the Social Democrats' failure to redirect the inner workings of schools.[55]

The Social Democrats acknowledged this state of affairs in a government bill[56]:

> Changing the methods of education … had been a significantly harder task than changing the [politically decided] framework. Such change takes time because it is in part a question of the staff's positive attitude. … Introducing new methods in the daily schoolwork means that a long tradition that is often perceived as self-evident and thereby almost value neutral is pitted against new ideas and innovations.

Addressing the 1975 Social Democratic Party congress, Minister of Schools Lena Hjelm-Wallén also said that "we are forced to acknowledge that today's schools to a large extent are characterized by the classical imparting of knowledge, which has been inherited from school system to school system and fashioned on values from a society completely different from ours."[57] Alva Myrdal more bluntly stated that the older generations of teachers had to be phased out before the desired changes to the school system could take effect.[58]

The same frustration with the slow development of the school system existed on the political Right at the start of the 1980s. The then Center-Right government bill that proposed the third national curriculum in 1980 harshly criticized the existing differentiation between subjects, arguing that the natural sciences and technical subjects "cannot be isolated from the social sciences" and that "traditionally structured

[54] Heller Sahlgren and Sanandaji (2019); Rothstein (2010 [1986]). For a longer discussion of how organizational culture may impede reform efforts, see, e.g., Pollitt (2008) and Wilson (2000 [1989]).

[55] Rothstein (2010 [1986]).

[56] Government Bill (1975/76:39, p. 220).

[57] Rothstein (2010 [1986], p. 114).

[58] Ohrlander (1981).

content" in physics and chemistry should be abandoned.[59] It disapprovingly observed that much "educational material [in physics and chemistry] still has a troubling subject-focus, a narrow perspective and a high level of abstraction."[60] The bill also stated that "the well-structured mass of knowledge that has accumulated within different traditional subjects can never be a starting point for schoolwork."[61]

Such formulations marked a significant advance from 1940s progressivism toward a more clearly expressed postmodern social constructivist thought style. Indeed, the bill called for schoolwork to reflect "the students' view of reality," which it claimed is inherently different from adults' perception of reality, and "build on their curiosity and their questions."[62] The 1980 curriculum itself stated that both the content of education and the teaching methods used should be adapted to each student based on his or her interests since there is "no way of studying that is best for all students."[63] The fact that the Right had by now embraced the postmodern social constructivist view of knowledge may seem surprising but was, in fact, consistent with the modern Right's individualistic model of education, in which every student would be allowed to forge his or her own path in school.[64]

At the beginning of the 1990s, reality in schools began to align itself with the wishes of reformers on both the Left and the Right. Almost all older teachers had by then retired and were replaced by a new generation of teachers who had been trained in the postmodern social constructivist ideas that prevail in modern teacher-training institutions in Sweden.[65] In these institutions, the practices of older teachers were explicitly criticized, and no concrete training in how to instruct students was given.[66]

[59] Government Bill (1978/79:180, p. 76).

[60] Government Bill (1978/79:180, p. 76).

[61] Government Bill (1978/79:180, p. 80).

[62] Government Bill (1978/79:180, p. 80).

[63] Swedish National Board of Education (1980, p. 52).

[64] See Hylén (1991). Recent research suggests that postmodernism and neoliberalism may be more compatible than has previously been imagined. Dean and Zamora (2021) demonstrate that Michel Foucault himself embraced the neoliberal wave of the 1970s and market governance as a means of individual emancipation.

[65] See Fiévet and Henrekson (2017).

[66] See Linderoth (2016).

Indeed, according to an analysis in the newspaper *Dagens Nyheter*, the "displacement of teachers trained before the 1970s should have peaked around 1990."[67] Moreover, "student influence" was for the first time enshrined in law.[68] The Social Democrats also abolished the old National Board of Education and replaced it with the Swedish National Agency for Education, which, in contrast to the previous agency, was staffed by Social Democrats[69] and by pedagogues influenced by postmodern social constructivist ideas.[70] The Center-Right government led by the Moderate Party that had come to power in 1991 then enacted a fourth curriculum in 1994 that adopted an even more explicit postmodern social constructivist view of schooling.[71]

The 1994 National Curriculum

At least two factors made the 1994 curriculum stand out from its predecessors. First, the curriculum did not include prescribed content to be covered in the form of detailed course syllabi; it merely established a number of goals and objectives that it expected schools to concretize at the local level. Despite the ideological intentions of the previous curricula, they had stipulated in detail how teaching time should be allocated across different subjects and spelled out the course syllabi.[72] However, in the 1994 curriculum, such detailed instructions were removed. One set of goals consisted of general aims that "schools should strive for," mostly emphasizing the facilitation of critical thinking and self-directed learning and the development of personal opinions, while another set of goals was content-specific for the individual student.[73] Both sets of goals were nonspecific and open to interpretation. Some content-specific

[67] Dagens Nyheter (2015, p. 6).

[68] Government Bill (1990/91:115).

[69] Svenska Dagbladet (1991).

[70] See Kornhall (2013).

[71] Swedish National Agency for Education (1994).

[72] Enkvist (2016, p. 62) notes that the 1962 curriculum in this sense was "a text characterized by both the old and the new." She also notes that the 1969 curriculum provided a detailed commentary for each subject "written by experts in the field that often conveys enthusiasm for subject learning" (p. 69). This likely contributed to the limited impact of the reforms on classroom practice.

[73] Swedish National Agency for Education (1994, pp. 9–10).

goals included "masters basic mathematical thinking and can apply it in everyday life"; "is familiar with and comprehends basic terms and concepts within the natural science, technical, social science, and humanities knowledge fields"; and "has deepened knowledge within a few subject areas of his/her choosing."

The second important feature of the 1994 curriculum and a precondition of the first feature was that the curriculum was based on an explicitly postmodern social constructivist view of knowledge. In 1991, a committee consisting mostly of pedagogues and staff from the Ministry of Education was tasked with drafting the curriculum. Its final report, "a key text for anyone wishing to understand the development of the Swedish school system since the 1990s,"[74] emphasized what it considered to be the constructive and subjective nature of knowledge. The report stated, "[W]hat is knowledge in one place is not necessarily knowledge in other places. … In different kinds of societies, the content and form of knowledge are different."[75] The report also claimed that "there are no 'pure' facts," only facts that take on meaning from what can be seen or detected.[76] This view of knowledge was summarized as follows[77]:

> Theoretical knowledge is not a "reflection" of the world, but a human construction to make the world manageable and comprehensible. *Knowledge is hence not true or untrue but something that can be argued for and appraised*. Knowledge is up for discussion. To establish such a view of knowledge among the students, it is stated in the curriculum that *the subjects should be given a historical dimension*. This means that knowledge should not merely be taught as set answers, free from a specific historical context, but as answers that have come about in specific contexts under specific circumstances and in specific ways.

In line with these arguments, the report suggested that the "selection of facts can vary locally" and that "not all students everywhere need to work with the same facts to reach a common understanding."[78] It recommended that schools not structure the content of education

[74] Linderoth (2016, p. 49).

[75] SOU (1992:94, p. 63).

[76] SOU (1992:94, p. 65).

[77] SOU (1992:94, p. 76; emphasis in original).

[78] SOU (1992:94, p. 77).

into different subjects in the early grades but focus initially on sparking students' curiosity and use "the children's questions" as a starting point.[79] Indeed, what was deemed most important in schools was facilitating "knowledge-creating" (*kunskapande*), which appears to be a term for the idea of students as participants in a collaborative enterprise of constructing knowledge. The report stressed that an integral part of schooling was allowing students to become involved in "the processes that [knowledge] is an outcome of"[80] and insisted on the centrality of theorization and verbal communication: "Students need to be allowed to discuss a lot, be trained in expressing and formulating their views and appraising different arguments."[81] An illustrative example was provided in a discussion on including the "students' media world, their knowledge, and media interest" in the content of education, in which it was suggested that students should "learn to 'deconstruct' the media, their messages, and their way of working."[82]

The 1994 curriculum was the first Swedish national curriculum to include a discussion on the concept of knowledge.[83] It stated[84]:

> The task of the school system to impart knowledge presupposes an active discussion in the individual school about knowledge concepts, what constitutes important knowledge today and in the future, and how knowledge develops. Different aspects of knowledge are natural starting points for such a discussion.
>
> Knowledge is not an unambiguous concept. Knowledge is expressed in different forms … which presuppose and interact with each other. Schoolwork must focus on giving room for different forms of knowledge and learning in which these forms are balanced and become a whole for the individual student.

The curriculum also emphasized that students should assume successively greater responsibility for their own learning[85]:

[79] SOU (1992:94, p. 79).

[80] SOU (1992:94, p. 67).

[81] SOU (1992:94, p. 68).

[82] SOU (1992:94, p. 98).

[83] Wikforss (2017, 2019).

[84] Swedish National Agency for Education (1994, p. 8).

[85] Swedish National Agency for Education (1994, pp. 6–7).

> The structure of the learning environment shall be characterized by democratically determined learning processes and prepare students for active participation in civic life. It shall develop their ability to take personal responsibility. By choosing courses and subjects and by taking part in the planning and evaluation of their daily learning, students will develop their ability to exercise influence and take responsibility.

Ensuring that students were given greater responsibility for and influence over the planning and content of their education was proclaimed to be the teacher's main priority. The teacher should "assume that students are able and want to assume personal responsibility for their learning and their schoolwork."[86] In fact, the teacher's official responsibilities were all concerned in one way or another with supporting self-directed learning and creating a democratic classroom environment. It is striking—and indicative of the document's stance with regard to knowledge—that there are no statements to the effect that the teacher was expected to impart domain-specific knowledge to the students.[87] At the same time, training students in diligence, perseverance, and other noncognitive skills, which would at least have increased their chances of working successfully without instruction, was abandoned.[88]

Thus, the 1994 curriculum transferred the responsibility for determining the content of and methods for elementary and secondary education from the state to individual schools and their students. This change was motivated in part by a sweeping reform to decentralize the management of education from the state to the municipalities and in part by the effort to marketize the Swedish educational system (we discuss both in the next chapter). However, the change was also due to the postmodern social constructivist view of knowledge as subjective and locally constructed that was expressed in the final report of the curriculum committee and had come to be widely shared in society. Looking back at the 1990s in 2003, the Swedish National Agency for Education confirmed that the generally held belief in "government, municipal, and union circles" was that "knowledge cannot be imparted by one individual to another, by the one who is teaching to the one who is learning."[89]

[86] Swedish National Agency for Education (1994, p. 14).

[87] See Swedish National Agency for Education (1994, pp. 12–14).

[88] Hörnqvist (2012).

[89] Swedish National Agency for Education (2003, p. 27).

In contrast to what had happened when new national curricula had been introduced in previous decades, the teaching methods used in Swedish schools gradually changed. A 2003 survey asking 9th graders how often they worked individually without instruction in school found that 50 percent did so several times a day, up from 25 percent in the early 1990s.[90] In mathematics, 79 percent of students reported doing so during every or almost every lesson. What emerged from these findings, according to the Swedish National Agency for Education, was an "image of an increasingly isolated and individualized education, in which students are working in isolation from both the teacher and the other schoolchildren."[91]

This view was later corroborated by international comparative surveys. For example, the 2007 TIMSS report showed that Swedish 8th graders spent more time working individually, without teacher instruction, during mathematics lessons than students in any other participating country. Similar results were reported in both the 2011 and 2015 TIMSS studies.[92] Moreover, according to the 2012 PISA study, Sweden had the second most student-led learning practices in mathematics in the entire OECD area. In the 2015 PISA study, Sweden also occupied a shared second place among countries with the most discovery-based learning practices in science.[93]

In tandem with the 1994 curriculum, a new grading system was enacted. In the previous relative grading system, in which students were "awarded a grade from 1 to 5, on a scale representing the overall achievement in the country,"[94] teachers were required to justify in writing why they wanted to assign grades that diverged greatly from the results of standardized tests.[95] These standardized tests were developed to help schools "with the scale calibration, i.e., with placing their classes and students on the scale that represented the entire population."[96] However, one of the defining features of the new system was that it eliminated the anchoring

[90] Swedish National Agency for Education (2004a).

[91] Swedish National Agency for Education (2004a, p. 47).

[92] Heller Sahlgren and Sanandaji (2019, p. 93).

[93] Heller Sahlgren and Sanandaji (2019, pp. 94–95).

[94] Wikström (2006, p. 117).

[95] Swedish National Agency for Education (2005).

[96] Wikström (2006, p. 118).

function of centrally administered standardized test scores and gave individual teachers full autonomy to assign grades. Teachers were, in turn, instructed to "utilize all available information about the student's knowledge" and arrive at "an all-around judgment" when assigning grades rather than focusing only on test results and other traditional forms of assessment.[97] Schools were also required to consider the curriculum's goal that the students should "develop the ability to evaluate their results and relate their own and others' judgment to their performance and inherent capacity," which implied some degree of student influence over grading.[98] Heavily influenced by the postmodern social constructivist view that objectively measurable knowledge does not exist,[99] these grading instructions opened the door for arbitrary grading decisions and complaints about bad grades that could be easily dismissed as subjectively determined, leading to de facto negotiations between teachers and students or the emergence of a "didactic conspiracy."[100]

These were hazardous conditions for competition between public schools and for-profit voucher schools, which had come into existence just a few years earlier through Sweden's school choice reform (enacted in 1992–1993). With these changes to the curriculum and the grading system, there were no longer any institutional barriers to competition in dimensions other than educational quality, including grading. As we show in the coming chapters, independent schools seem to have quickly taken advantage of this opportunity.

In Sum

This chapter examines the history and development of the Swedish school system from approximately 1945 to the mid-1990s. Shortly after

[97] Swedish National Agency for Education (1994, p. 16).

[98] Swedish National Agency for Education (1994, p. 16).

[99] According to the Swedish National Agency for Education (1996, p. 35), the old grading system was "characterized by the belief that it is possible to objectively measure knowledge." However, "ideas about the scientifically based and the 'objective' and the idea that all students are 'expected to learn the same things'" were not, in the view of the Agency, in harmony with the new educational system.

[100] "Didactic conspiracy" refers to a phenomenon of teachers coming to an unspoken understanding with their students to not rigorously assess the students' knowledge. In exchange, the teachers do not have to face criticism from their students (see Alexandersson, 2005; Linderoth, 2016).

the end of World War II, the Swedish government launched a Schools Commission with the objective of suggesting a major reform of the national educational system. In its final report, the commission rejected the Herbartian educational principles on which the current system was founded. Instead, it advocated a student-centered pedagogy in which the teacher was relegated from the role of knowledgeable pedagogical leader to that of mentor and enabler of the students' largely individual learning processes.

The proposals met with strong resistance from teachers. Trials conducted during the 1950s also suggested that the proposed new school system would lead to dramatic declines in knowledge results. Nevertheless, the commission's program was gradually instituted. A major motivation was the influence on policymakers of progressive educational philosophy, which evolved into a postmodern social constructivist view of knowledge and teaching. This development became consolidated with the advent of the 1994 curriculum.

Many of the notions that are emblematic of the postmodern social constructivist view (discussed in Chapter 5) are explicitly or implicitly expressed in the curriculum. For example, it suggested that there are no objectively established facts and that what is legitimized as knowledge is a product of social and historical forces. Moreover, the curriculum recommended mixing or breaking up academic subjects, incorporating "deconstruction" into schoolwork, and giving students the major responsibility for the planning and content of their education. As the next chapter shows, we can detect an equally pronounced postmodern social constructivist influence in the curriculum from 2011, which was in effect throughout the 2010s and was still operative in a slightly modified form at the time of writing in early 2021.

CHAPTER 7

The Deinstitutionalization and Fragmentation of the Swedish School System

We showed in the previous chapter how the view of knowledge in the Swedish school system radically changed between the end of World War II and the early 1990s. Through the successive reform of national curricula, the postmodern social constructivist view of knowledge was established as the dominant thought style. We continue exploring that subject in this chapter, demonstrating that in practice, nothing has changed in recent years. We begin by showing how profound structural changes to the school system have exacerbated the already hazardous incentives created by the stipulated view of knowledge. The analysis of those incentives is mostly left to the penultimate chapter; here, we describe the recent sea change that has occurred in the organization of Swedish education.

Broadly speaking, it is possible to distinguish between three different periods in elementary and secondary education in Sweden, the first of which started with the Elementary School Act of 1842.[1] At that time, local parish administrations were given the responsibility to provide elementary schooling to the Swedish population. Most secondary education institutions were also connected to the Church. Starting at the turn of the century, however, the state strengthened its presence in elementary and secondary schooling, initiating a prolonged period of education centralization in Sweden.

[1] Skott (2015).

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3_7

In 1919, as previously explained, the first truly national curriculum was introduced, and in 1920, a central school authority, the Swedish National Board of Education, was established and given responsibility for both mandatory elementary school and college-preparatory school (later extended to include all secondary schooling). Although the management of schools still occurred at the local level, central government regulations grew increasingly binding, and earmarked intergovernmental transfers constituted an increasing share of school financing.[2]

The enactment of the unity school, the *enhetsskola*, in the early 1960s meant not only that all children studied together for nine years but also that the state (the central government, parliament, and relevant government agencies) was attempting to assume total control over the form and content of the Swedish school system.

The Swedish National Board of Education had 24 regional branches commissioned to oversee school management. This included the recruitment of teachers, principals, and deputy principals based on strict government rules regarding merit and salaries and ensuring that all schools in their jurisdiction adhered to the detailed, centrally determined course syllabi and times allocated to the different subjects.

In order to receive the intergovernmental transfers, every school had to submit a detailed report of its activities to the regional agency, which had the right to make unannounced inspections of individual schools at will. Moreover, a government agency reviewed and approved all textbooks to ensure correspondence between the centrally determined course syllabi and the teaching material,[3] and a national relative grading system was calibrated at the class level using standardized test results.

By 1970, the centralization project was completed, and the school system was de facto managed by the state, which tightly controlled the structure and content of education as well as the salaries and competence requirements of teachers and principals. With the exception of those students attending a select handful of independent schools,[4] all Swedish children between the ages of 7 and 16 went through exactly

[2] Lindbom (1995); SOU 2014:5, pp. 47–48.

[3] Over the years different agencies fulfilled this role, and their responsibilities varied somewhat (Johnsson Harrie, 2009).

[4] Less than one percent attended independent schools (Jordahl and Öhrvall, 2013), which essentially taught the children of the wealthiest families or had alternative pedagogic profiles; these schools were only partially supported by funds from the state.

the same school system (the only variation was the option to study English, mathematics, and either French or German at a somewhat more advanced level in grades 7–9 and the possibility to opt out of studying a second foreign language). Likewise, secondary school was basically identical everywhere, with a number of two-year vocational programs and five three-year college-preparatory programs (students in technology programs had the option of adding a fourth year to obtain a lower-level engineering diploma).

This system remained largely unchanged until the late 1980s and early 1990s, when a number of far-reaching reforms were instituted by governments on both sides of the ideological spectrum, shifting the system into the third and present period of decentralization and marketization. In the course of just a few years, the school system went from being arguably the most regulated in the entire OECD to being the polar opposite.[5]

Governance Transferred to Municipalities

In 1989, the Social Democratic government passed the so-called Governance Bill,[6] which reduced the role of the central government in education to merely setting general goals and objectives while transferring the responsibility for primary and secondary schooling to the municipalities. It had been a long-term goal of the Social Democrats since the 1970s to move the democratic governance of the welfare state down to the municipal level—"close to the citizens"—and in the late 1980s, this ambition harmonized with the *zeitgeist*.[7] One example is the trend toward decentralization and management by objectives that swept through public administration in Sweden and the West more broadly. Another is the critique leveled by both the Right and a neoliberalized Left at perceived bureaucratic rigidities, limited individual choice, and financial waste in the centralized public sector. Increasingly the Social Democrats had come under the sway of such complaints and sensed that something had to be done to reform the strong state.

In the area of education these disparate political priorities were consolidated in a more or less complete decentralization and deregulation of

[5] SOU 2014:5, p. 57.

[6] Government Bill 1988/89:4.

[7] Ringarp (2011, p. 194).

the school system, which only began with the transfer of administration and management of all public schools to Sweden's 290 municipalities.[8] Effective from 1991, teachers and school principals became municipal employees, and the strict merit and experience-based salary schedules were abandoned and replaced by individually negotiated salaries. Other previous regulations on teaching were also repealed; for example, subject-specific academic qualifications were no longer required for teachers.[9] Teaching became more of a regular job, in line with new public management (NPM) reform ideas.[10] Moreover, intergovernmental transfers were no longer tied to adherence to detailed rules regarding staffing, syllabi content, or the time allocated to the different subjects. Instead, each municipality received a lump sum from the central government based on the number of inhabitants aged 6–20 years, and this money could also be spent on other municipal activities.

At the same time, the old National Board of Education, which was viewed as an obstacle to the realization of a new, deregulated, and decentralized education system and contrary to social democratic education policies in general,[11] was abolished and replaced by the National Agency for Education. However, the agency was not primarily a regulatory agency. In fact, the new agency defined itself in opposition to the abolished National Board of Education and pledged to "dismantle traditional supervision and control."[12] Its managers expressed a direct disregard for the institutional memory of the previous organization and its first director general, Ulf P. Lundgren, publicly voiced fears that the former board's "bureaucracy was stuck to the walls" of the newly created agency.[13]

The primary task of the National Agency for Education was reduced to collecting information and performing analyses, and the agency did not consider it to be their responsibility to give strong recommendations or authoritative advice to the 290 municipal school administrations. Instead, it was believed that the agency's research into "good examples"

[8] Government Bill 1988/89:4.

[9] This requirement was not reinstituted until 2011 (Government Regulation 2011:326).

[10] See our discussion in Chapter 4.

[11] Haldén (1997).

[12] Haldén (1997, p. 17).

[13] Kornhall (2013, p. 51).

of successful schools would inspire schools to improve themselves and that this would ultimately function as an indirect form of regulation.[14]

Thus, the 290 municipalities were largely left to their own devices when they, almost overnight, found themselves responsible for the management of more than 99 percent of all primary schools and more than 90 percent of all secondary schools. The problems arising from the lack of structure were exacerbated by the fact that the government agency that reviewed all textbooks was abolished in 1991[15] and that school principals were no longer required to be certified teachers. The latter requirement had already been lifted in 1986, and since then, virtually any person could become a school principal by virtue of the flexible formulation in the relevant law requiring only that a school principal "had acquired pedagogical insight through education and experience."[16] Paradoxically, this change was instituted at the same time as the pedagogical leadership role of the principal was explicitly emphasized in the governing documents. Moreover, school principals now in certain circumstances have the right to reassess grades irrespective of their own formal qualifications and knowledge of the subject in question.

The Voucher School Reform

It was into this debilitated institutional setting that the so-called free school reform was introduced by the Center-Right government led by the Moderate Party that gained power in late 1991.[17] The reform, the rapid and radical nature of which was criticized by the OECD at the time,[18] instantly converted all elementary (from 1992) and secondary schooling (from 1993) into a contestable quasi-market. Students and parents were endowed with vouchers amounting to a minimum of 85 percent of the average municipal cost per student, which was increased to 100 percent by the Social Democratic government in 1997 in exchange

[14] Haldén (1997).

[15] Johnsson Harrie (2009).

[16] SFS 1985:1100, 2 kap. 2 §. In Swedish: "Som rektor får bara den anställas som genom utbildning och erfarenhet har förvärvat pedagogisk insikt."

[17] Government Bill 1991/92:95 and 1992/93:230.

[18] OECD (1992).

for independent schools abandoning limited student fees, which had originally been allowed.[19] The voucher was then awarded to the school of the student's choice, while the producer side was opened up to virtually any nonprofit or for-profit organization interested in running a school. It was a predictable extension of the Social Democratic decentralization reform: After 1989 there was no longer just one principal in charge of all schools, i.e., the state, but 290 principals, i.e., the municipalities. With such a multitude of principals already in place, it was made easier to defend a reform that opened the door to even more principals. It was also the case that the knowhow of running a school was lacking in most municipalities and this void had resulted in a need for private actors.

In other words, the stage had been set for a reform that the Moderate Party had planned to implement since the mid-1980s, if elected to power.[20] The main source of inspiration was Milton Friedman's voucher scheme as presented in his 1980 book with Rose Friedman, *Free to Choose*. In line with the public choice school of economics led by economists such as James Buchanan and Gordon Tullock, the Friedmans were critical of government monopolies in education and argued that publicly run schools serve the personal interests of teachers and administrators rather than those of parents and pupils, who must conform to the bureaucracy's goals. To counter this transfer of power from "consumers" to "producers" in education, the Friedmans proposed giving vouchers to pupils and thus the freedom to choose among schools, including those that are privately run.[21]

It is clear from the government bill that the government and the responsible cabinet minister, Beatrice Ask, strongly believed in the beneficial effects of the reform:

> The right and the option to choose among schools is an important instrument to vitalize schools. …[It] will benefit the entire school system. Likewise, I believe that competition between schools with different pedagogies and ownership forms, in turn, can contribute to a rising quality across the school system as a whole… Greater freedom to choose and greater opportunities for schools to develop distinct profiles result in

[19] Government Bill 1995/96:200.

[20] Wennström (2020).

[21] Friedman and Friedman (1980).

> stronger incentives for cost efficiency. New and more efficient learning methods can be tested and disseminated. A growing share of independent schools may therefore contribute to a more efficient use of resources in the school system at large.

Restrictions on independent schools were (and largely continue to be) few and did not include competence requirements for owners, such as previous management experience from the educational sector, or any restrictions on the right to pay dividends to the owners of the schools or to sell a school under the same terms as any other incorporated business. Perhaps most surprisingly, it was not until 2010 that independent schools became explicitly required to follow the national curriculum.[22]

The only restriction on independent schools was that they had to abstain from "cherry picking" students based on ability or socioeconomic background. Admissions should be strictly based on the order of application. However, this rule could be circumvented with impunity since the queueing records were not (and still are not as of 2021) externally administered.[23]

From a private enterprise perspective, the free school reform was highly successful. This is clear from Fig. 7.1, which shows the share of all students in elementary and secondary schools who attend an independent school. At the time of the reform, the share of students in independent schools was negligible, and growth was initially sluggish; the share was a mere three percent in 1999, but then development exploded. In the fall of 2011, the share of independent schools exceeded one-quarter of all secondary schools and one-eighth of all elementary schools. Since then, the share has continued to rise, although at a slower rate. In 2019/20, the share of independent schools at the secondary level was 33.2 percent and that at the elementary level was 17.0 percent. Since the average size of independent schools is smaller than that of municipal schools, the share of students in independent schools out of the total number of students is lower: 28.4 and 15.2 percent for the secondary and elementary levels, respectively.[24]

[22] Swedish Law 2010:800.

[23] Wennström (2020).

[24] The share of independent schools among secondary schools peaked at 50 percent in 2011–12. One-third of those schools have since been phased out, which is one indicator that unqualified providers were attracted to the sector. As a result, many students

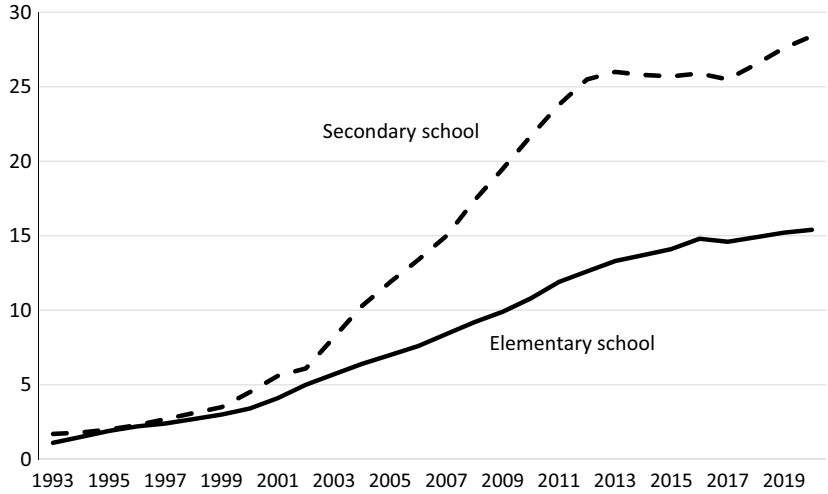

Fig. 7.1 The share of all students in elementary and secondary schools that attend an independent school, 1993–2020 (%) (*Source* Swedish National Agency for Education)

Among independent schools, for-profit schools predominate; 76 percent of all students in independent schools attend a school operated as an incorporated firm. In turn, the for-profit school sector is dominated by three large corporations, two of which were public firms listed on the Stockholm Stock Exchange in 2019 (Nasdaq Stockholm).[25] This large-scale standardization and "industrialization" stands in stark contrast to what was envisioned by the Center-Right politicians and opinion leaders pushing for a voucher school system in the 1980s. Rather, they envisioned the emergence of a diverse plethora of small independent schools run by passionate people who wanted to make a difference.[26]

Interestingly, at almost the same time, a school voucher reform highly similar to the Swedish reform was instituted in Milwaukee,

have suffered from substandard educational quality. This is particularly true in regard to vocational schooling at the secondary level.

[25] In late 2020, one of the two company groups, Internationella Engelska Skolan, was delisted, as it was taken over by the private equity firm Paradigm Capital.

[26] Wennström (2020).

Wisconsin. The arguments for reform were similar in the two contexts, but the outcomes differed greatly. While the Swedish school market became dominated by large-scale for-profit schools, the Milwaukee school program became dominated by small-scale nonprofit schools operated by religious communities. Although for-profit providers were allowed in Milwaukee, only two were started, and both were phased out within a few years. According to one study, the striking difference in outcomes may be ascribed to the deep-seated differences in the civil society regimes in the two contexts.[27] We elaborate on this point in the next chapter.

The 2011 National Curriculum

The two radical reforms—the transfer of school governance to the municipal level and the voucher system—had been operative for only two years when the new national curriculum described in the previous chapter was instituted. In line with its postmodern social constructivist view of knowledge, the new curriculum did not spell out explicit course syllabi or knowledge requirements. Guided by a number of general objectives and goals, schools were instead expected to determine at the local level how these goals and objectives were to be practically achieved. An important part of the motivation for this change was the hope that the freedom given to schools to determine the content of education for themselves would force public schools to develop different educational "profiles" and strengthen their competitiveness with independent schools.[28]

The new curriculum also dictated that students should assume successively greater responsibility for their learning; in fact, ensuring that students would be given greater responsibility for and influence over the planning and content of their education was proclaimed to be the teacher's main priority. Statements to the effect that teachers were expected to impart domain-specific knowledge to the students were nowhere to be seen. The teacher's official responsibilities were all concerned in one way or another with supporting self-directed learning and creating a "democratic" classroom environment. Thus, in summary,

[27] While the Milwaukee reform was "embedded in a broad and deep infrastructure composed of numerous stakeholders," including advocacy organizations and philanthropic institutions, the Swedish reform was "primarily ideologically inspired and characterized by political top-down decision making" (E. Henrekson et al., 2020, p. 22).

[28] Wennström (2020).

the 1994 curriculum transferred the responsibility for determining the content of and methods for elementary and secondary education from the state to individual schools and their students.

As we have already pointed out, the actual adoption of the postmodern social constructivist view of knowledge and the child-centered pedagogy it entailed was slowed down by the organizational culture and ethos of Swedish teachers, which worked as a "constraint from the past."[29] This old culture was gradually eroded as older teachers retired and were replaced by young teachers trained in accordance with the new orthodoxy.

The Center-Right Liberal Party, particularly its leader Jan Björklund (2007–2019), had been criticizing Swedish schools for the lack of focus on knowledge acquisition, structure, and discipline at least since the mid-1990s, even managing to establish a term for this state of affairs: "the fuzzy school" (*flumskolan*). In the 2006 election, a Center-Right four-party coalition came to power and Björklund became Minister of Schools, a position he held until 2014.[30] Thus, he was in a perfect position to realize his party's vision as spelled out in its program:

> The level of education is lower in Sweden than in several comparable countries. A world-class educational system is necessary in order for Sweden to become a leading knowledge nation. This requires that children, adolescents, parents, employers, trade unions, and elected politicians have a positive attitude towards knowledge and competence.[31]

It took more than two years before a government bill on education was produced and passed in parliament. Its title was telling: "More sharply defined objectives and knowledge requirements: New national school curricula."[32] It explicitly stated that:

> In order to further increase the clarity and understanding of the different types of objectives in the national curriculum, the government deems that the subject-centered curricula should first and foremost specify the knowledge requirements. The subject knowledge may pertain to both skills and

[29] Pollitt (2008, p. 16).

[30] Between 2010 and 2014 Björklund served as Minister of Education and was therefore in charge of the entire education sector.

[31] Folkpartiet (2003, p. 7).

[32] Government Bill 2008/09:87.

> factual knowledge, and [the requirements] should be expressed in a way that does not impede students' knowledge development in the respective subjects.

The Main Features of the Curriculum

It took until the fall of 2011 before the new national curriculum for elementary school was implemented. Thus, five years passed from the election of the new government until its school policy became effective.

With the 2011 national curriculum, which is still in effect at the time of writing (September 2021),[33] the state appeared to have reclaimed some of its former regulatory functions. There are now more detailed course syllabi and grading criteria for each school subject. Thus, in theory, this change should have led to greater consistency across schools. However, a close reading of the curriculum reveals it to be as influenced by the post-modern social constructivist view of knowledge as the 1994 curriculum was.

The 2011 curriculum had an almost identical formulation to the 1994 curriculum which stated that "promot[ing] learning presupposes an active discussion in the individual school about concepts of knowledge."[34] It is noteworthy that the phrase "impart knowledge" in the 1994 curriculum was changed to "promote learning" in the otherwise identical sentence in the 2011 curriculum. The term "learning" is used here strategically to reduce the concept of education to an individualistic activity, decoupled from the traditional teacher–student relationship, in what the Dutch education philosopher Gert Biesta has dubbed the "'learnification' of education."[35]

The new curriculum also stated that a "historical perspective" should be applied in *all* school subjects (p. 11). At first glance, this may sound both intellectually open minded and ambitious, but as explained in the previous chapter, this formulation is a key means by which the post-modern social constructivist view of knowledge, namely, that knowledge

[33] Minor revisions were implemented in 2015, 2016, 2017, 2018, and 2019, but these revisions were inconsequential with respect to the issues analyzed here. See Swedish National Agency for Education (2019c).

[34] Swedish National Agency for Education (2011, p. 12).

[35] Biesta (2009, p. 36).

is neither true nor untrue, can be imposed. The true goal of this formulation is that students will learn that all knowledge is contestable and that there are no ready answers since all answers/facts are allegedly an outgrowth of or tainted by the historical and/or specific circumstances in which they have come about.[36]

Furthermore, the list of prescribed duties for teachers still did not explicitly mention any responsibility to impart domain-specific knowledge (pp. 14–16). Similar to the previous curriculum, the 2011 curriculum asserted that students should exercise "increasingly greater influence over their education" and the organization of their schoolwork (p. 17). However, the 2011 curriculum went even further in that it emphasized that both parents and students have a "right to exercise influence" over goals, content, and ways of working (p. 10). In fact, the curriculum gave every student the right to veto any classroom task or homework assignment that he or she perceived as too challenging and demand that the teacher produce study materials and assessments uniquely customized to that student.[37] This change raises the question what a teacher should do if multiple families in the same class make opposing demands and whether there are, in fact, any set goals for the education system if those that are set can be continually altered and renegotiated by parents and students.[38]

A striking illustration of the transfer of power from teachers to students stipulated by the curriculum is the mandatory biannual "individual development dialogue" involving the student, the parents (called *guardians*), and the student's main teacher (normally called *mentor*). If students do not receive a written grade, which is typically the case before reaching sixth grade (eighth grade until 2012), the teacher is obliged to provide a written individual development plan. This plan provides the basis for the "development dialogue." Moreover, in recent years, a norm has become established that the "development dialogue" should be led by the student and not by the teacher. Often, this is the case even for seven-year-olds.

Another change that has effectively transferred power from teachers to students is the creation of the Child and School Student Representative,

[36] SOU 1992:94, p. 76.

[37] Helmér (2015).

[38] For their part, teachers are obligated to "take as their starting point that the pupils are able and willing to take personal responsibility for their learning and work in school. … [and] together with the pupils plan and evaluate the teaching" (Swedish National Agency for Education 2018c, pp. 13–14).

an arm of the Swedish Schools Inspectorate that was established in 2008 to ensure that schools comply with existing legislation and agency stipulations—including the demands for student and parental influence set forth in the national curriculum. This subagency has substantially lowered the threshold for parents and students to file complaints against schools and teachers. The threat of being subjected to fines and other measures has made it far more difficult for teachers to impose appropriate and effective sanctions against unruly or even violent behavior. Instead, teachers have been called upon to show deference and use dialog to establish "trusting relations" with their students.[39]

A cursory reading of the 2011 curriculum, which is just under 300 pages, gives the impression of it being a detailed description of the knowledge content of each school subject.[40] However, a close reading clarifies that the curriculum in fact stipulates that subjects should not be taught based on a conception of knowledge as objective and verifiable. Consider, for example, the following description of the primary purposes of teaching biology[41]:

> Teaching in Biology should aim at helping the pupils to develop knowledge of biological contexts, and their curiosity and interest in getting to know more about themselves and nature. Through teaching, pupils should be given the opportunity to put questions about nature and Man based on their own experiences and current events. In addition, teaching should give the pupils the opportunity to look for answers to questions by using systematic studies and different types of sources. In this way, teaching should contribute to pupils developing their critical thinking over their own results, the arguments of others and different sources of information. Through teaching, pupils should also develop an understanding that statements can be tested and evaluated by using scientific methods.
>
> Teaching should give pupils opportunities to use and develop knowledge and tools for expressing their own arguments and examining those of others in contexts where knowledge of Biology is of importance. As a result, pupils should be given the preconditions to manage practical,

[39] Swedish National Agency for Education (2018d).

[40] The analysis in the remainder of this subsection draws on Enkvist (2017).

[41] Swedish National Agency for Education (2011, p. 105). Note that the agency uses the term "pupil" in the official translation, while we use the term "student" throughout. All quotations are verbatim from the official translation made by the agency itself.

> ethical, and aesthetic situations involving health, use of natural resources and ecological sustainability.
>
> Teaching should also contribute to pupils developing familiarity with the concepts, models, and theories of Biology, as well as an understanding of how these are developed in interaction with experiences from studies of nature and people. In addition, teaching should contribute to pupils developing the ability to discuss, interpret and produce texts and various forms of aesthetic expressions with scientific content.
>
> Teaching should create the conditions for pupils to be able to differentiate between scientific and other ways of depicting the world. Through teaching, pupils should get an insight into the worldview of science with the theory of evolution as a foundation and get perspectives on how this has developed and what cultural impact it has had.

This general and highly abstract description does not dwell on the specific biological knowledge students are expected to learn. Instead, the description emphasizes that students should ask questions and seek answers based on their own subjective experiences, learn to express their thoughts verbally, and develop a critical mindset.[42] When the text, almost *en passant*, mentions "familiarity with the concepts, models, and theories of Biology" in the third paragraph, exactly what students should know and how the level of their understanding should be gauged are not clearly defined.

The reason for this vagueness may be found in the official commentary on the biology course syllabus. The commentary explains that "concepts, models and theories are the result of people's observations and thoughts," and "because theories have been developed in social and cultural contexts, they are changeable," making biology an "open and creative enterprise."[43] Thus, according to school authorities, there exists no objective knowledge of biology that can be acquired and subjected to examination and grading. Analogous and thus highly similar conceptualizations are presented for physics and chemistry.

[42] The school system's idea of what constitutes critical thinking is demonstrated in a guide for grading the standardized test on religion in grade 9 issued by the Swedish National Agency for Education (2012b, pp. 29–30). In the guide, it is stated that a student who bases an answer on one single fact-checked source deserves a lower grade than a student who utilizes two subjective sources with differing views on the same topic, thus making them "fair" or neutral when combined in the student's answer.

[43] Swedish National Agency for Education (2017b, p. 8).

Moreover, and in line with postmodernism's emphasis on blurring boundaries, elements from other subjects are incorporated into biology. For example, the goal that students should learn to "manage practical, ethical and aesthetic situations involving health, the use of natural resources and ecological sustainability" seems to belong more in the social sciences than to biology. The goal that students should develop their ability to "produce texts and various forms of aesthetic expressions" appear to be more relevant to the study of their native language and the arts. Other examples of the mixing of disciplines can be found in the subject's "core content,"[44] which, for instance, prescribes verbal discussions on "current societal issues involving Biology." The "core content" is supposed to represent the compulsory content of each school subject. However, as the official commentary to the biology course syllabus makes clear, teachers can combine and give different importance to various elements in whatever way they want to.[45] Hence, the "central content" does not constitute a common core of knowledge.

Furthermore, the statement that students should "be able to differentiate between scientific and other ways of depicting the world" and gain "insight into the worldview of science with the theory of evolution as a foundation" implies that the facts of biology can be described as a "worldview" competing with other equally valid theories. An interview study with teachers does indeed confirm that the theory of evolution is presented in some schools as a worldview on an equal footing with the myth of creation rather than as a scientifically proven fact.[46]

The 2011 curriculum presents all school subjects in this ambiguous way. Critical thinking, verbal expression, and discussion are integrated into every course syllabus, usually in combination with social science perspectives. For example, the art curriculum includes the analysis of pictures dealing "with questions of identity, sexuality, ethnicity and power relations."[47] Physical education and health (formerly called sports) includes "talking about experiences and outcomes from different physical activities and forms of training" as well as discussions about "how

[44] Swedish National Agency for Education (2011, pp. 106–109).

[45] Swedish National Agency for Education (2017b, p. 10).

[46] Sjögren (2011).

[47] Swedish National Agency for Education (2011, p. 24).

the individual's choice of sports and other physical activities are influenced by different factors, such as gender."[48] Even the teaching of the students' native language is predominantly focused on verbal communication, and civics is almost exclusively restricted to "reflection," "analysis," and "expressing standpoints." This is congruent with the pattern in postmodernism of encouraging students to "deconstruct" what are perceived as dominant discourses and false truth claims.

With the launching of the above-mentioned Swedish Schools Inspectorate, it has become increasingly difficult to deviate from these prescriptions. During inspections, the agency "ticks off" whether the teachers and the principals have done what the curriculum prescribes. If teachers and principals are deemed not to have complied, the agency will punish schools, e.g., with threats of closure, and demand that they rectify the identified aberrations.

Grading in the 2011 National Curriculum

That the knowledge content of each subject is deemphasized becomes even more evident when studying the grading criteria, which are "based on the view of knowledge expressed in the curriculum."[49] The grading criteria are entirely subjective and open to interpretation. Consider, for example, these criteria for a passing grade (E) in physical education in ninth grade (bold in original)[50]:

> Pupils can participate in games and sports involving complex movements in different settings and vary and adapt their movements **to some extent** to activities and context. In dance, and movement and training programs to music, pupils adapt **to some extent** their movements to beat, rhythm and context.

"To some extent" is replaced with "relatively well" in the criteria for grade C and with "well" in the criteria for an A (see Appendix A). However, the criteria do not state how, and with what legitimacy, teachers should determine whether a student adapts his or her movements "to some extent," "relatively well" or "well."

[48] Swedish National Agency for Education (2011, p. 52).

[49] Swedish National Agency for Education (2017b, p. 29).

[50] Swedish National Agency for Education (2011, p. 54).

This arbitrariness is not exclusive to physical education; it is typical of the grading criteria in all subjects. For instance, the "knowledge requirements" for an E in biology at the end of ninth grade include the following (p. 112; bold in original):

> Pupils can talk about and discuss issues related to health, natural resource use and ecological sustainability, and differentiate facts from values, and formulate their views with **simple** reasoning and describe some of the possible consequences. In discussions, pupils can put questions, and put forward and respond to views and arguments in a way, which **to some extent takes the discussions forward**. Pupils can search for information on the natural sciences and use different sources and apply **simple and to some extent** informed reasoning to the credibility and relevance of their sources and information. Pupils can use information in a **basically** functional way in discussions and create **simple** texts and other communications with **some** adaptation to purpose and target group.

The knowledge requirements for an A in biology use the same vocabulary but with different adjectives, such as "well developed" and "good." Again, and in line with the postmodern social constructivist view of knowledge, it is not clear on what grounds teachers should determine students' grades.

According to the Swedish National Agency for Education (2017b, p. 30), this ambiguity is intentional to ensure that the grading criteria are "manageable" and not unnecessarily strict. However, it is not only the fact that the criteria are subjective that reveal their social constructivist foundation but also that they sometimes demand too much of students, blurring the hierarchy between elementary education and university. Consider the following subcriterion for an A in the students' mother language (bold in original)[51]: "Pupils can apply **well developed and well** informed reasoning about the history of the Swedish language, its origins, and special characteristics, and compare these with closely related languages and clearly describe important similarities and differences." The same subcriterion is included even for the lowest passing grade, E, except that

[51] Swedish National Agency for Education (2011, p. 11).

"**well developed and well** informed" is replaced with "**simple and to some extent**."[52]

Another illustrative example is the requirements for a C in civics at the end of the sixth year of elementary school (p. 196; bold in original):

> Pupils have **good** knowledge of different societal structures. Pupils show this by exploring how social, media, legal, economic and political structures in society are organised and function and describe **relatively complex** relationships in different societal structures.

In a recent study, 33 university professors from a variety of fields, including mathematics and sports, were asked to rank knowledge requirements from different levels in the Swedish educational system spanning from sixth grade (elementary school) to the Ph.D. level. The study found no sign of progression in the requirements, and the professors were unable to identify the level to which the different requirements applied. In some cases, the correlation was even negative; that is, the requirements for the lower levels were deemed to apply to a higher level and vice versa.[53]

Finally, it should be noted that all subjects, including physical education and crafts,[54] i.e., the production of objects and processing of materials with the help of tools, are intellectualized in the new curriculum. For instance, to obtain a C in crafts at the end of year 6, students must be able to (p. 206) "make **developed** assessments of their own work and how it has affected the quality of their production" and "interpret what a craft artefact expresses and apply **developed** reasoning about symbols, color, form and material (for an E and an A, "developed" is replaced by "simple" and "well developed," respectively)." To obtain an A in physical education at the end of year 6, students must be able to (p. 54) "talk about their own experiences of physical activities and apply **well developed and well** informed discussion on how the activities can affect health and physical capacity."

[52] See Appendix A for a complete version of the knowledge requirements in Swedish for grade A at the end of year 9.

[53] Sellbjer (2018).

[54] The knowledge requirements for grade A at the end of year 9 in crafts and physical education are presented in Appendix A.

Calibration of Grades and National Tests

Combined with the fact that the grading system implemented in the early 1990s gives teachers full autonomy to assign grades, these ambiguous criteria invite uncertainty about what individual students know. This problem could theoretically be mitigated by the reintroduction of some form of standardized test. *Voluntary* "national tests" were, in fact, introduced as early as 1997 in Swedish, English, and mathematics in the final year of elementary school and later extended to the third and sixth years of elementary school and the final year of secondary school. Since 2010, national tests have also been administered in the ninth year of the elementary school in the sciences (biology, physics, and chemistry) and social sciences (geography, history, religion, and civics). In 2013, the tests even became mandatory.

However, these tests are marked by a number of weaknesses. First, the tests are typically not taken at exactly the same time in all schools, and as a result, their content is often leaked on the internet, potentially benefitting students at schools administering the test later in the prescribed time window. Second, the tests are sent by regular mail to schools several days in advance and are thus available to the teachers beforehand, which makes it possible to prepare the students by teaching them similar content before the test. Third, and perhaps even more surprisingly, the tests are neither anonymized nor graded by a teacher at another school; they are, in fact, typically graded by the students' own teachers. Fourth, the science and social science tests are given in only one of the subjects, and the Swedish National Agency for Education announces well in advance which two subjects will be tested, thus incentivizing schools to focus on those two subjects to the detriment of the other five. Finally, the tests contain complex essay questions where it is clear neither what the correct answer is nor how detailed a correct answer should be. It is also unclear whether the task is meant to examine the student's level of knowledge or his or her argumentative skills. Here is an example. In the national test in chemistry in year 6, the students were given the following task:

> At school you have discussed why waste should be sorted. The sports club Allsport throws all waste in the same bag. You do not think that is good, and you therefore decide to write a letter to the club. The letter should

> say that the club must improve and why it must improve. In the letter you should use the information in the text below and the film you are about to see. You are allowed to see the film twice. … Make an argument about why it is important to sort waste by giving arguments in favor of sorting.

The standardized tests in elementary and secondary schools were not centrally collected until 2003 and 2011, respectively, which meant that, before that, there was no external quality control and it was impossible to review past material to verify potential abuse by schools in their grading practices.[55] Until 2018, the results of the national tests were merely one of many indicators to help teachers arrive at the correct final grade in the tested subjects. Effective from 2019, national test results became somewhat more binding: "If a student has participated in a national test, the result should be reckoned with in the determination of the final grade. The test result should not be entirely decisive, but one cannot ignore the result, unless there are specific reasons for doing so. … If the teacher, as a result of the overall grading evaluation, has specific reasons to strongly question the reliability of a student's result on a national test, then the teacher shall not take that result into account."[56] However, aside from the vagueness of that description, there are no forceful sanctions that can be leveled against teachers and schools who award grades that systematically diverge from the results on national tests.

The reluctance of the Swedish National Agency for Education to construct externally valid tests impervious to cheating and ensuring similar grading practices across schools may seem puzzling. However, this is quite understandable given the prescribed postmodern social constructivist view of knowledge and the student-centered learning methods it entails. If knowledge is seen as something subjective that is constructed in a process largely led by the student, this is incompatible with the idea that a student's level of knowledge attainment can be measured externally. Such measurement is possible only if knowledge is considered to be objective and independent of the individual student and if the testing agency clearly defines the body of knowledge to which the test is applied, but this is at odds with the prescribed view of knowledge in the Swedish school system.

[55] SOU 2016:25, p. 125.

[56] Swedish National Agency for Education (2018e, pp. 37–38).

Instead, the learning process takes center stage, and as a consequence, the grade awarded is not supposed to act as a measure of the level of knowledge attained at the end of a course or by graduation. The main task of the teacher is, therefore, to follow the students' learning process closely, use a number of indicators to gauge the efficiency of the learning process, and in this way, arrive at a grade. In practice, this is done by evaluating numerous aspects of the student's performance in a subject based on so-called knowledge matrices.

Two examples of such matrices are displayed in Appendix B: Swedish and chemistry in grade 9, the final year of primary school. The subject syllabi are broken down into 15 and 14 different components, respectively, and the requirements for each grade (E–A) are spelled out.

In the end, these multidimensional criteria have to be summarized in a single dimension, which requires that the 14 or 15 criteria be weighed together. Reaching a consensus on how this should be done has turned out to be virtually impossible. First, as explained above, the criteria are vague and open to interpretation (which is necessary if they are to be consistent with the prescribed view of knowledge). For instance, what is the difference between "developed and relatively well informed" and "well developed and well informed," which determines the difference between an A and a C for several criteria? Second, a student may be assessed with respect to certain aspects well before the end of the course rather than being evaluated on all aspects at the end of the course. Good mastery of the subject may then not be reflected in the final grade since it can be weighed down by inferior performance on a particular aspect earlier in the course. Moreover, the guiding principles issued by the Swedish National Agency for Education stipulate that a weak assessment of one or two particular aspects early on has a heavy weight on the final grade regardless of the overall level attained by the end of the course. Third, the grades given during the seventh and eighth year are not related to a level calibrated to those years. Instead, it reflects how far the student has progressed relative to the requirements at the end of the final year (grade 9).

Thus, in line with a postmodern social constructivist view of knowledge, subjects are fragmentized, and holistic skills such as reading and writing proficiency are each split into four or more different components. Instead of a final grade consisting of a summative overall appraisal

of a student's learning at the end of the instructional unit based on the teacher's professional expertise, the assessment is broken down into small parts. In addition to this grading system being onerous and time-consuming for teachers, it is unrealistic to expect students to understand and operationalize the various subrequirements.

Grading in Sweden is said to be based on an absolutely objective grading system, but the subject syllabi are devoid of detail on the content of assessments, grading criteria are complicated, and grades do not necessarily reflect the level attained at the end of the instruction period. Nevertheless, and although the prescribed view of knowledge is inconsistent with the idea that somebody in a superior position—the state, the school, the principal, or the teacher—defines the body of knowledge against which a student's performance will be gauged, teachers are still obliged to set grades. Oddly enough, students' grade point average from elementary and secondary school is the prime factor for admission to higher education. As we will see, this has been an unfortunate combination.

In Sum

We have shown in this chapter how the Swedish school system went from being very strictly regulated to being the polar opposite. In just a few years, one of the most centralized school systems in the world was transformed into an extremely decentralized system almost completely devoid of central directives regarding course content, teaching methods, competence requirements for school principals and teachers, and rules regarding staffing. In addition, the schooling system was marketized, which resulted in a massive transfer of power to students and their parents.

However, one crucial institution in the system remains determined by the central government and its agencies, namely, the view of knowledge. The adoption of the prescribed postmodern social constructivist view of knowledge meant a change in course from a classical view of knowledge, in which the aim is to impart knowledge deemed to be essential for all citizens, to a view in which the process of schooling per se is considered more important than the result. This view emerged in earlier decades, but it did not gain real momentum before the time period covered in this and the previous chapter. It led, not least, to the introduction and perpetuation of a grading system with unclear criteria, no binding national tests, and thus no chance of comparability across schools.

For an analysis of the implications of these changes and how they gave rise to the problems of falling knowledge levels, inflated grades, and increasing differences between student groups, as well as frustration and distress among teachers and students, we now turn to the next chapter.

CHAPTER 8

A Perfect Storm

For a long time, the Swedish school system, which historically laid the foundation for Sweden's rapid economic transformation from poverty to prosperity, was one of the best and most equitable educational systems in the world. It was arguably at its most successful during the century-long period beginning in approximately 1860, but even as recently as the mid- to late 1990s, most Swedish students did well in international comparisons. However, at the end of that period, problems with the quality of Swedish schooling were becoming increasingly apparent. Since then, these problems have grown into a veritable crisis of education.

That crisis has been the main topic of this book. In the early chapters, we reviewed, among other problems, the erosion of students' knowledge across the ability distribution, the increasing practice of grade inflation, and the psychosocial and professional malaise afflicting students and teachers. In later chapters, we examined the institutional evolution of the Swedish school system from the 1960s to the 1990s. We showed how a classical view of knowledge and teaching was replaced by a postmodern social constructivist view in both national curricula and individual subject syllabi. This new view does not recognize the existence of objectively established and interpersonally transferable facts.

This major change in the stipulated view of knowledge—arguably, as we suggested in Chapter 5, the single most important institution for the functioning and development of any school system—coincided and interacted with a phase of organizational fragmentation. In as little as five

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years, 1990–1994, the Swedish school system went from being highly centralized and regulated to becoming radically decentralized and market driven. Most importantly, for-profit schools were allowed to compete against public schools for students' educational vouchers.

In this chapter, in which we allow ourselves to be more normative and reflective, we assemble the pieces and discuss how the combination of a postmodern social constructivist view of knowledge and marketized education created a perfect storm that set the present crisis in the Swedish school system in motion and continues to propel it. We do this in three parts. First, we discuss academic performance and grade inflation. Then, we look at the health and attitudes of the students. Finally, we discuss the unattractiveness of the teaching profession.

The next chapter will spell out the larger implications of the book and point to what we believe are the most important lessons from our analysis not only for Sweden but also for Western elementary and secondary education in general.

The Decline in Knowledge and Rise in Grades

To explain the incongruous evolution of results in both national and international assessments of students' knowledge and Swedish grades, we begin by returning to our main argument that the view of what constitutes knowledge and how it should be obtained has gradually shifted in the school system. As documented most fully in Chapter 6, the classical view of knowledge as a set of systematically accumulated and verifiable facts that can be taught to and learned by any person—as well as different types of skills that are grounded in factual knowledge and human experience—was increasingly called into question during the second half of the twentieth century.[1] Eventually, it was supplanted by a postmodern social constructivist view of knowledge and pedagogy.

After the teachers' resistance was broken down—a gradual process that was largely completed in the early to mid-1990s—this reorientation of focus from imparting knowledge in the classical sense to student-centered learning and deconstructive classroom discussions would in itself have

[1] The term "facts" is here used as shorthand for the broad communal knowledge that individuals, according to the classical view of knowledge, must acquire in order to fully take part in and help renew the society that they have been born into. See our discussion in Chapter 5.

been enough to impair the students' knowledge acquisition and weaken their results on national and international tests. As demonstrated in Chapter 5, the pedagogy emanating from the postmodern social constructivist view of knowledge goes against empirically proven prerequisites for efficient learning. Further support for this assertion is provided by experiences in other comparable countries and societies. Several of them have recently abandoned their classical curricula for a postmodern social constructivist educational philosophy, which has resulted in sizeable drops in academic performance. (We will return to this issue in the final chapter.)

However, it is unlikely that the decline would have been as severe, or that students' grades would have begun to rise almost simultaneously, if it had not been for the influence of other factors as well—particularly the decentralization and marketization of the Swedish school system, described at length in Chapter 7.

Productive firms and other successful organizations are highly dependent on structural capital in the form of embedded processes, procedures, and methodologies, and the building of such capital is an arduous, incremental process.[2] By comparison, in 1990, 290 Swedish municipalities, the smallest of which comprised no more than three thousand inhabitants, were expected to create their own governance structures and rules for education management. They were expected to achieve this complex task in less than one year and do so without any hands-on support or guidance from the central government and its agencies. This was not only unrealistic but also unwise, creating a fractured and debilitated institutional environment for schools. Crucially, there was no longer a national regulatory agency tasked with supervising schools. The task of the newly formed Swedish National Agency for Education—staffed by civil servants sympathetic to postmodern ideas—was, instead, merely to document and disseminate "good examples."

In effect, this amounted to a policy of self-regulation for schools. Around the same time, in 1992–1993, the so-called free school reform converted elementary and secondary education into a contestable quasi-market. Students and parents were given vouchers amounting to 100 percent of the average cost per student in public schools to use in any

[2] For further information, see Nelson and Winter (1982) and Teece (2007).

school of their choice,[3] while the production side was opened to virtually any nonprofit or for-profit organization that wanted to run an independent school. The political vision was that a plethora of passionate school actors would crop up. However, in reality, large for-profit firms quickly came to dominate education provision in Sweden.

The almost complete lack of nongovernment, nonprofit providers of welfare services, including education, in Sweden may seem surprising to an outside observer. One likely reason for this state of affairs is that notions of selfless service and reciprocity between citizens have been phased out jointly by the Left and Right.[4] To put it somewhat simply, the particular variant of left-wing ideas about liberating ordinary people from various perceived social and economic "oppressors" that came to predominate in Sweden was that of the Social Democrats, for whom the means of liberation was statist individualism.[5] Reciprocal obligations within the family, between friends, and within communities were systematically weakened and replaced by a reciprocal contract between the individual and the public sector that provided the individual with income security and social services.[6] The Right did not object to this policy. To avoid upsetting the Left's acceptance of individualism, the Right refrained from arguing for the complementary components necessary to sustain individual freedom, such as a sense of duty and civic mindedness.[7] This has resulted in a lack of cultural and institutional contexts in which alternatives to state and for-profit organizations can emerge and thrive. This differs markedly from, for instance, Wisconsin, where small-scale religious schools have come to dominate the voucher program, as noted in the previous chapter.

A chief motivation behind the free school reform was, in any case, to improve educational quality through competition and consumer choice.

[3] Until 1996 the voucher amounted to 85 percent of the average cost per student in public schools.

[4] For further discussion of Left–Right convergence in Sweden, see Wennström (2019).

[5] Berggren and Trägårdh (2006, 2011).

[6] This is also described at some length in Lindbeck (1988). Lindbeck (1997) makes the following observation: "Whereas production firms were socialized in socialist countries, the Swedish welfare state has instead, to a broad extent, socialized the provision of personal services to individuals and families."

[7] For a discussion of the Right's abandonment of conservative principles, see Hylén (1991).

However, it is uncertain whether it is possible to transplant mechanisms that in most cases work well in ordinary markets to raise the quality of publicly funded welfare services—thereby creating a quasi-market—and obtain the desired result. For instance, the scope for the misuse of resources and even abuse increases when an anonymous third party, i.e., the taxpayer, finances all transactions between producers and consumers.[8]

Moreover, and more importantly, welfare services such as education are credence (or trust) goods whose value consumers are not able to fully assess on their own. Therefore, these goods are particularly susceptible to manipulation by producers.[9] This suggests that in regard to privatization and competition in welfare production, it is vital to have regulatory frameworks and incentives that promote moral behavior among producers.[10] In the case of the marketized provision of education, there must be institutions in place that favor those schools that wish to compete in educational quality and not in other dimensions. As Frederick M. Hess, an education scholar at the American Enterprise Institute, points out, "[t]he notion that charter school laws or voucher programs will inevitably spur the creation of good schools and programs is misleading. After all, we know that vacuums are not naturally or automatically filled by effective or virtuous actors."[11]

A vacuum was indeed created in Sweden when the old governance structure was dismantled and replaced by the decentralized management of schools. The last vestiges of central regulatory control over education disappeared in 1994, when a new, slimmed down curriculum and a wholly teacher-assessed grading system, both heavily influenced by the postmodern social constructivist view of knowledge, were implemented. With these changes, there were suddenly no national standards for what students needed to know and be able to do in core subject areas and no way of ensuring fair and equitable grading across schools.

The stage was now set for schools to begin offering inflated grades, ultimately motivated by the fact that revenue for both public and independent schools was, and still is, directly related to the size of their student bodies. (The alternative in regular markets, of charging a higher

[8] See further Le Grand (2007).

[9] Dulleck and Kerschbamer (2006).

[10] Hodgson (2013) and Nooteboom (2014).

[11] Hess (2008, p. 212).

fee for a superior service, is not possible in the quasi-market model.) The evidence suggests that this is exactly what happened and that independent schools took the lead early on.[12] One study of how competition among Swedish secondary schools functioned in 1997, a mere three years after the 1994 grading and curriculum reforms, found that "independent schools seriously engage in grade inflation" and that "students in independent schools appear to fare much better under decentralized grade setting than in the public schools."[13]

Contrary to the predictions of school voucher proponents, consumer choice was no guarantee for improved quality. The use of grade inflation by independent schools during the infancy of the school market, made possible (and even rational) by the lax institutional framework, was clearly appealing to more than just a few consumers of education. Initially, it may have been the case that some parents and students could not afford to complain about inflated grades, while others who were less scrupulous took advantage of the situation. Over time, however, a preference for good grades in return for little effort likely emerged on a wider scale. Changing social norms concerning the value of educational achievement might have contributed to such a development. In fact, appreciation of hard work and academic tenacity tends to decrease in wealthy and highly modernized welfare societies.[14] Increasingly, academic credentials are not even expected to reflect the possession of knowledge per se but are rather seen as information about the individual's productivity.[15] The market setting itself may also have created a "moral disengagement" and reduced the salience of fairness in the minds of parents and students, as suggested by experiments conducted in economics that demonstrate the "corrosive effect of markets" on ethical reasoning.[16] In any case, public schools, as well as independent schools with high academic standards, were forced to gradually adapt to remain competitive.

[12] This still appears to be true today. According to Vlachos (2019) all categories of independent schools, particularly schools belonging to two of the largest corporate groups, have higher teacher-set grades than public schools at the elementary level, and this advantage for students can be accounted for by considering their more lenient grading practices.

[13] Wikström and Wikström (2005, p. 317).

[14] For further information, see Heller Sahlgren (2015b), Lindbeck and Nyberg (2006).

[15] Caplan (2018).

[16] Bowles (2016, p. 112).

Through this market process, education in Sweden came to be increasingly concerned with generous grading while progressively pushing the traditional goal of imparting knowledge and skills into the background. It is somewhat ironic that postmodernism's professed educational goal of training students to unmask and destabilize power has not been prioritized in the school system it helped to create. In contrast, it seems that perhaps the chief contribution of the postmodern social constructivist view of knowledge to the Swedish school system has been to facilitate the emergence and gradual entrenchment of a crass form of capitalism.

As these problems became increasingly apparent toward the end of the 2000s, the central government and its agencies responded by taking a series of measures. However, the remedial measures turned out to be largely inefficient because they did not eliminate the fundamental cause of the identified problems, namely, the postmodern social constructivist view of knowledge. Rather, they built on this view of knowledge. The switch in 2011 to a new national curriculum, which included more detailed course syllabi and grading criteria for each school subject, should, for instance, have ensured a greater degree of consistency in education across schools and reduced the undesired effects of school competition. However, it did not, because the new curriculum was, as we demonstrated in the previous chapter, just as influenced by the postmodern social constructivist view of knowledge as the previous curriculum.

Moreover, following the ill-advised introduction of a flawed system of national certification for teachers in 2013 (the details of which will be discussed below in the section on the teaching profession), the government decided that only certified teachers would be allowed to set grades. This change stemmed from the fact that neither public nor independent schools were obligated to hire teachers who had been formally trained as elementary or secondary school teachers, and it was an attempt to bring more rigor to the grading process. However, teachers who were certified in one subject were given permission to set grades in every other subject as well if the person responsible for teaching that subject was not certified. The official motivation for this rule was that "grade setting is considered to be a global competence held by all certified teachers," who, therefore, were not even required to "participate in the subject-specific teaching or independently gather information for grade assessment."[17] This system

[17] Swedish National Agency for Education (2020).

bore all the hallmarks of the postmodern social constructivist view of knowledge and, consequently, did not bring more rigor to grading.[18]

In contrast, it may have provided new opportunities for conflicts over grades, as parents and students can sometimes bring their complaints about low grades to other teachers. It also provided a new opportunity for fraudulent behavior by schools. In certain circumstances under the new certification system, the school principal may set grades—which is potentially hazardous because the professions of teachers and principals have become increasingly separated, and today's principals "have become middle managers responsible for their school's survival in the school market."[19]

The Students (and Boys)

In Chapter 4, we noted several signs of something being not quite right with how Swedish students are developing and coping at school. First, there are large gender disparities in academic achievement; regardless of the comparison lens, boys underperform relative to girls. Widespread antidemocratic attitudes among students and an inability to distinguish between credible news sources on the one hand and propaganda and advertisement on the other suggest impaired moral reasoning and weak critical thinking skills among a significant proportion of students. Moreover, there are increasingly clear signs of a general social disorder in many schools that negatively impacts students' sense of safety and well-being as well as their chances of learning. The incidence of mental health problems among students has also risen. As with the problem of grade inflation, the evidence points to a combination of the market forces and the postmodern social constructivist view of knowledge that has evolved in the Swedish school system as the source of this issue.

As we have documented, the fall in both PISA and TIMSS has been greater among boys than girls. In addition, girls, on average, receive higher grades in every subject than boys do. Interestingly, their parents'

[18] The notion of a "global competence" in grade setting is congruent with the postmodern social constructivist view that there is no established body of knowledge in which a teacher can become an expert and that clear boundaries between disciplines lack legitimacy. This idea is also in line with the view of skills, e.g., critical thinking, as generic and not domain specific.

[19] Jarl, Fredriksson, and Persson (2012, p. 434).

level of education does not seem to matter—even among children of parents with the highest level of education, girls academically outperform boys. The only possible explanation for these facts is that boys are somehow disadvantaged relative to girls in the Swedish school system. In our view, the disadvantage in question is that postmodern social constructivist pedagogy is generally less harmful to girls than to boys.

The extensive available knowledge of male–female genetic differences suggests that males and females, on average, can accomplish most intellectual tasks equally well despite varying choices and uses of cognitive tools. The evidence also shows that females possess, among other abilities, superior verbal skills and tend to rely on them in solving intellectual problems. In contrast, males have been shown to have advantages in visuospatial abilities and the extremes of mathematical ability.[20] Against this background, it is not difficult to imagine what will happen to boys who are placed in a postmodern social constructivist school system such as Sweden's, in which the emphasis—even in rigorous and hard subjects such as physics and mathematics—is strongly focused on verbal discussion and word problems rather than learning specific solutions by practice and repetition. In such a context, boys will fall behind and learn less than girls. Consequently, boys will, as they do in Sweden, also perform relatively worse in reading comprehension. As discussed in Chapter 5, reading comprehension is a domain-specific skill.

Additionally, girls have an advantage in obtaining good grades within Sweden's postmodern social constructivist school system. Because females are generally better at social cognition or empathy than males,[21] girls will be better at "gaming" the vague grading criteria than boys are, i.e., determining what teachers read into the criteria and meeting that subjective standard (rather than improving their understanding of the subject). It is also possible that girls are more skilled than boys at negotiating a higher grade because of their social advantages—which Swedish students, as we have shown, are empowered to do due to both the grading instructions and the market setting of the school system. The empirically documented grading bias against boys in the Swedish school system—which would not have emerged with clearly defined grading criteria, and which was not

[20] See, e.g., Halpern et al. (2007) and Scheiber et al. (2015). Murray (2020, Chs. 1–5) is a recent extensive effort to synthesize the evidence on male–female differences in a wide spectrum of personality traits as well as physical abilities.

[21] See, e.g., Kret and De Gelder (2012) and Gur et al. (2012).

present in the previous grading system—might also be associated with this difference in social ability.

The fact that a significant portion of younger Swedes currently or recently involved in the school system are opposed or indifferent to democracy, willing to sell their vote, and support political candidates who promise them paid jobs represents the very opposite of what Swedish policymakers hoped to achieve with their education reforms after World War II. However, it is a predictable outcome of the postmodern social constructivist school system that these policymakers laid the foundations for by discouraging an education that imparts communal knowledge, including such knowledge and ethical concepts that have been deemed essential in the national context. In the old elementary school system, the *folkskola*, the development of the rule of law and the history of democratic advancement in Sweden were vividly and even movingly conveyed to students.[22] However, increasingly, students in the new school system are expected to discover their own knowledge and even their own values.[23] When the school system was eventually marketized, there remained few incentives for students to consider the common good and communal priorities. In fact, through the escalation of grade inflation, they were essentially taught not to transcend their narrow self-interest or to consider the interests of others. It is thus only logical that Swedish students as a whole do not exhibit a greater appreciation for democratic norms and practices.

Similarly, it is not at all surprising that many students develop only weak critical thinking skills and are unable to separate unbiased information from commercial and politicized messages. Skills, to return again to the discussion in Chapter 5, are generally domain specific and not universal. Critical thinking is not an exception—meaning that to exercise critical thinking in various subjects, a person needs to be well read and broadly knowledgeable. However, due to its postmodern and market-oriented principles, the Swedish school system effectively eliminates this prerequisite for critical thinking and, indeed, many other vital skills by

[22] See, e.g., Rosén and Jonsson (1954).

[23] We can add to what we have already written in Chapters 6 and 7 the following from a 1975 government bill on priorities in Swedish elementary education: "The goal … can be said to be that the individual successively reaches his or her own conclusions about what values and norms he or she eventually wishes to uphold and live by" (Government Bill, 1975/76:39, p. 68).

not focusing on imparting knowledge in the classical sense. Thus, if schools would return to teaching students the basics of every subject, then students' ability to think critically would also be enhanced.

Another important goal of the postwar education reforms in Sweden was to improve students' well-being at school and develop their social skills. However, as we have shown, the Swedish school system has become blighted by violence and rule-breaking behavior, making classrooms increasingly disorderly and unsafe. This, too, is an expected consequence of the amalgamation of postmodernism and neoliberalism; due to the institutionalized claim that teachers' authority is just an arbitrary expression of power in combination with marketized demands for parental and student influence, it has become almost impossible for schools to suspend students or impose any other sanction. This has already been mentioned in Chapter 7, but we add here that the Child and School Student Representative (an arm of the Swedish Schools Inspectorate) has in some cases even ordered financial compensation for unruly or threatening students who have been temporarily expelled from their school. Students who lack empathy and concern for others will thus feel that they have been given free rein by their schools to do almost anything.

For a large group of students, however, the source of their delinquent habits (truancy, milder forms of classroom disturbances, late arrivals, etc.) may be frustration with the schoolwork itself. Even if students accept inflated grades, the relegation of education to a mere competition for high grades blocks genuine creativity and intellectual effort, which are the very qualities of education that make students concentrate and apply themselves. We have also previously pointed out (in Chapter 5) that a postmodern social constructivist pedagogy—in which students are left to discover and piece together information on their own—risks overloading students' working memory. As a result, a previously quoted study explains, "focus is lost, the mind wanders, and the task is abandoned."[24] This may constitute an additional factor behind the increase in delinquency—particularly as students in core subjects such as mathematics are made to work an increasing number of hours but without a change from the teaching methods that generated the frustration in the first place.[25] As

[24] Dehn (2014, p. 497).

[25] In order to improve students' poor mathematics achievement, more than 300 additional hours of mathematics have been prescribed in elementary school. However, according to all measures of student performance in mathematics, the added hours have

noted in the 1955 national curriculum for the *folkskola*,[26] enacted when care was taken to adapt teaching methods to human nature, "[n]othing can be more designed to produce hopelessness and weariness with one's schoolwork than a daily reminder of one's own ineptitude"—but that is exactly what many students are experiencing.

While some students' response to this environment is delinquent behaviors, others may develop psychological problems. As we showed in Chapter 4, diagnoses of depression and anxiety among children and teenagers have soared, as have the prescriptions for ADHD drugs. Levels of stress have also risen significantly among students, particularly among girls. A postmodern social constructivist pedagogy is not the only factor at play here,[27] but it is certainly an important one. Hyperactivity, anxiety, and feelings of low self-esteem (as well as physical aggression) increased among Québecois students relative to students in the rest of Canada following a postmodern social constructivist reform in Québec in the early 2000s that was similar to the Swedish pedagogical reforms.[28] We may, therefore, assume a similar causal, contributory role of the postmodern social constructivist view of knowledge in the mental health crisis among students in Sweden.

The Teachers: The Vicious Circle

As we have seen in previous chapters, explicit teacher instruction plays a central role in student learning. Since the teacher is so important, one would expect that the profession would more or less automatically be held in high social regard. However, as we discussed in Chapter 4, this is not

had no effect whatsoever. In fact, the mathematics results have even declined since this reform was instituted (Lindstrand, 2021), suggesting that the problem is the way mathematics is taught rather than the amount of time dedicated to teaching it.

[26] Swedish National Board of Education (1955, p. 11).

[27] As suggested by Lukianoff and Haidt (2018) in the U.S. context, the spread of social media and smartphones into the lives of teenagers may have contributed to the rapid rise in rates of anxiety and depression among American adolescents, particularly girls, during the 2010s. While we can only speculate about this, it does not seem implausible that a combination of postmodern social constructivist pedagogy overloading students' working memory during school hours and the heavy presence of social media and smartphones in the students' free time may, in the Swedish context, help explain the rise in mood disorders.

[28] Haeck, Lefebvre, and Merrigan (2014).

the case in Sweden, where the status of teachers has been declining for a long time and education degree programs have great difficulty attracting and retaining motivated and academically gifted students.

Various superficial reasons are often given for this state of affairs. Arguably the most common is the bureaucratization and proletarianization of the teaching profession that occurred after the introduction of the market-oriented NPM model of control and accountability into the Swedish school system in the early 1990s. However, that introduction did not happen on its own; NPM, in fact, became necessary when teachers abandoned their old public-service ethos for a material and self-interested conception of work—and that, in turn, would not have happened if teaching in the classical sense and the traditional values of teachers had not been aggressively and openly undermined for decades by governments on both the left and right.[29] Thus, the emergence of NPM in schools is just one of many examples demonstrating that the real reasons for the unattractiveness of the teaching profession have to do with the postmodern social constructivist view of knowledge. The previous section suggests that violence in schools directed at teachers may also be counted among these examples.

Let us again briefly look at what the postmodern social constructivist view of knowledge entails and how it plays out in the Swedish school system. Most importantly, this view contends that there is no such thing as objective and empirically verifiable knowledge specific to various fields and accessible through systematic study directed by competent teachers. Claims to the contrary are seen as inherently biased and ideological. Hence, the classical model of teacher-directed learning is considered to be, at best, ineffective and, at worst, oppressive. Pedagogical practice based on the postmodern social constructivist view of knowledge instead transfers the responsibility for learning to the students themselves, while the teacher is, for the most part, relegated to a mentoring and advisory role.

These principles loom large in the Swedish national curriculum, in which the content of each subject is only vaguely formulated, and it is explicitly stated that education should be organized to enable as much

[29] As observed by Lopes (2018, p. 117), "the perception that authority is illegitimate, or that the employer is disloyal, may damage the perceived meaningfulness of work." For a further discussion of how teachers become demoralized by value conflicts with pedagogical policies, see Santoro (2018).

adjustment as possible to the students' (and, by extension, their parents') subjective wishes and choices. All this undercuts the teacher's basis for making demands and having expectations regarding student effort. Any remaining status for teachers as an authority figure is lost when students in many subjects are encouraged to collaboratively deconstruct and criticize "power." Thus, instead of openly demonstrating his or her knowledge and skills and offering them to the students, the teacher must deprecate and implicitly apologize for his or her professional role.

In the postmodern social constructivist view of knowledge, grades and other forms of assessment become controversial because, according to this view, there is no objective way to measure what students know. However, grades constitute the prime selection instrument for secondary education and universities in Sweden and cannot be done away with. The "solution" to this dilemma has been to formulate as loose and arbitrary a set of grading criteria as possible, focus on evaluating individual students' learning processes based on a number of indicators and in this way arrive at a grade. In practice, this is done by evaluating various technical or mechanical aspects of students' performance in a subject, which themselves are difficult to measure objectively, based on so-called knowledge matrices. Two examples of such matrices are presented in Appendix B.

The drawback of this is that grade setting de facto becomes a subjective expression of power according to the postmodern social constructivist view of knowledge and can be criticized both by students and parents and by school principals who want to use generous grading as a means to attract students, who are, in effect, customers. Nevertheless, the teacher is obliged to assign grades to the detriment of what remains of his or her professional honor and integrity.

Ultimately, this means that a teacher has little of value to contribute, which is something future teachers come to realize during their training. Figure 8.1 summarizes the various components of this detrimental process that result in the low status of the teaching profession, which manifests itself in the form of a high dropout rate from teacher-training programs and a high number of active teachers leaving the profession. Recent remedial measures to raise the status of the teaching profession in Sweden have done virtually nothing to change this, since they have not included a break with, or at least a mitigation of, the influence of the postmodern social constructivist view of knowledge.

Consider, for instance, the system of national certification for teachers that was enacted in 2013, which we mentioned in the context of grading

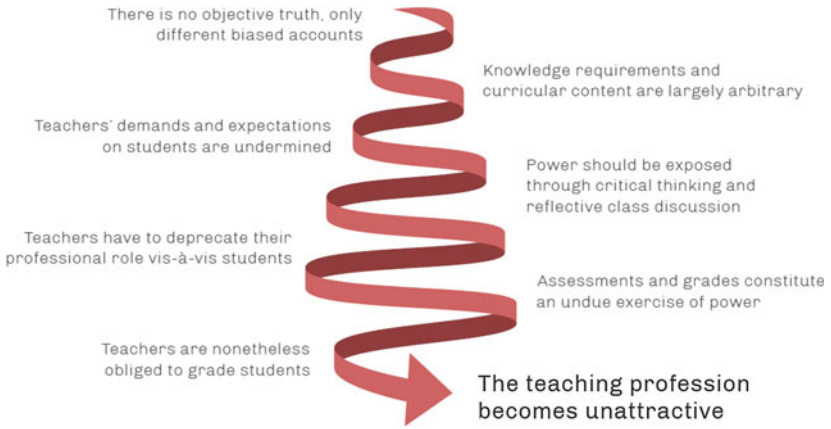

Fig. 8.1 The status of the teaching profession: the vicious circle

above.[30] Those who had taught a subject for at least eight years became certified even if they had never studied the subject themselves. Moreover, leisure-time pedagogues were given generous opportunities to become certified to teach in elementary school without having relevant college-level training. The same year, the government also introduced a new teacher position, that of primary teacher (*förstelärare*). Promotion to primary teacher was intended to be open to particularly excellent teachers and came with a pay increase of at least 15 percent. However, eligibility was not tied to any formal criteria, such as having a Ph.D. degree. Thus, school principals could use this instrument at will. (Primary teachers who decided to step down from that position and the additional obligations still retained the pay raise.) In both cases, it was not deemed important to ensure that teachers ostensibly deserving of more respect from colleagues and society were in possession of formal qualifications and subject-specific knowledge.

[30] When this reform was introduced, the government was taken aback by the large share of teachers lacking formal qualifications. It turned out that almost 50 percent of all teachers either lacked formal qualifications altogether or had gone through teacher training but taught subjects other than those they were trained for. The government, therefore, felt forced to introduce a number of exceptions. However, these exceptions would never have been designed the way they were if not for the influence of the postmodern social constructivist view of knowledge.

This critique of how teaching works today does not imply that everything was perfect and that all teachers were excellent before the postmodern social constructivist view of knowledge became predominant. However, school results were much better at that time than they have been since the radical change in the view of knowledge and the application of the pedagogical theories that motivate the new ways of learning. Teachers were previously trained in, and applied, techniques proven to be efficient in imparting knowledge to students and in helping students consolidate that knowledge. As we will argue in the final chapter, this is what Sweden, and indeed the West, must rediscover.

CHAPTER 9

The Way Forward for Sweden and Other Western Countries

In Sweden, as well as in all other developed countries, children are obliged by law to attend school until age 15 or 16. This is because basic schooling is not beneficial solely for the individual student; a highly educated population is a necessary condition for a high level of social well-being. A high-quality school system has substantial positive externalities, i.e., the knowledge a person acquires in school benefits not only that person directly but also others in society as well as future generations. These benefits include strengthened democracy, human rights, and political stability as well as lower crime and poverty rates and greater innovativeness and openness to new ideas.[1] Thus, quality education may generally be seen as a public good comparable to, for example, the national judicial system, the transportation system, and national defense.

It is thus no exaggeration to claim that a well-educated and knowledgeable population is a necessary—albeit not sufficient—condition for any nation to have high levels of innovation, technological advancement, civility, and civic mindedness as well as the capacity to integrate immigrants and limit the level of corruption and destructive entrepreneurship.

Clearly, high-quality institutions (such as the rule of law, stable property rights, and a high level of generalized trust), broadly construed, are a necessary condition for a high level of social well-being and prosperity.

[1] See McMahon (2010) for an exhaustive list. He estimates that the external benefits constitute roughly half of the total benefits of education.

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3_9

However, a country's institutions have evolved as a result of countless economic, political, and noneconomic private interactions among people and are more likely to evolve if the population is well-educated.[2] In today's democracies, the evolution of key institutions is largely determined by the preferences of the electorate. In turn, these preferences are a function of the knowledge level of voters. Hence, in ensuring the maintenance and future development of high-quality institutions in a given nation, the role of that nation's educational system takes center stage.

The high standard of living enjoyed by people in today's Western democracies would not have been possible unless those countries had developed high-quality school systems that began to gain momentum in the mid-1800s. The Swedish case, which we have covered in depth in this book, is a prime example. Other spectacular examples that bear witness to the dramatic and rapid effect of educational reform are Germany and Japan. Before 1868, Japan was a feudal society closed to influences from the outside world. Political change and extensive educational reform, including the adoption of Herbartian pedagogy, resulted in rapid modernization, and by the 1910s, Japan had achieved a level of technology comparable to industrializing countries in Europe. Educational reform in Germany started a few decades earlier, and by the late nineteenth century, Germany had become a world leader in several industries.

As we discussed most fully in Chapter 5, the structures, techniques, and methods critical to efficient knowledge acquisition and skill development are well established. The most critical factor for student achievement—even more important than teacher quality—is a detailed, coherent, and carefully sequenced curriculum organized around subject disciplines. Indeed, "a better curriculum can range from being slightly to dramatically more effective than a better teacher."[3] Furthermore, guidance and repetition are necessary for committing knowledge to long-term memory and not overloading the working memory, which generates frustration and disruptive behavior.[4] Teacher-centered direct instruction has been

[2] Glaeser et al. (2004).

[3] Hirsch (2016, p. 39).

[4] Clark, Kirschner, and Sweller (2012); Ingvar (2017).

found to be the most effective method for achieving this outcome.[5] Similarly, reading and math skills need to become automated for students to become proficient in using these tools. However, because strong reading skills and cross-topic reading comprehension presuppose domain-specific knowledge, a well-rounded and knowledge-oriented education provides the basis for proficiency.[6] The same is true of the development of other vital skills, such as critical thinking and problem-solving skills.[7] Moreover, the psychosocial environment in the classroom plays an important role. A lack of structure and harmony causes students' survival instincts to react to perceived dangers, crowding out the cognitive capacity for knowledge acquisition.[8] Testing and stringent and consistent grading are other preconditions for learning.[9]

Establishing effective disciplinary practices and providing a safe learning environment to ensure academic success is particularly important for students from families of low socioeconomic status. This includes children with immigrant backgrounds, especially if their parents have a low level of education and are weakly integrated in their new country.[10] There is now considerable knowledge about which teaching methods are efficient, and research shows that using these methods helps children from underprivileged environments perform well.[11]

Thus, we know fairly well what works, but these insights were gained through a long, winding evolutionary process. With few exceptions, the accumulation of human knowledge and technological advances proceed

[5] Hattie (2009); Jerrim, Oliver, and Sims (2019); Kirschner, Sweller, and Clark (2006); Mayer (2004).

[6] Recht and Leslie (1988); Willingham (2009).

[7] Willingham (2010); Larkin et al. (1980).

[8] E.g., Lee, Lee, and Kim (2017).

[9] Betts and Grogger (2003); Bonnesrönning (2004); Brown, Roediger, and McDaniel (2014); Figlio and Lucas (2004).

[10] As shown by Grönqvist and Niknami (2020), there has been a sharp drop in the relative performance of foreign-born students in recent decades. In the late 1990s, the average final grades of foreign-born students were 20 percent below those of Swedish-born students. By the late 2010s, this had increased to 40 percent. Moreover, during the same period, the share of foreign-born students who were qualified to enter secondary school fell from 75 to 58 percent, while it consistently remained above 90 percent among Swedish-born students.

[11] E.g., Chabrier, Cohodes, and Oreopoulos (2016); Fryer and Dobbie (2013); Fryer (2017).

through an arduous process of learning by doing, and scientific evidence for why certain technical solutions or methods are efficient comes afterward. This is also true for educational instruction and learning.

In addition to knowledge of efficient teaching and learning methods, the strong economic growth in the early postwar period channeled large financial surpluses into the educational sector. When these factors were combined with strong demands for equal opportunities irrespective of social background and a broad understanding among the general population of the importance of human capital and individual skills for both private and social welfare, it seems that the stage was set for a dramatic increase in knowledge levels across the board in Western countries. However, new ideas had by then gained serious currency, which stymied development along those lines.

The Denial of Human Nature

Rooted in nineteenth-century romanticism, a progressive pedagogical reform movement led by John Dewey gained significant traction in the United States.[12] By the late 1930s, these ideas had become widely dominant in U.S. teacher-training colleges and were spreading to European countries. Most importantly, in this view, students themselves—not the teacher—should direct the learning process in the classroom. Through a winding, step-by-step process, described in Chapter 6, the ideas of the progressive movement morphed into what we call here a postmodern social constructivist view of teaching. This view holds that students should be free to discover their own knowledge and reality, building on personal life experiences rather than culturally prescribed truths.

If, as this view holds, it is not possible to acquire knowledge that is unrelated to the student and his or her own personal experience and personality, this has far-reaching effects on education. In such a context, students must "create" their own knowledge from scratch through active methods and their own investigation ("learning by doing"). Naturally,

[12] In particular, Dewey's book, *Democracy and Education*, became extremely influential (Dewey, 1916).

this is likely to be more readily accepted by students if the individual student's learning is closely tied to his or her previous concrete experiences.

It also follows from this view of knowledge that teaching in the traditional sense of transferring knowledge directly from the teacher to the student is not possible. Instead, the teacher is assigned the role of mentor or advisor responsible for creating conditions favorable for learning, while learning largely becomes the responsibility of the individual student. This goes against the advice derived from scientific evidence as well as fundamental insights gained from proven experience regarding efficient learning.

This view of knowledge also gradually undermines a notion that has previously been taken for granted and has been a prerequisite for economic and social development, namely, that the primary objective of schools is to give children access to what is considered to be the most important accumulated knowledge (and requisite skills) under the leadership of knowledgeable teachers specifically trained for that purpose. In other words, schools were previously seen as communal institutions established to introduce new generations to the world by carefully selecting and presenting important cultural goods, including language, a mathematical system, and various facts and insights, to the yet unknowing newcomers. This went far beyond learning and being tested on information. The point was that new generations would gradually become and feel part of the adult world and want to act responsibly within it.[13]

This is how humanity has been able to build exceedingly complex and technologically advanced societies. The accumulated knowledge upon which these societies rest is extraordinary and far beyond what any one human being, however intelligent and well trained, could produce alone. Not even Isaac Newton was able to comprehend the idea that matter warps space and time. This was not because of any lack of intellectual capacity but because he lived before Einstein. A single individual cannot push the frontier of knowledge more than marginally in his or her own lifetime. Even making a marginal contribution presupposes that one is "standing on the shoulders of giants,"[14] i.e., that one has had

[13] Arendt (1954 [2006]).

[14] This saying is customarily attributed to Isaac Newton, who used it in a letter to Robert Hooke (Newton, 1675).

the privilege to go to a high-quality school where it is possible to make giant, well-structured leaps toward acquiring a relevant knowledge base to understand the world as humans have thus far developed it.

Therefore, to sustain and develop the societies and systems we have created, new generations must continuously be brought up and educated so that they are equipped to assume responsibility for those systems in the future. Ultimately, this is possible because of humanity's capacity for *cumulative culture*.[15] Humans have an extraordinary innate talent to learn things by imitation—things it would otherwise take forever to learn by ourselves. Such learning is greatly reinforced if the material to be learned is perceived to be relevant and if the person we learn from is perceived to have prestige and status.[16]

The postmodern social constructivist view of knowledge denies the existence of these fundamental traits of human nature with unfortunate and, at times, even disastrous results. Indeed, our analysis in this book has shown how the postmodern social constructivist view of knowledge and its associated pedagogy of student-centered discovery and experimentation undermine the quality and functioning of the Swedish school system. Most importantly, students' knowledge levels have declined substantially across the ability distribution since the mid- to late 1990s.

Our assertion that a universal transition to a postmodern social constructivist teaching approach is the main factor explaining the decline in students' knowledge, as well as the various other problems in the Swedish school system, is supported by the fact that a similar effect can be seen in other countries. With the help of data compiled by the French Ministry of Education, E.D. Hirsch demonstrated the negative impact of a 1989 postmodern social constructivist reform in the French school system on French students' knowledge.[17] In fact, the French decline in TIMSS mathematics achievements was the largest among all Western countries from 1995 to 2019 (minus 49 points). Another study found an adverse effect on students' math scores in the Canadian province of Québec in the early 2000s following a transition to a postmodern social

[15] Richerson and Boyd (2005); Legare and Nielsen (2015).

[16] See, e.g., Henrich and McElreath (2003); Henrich and Gil-White (2001).

[17] Hirsch (2016).

constructivist teaching approach.[18] Finally, it is noteworthy that Finland, previously a star in the educational realm, experienced a substantial decline in student performance after importing Swedish-style pedagogy[19]; average Finnish scores in both mathematics and science fell the most in PISA among Western countries from 2006 to 2018.

The developments in Sweden stand out in that the transition to a postmodern social constructivist approach was combined with a radical school choice reform, which opened the education system to competition from independent for-profit and nonprofit schools funded by vouchers. A necessary condition for such marketization and competition to be efficient (if it is to be used at all) is that the central government and its agencies are willing to define what should be taught and determine what level of knowledge has been attained by students. However, that has not been the case in Sweden. Since the system has impeded schools from competing based on how successful they are at imparting knowledge to their students, competition has steered toward goals other than knowledge acquisition, including generous grading.

These experiences may be contrasted with those in Germany, which has gone in the opposite direction to societies such as France, Finland, Sweden, and Québec. Following the large deficiencies and substandard results in the German school system exposed in the PISA 2000, the country took an "empirical turn."[20] It began to stress empirical evaluations in German schools and created "common core" standards for student performance, as well as procedures for external experts to review individual schools. The German PISA results have since risen substantially, inviting us to consider an alternative pedagogical model.

[18] Haeck, Lefebvre, and Merrigan (2014).

[19] Heller Sahlgren (2015).

[20] Knodel, Martens, and Niemann (2013). See also Entorf and Davoli (2019).

The Virtuous Circle

The various subjects taught in school—mathematics, biology, chemistry, history, and so forth—have evolved and crystallized over time, providing each subject with its own disciplinary core. Of course, this does not mean that what has been seen as incontrovertible truths cannot be phased out, nor that new subjects cannot emerge and be incorporated into the curriculum (e.g., business administration and programming).[21] Based on experience and trial-and-error, humanity has collectively learned the order in which knowledge is most appropriately accumulated and at what age most students are able to master subject content at a certain level. Over time, these subject-specific didactic insights have been reflected in textbooks and other teaching materials, which are continually revised as a result of new knowledge and views being widely accepted among leading experts.

Likewise, innumerable generations of teachers and students have struggled to master their respective subjects, a procedure that has become "codified" as an appropriate way to progressively enhance one's knowledge in a certain field. In such a way, it has become possible to teach school children what was previously mastered only by a select group of leading scholars and scientists. Subject knowledge is thus cumulative, and this makes it amenable to measurement; it becomes feasible to test students' knowledge level in a specific area or the extent to which they have mastered the course material they have been taught. In other words, it is possible to grade a student's performance based on externally valid and verifiable criteria.

If the level of knowledge attainment can be measured, it also follows that what matters is the level of mastery attained at the end of a course or school year or at the point when primary or secondary school is completed. This does not mean that intermittent grading is superfluous; such grading performs an important formative and incentivizing function.

Combining this view of knowledge with teaching methods based on proven experience and insights from modern brain science would imply a paradigmatic shift. In addition to boosting students' knowledge attainment and mitigating many psychosocial and disciplinary problems, the status of the teaching profession would rise, which would greatly facilitate the recruitment of talented people to the profession. It would also mean

[21] Linderoth (2016, Chapter 6).

that, at long last, Sweden would adhere to the stipulation in the Swedish Education Act that teaching should be based on "scientific evidence and proven experience."[22]

The reforms during the latter half of the twentieth century in many Western countries, beginning in the United States, overlooked hundreds of years of proven experience regarding how people acquire biologically secondary knowledge and skills most efficiently and what teaching methods are most appropriate in transferring such knowledge from teachers to students. We have now accumulated a vast amount of experience and evidence of using pedagogical methods based on a postmoderm social constructivist view of knowledge, and the results are disappointing. Any claim that those teaching methods that worked well during an earlier period are not suitable for children growing up in the current era is contradicted by the results obtained in countries that have not reformed their systems to the same extent and by schools that operate differently.

We need to return to the view that there exists true and important knowledge and that the mastery of such knowledge opens opportunities to grow and realize one's potential in voluntary cooperation with one's fellow human beings. A primary task of a high-quality school system would then be to select what knowledge and skills are most important. Naturally, this has to be done while weighing each student's motivations and innate ability and, as students age, by increasingly considering their individual interests.

In addition to a good curriculum, the most important determinant of student performance is the ability of the teacher. The teacher's primary task is to organize the teaching and learning environment so that every student can develop optimally given his or her ability and motivation. A good teacher has deep subject knowledge and uses efficient pedagogical methods. Essential ingredients for an efficient and caring educational environment are teacher demands on and expectations for student effort and continual formative assessments of students' progress. This is the way to show real concern and respect for all students, irrespective of their inherent potential, personality, or socioeconomic background. The teaching profession would once again become attractive, and performance would improve across the board; a virtuous circle would result, as depicted in Fig. 9.1.

[22] Swedish Law 2010:800.

Fig. 9.1 The status of the teaching profession: the virtuous circle

The importance of cultivating respect for tradition and authority in schools in no way implies that children's originality and creativity would or should be stifled. The teacher's task is to mediate between the old and the new. Teaching children how the world works and giving them the requisite skills to master the existing world is what makes them both motivated and able to revitalize, improve, and advance the world when they become adults. "To preserve the world against the mortality of its creators and inhabitants it must be constantly set right anew. The problem is simply to educate in such a way that a setting-right remains actually possible, even though it can, of course, never be assured,"[23] as Hannah Arendt observed. Of course, this can and should be done without abandoning what is admirable about progressive education; as noted by E.D. Hirsch, we need "a pedagogy that exhibits empathy with childhood and the child's point of view, yet imparts a strong common curriculum defined by the community."[24]

This alternative view of knowledge is also a necessary component of a well functioning school market based on tax-financed vouchers and school choice among competing schools, particularly when for-profit providers are allowed. Then, and only then, can such competition be expected to

[23] Arendt (1954 [2006], p. 189).

[24] Hirsch (2016, p. 208).

deliver the desired effects. Competition in well functioning and appropriately regulated and monitored markets provides an institutional basis for improvements as competing providers experiment and develop more efficient ways to attain a certain result at a lower cost or attain an improved result at a given cost. The most efficient ways—the good examples—are then disseminated both within multischool organizations and to competitors via imitation.[25] A further advantage of this is that if the school market is functioning well, most students do not need to make an active choice to benefit from the resulting improvements; all providers will be forced to maintain an acceptable quality in order to survive.

Following the introduction of this alternative view of knowledge, schools can be evaluated with respect to their students' knowledge attainment. This would force school providers to focus on improving those factors that have been shown to promote learning. Teachers' subject knowledge and ample time for preparation and formative feedback would become crucial for results. This fact would greatly reduce the need for any detailed regulations pertaining to the pedagogical process since schools have no choice but to focus on achieving good results in terms of students' knowledge attainment.

School choice and competition between different providers has proven to be most efficient in systems with external exit exams.[26] In such systems, the competing schools know what the goals are and the body of knowledge on which their students will be evaluated while being free to experiment and develop pedagogical methods, learning processes, and teaching material subject to the restrictions provided by the value of the voucher. Such a system also gives the producers of textbooks and other teaching material strong incentives to continuously evaluate and improve the quality of their products. When knowledge attainment not only hinges on students' effort but the effort and the extent to which it pays off greatly depends on teachers' knowledge, aspirations, and expectations, the status of the teaching profession will increase. This will make the profession more attractive for highly motivated and academically gifted persons.

In Table 9.1, we juxtapose what we deem to be the most important differences between the two views of knowledge discussed in this book.

[25] See, e.g., Baumol (2010).

[26] Woessman (2016).

Table 9.1 Contrasting the postmodern social constructivist view of knowledge with an alternative paradigm based on the classical view of knowledge

The postmodern social constructivist view of knowledge	*An alternative paradigm based on the classical view of knowledge*
Knowledge cannot be transferred from teacher to student	Knowledge is most efficiently acquired through direct instruction from a knowledgeable teacher with a fundamental understanding of the subject in question
The teacher's role is primarily that of a coach and advisor	The teacher instructs and teaches
The student sets his or her own goals based on his or her own motivations, interests, and aspirations	The teacher expects the student to do well and motivates the student to aspire to reach his or her inherent potential
The student is personally responsible for his or her knowledge acquisition	The learning objectives are defined by the course material
If the student does not attain the goals he or she has set up, the school is held accountable	The teacher offers the student favorable opportunities to grow his or her knowledge and skills as a result of his or her own effort
A high proportion of work is student-directed or comes in the form of group assignments	Teacher-centered direct instruction is a core element
Education is a process in which the main focus is participation, and the teacher is merely one of the participants	The purpose of education is to attain a goal such as mastering a specific subject or topic or acquiring a certain skill
There is no clear distinction between formative and summative assessments	There are continual formative assessments related to existing knowledge goals
Studies are often cross-disciplinary and thematic	Studies are primarily organized within disciplinary boundaries and led by a teacher with deep knowledge of the subject being taught
Courses are separate and noncumulative	Subject studies are cumulative and successive steps that expand on previous steps

(continued)

Table 9.1 (continued)

The postmodern social constructivist view of knowledge	*An alternative paradigm based on the classical view of knowledge*
Knowledge is to a great extent acquired through the students' own searching through various sources	Textbooks and other structured teaching material are the primary means for acquiring knowledge and understanding. This provides a fitting combination of facts and context as well as a progression that has been proven to be appropriate through experience
Knowledge is considered largely subjective and linked to each pupil's experience and motivations	Each subject is considered to have a core of knowledge that students should learn
In principle, the view of knowledge is incompatible with grading based on tests said to measure the level of knowledge attainment	Grading based on tests measuring knowledge attainment is feasible because the syllabus consists of clearly defined content to be mastered
Grading is based on numerous and differing criteria	Objective grading with high external validity is possible, as the content of the syllabus is well defined in terms of knowledge and skills
All subjects contain elements of civics	The specific character of each subject is respected
There is an emphasis on discussion and students' personal views	There is an emphasis on the acquisition of corroborated knowledge deemed to be of great relevance; this implies a greater focus on reading as a learning method
As the learning process per se is primary, and each course must be graded separately	The study of the different subjects is cumulative and specific; hence, the final grade measures the knowledge level attained at the point when the study of the subject concludes
The pupil should be educated to become a citizen who holds certain values	The pupil should be imparted with the knowledge and skills that give him or her the ability as an adult to make independent assessments and life choices
Competition between schools is incompatible with the paradigm	Competition between schools is possible, as a disinterested external party can measure results

(continued)

Table 9.1 (continued)

The postmodern social constructivist view of knowledge	*An alternative paradigm based on the classical view of knowledge*
Exit exams are not compatible with the paradigm	The paradigm is well-suited for exit exams since it does not matter how the knowledge has been acquired
The school principal does not need to be a trained teacher or have deep knowledge in any particular subject	The school principal is a trained teacher with particularly good knowledge in his or her subjects and has proven his or her excellence as a teacher
All adjustments of course content and teaching methods to students' abilities and backgrounds must be done without any grouping based on ability	Creating the best possible learning environment for all students is the top priority; therefore, the teaching and learning environment is organized to ensure that all pupils can develop optimally given their different abilities and motivations

Concluding Remarks

Good education is an indispensable tool for leaving behind magical thinking, the modus operandi of our species for most of its evolutionary history and replacing it with rational strategies for navigating our lives so that we can achieve our goals in accordance with our values and feelings. It is therefore disquieting that the education systems in Sweden and many other Western countries have become increasingly dominated by ideologies that have abandoned a view of education consistent with this mission. Instead, in these revised systems, learning facts to adequately understand and engage in the society one is born into and intellectual discipline are seen as old-fashioned and oppressive concepts. This conceals the fact that in a deeper sense, the primary purpose of these concepts is to provide students with models and tools to better understand and interpret reality so that they can liberate themselves from preconceived ideas and "wishful thinking" that lacks a factual basis and instead make decisions that have better prospects of helping students achieve their goals.

The students who are the worst affected by deficient school quality are those whose homes, figuratively speaking, lack an intellectual piano. At the same time that we, with the aid of scientific methods, are building a

rapidly growing body of knowledge about how the human brain works and learning occurs, it has become increasingly apparent that today's dominant approaches to education in Sweden and several other of today's richest countries lack a scientific basis.

Ultimately, the result is that a large share of the population will end up lacking the tools to analyze and navigate complex processes and instead accept being viewed and viewing themselves as weak or wronged. In such cases, unemployment can be seen as a manifestation of objectionable globalization and conflict in the workplace as a legitimate reason to receive support from society under the label of long-term disability.

In reality, a person growing up in Sweden or any other Western country today has exceptional opportunities to live a long and full life. To realize this potential, there is a strong need for an educational system (and a culture and public discourse that would then follow) that provides everyone with the incentives, tools, and opportunities to discover their own comparative advantages and how they can best contribute to society while leading satisfactory lives.

Based on this account, it should be clear that the broader problems marring the school systems in Sweden and many other Western countries are in no way intractable. Indeed, there are already some signs of improvement in Sweden in the most recent TIMSS and PISA assessments, which are likely in part an effect of the increased (but not officially acknowledged) use of direct teacher instruction in Swedish schools.[27] As these slight improvements show, even a minor shift toward a more moderate form of social constructivism results in some improvement. More importantly, a reform strategy involving a paradigm shift in what is arguably the most crucial institution of the school system—the stipulated view of truth and knowledge—has the potential to yield radical improvement.

[27] See Eriksson, Helenius, and Ryve (2019) and Heller Sahlgren and Sanandaji (2019). Eriksson, Helenius, and Ryve (2019, p. 9) note that the mean values of answers to how often students listen to the teacher give a lecture-style presentation and the extent to which they memorize formulas and procedures "have both gone up by more than a whole standard deviation from 2007 to 2015, indicating that mathematics instruction in Sweden (in the eighth grade) has been changing toward more frequent lecturing and memorizing during this period."

Appendices

Appendix A[1]

Knowledge Requirements in Swedish at the End of Year 9 for Grade A

Pupils can read fiction and nonfiction texts with **very good ease** by using and choosing reading strategies based on the specific characteristics of the text **in an appropriate and effective** way. By making **well-developed** summaries of the contents of different texts with **good** connection to time aspects, causal relationships, and other texts, pupils show **very good** reading comprehension. In addition, on the basis of their own experiences, different issues concerning life and the surrounding world, pupils can interpret and apply **well-developed and well** informed reasoning about **the explicit and implicit messages** in different works. Pupils can also carry out **well-developed and balanced** reasoning about the work and how it is related to its creator. Pupils then draw **well** informed conclusions on how the work has been affected by the historical and cultural context it emerged from.

Pupils can write different kinds of texts with **good** variation in language, **well-developed** text linking and also **well** functioning adaptation to type of text, language norms, and structures. The narrative texts pupils write contain **well-developed** expressive descriptions and narrative

[1] The quotations in Appendix A are verbatim from the official translation of the 2011 National Curriculum (Swedish National Agency for Education, 2011).

M. Henrekson and J. Wennström, *Dumbing Down*,
https://doi.org/10.1007/978-3-030-93429-3

devices and dramaturgical elements with **complex** structures. Pupils can search for, select and compile information from a **varied** range of sources and then apply **well-developed and well** informed reasoning to the credibility and relevance of their sources and information. The summaries contain **well-developed and balanced** descriptions and explanations, **well-developed** topic-related language, and **well** functioning structures, quotations, and source references. By combining different types of texts, aesthetic expressions, and media so that the various parts interact in an **appropriate and effective** way, pupils can enhance and bring to life the message in their texts. In addition, pupils can make **well-developed and balanced** assessments of the contents of a text and its structure, and based on responses work on enhancing clarity, quality, and expressiveness in a **well** functioning way.

Pupils can talk about and discuss various topics by asking questions and expressing opinions with **well-developed and well** informed arguments in a way that **takes the dialogs and discussions forward and deepens or broadens them**. In addition, pupils can prepare and give **well-developed** oral accounts with **well** functioning structures and contents and **good** adaptation to purpose, recipient, and context. Pupils can apply **well-developed and well** informed reasoning about the history of the Swedish language, its origins and special characteristics, and compare these with closely related languages and clearly describe important similarities and differences.

Knowledge Requirements in Physical Education and Health at the End of Year 9 for Grade A

Pupils can participate in games and sports involving complex movements in different settings, and vary and adapt their movements **well** to activities and context. In dance, and movement and training programs to music, pupils adapt their movements **well** to beat, rhythm and context. Pupils can also swim 200 metres, of which 50 metres are in the back position.

Pupils can in a **well** functioning way set up goals, and plan training and other physical activities. Pupils can also evaluate activities by talking about their own experiences and applying **well-developed and well** informed reasoning about how activities together with dietary and other factors can influence health and physical capacity.

Pupils plan and carry out outdoor activities with **good** adaptation to different conditions, settings, and rules. In addition, pupils can with **good** safety orient themselves in unfamiliar settings and use maps and other aids.

Pupils can in a **well** functioning way prevent injuries through foresight and giving **well-developed** descriptions of risks associated with different physical activities. In addition, pupils can handle emergencies in water using different equipment during different periods of the year.

Knowledge Requirements in Crafts at the End of Year 9 for Grade A
Pupils in a **well developed and** systematic way can give form to and produce craft artifacts using different materials based on **instructions and their own initiatives**. In their work, pupils can use tools, instruments, and equipment in a secure and **appropriate** way **with precision**. Based on the aim of the craft task and some quality and environmental aspects, pupils choose their approaches, and give **well-developed** reasoning for their choices. Pupils in crafts can **develop** ideas in interaction with inspirational material provided **and material which pupils have themselves obtained**. In addition, pupils can **systematically try and retry** how material and handicraft techniques can be combined with respect to the form and function of an object. During the work process, **pupils formulate and choose action alternatives that lead to improvements**.

Pupils can also make **well-developed** judgments about the work process with **good** use of terms specific to the crafts, and show simple relationships between form, function, and quality. In addition, pupils interpret what a craft artifact expresses and apply **well-developed** reasoning based on their own experiences, and also trends and traditions in different cultures.

Appendix B[2]

Knowledge Matrix: Swedish Final Year of Primary School
Teaching in the subject of Swedish should aim at helping students to:

- develop their spoken and written language,
- read and analyze nonfiction works and other texts for various purposes,
- adapt the language used for different purposes, recipients, and circumstances,

[2] Authors' translation of Swedish original.

- discern linguistic structures and adhere to standard linguistic norms, and
- search information in different sources and evaluate those sources.

Objective	*Grade E*	*Grade C*	*Grade A*
Responsibility	**take some responsibility**	You participate actively in the classroom and **take responsibility** for your own and the group's learning	**take good responsibility**
Reading—reading strategies	**with ease basically functional**	The student can read fiction and nonfiction texts with **good ease** by, in an **appropriate** way, choosing and applying reading strategies based on the character of the text	**with very good ease appropriate and effective way**
Reading—comprehension	**simple some connection**	By doing **developed** summaries of the content of different with **relatively good connection** to time aspects and causal relationships as well as to other texts, the student demonstrates a good comprehension of written text	**well developed good**
Reading—Interpret and discuss assigned texts	**simple and to some extent informed**	Based on his/her own experience, different life issues and external issues, the student can interpret and conduct **developed and relatively well informed** reasoning regarding messages that are explicit and implicit in different works	**developed and well informed + or are concealed in different works**

(continued)

(continued)

Objective	*Grade E*	*Grade C*	*Grade A*
Literature in context	**simple to some extent informed**	The student can also conduct **developed** reasoning about the work and connects to its author. The student can then draw **relatively informed** conclusions regarding how the work is influenced by the historical and cultural context in which it was created	**well developed and nuanced well informed**
Writing—text quality	**some simple basically functional**	The student can write different types of texts with **relatively good** linguistic variation, **developed** narrative structure and **relatively well functioning** adjustment to the type of text and linguistic norms related to the topic in question	**good well developed well functioning**
Writing—narration	**some simple**	The student's own narrative texts contain **developed** characterizing descriptions and dramaturgy with **relatively complex** composition	**well-developed complex**
Information handling	**limited simple and to some extent informed**	The student can search, select and compile information from a **relatively varied** selection of sources and in doing so he or she conducts **developed and informed** reasoning regarding the credibility and relevance of the information and sources	**varied well developed and well informed**

(continued)

(continued)

Objective	*Grade E*	*Grade C*	*Grade A*
Compilation of information	**simple** **simple** **basically functional**	The compilation contains **developed** descriptions and explanations, **developed** subject-related terms as well as **relatively well functioning** structure, quotations, and references to sources	**well developed and nuanced** **well developed** **well functioning**
Reinforcing texts	**basically functional**	By combining different types of text, aesthetic expressions and media, so that the various components interact in an **appropriate** way, the student is able to reinforce and bring to life the message in his or her texts	**appropriate and efficient**
Text development—give feedback	**simple** **basically functional**	The student is able to give **developed** feedback on the context and composition of texts in a **functional way**	**well developed and nuanced** **well functioning**
Text development—use feedback	**basically functional**	…and based on feedback received the student is able to improve texts so that they become clearer, more expressive, and of better quality in a **functional** way	**well functioning**
Talk—discussion	**simple and to some extent informed to some extent takes…**	The student can talk about and discuss varied topics by asking questions and present his or her own views by using **developed and informed** arguments in a way that **takes the dialogs and discussions forward**	**well developed and well informed that takes the dialogs and discussions forward and deepens or widens them**

(continued)

(continued)

Objective	*Grade E*	*Grade C*	*Grade A*
Talk—oral presentation	**simple basically functional some**	The student can prepare and give **developed** oral accounts with a **relatively well functioning** structure and content and a **relatively good** adaption to purpose, recipient, and context	**well developed well functioning good**
Language history	**simple simple and to some extent informed**	The student can conduct **developed** and **relatively well informed** reasoning about the history of the Swedish language, its history, origin, and characteristics as well as compare it to neighboring languages and clearly describe prominent similarities and differences	**well developed well informed**

Note There are no explicit requirements for grade B and D. Instead, it is stipulated that "Grade B (D) means that the knowledge requirements for grade C (E) and most of A (C) are satisfied"

Source https://skolbanken.unikum.net/skolbanken/matris/973946252

Knowledge Matrix: Chemistry Final Year of Primary School
Teaching in chemistry should essentially give pupils the opportunities to develop their ability to …

- use knowledge of chemistry to examine information, communicate and take a view on questions concerning energy, the environment, health, and society,
- carry out systematic studies in chemistry, and
- use concepts of chemistry, its models and theories to describe and explain chemical relationships in society, nature, and in people

Objective	*Grade E*	*Grade C*	*Grade A*
Talk and discuss	**simple**	The student can talk about and discuss questions concerning energy, the environment, health and society, and differentiate facts from values and formulate their views with **developed** motivations and also describe some possible consequences	**well developed**
	to some extent takes the discussions forward	In the discussions, students pose questions, put forward and respond to views and arguments in a way that **takes the discussions forward**	**takes the discussions forward and deepens or broadens them**
Search for and use information, source criticism	**simple and to some extent informed**	Students can search for scientific information by using different sources and apply **developed and relatively well informed** reasoning regarding the credibility and relevance of their sources and information	**well developed and well informed**
	basically functional simple some	The student can use the information in a **relatively well** functioning way in discussions and create **developed** texts and other communications with **relatively good** adjustment to purpose and target group	**well well developed good**
Laboratory work	**contribute to making proposals can be reworked**	The student can carry out experiments based on given plans and also **formulate** simple questions and planning which **after some reworking** can be systematically developed	**formulate** ~~after some reworking~~
	basically functional	In their studies, students use equipment in a safe and **appropriate** way	**appropriate and efficient**

(continued)

(continued)

Objective	*Grade E*	*Grade C*	*Grade A*
	simple some	Students can compare the results with assignments and draw **developed** conclusions with **relatively good** to the models and theories of chemistry	**well developed good**
	simple contribute to formulating	The student applies **developed** reasoning about the plausibility of their results and **make proposals** on how the studies can be improved	**well developed + in relation to possible sources of error + and identify new questions for further study**
	simple	The student draws up **developed** documentation of their studies using tables, diagrams, pictures, and written reports	**well developed**
Theory	**basic giving examples and describing**	The student has **good** knowledge of the structure of materials, their indestructibility and transformations, and other chemical contexts and show this **by explaining and showing relationships between** these with **relatively good** use of the concepts, models, and theories of chemistry	**very good by explaining and showing relationships between + and some general characteristics good**
	simple and to some extent simple identifiable	The student can use **developed and relatively well informed** reasoning about the chemical process in living organisms, the ground, air, and water, and show **relatively complex** relationships in nature	**well developed and well informed complex**

(continued)

(continued)

Objective	*Grade E*	*Grade C*	*Grade A*
	easily identifiable give examples of	The student studies how some chemicals and chemical processes are used in everyday life and society and describe **relatively complex** chemical relationships and **explain and show** relationships between energy transformations and recycling of materials	**complex explain and make generalizations about**
	simple and to some extent point to	The students apply **developed and relatively well** informed reasoning about how people's use of energy and natural resources affect the environment and **point to advantages and limitations** of some measures that can contribute to sustainable development	**well developed and well from different perspectives point to advantages and limitations**
	give examples of	The student can **explain relationships between** some key scientific discoveries and their importance for people's living conditions	**explain and make generalizations about**

Note There are no explicit requirements for grade B and D. Instead, it is stipulated that "Grade B (D) means that the knowledge requirements for grade C (E) and most of A (C) are satisfied"

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