# Research for Classrooms

## Scientific Knowledge and Proven Experience in Practice

Skolverket
Swedish National Agency for Education

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# Preface

The Education Act states that "educational programmes must be based on scientific knowledge and proven experience". The legislative history of the Education Act highlights the teacher's autonomy and opportunity to decide themselves upon the content and methods they use to achieve the goals. At the same time, it also emphasises the importance of a scientific approach. What does this mean?

In this knowledge review, the Swedish National Agency for Education has collected classroom-centred discoveries that have been discussed in recent years. The review provides no fixed methods or working practices, but is instead intended to provide some direction and inspiration for working practices based on research. The premise is that a teacher, principal or other person working in a school is a professional who chooses, based on their experience and knowledge, well-thought-out strategies in any given situation.

The knowledge review is written and produced by Director of Education Eva Minten from the Swedish National Agency for Education, with contributions from Per Kornhall, school strategist at Upplands Väsby Municipality.

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# Contents

CHAPTER 1

# Introduction

Our understanding of teaching and of how pupils learn is growing. The gap between the research that is produced in an academic context and day-to-day classroom teaching is becoming smaller, and academic discoveries are increasingly being disseminated outside of exclusive journals for researchers. The perception that the teaching profession must be characterised by critical reflection has been reinforced, not least by the wording of the Education Act of 2010, which states that educational programmes must be based on scientific knowledge and proven experience.

Proven experience here refers to generated knowledge based on the experience of the practitioners within a specific profession. Proven experience is tried and constructed over time and shared by many.

This is a knowledge review of some of the classroom-centred discoveries that have been discussed frequently in recent years. In other words, this review is not meant to be a list of the most important or most accepted results; instead the idea is to inspire the work of teachers and principals and to provide a basis for discussions in schools and in the organisations responsible for them about how to firmly root day-to-day school activities in scientific knowledge and proven experience.

This knowledge review is divided into five themes: teacher-led instruction, teachers' professional develop-

ment and collaborative learning, formative assessment, inclusive working practices and educational leadership.

## The Critically Reflective Teacher

The premise for this review is that a proficient teacher, principal or other person working in a school is a professional who chooses, based on experience and knowledge, well-thought-out strategies in any given situation and who, over time, becomes all the more proficient at what he or she does. A professional teacher has good professional judgement and uses personal experience and knowledge of didactics, has a good understanding of the subject, is aware of their pupils' prior knowledge, creates a secure learning environment and knows how to lead a group. Becoming such a teacher involves trying many different paths, some of which end in success while others are less successful. Research and collegial discussions of that research are important aids to this experimentation and to the development of the teaching profession.

In their research review *Utmärkt undervisning* (Excellent Teaching), Jan Håkansson and Daniel Sundberg emphasise that a proficient teacher sets challenging assignments and high goals, has an in-depth knowledge of teaching and learning that is integrated into his or her knowledge of the subject, monitors their pupils' learning and provides feedback. Proficient teachers are also able to identify the significant aspects of their subjects, lead learning through classroom interaction, monitor learning, provide feedback and use their emotional sides. Quite simply, a proficient teacher has a varied teaching repertoire and works a great deal on fostering relationships.

Teachers and other members of school staff often need support and encouragement in their work. The American researcher Linda Darling Hammond is careful to point out that the most significant thing a principal and an employer can do is to respect the professionalism of the teachers. This involves, for example, focussing on the operations and areas as the prerequisites for change rather than on the individual teacher. Hammond advocates the importance of building an infrastructure – for example, in the form of support and smart allocation of resources – in order to disseminate changes more widely in practice.

Developing your own practice is a core activity for all professionals. In *Teaching in the Knowledge Society: Education in the Age of Insecurity*, the American researcher Andy Hargreaves argues that teachers who do not learn except through simple "trial and error" in their own classrooms are a burden on their pupils. What the teacher does in the classroom must be based on the systematic development of expertise and collaboration with colleagues. Hargreaves sees professional development as an individual responsibility and an institutional right. By this he means that individual teachers have a responsibility to develop in their profession, but the school system must also be constructed in such a way as to provide the teacher with real opportunities to develop.

A school system that is often identified as a success story is that of Shanghai, where every teacher is part of a research team and, together with colleagues, develops and evaluates the teaching in the school.

Historically there has been a weak link between teaching research and teachers' day-to-day practice. One reason may be that parts of teaching research have, quite simply, not aimed to create knowledge that teachers can utilise. In addition, many academic papers are published in international journals that those who work in schools either do not have access to or do not normally read. Another explanation has to do with the limited amount of time that teachers and principals have available to read and reflect both individually and in groups. It is often hard for teachers to find time for any kind of continuing professional development, and in many cases, in-service training involves something other than didactics. Furthermore, many schools in Sweden lack organisational structures for collaborative learning (i.e. professional discussions) about how teaching may be developed.

## Scientific Knowledge and Proven Experience – What Does This Mean?

The Swedish government would like scientific knowledge and proven experience to be used more in school activities. The importance of teachers' and principals' working strategically with scientific knowledge and proven experience is written into the Education Act of 2010: The fifth paragraph of the first chapter states that "Educational programmes must be based on scientific knowledge and proven experience". The legislative history of the Education Act highlights teachers' autonomy and opportunity to decide upon the content and methods they use to achieve the goals. At the same time, it

also emphasises the importance of a scientific approach. What does this mean?

Research is the systematic investigation of existence, its utmost aim being to provide an understanding of and perspective on the same. This is done through questioning and problematising. In scientific work there is a desire to critically review, test and place individual facts into context. Problematisations of different types provide the space for discussions and open up new ways to regard reality. Academia strives to have theoretical rooting, elaboration and development, as well as an empirical basis. An interplay between the theoretical and the empirical is a key element.

Proven experience is an expression that is used in relation to professions. A great deal of significance is attached to this in the field of education and in other activities that take place in complex environments. The teaching profession contains a large quantity of "silent" knowledge that in itself is enormously valuable. It is not possible to manage classroom situations with only theoretical knowledge. It is important that new teachers be provided with a sufficient introduction to the profession and be supervised by more experienced colleagues, and also that this knowledge be constantly built up at the collegial level. This silent knowledge must therefore be verbalised. Having been tried and tested collegially, it should also be documented in order to be put into practice and become an important part of teachers' collective experience so that time and time again teachers can avoid having to "reinvent the wheel".

However, not all experience is proven experience. Proven experience has been systematically tested documented and generated over a long period of time by many different people. In their definitions, the Swedish National Agency for Higher Education and the Swedish National Agency for Education note that proven experience is not narrow, personal, oral or short-term. The Swedish National Agency for Higher Education writes:

*Proven experience is something more than experience, even if it is long-term experience. It is tried and tested. This requires that it has been documented, in each case communicated in such a way as to allow it to be shared with others. It must also have been reviewed in a collegial context, based on criteria that are relevant to the operational content of the specific experience. It should also have been assessed based on ethical principles: not all experience is benign and thus worth following. It is possible in such an assessment to come close to the academic approach, even if the content may be based on something other than research. (Swedish National Agency for Higher Education 2008).*

In order for experience to be proven, it must be used by a large majority, be shared and tested in a collegial context and it must be documented.

To this context it should also be added that evidence-based practice is an increasingly common concept in the discussion about scientific knowledge and proven experience in the field of education. Evidence-based practice alludes to the decisions that are continually made in the day-to-day school activities of teachers and principals. In turn, practice should be based on evidence-based

methods, a catch-all term for the different types of initiatives that, for example teachers or social workers are advised to use in their day-to-day practice. In their book *Evidensens många ansikten: Evidensbaserad praktik i praktiken* (The Many Faces of Evidence: Evidence-Based Practice in Practice), Ingemar Bohlin and Morten Sager discuss this in more detail.

Researcher Magnus Levinsson maintains, with support from the OECD, that one example of an evidence-based method is *formative assessment*. Formative assessment is a group of teaching strategies that well and truly have the potential to satisfy the requirements of an evidence base. Levinsson contends that the effects of feedback, questions and peer and self-assessment are probably the greatest that have ever been registered within the field of education (see Chapter 4 for more on this).

Levinsson also notes that certain teachers are worried that teachers' professional freedom would be restricted should the requirement for evidence-based knowledge take a substantial step into the classroom. They are afraid of losing their autonomy and that teaching may become too standardised. However, there are others who say that the profession would be strengthened if the field of education were more capable of using clearer guidelines and support for various contexts.

In the report *Att nå ut och nå ända fram: Hur tillgången till policyinriktad utvärdering och forskningsresultat inom utbildningsområdet kan tillgodoses* (To Reach Out and Reach All the Way: How Access to Policy-Directed Evaluation and Research Results within the Field of Education Can Be Delivered), two competing perspectives on how teachers'

collective knowledge base could be developed are problematised. On one hand, there is a top-down strategy that originated from the desire to strengthen teachers' knowledge base through centrally produced reforms in which teachers are seen as consumers of research. This takes place through directives from outside and from above. On the other hand, we have a need driven from within, where principals and teachers are the co-creators of knowledge; they are producers. This can take place through proven experience. It is important to remember that for professions such as teaching, medicine and the law, knowledge derived purely from academic sources is just as valuable as knowledge drawn from proven experience. Neither is superior to the other; instead they complement one another.

All in all, proven experience is important because it can be created by teachers themselves, based on important experiences and a fundamental knowledge of method, and used in their activities. Those working in the school sector have great opportunities to make an impact within the scope of the evidence-based approach, as well as to build up and reinforce their educational judgement – in other words, their own professionalism.

## No Fixed Recipes

It may be appropriate to underline that neither scientific knowledge nor proven experience provides simple solutions to the challenges faced in a school, nor do they offer pre-determined answers about how to manage an individual classroom. There are no specific methods that have an effect on all pupils in all classrooms. This is also

an important point in New Zealand researcher John Hattie's internationally recognised book, *Visible Learning for Teachers*. In this book, which sparked the interest of many in the interplay between teacher and pupil, he argues against the fixation many researchers have with citing a number of factors as evidence-based. Hattie's ambition is instead to present a coherent and consistent explanation of what has an impact on pupils' results. Hattie claims that it is not sufficient to simply focus on one or a few factors and believe that it is possible to conduct teaching "according to a recipe". Instead, teaching is an interplay between several strategies that all pull in the same direction and that will have an effect on pupils' learning.

Thus, it is not possible to assume in advance that a method or an approach that research has shown to be successful will work in the situation in which you find yourself. However, scientific knowledge and proven experience have much to say about how the work of a school and a teacher may be formed, and there is research that can provide guidance when you wish to develop your activities. In spite of the fact that all pupils in a class are individuals, they naturally have common prerequisites such as their age, maturity, interests and other background factors. Researchers talk of certain aspects that can be generalised, that may be transferred from one environment to another or from one classroom to another.

Scientific knowledge and proven experience can thus function as reference points with the help of which you can reflect on your activities, on what you do and why

you do it. If you do not know what you will do in a certain situation, of course, it can be good initially to try that which has been shown to work. Likewise, there are known difficulties within many subjects, where knowledge about how to teach those specific difficulties can facilitate and serve as a guide.

In order for schools to make a difference to all children and pupils, it is important that research is not seen as remote from what takes place in schools. In order to make a difference, teachers and principals must be able to combine knowledge that has resulted from research with the knowledge that only the teachers themselves have about what works her, specifically with this particular cohort of pupils. General principles and specific practice meet in this type of learning.

CHAPTER 2

# Teacher-Led Instruction

This review's first thematic area is teacher-led instruction. The focus here is directed towards the division of responsibility between pupil and teacher.

There is a great deal of research which shows that human learning is a social process that takes place where people interact with one another, primarily through speech and eye contact. Another well-established fact is that the human brain is naturally predisposed to learning. Quite simply, the human brain is built in a way that makes it impossible for us not to learn, and it appears that there is a strong internal system that rewards us when we imitate and learn from people in our surroundings.

Children often find learning pleasurable, and this learning, to a great extent, involves acting and speaking as those around them do. Modern brain research has also shown that learning is a physiological process in the brain. The learning brain is, quite simply, reconstructed as part of the learning process. New nerve cells are created, new connections between them are formed, and other connections and nerve cells are removed in order to create and shape our consciousness.

In his book *Den lärande hjärnan* (The Learning Brain), Torkel Klingberg asserts that the brain is mouldable and changeable. He is also convinced that self-belief is closely connected to the abilities to assimilate knowledge and to dare to challenge oneself and thus learn something new.

A large consensus within teaching research points to the significance of the social interplay between all those involved, not least to the significance of the teacher's actions in the classroom.

In recent years, research results have supported the position that the teacher's role as the driving force has previously been underestimated, and that the issue of *how* the teacher instructs has been neglected. In *Visible Learning*, John Hattie highlights the significance of teachers' having an active role in which they encourage and challenge their pupils and continually provide them with feedback about their learning. The book's mantra is that the teaching and learning process must be made visible. It is a matter of how teachers use their knowledge in their interaction with the pupils.

Hattie claims that we have previously overvalued the significance of the school's external structural factors such as financial resources, school size, opportunities to choose schools, programme structures and funding mechanisms. Factors inside the classroom have a greater effect, specifically those related to how the teacher instructs.

From a Swedish perspective, the Swedish National Agency for Education's report *What Influences Educational Achievement in Swedish Schools?* noted that responsibility has been transferred from teacher to pupil, which means that we have gone from teacher-led instruction to emphasising the pupil's individual work. The Swedish National Agency for Education concludes, based on a synthesis of research into the individualisation of teaching, that much of their individual work is of no use to the pupils' knowledge development and can have a negative impact

on their motivation and engagement. The responsibility for learning may never be transferred completely to the pupil, even though the goal of teaching is to make the pupil increasingly independent and responsible.

It is certainly important to constantly focus on the pupil's learning, as well as on helping pupils "find" their own learning. This is central in research exploring, for example, formative assessment and in large syntheses such as Håkansson and Sundberg's *Utmärkt undervisning* and Hattie's *Visible Learning*. However, this must take place under the supervision of a teacher who always has ultimate responsibility.

Håkansson and Sundberg are also critical of the focus in Swedish schools on individual work and explain that Swedish teachers spend more and more time describing to their pupils *how* they should work but less and less time describing *what* they should learn. The Norwegian researcher Peder Haug asserts, in turn, in a survey of what takes place in the classroom that the emphasis on individual work benefits capable pupils, while putting those who are less able at a disadvantage. In his investigation he sees that a large proportion of classroom time is devoted not to teaching but instead to a mass of other activities such as sharpening pencils, sorting out problems from the break, waiting and cleaning.

Furthermore, there is currently a fairly consensual view of teacher-led instruction as something that is especially important for pupils who do not come from homes where studying is commonplace. Several researchers indicate that changing teaching patterns constitute one of the explanations for why educational attainment

has decreased for several consecutive years, primarily amongst pupils in Sweden who come from families in which studying is less commonplace. Like Peter Haug, researcher Åse Hansson concludes in her study *Ansvar för matematiklärande* (Responsibility for Mathematics Learning) that the emphasis in teaching on individual work primarily affects the pupils who find it hardest to meet the school's demands and the pupils that cannot get strong support from home. Hansson believes that an important explanation for the negative knowledge development that Swedish pupils have demonstrated in mathematics in recent years is that the individual pupil has been allowed to take too much responsibility for learning mathematics. According to Hansson, another cause of the poorer results may be that mathematics teaching is often conducted in groups divided according to ability.

## Tools for Teacher-Led Instruction

A proficient teacher is the clear leader of the learning that takes place. It is important to emphasise that teacher-led instruction is not the same as direct instruction, in which the teacher does most of the talking. Examples of ways to strengthen teacher-led instruction are

- that the teacher uses a *broad and varied repertoire* of instructional methods,
- that the teacher creates a *climate for dialogue*,
- that the teacher creates *security and sees every pupil*,
- that the teacher encourages an *exchange of experiences* between pupils, and
- that the teacher uses *formative assessment*.

### *Using a Broad and Varied Repertoire of Teaching Methods*

Jan Håkansson and Daniel Sundberg demonstrate in their knowledge review *Utmärkt undervisning* that the proficient teacher uses a diverse range of methods in order to impart knowledge to pupils and secure it there. The American researcher Lee Schulman coined the term *pedagogical content knowledge* (PCK) in the 1980s. The term is usually translated into Swedish as *ämnesdidaktisk kompetens* or *ämnesdidaktisk kunskap*. A teacher's PCK is the expertise that makes him or her proficient and able to teach in a meaningful way. In reality this relates to teaching skill, which means that a teacher can explain, illustrate and exemplify the subject in different ways so that it becomes as comprehensible to the student as possible. A proficient teacher can vary the instruction and adapt it to the specific context. A proficient teacher can also vary how a certain message or fact is conveyed. This relates partly to knowledge of the subject itself, partly to knowing how the subject is taught. In her review *Att se helheter i undervisningen: Naturvetenskapligt perspektiv* (Recognising Totality in Teaching: A Scientific Perspective), researcher Pernilla Nilsson describes PCK in more detail and also describes how important it is in relation to the teacher's classroom practice.

The most prominent lesson is that no method works for everything. This is also discussed in the Swedish National Agency for Education's report *Allmänna råd om planering och genomförande av undervisning* (General Advice on the Planning and Implementation of Teaching). Conducting teacher-led instruction thus does not

mean that the pupils should never be allowed the space to work individually in order to reinforce knowledge or that pupils should never look for information alone or in groups. Naturally, it is also the case that the methods you are using must be adapted to the pupils' pre-existing knowledge and to how far they have come in a subject.

However, what the aforementioned researchers, as well as many others, argue is that it is key that a teacher supervise and take responsibility for the learning process and make this visible, for themselves as well as for the pupils, and that they choose the methods that are appropriate given what is to be learnt, who is to do the learning and which situation they find themselves in. Providing a good standard of teaching for all pupils is conditional on the teacher's possessing a broad repertoire of teaching methods. Examples of how you as a teacher can develop your repertoire, for example, through lesson and learning study, are found in Chapter 3.

### *Creating a Climate for Dialogue*

There is also support for the claim that the best teaching often takes place in a climate for dialogue. Language is humankind's principal medium for the transmission of knowledge. Japanese mathematics teaching is often highlighted as a good example. There is a tremendous conscious effort to involve pupils in problem solving and understanding mathematics through the teacher's leading mathematical discussions in class. From the Swedish perspective, a number of studies deal with the significance of language within the scope of mathematics teaching, but language has, of course, a key role in all instruction.

This is clearly shown in the book *Lärande, skola, bildning* (Learning, School, Education) by Ulf P. Lundgren, Roger Säljö and Caroline Liberg. It is also a matter of creating your understanding of the content by listening to others and putting your own knowledge and understanding into words. An additional important aspect is developing a group climate that benefits learning in accordance with a permissive work climate.

### *Creating Security and Seeing Every Pupil*

Another common denominator for many studies regarding what characterises successful teaching is that they highlight the significance of trust between teachers and pupils and of a teacher's seeing every pupil. It is fundamental for good teaching that the classroom be characterised by a high level of security and trust so that pupils dare to say that they do not understand – in other words, a good and secure environment. In a climate of good learning pupils feel secure in the knowledge that they can make mistakes and that a raised hand may just as well signify "I did not understand any of that" or "I think that you explained that badly" as "I think I know the right answer". A teacher's interest in the subject and in caring for pupils has a great impact on the quality of the pupils' learning.

### *Encouraging the Exchange of Experiences Between Pupils*

An additional aspect that is highlighted in research is the significance of peer influence, which is the influence that pupils have on one another and which can be a powerful

tool for learning. The teacher has an important role in this. Håkansson and Sundberg argue in *Utmärkt undervisning* that an important aspect is to regard the pupils themselves as the most important source of information. This approach is closely related to formative assessment and feedback.

Peer assessment is becoming increasingly prevalent in Swedish schools. In *Utmärkt undervisning*, Håkansson and Sundberg show that peer assessment can be used successfully even in the early school years, but that it is important to introduce it in the right way. Self-assessment or self-evaluation, whereby pupils judge their own work, is closely connected to peer assessment. Peer assessment and self-assessment are discussed further in Chapter 4.

### *Making Use of Formative Assessment*

One final example of a tool that can be used in teacher-led instruction is formative assessment (we also return to this in Chapter 4). The principal goal of formative assessment is to continually chart where pupils are in the learning process, visualising this for yourself as the teacher and, in particular, for the pupils themselves, and subsequently adapting the teaching appropriately. The principal strengths of formative assessment are that it is forward-looking and that it focusses on feedback. A trusting work environment in which tolerance and respect are important cornerstones is required in order for feedback to be given and received. A pupil or a teacher who feels insecure and who works in a condemnatory environment will not be able to cope with feedback as a tool. It must

be acceptable to do the wrong thing and to ask "stupid questions" without being laughed at or put down. This means that the most important component in making formative assessment a success is a good, secure working environment for all.

Formative assessment can be used on several levels. The idea is that it provides support mainly for pupils to deepen their knowledge through feedback, but a teacher who works formatively makes use of the assessment results to adapt his or her teaching to the cohort of pupils more effectively.

## SUGGESTED READING

John Hattie, *Synligt lärande för lärare*. 2012.

Jan Håkansson & Daniel Sundberg, *Utmärkt undervisning. Framgångsfaktorer i svensk och internationell belysning*. 2012.

CHAPTER 3

# Teachers' Professional Development and Collaborative Learning

In the academic literature, it is hard to find support for the idea that individual skills-development initiatives in the form of a few lectures based on the individual teacher's interests and responsibility have a lasting effect. The effect is often that the individual skills development, in most cases, ends with the individual teacher. Conversely, there is increasing support for the statement that systematic skills development over a long period that is grounded in school-based activities, classroom observations and reflection upon these and that incorporates elements of external expertise has a good chance of leaving a durable impression on the operations. Other examples are described in one of the largest meta-studies of research into teachers' professional development, *Teacher Professional Learning and Development: Best Evidence Synthesis Iteration*, which is synthesis by New Zealand researcher Helen Timperley and her colleagues.

Studies conducted by the British Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI Centre) also support the statement that the development of collegial expertise has a greater effect than developing that of the individual. The EPPI Centre is a world leader in systematic reviews in the field of education. The EPPI Centre highlights the importance

of teachers identifying their own training requirements and of there being processes that encourage, expand and structure the professional dialogue and that make it possible for teachers to try out what they have learnt in their own classrooms. The EPPI Centre summarises as follows: "The overall picture of what it is that has a positive impact indicates that continual collegial training for teachers has a great potential to play a decisive role in the practical interpretation and implementation of school reforms."

From a Swedish perspective, in his book *Hur kan lärare lära?* (How Can Teachers Learn?), researcher Lars Mouwitz highlights the importance of engaging teachers in the design, implementation and evaluation of the projects and of the great significance of activities that involve the entire subject group. Mouwitz sees problems in picking out individual teachers and giving them external training because teachers cannot then assert themselves once they return to their colleagues and traditional school culture. All in all, the teachers' knowledge of classroom practice must be acknowledged and refined, and changes in working practices must stem from this knowledge potential in combination with new research.

## What Is Collaborative Learning?

*Collaborative learning* is a generic term for various forms of professional development in which colleagues use structured collaboration to assimilate knowledge in their day-to-day practice. Collaborative learning is particularly suited to professions that have practical or clinical elements. In these professions, the practitioners will often

be creative, seek out knowledge and adapt their knowledge to the complex problems that are placed in front of them, rather than finding answers to given questions in advance. This is based on two or more professionals having tasks that they need to prepare and solve, discuss and reflect upon before perhaps seeking help or discussing the issue further with a supervisor. There are many different methods that are covered by this umbrella – for example, learning study, lesson study, learning walks, co-teaching, collegial supervision, research circles and action research. The model chosen will depend on the conditions and on what is most appropriate to the context.

Discussing your teaching is nothing new. What is new about collaborative learning is that you work in a considered way with a structured development process and learning that emphasises the way forward to find solutions, to formulate problems and critically review not just the work of others but also your own. A central feature of collaborative learning is that participants practice the systematic provision of feedback to one another about the accomplishment of various tasks.

Teachers must also discuss a chosen and shared aspect, preferably with the support of an external supervisor. The supervisor's role is to give feedback and provide input to the discussion so that the participants feel that they are making progress. Supervisors do not need to be researchers, but it is important that they have good knowledge within the field that is in focus. They should be from the outside and not be connected to the group, and they must be prepared to challenge and to drive the group discussion forward.

Collaborative learning is thus not synonymous with a group of colleagues simply sitting down and talking amongst themselves.

## Collaborative Learning as a Continual Cyclic Process

Helen Timperley is a strong advocate of abandoning the view of professional development as something each teacher chooses based on his or her own interests and responsibilities. Instead, the desired outcome (i.e. that pupils improve their results) should be the motivation behind teachers' professional learning. When teachers and principals consider together how they plan to develop their practice, this cannot be governed by the teachers' desire to change a particular skill. The selection of development initiatives must be governed by whether or not they lead to improvements in the pupils' learning and development.

Timperley believes that teachers all too often carry out initiatives and take for granted that they will have the intended effect, without finding out whether or not this is actually the case, and subsequently move on to the next initiative that they have heard will be good for some reason or another. This can lead to what the American researcher Steven Katz calls "activity traps". You do things that certainly could be good in many ways but are not based on identified needs and thus divert resources away from things that really need to be done.

One lesson that has been learnt from many development initiatives is that it is important to be prepared to prioritise and to take aim at certain goals until they are

actually achieved. All schools have an unlimited number of potential areas for development that they might choose to work with. However, maintaining focus and persevering is one of the most important and also one of the most powerful ways in which to work. Schools must withstand the temptation to do many good things if they want to achieve in-depth learning and real change. According to Timperley, success requires focussing on one or on just a few goals that are the most urgent for the organisation at hand, not "running after all the balls".

The pupils' learning and development are the foundations of Timperley's model, and you work to adjust the teaching until these goals are reached. The model is built on a formative approach and involves a continuous


**Helen Timperley's model for professional learning.**

dialogue between those who work together in the development process.

The process begins with the teachers' identifying the knowledge and abilities that pupils require in order to achieve the goals. The next stage involves the teachers' identifying the subject-specific didactic knowledge and expertise they themselves require in order to help their pupils acquire the relevant knowledge and expertise. The key question is "What must we learn in order for our pupils to fulfil the goals?" Thereafter, the teachers undertake the continuing professional development that in turn will lead to changes in their classroom working practices that provide the pupils with new learning experiences.

The process concludes with the teachers' analysing the impact their changed working practices have had on their pupils' results. Did what was tested work? The point is to identify what has been effective and worked well and what has not worked so well. Teachers should constantly reflect on what is being done and continually develop the teaching. Repeating the cyclic process is vital to achieving results. Don't give up before the goal is achieved; reformulate the problem until its goal is achieved. This process can continue for a long or a short period, and it can be repeated time and again.

Timperley's model places clear demands on leadership and organisation. Teachers cannot manage this work on their own; they require support from the principal and their employer. Effective professional development is just as challenging for the organisation as it is for the teachers. Consequently, the entire organisation must become an organisation that learns. The principal and managers

higher up in the organisation must also be involved in the same type of learning as the teachers.

The same secure, respectful relationships that the teacher needs to build with students to lead them forward in the acquisition of knowledge must exist at all levels of a functional and improving school system. What everyone needs to do at all levels is to work together with members of their group to identify and address the needs that exist in order to create a better learning environment for the pupils.

## How Can You Create Motivation for Professional Development?

Seeing what impact changes to teaching have on pupils is an important driving force behind the motivation for teachers to develop their expertise and change how they work in the classroom. Teachers will be motivated to do something different in a classroom if they believe that this will be better, know what it is they will be doing and also have the courage to try it. Consequently, Timperly indicates that a change in attitude towards the task at hand often forms the foundation of a successful training initiative.

It is fundamental that those who participate in school development have a sense of their own involvement in the process, as it is precisely these people who will themselves bring about the change. Every teacher who participates in the initiative should be involved in the evaluation of its results. New ideas need to be processed with colleagues. Otherwise, it is easy for them to simply float about on the surface; instead, it is important

to ensure that everyone understands that there is a more deep-rooted plan.

Philippa Cordingley maintains that certain component parts have greater importance in the successful implementation of continuing professional development. Elements such as classroom observations, reflection and experimentation with an emphasis on collaborative learning and support are prerequisites for this work. It is also important that teachers have the opportunity to identify their own professional training needs and that teachers have the opportunity to test the lessons they have just learnt in their own practice.

Key is the understanding that, regardless of whether factors such as socio-economic status, parental educational background and cultural conditions are of great significance, how the school acts and how the teachers instruct can have a huge impact on pupils' learning. There is so much power in the teaching situation itself. This means that proficient teachers can change a great deal for a pupil or pupils. It is important that both teachers and principals are aware of this power.

Timperley emphasises that it is only through a change taking place in a classroom that a change in the pupils' learning will be achieved. An initiative that is intended to improve the fulfilment of goals in a country, a municipality, a school company or an individual school will not have any effect on the pupils' goal fulfilment if it does not lead to something being done differently in the individual classrooms.

This type of attitude change and work to change norms can be somewhat difficult to implement, which is why

the management of the process is so important. All of those involved – principal, employer, teachers and pupils – can find themselves in various defensive positions at different stages of the change process. In the effort to implement such attitudinal change, the wording of the Education Act, which states that teaching must be based on scientific knowledge and proven experience, can be one of several useful tools.

### *School Development and Systematic Quality Improvement*

There is research which indicates that school development has the greatest impact when principals and teachers own the process. Timperley's model focusses on teachers' professional learning, and this professional learning is an important component in a school's overall development. When talking about school development, teachers' professional development is one of several possible instruments used to bring about lasting change. Other important aspects are longevity, connecting initiatives to results and goal fulfilment and always keeping the pupils' goal fulfilment in sight. From the preschool perspective, goal fulfilment refers to the organisation's goals.

In the governance of Swedish schools this is summed up with the term *systematic quality improvement*. The Education Act stipulates that all schools and employers must undertake systematic quality improvement. This work mainly involves two fundamental components: focussing on goals and systematically evaluating these goals in order to assure that they achieve the desired effect (i.e. that the goals are achieved). Practical support

for systematic quality-improvement efforts can be found in the Swedish National Agency for Education's publication *Allmänna råd för systematiskt kvalitetsarbete* (General Advice on Systematic Quality Improvement). This emphasises the need to follow up on and analyse the organisation's results in relation to what scientific knowledge and proven experience highlight as significant but also stresses that it is important to take into account current research in the planning and prioritisation of local development initiatives. Locally driven school-development initiatives are very important for the quality of all school systems.

In his book *Systematiskt kvalitetsarbete i förskola, skola och fritidshem: Strategier och metoder* (Systematic Quality Improvement in Preschools, Schools and After-School Recreation Centres: Strategies and Methods), Jan Håkansson writes that presenting qualified analyses is not an end in itself; rather, these should be used in the improvement work so that all pupils attain learning, development and study results. A research-based approach must permeate this improvement work.

Systematic quality improvement can in part be compared with scientific work, as it takes a critical approach and demonstrates a requirement for classification and documentation. As with scientific work, the continual process of systematic quality improvement must contribute to an improvement and development of the area on which it is focussed – for example, goal fulfilment or work on core values. Both activities are also concerned with building new knowledge.

An important difference between scientific work and systematic quality improvement is that systematic quality improvement is not research, but it should, however, be based on the results of research in order to adhere to the Education Act's requirement that teaching be based on scientific knowledge and proven experience. The question "What works better than other things?" should be answered with the help of research results. Systematic quality improvement is to be conducted continuously and can focus on different areas in order to meet local requirements. The areas chosen to work on should, however, be rooted in scientific knowledge and proven experience.

## Lesson Study and Learning Study – An Example of Collaborative Learning

An important aspect of teachers' professional knowledge is that they have an awareness of their own teaching and that they question themselves and reflect on their pupils' learning; this is transferable knowledge that can be utilised in other lessons and other areas. Two methods that can be used to help teachers in this respect are called *lesson study* and *learning study*.

Lesson study and learning study are, in the most general terms, collegial cyclic processes in which a group of teachers collectively, preferably with an external supervisor, reflects on how their pupils' knowledge develops best. These methods provide the opportunity for teachers to develop their own practice and to benefit from the groups' collective knowledge.

There is currently huge interest in these two methods. One possible explanation is that the methods focus on teaching's core, the development of the pupils' knowledge and abilities. Another is that both methods are collective processes. An individual teacher's performance is not what is analysed and observed; rather, the content of a lesson that a group of teachers has collectively put together is.

### *Lesson Study*

Lesson study is a method for collegial teaching development that has been practised in Japan for more than one hundred years. The most important elements of a lesson study are collective planning, observing colleagues' lessons and that the lesson is analysed in a group discussion. In this way, various aspects of a lesson can be refined and changed until the desired goals are achieved. A lesson study can be used to study and develop a number of different aspects of teaching, everything from concrete learning objects to the treatment of a pupil with special needs.

A lesson study thus consists of a group of colleagues who work together to develop a lesson. One result of the group's work is that the lesson itself is developed, and another is that the teachers gain access to one another's ideas and experience. One further result is that the lesson can be disseminated to others by inviting other teachers to participate in observing the lesson and in the discussion that follows. In Japan, hundreds of teachers can gather in order to watch a lesson study lesson.

*Learning Study*

Compared to lesson study, learning study takes forms that are somewhat more fixed. Characteristic of a learning study is that it

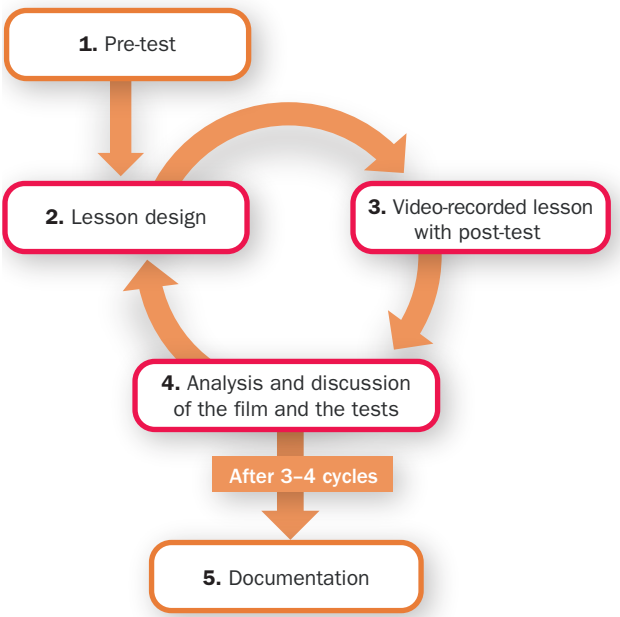
- is integrated into day-to-day work,
- is focussed on a specific ability that the pupils should develop,
- involves the systematic gathering and collective analysis of data on the pupils' learning and teaching, and
- has a theoretical grounding in variation theory.

A central premise of variation theory is that pupils interpret concepts or phenomena in different ways, depending on which aspects of a learning object they discern. Teachers must therefore demonstrate and offer alternative strategies for teaching aspects that are important in order to create understanding of a concept. A learning study is conditional on working with a well-defined problem, using pre- and post-tests and having time to revise and change the lesson plan between the different cycles of a study.

A learning study visualises and tests assumptions about what is most beneficial for the pupils' learning of a specific "learning object" (i.e. an insight, ability or skill that pupils will develop over the course of one or a couple of lessons). A learning study is both a research method and a model for expertise development. It is possible to call learning study a Swedish lesson study, as the method was developed by Ference Marton at the University of Gothenburg, among others.

*Working with Learning Study*

A learning study begins with the participants agreeing on a learning object that the pupils will know following the lesson; this may be, for example, the relationship between an atom and an ion.




**Schematic overview of a learning study.**

In step 1, the pupils' prior knowledge of the chosen learning object is charted using a type of pre-test. The pre-test is assessed collectively by the teachers, and the pupils' knowledge gaps are analysed in order to find the potentially critical parts of the learning object. The teachers discuss what the pupils find hard about the teaching in this area and what may cause this. In step 2, a lesson is planned in detail based on the analysis, with a focus on the chosen learning object. The teachers collectively discuss how to approach the teaching, what the critical aspects are and what is required in order for the pupils to understand the content.

One of the teachers may then conduct the first collectively planned lesson. A video recording is made of this, and after the lesson a post-test is conducted with the same cohort of pupils (3). The teachers subsequently compare the post-test with the pre-test. In this way, the teachers can analyse (4) what the lesson has meant for the pupils' learning. The tests are thus used by the teachers to attempt to understand what makes it easy or hard to learn a specific piece of content. As a group they also watch the video of the lesson and analyse the teaching and the pupils' response. By analysing the lesson, the teachers can see whether the pupils actually learnt what it was that the teachers had intended to instruct them about. The reasons these do not always match may be that teachers missed something in their planning or that something unexpected has happened as a result of there being many people interacting in the classroom.

Following the analysis and discussion, the colleagues refine the lesson plan. The improved lesson plan is imple-

mented by a different teacher in a different class whose pre-existing knowledge has also been tested. A new post-test is conducted following the second lesson, and the results are analysed in the same way as those of the first lesson. This may be repeated one or two times more. An important part of the study is to document (5) what has been done and what the end result is.

### *Getting Started with Lesson Study or Learning Study*

There are many ways to begin using lesson study or learning study. A group of teachers can decide to use the method in order to develop their teaching. All that is required is that the group meet in order to discuss a plan, decide what they want to develop and then design the lessons to reflect the collective plan.

Another way can be for a school to introduce lesson study or learning study in order for all of the teachers to participate. The aim may be to develop teaching within the subjects or subject areas but also to develop collegial collaboration related to teaching. If you want to try this type of collaborative learning, there is good reason to look more closely at learning study, as its clearer framework makes it simpler to administrate.

In the planning of a learning study, it is important that employers and school leaders are prepared to allocate time and that appropriate supervision is assured. Learning study is time-consuming; therefore, it is extremely important to identify the problems that will be tackled. The last issue has been dealt with in a number of schools through training supervisors at the school who then

devote part of their time to supervising learning studies. Qualified supervision is important, but experience from the Swedish National Agency for Education's mathematics initiative of 2009–2011, reported below, indicates that it is not actually necessary in order to achieve a good result using this method.

*Example – The Mathematics Initiative*

Within the scope of the Swedish National Agency for Education's mathematics initiative of 2009–2011, many schools chose to develop their mathematics teaching using learning study, and the evaluation described the initiative as successful. Collaborating with their colleagues in a learning study was shown to be something that all the participating groups of teachers found to be rewarding. The evaluations indicated that, through learning study, the groups of teachers took collective responsibility by jointly planning the teaching, and the teachers reported that they had gained another view of their profession through taking part in the project. The content of the teaching was brought into focus in a clear way using learning study.

Furthermore, the teachers' ability to choose the right method and the right time to use it was strengthened over the course of the project. Examples of this are that the teachers planned in a more structured way, identified critical aspects and became more certain in their use of mathematical concepts. In turn, this resulted in additional conversations about the mathematical content in the classroom between teachers and pupils, amongst pupils and amongst teachers.

Even though the schools did not, in many cases, implement learning study in an entirely thorough way (the schools rarely had access to supervision), the initiatives still had positive effects on the teachers' knowledge, their view of their work, the content of the teaching and the pupils' results. The evaluation underlined, however, that supervision itself was vital to the quality of the teachers' collaborative learning. The groups of teachers whose supervisors had knowledge of both variation theory and mathematics were very successful, while the groups whose supervisors had not connected the different concepts within variation theory to the mathematical content were still successful, but less so. The evaluation also showed that the groups of teachers who were provided with time in their schedule to work on the project were more successful, while the groups that had to organise supply teachers themselves and attempt to find time to work together on the project were less successful. This shows the significance of the school leadership's support for collaborative learning initiatives.

### *Criticism of Learning Study*

The most common criticism levelled at learning study is that the method requires fairly strictly planned lessons, which makes the lessons static and limits the teacher's opportunity to improvise. The teacher must follow the collective plan in order for it to work. This means that the teaches cannot always embrace the pupils' spontaneous contributions and questions, which may feel artificial. The individual lessons that are part of a study are indeed in some sense artificial model situations that aim to develop

teachers' view of how pupils learn. However, only one of the many lessons that pupils have over the course of a school week is affected in this way. A further criticism is that variation theory readily focusses on the content and not on how it will be taught (i.e. the teaching itself).

A not entirely unusual misunderstanding of learning study is that the aim is to build up a battery of "lessons that work". It is certainly possible to create lessons in a collective process using learning study, as has been done in Japan. There is the potential in the future for teachers to share such quality-assured lessons both locally and nationally. It is important to always remember that each lesson is adapted to the context and the preconditions of the individual group of pupils. However, the main aim of a learning study is that teachers will gain an awareness of their own teaching and question themselves and reflect on their pupils' learning; this is transferable knowledge that they can use in other lessons and in other areas.

## SUGGESTED READING


The Swedish National Agency for Education, *Allmänna råd om systematiskt kvalitetsarbete* (General Advice on Systematic Quality Improvement). 2012.

Helen Timperley, *Realizing the Power of Professional Learning*. 2011.

The Swedish National Agency for Education, *Att se helheter i undervisningen: Naturvetenskapligt perspektiv* (Recognising Totality in Teaching: A Scientific Perspective). 2012.

Nationellt centrum för matematikutbildning (National Centre for Mathematics Education). http://ncm.gu.se/

CHAPTER 4

# Formative Assessment

Assessment is usually divided into two types, summative and formative. Summative assessment is performed when the teaching of an element has been completed. The aim is to measure the sum of what the pupils have learnt. In practice, summative assessment can be one part of a final assessment of the pupil when determining grades but can also be used formatively by the teacher in order to see which pupils need more help or whether the teaching during a particular section provided the intended learning.

Formative assessment is nothing new. It could be said that formative assessment puts a name to something that good teachers have always done – establishing the pupil's ability and then adapting the teaching such that it becomes meaningful and relevant. What is new and interesting is that research has shown that formative assessment has the potential to make a real difference in the effectiveness of teaching in those aspects that can be described as daily and constant.

By recording and noticing what we do ourselves, by comparing with colleagues and being inspired by research and development in the field, we can develop methods and activities based on formative assessment. In a strict sense, formative assessment involves assessing as the teacher does during the teaching process itself – before a teaching sequence is complete. The aim of

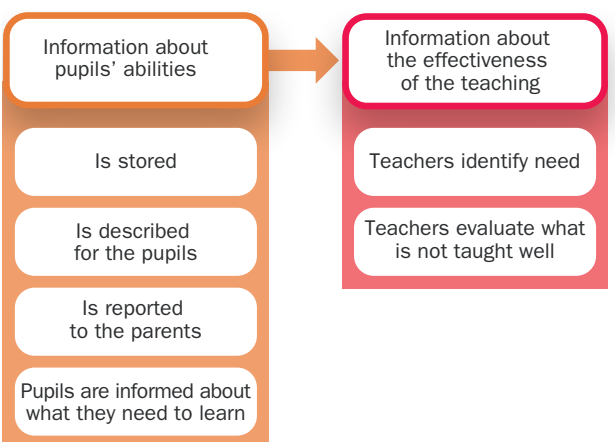
formative assessment is to chart and visualise where the pupil is in the learning process so that the teaching can be adapted accordingly. Therefore, it is the teaching that is formed. Based on questions such as "What have the pupils understood?" or "What have they learnt?" the teachers ask themselves "What can I do differently?" or "What can I explain in a different way?"

There is a great deal of research that points to formative assessment as having a strongly positive impact on pupils' learning. Formative assessment visualises the learning that is ongoing for both the pupils and the teacher. The aim is to assess the teaching just as much as it is to assess the learning. It should be possible to regard formative assessment as a transfer of the weight of the assessment from the pupil's knowledge to the quality of the teaching.

Research into formative assessment highlights the significance of the pupils' working with the teacher. What is known as "peer assessment" has been shown to be a very usable tool. The British researcher Dylan Wiliam usually describes five key strategies within formative assessment:

- Clarify, understand and share the learning goals.
- Create effective classroom discussions, tasks and activities that support learning.
- Provide feedback that moves learning forward.
- Activate pupils as learning resources for one another through collaborative learning and peer assessment.
- Activate pupils to become owners of their own learning through working with metacognition and self-assessment.

With a basis in formative assessment, we may no longer regard teaching as something which teachers produce at a distance and the outcome as dependent on how well the pupils assimilate the teaching. To give and receive feedback is fundamental to formative assessment. Formative assessment thus amounts to the teacher's continually ascertaining what the pupils have understood and which abilities they have developed. If the pupils have not understood, the teacher must try another way of doing things. Formative assessment provides a clear signal that the learning process is the teacher's responsibility.




**Changing the target of the assessment from the pupils' abilities to the quality of the teaching.**

One idea in formative assessment is that if too much of the teaching is assessed summatively this can make pupils hesitant to experiment and consequently render them less creative. The pupils perhaps, for example, do not dare to tell the teacher that they do not understand for fear that they will get a poorer grade. This can lead to undesirable outcomes, such as able pupils' becoming too rigid in their thinking while the weaker pupils constantly receive confirmation that they do not know enough. The pupils need to feel that they may develop in relation to their own capability and an open climate that encourages learning.

Summative assessment and formative assessment are both important – summative because there are requirements for monitoring and grading, as well as in advance of further study, and formative because it benefits learning. How the assessment elements are constructed does not actually need to differ between summative and formative assessment. For example, national tests can be used in both types of assessment. However, the question is how schools and teachers then use the results of the assessment: Do they use the tests as a basis for awarding grades or as a basis for reflecting on and discussing what it is in the teaching that determines the pupils' results? A good assessment consists of both the summative and the formative.

The summative assessment that is conducted following the teaching element can show whether the pupil knows something, but there is then no time to do anything about it. Formative assessment can capture problems while there is still time to adapt the teaching accordingly.

## Working with Formative Assessment

One way of developing your teaching can be to reconsider your assessment procedures based on what research into formative assessment has shown. However, as said before, changing ingrained patterns in yourself, your teaching and your workplace requires courage.

The development of formative assessment is facilitated if it takes place through collaborative learning in a school where teachers can help and support one another and where there is time for pedagogical conversations. As we previously mentioned, it is also preferable that an external expert be connected to this process so that those involved – the teachers and, by extension, the pupils – feel that the collegial conversation is beneficial and the teaching improves.

A procedure that you can try is to not award points for all of the tests during a term. The numbers easily distract from the formative aspect of assessment. Receiving a grade with numbers or letters does not really communicate very much. What is the educational content of such feedback? It is easy for it to simply reinforce the pupil's belief that points reflect an ability or aptitude rather than that they have learnt something. In order for the assessment of a mistake to help pupils learn, pupils must understand why they were wrong and what they must do in order to get it right the next time. Numbers or letters are of no help with this.

There are many ways to incorporate elements of formative assessment into the teaching – for example, checking quickly whether students know the multiplication tables. The teacher can check to see how sure pupils are

of the tables they have practised: thumbs up if they are totally certain, thumbs down if they think it is hard, and thumbs horizontal if it is going pretty well, but they think they need a little more practice. The teacher does not use this check as an assessment on which the grade will be based but rather to guide the teaching and perhaps to decide that the class needs to practise the fourth times table once more.

Another way can be to use what is known as "exit tickets", which involves the pupils, for example, writing what they thought was the main point at the end of each lesson or what they learnt over the course of the day. A positive aspect of this is also that the pupils themselves may reflect on the point of what they have learnt or on what they have gained from the lesson, an element or a day. It then becomes a way to keep the pupils engaged in a learning experience.

A further way can be to do away with the raising of hands when the pupils are to answer questions. Instead, the teacher can, for example, draw a pupil's name from a jar. This brings with it other positives. For one the pupils must come better prepared as they cannot be sure they will avoid having to answer simply by not raising their hand, and the teacher must pose good questions that open up discussions and reflections on the question or subject.

### *Feedback*

Feedback is a key concept within formative assessment. Feedback that supports learning is characterised by being forward looking and being based on the assessment that has taken place of the pupil's performance or knowledge.

It should be developed in such a way as to contain information that the pupil can use and should be marked by a dialogue between pupil and teacher in which the focus is on how the pupil should move forward.

The British researcher James Nottingham maintains that far too little feedback is provided and that this is a shame because the right sort of feedback has a very positive impact on pupil and on pupils' ability to gain an overview of their own learning – self-regulation.

Not all feedback is effective or even productive. Feedback that is directed at the pupil as a person can, for example, consist of unspecified praise. Such feedback seldom has a positive impact on learning. One reason is that such feedback rarely contains sufficient information to allow the pupil to use this to improve performance. Feedback that only consists of grades can also be considered directed at the pupil as a person. There is a risk in such cases of focussing on the pupils instead of on the task. This can have an impact on motivation, especially for pupils who get poor grades or assessments.

The most effective feedback is that which can be generalised to other tasks or that is directed towards strengthening pupils' ability to push their own work forward. Feedback at the task level is not as effective but works well in combination with more generalisable feedback at the process level.

### *Self-Assessment*

Another tool used in formative assessment is self-assessment, which involves pupils in reflecting on their work, assessing whether it accords with the knowledge require-

ments and subsequently reviewing how they work or undertaking additional practice. When pupils assess their own performance, this serves to reinforce their learning. Through active assessment, the pupils have increased their chances of becoming familiar with the characteristics of quality. Self-assessment is often discussed as one part of the concept self-regulation. What this means is that the pupil develops independence, self-control and self-discipline and becomes better at assessing, planning and taking responsibility for his or her own learning. The goals of school include allowing the pupils to gradually take more responsibility for their studies and improve their ability to assess their own results. Formative assessment can contribute to the pupils developing strategies for self-governance.

### *Peer Assessment*

Peer assessment is another aid that can be used to strengthen the pupil's own ability to assess. It is important to differentiate between peer assessment and peer effects. *Peer effects* can be described in brief as the effects of a pupil's peers on his or her learning. We know that peer effects have a huge impact on learning. It is a much more important factor than was perhaps suspected previously. We will discuss peer effects further in Chapter 5, *Inclusive Working Practices*.

When assessing their peers, pupils see further examples of how tasks can be accomplished, which can support their understanding of and ability to identify the differences in quality between different pieces of work. They can then more easily identify strengths and weak-

nesses in their own work. When pupils act as resources for one another, they also receive feedback in a greater number of instances.

When pupils provide feedback to one another, they use their own ways to explain, providing feedback that is different in character to that which the teacher would have provided. One aspect of peer assessment is that it can contribute to the pupils becoming more involved in assessment matters, which in turn can strengthen and facilitate communication about assessment between teachers and pupils.

It can take time to develop both peer assessment and self-assessment if the pupils have not encountered this previously. It is important to consider that this is something the pupils must practise if they are used to a classroom culture where it is only the teacher that assesses.

## Why is Formative Assessment Not More Common?

Many studies bear witness that formative assessment has significant positive effects on pupils' learning. For a method within the field of formative assessment such as feedback, for example, Hattie shows an effect size of 0.79. Effect size is a statistical measure and an effect of 0.79 means that a pupil cohort that is encompassed by formative assessment will on average learn almost twice as much as a cohort that did not receive such teaching. An effect of 0.79 is thus very large and means that the pupils who worked with formative assessment have learnt the equivalent of one year's worth more than a cohort who did not work with it. The average of all the

effect sizes from the over 800 meta-studies that Hattie used in his extensive meta-analysis was 0.40.

The Swedish assessment researcher Christian Lundahl states, in line with his international colleagues, that formative assessment is the educational tool that is of the greatest significance for pupils' knowledge development. According to him, formative assessment leads to results that are up to four times better than reducing class size by 30 per cent. According to Lundahl, allowing teachers the additional time they need to work formatively is 15 times more cost-effective than reducing class sizes.

As noted at the beginning of this knowledge review, the OECD is of the opinion that formative assessment can be classified as an evidence-based method. Many preschools and schools work with formative assessment, value it and also recognise the power of the method.

If formative assessment is as good as is claimed, why has it not yet gained a greater place in our teaching traditions? Christian Lundahl states that one reason is that the school's assessments are governed, to a great extent, by selection processes. Grades are not just measures of learning but are also used to select who will be allowed to go to which school or to participate in which educational programme. Since selection processes are important, it is vital to provide fair and comparable grades. Hence, it appears natural to use large final tests as the primary assessment tool because they may be perceived as fairer and more reliable than continual assessments.

He indicates that another reason may be that teacher-training programmes have not devoted much effort to dealing with assessment, either summative or form-

ative. This has resulted, to a great extent, in teachers' repeating the assessment methods used during their own time in school.

A further reason is teachers' stressful work situation. When you are stressed, it is natural that you will do what is simple – for example, administer a test. It is relatively simple and feels safe. It is therefore important that the employer and the principal provide space for and collaborative learning opportunities on the subject of formative assessment.

## SUGGESTED READING


Anders Jönsson, *Lärande bedömning* (Learning Assessment). 2011.

Christian Lundahl, *Bedömning för lärande* (Assessment for Learning). 2011.

Dylan Wiliam, *Embedded Formative Assessment* 2013.

The Swedish National Agency for Education's Assessment Support. http://www.skolverket.se/prov-och-bedomning

CHAPTER 5

# Inclusive Working Practices

A fourth thematic area relates to inclusive working practices. The Education Act stipulates that everyone will have equal access to education in the school system, regardless of where they live or their social and economic circumstances. The education will also be equivalent in each school of a specific type. The motivation for this is that all people are of equal value and thus have the same right to education. According to the Education Act, pupils must also, to the extent possible, be taught and receive specific support in the group to which they belong.

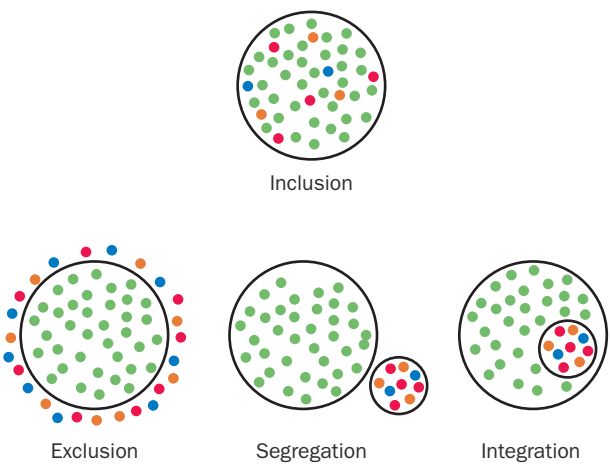
With regard to children who have been placed in the care of the state and who fail in school, there appears to be a strong risk that their subsequent development will be affected. The National Board of Health and Welfare's Social Report 2010 indicates that children and young people who fail in school are at a higher risk for future psychosocial problems – regardless of their socio-economic background. The National Board of Health and Welfare goes on to say that it is possible to have an impact on performance in school (as opposed to gender and experience from early childhood). It is thus possible to help these children, and if society wants to improve their future prospects, it must help them perform better in school. The most powerful protective effect for young people comes from having a complete final grade from year 9. A final grade reduces the risk of, for example,

serious criminality, benefit dependence, substance abuse and suicidal tendencies.

At the international level, UNESCO underlines that an inclusive school system is the most effective way to build solidarity between all of the pupils. Children and young people should be sent to special schools only in exceptional cases. For its part, the OECD indicates that it is important to move away from the categorisation and designation of children and young people, as labels can imply that the pupils in the most vulnerable groups receive their education separately and in different schools from pupils in the ordinary group. Increased support for teachers and principals is required in order for inclusive teaching to be successful. It is important to begin this work by tackling the attitude itself. Teachers must be given tools that they can use to meet the natural variation in needs that may be found in the classroom.

The OECD goes on to say that the benefits of increasing inclusion, connected to other priorities such as social justice and a cohesive society, are long-term investments in the education of children and young people and also that an ever more inclusive education system is probably a more effective use of resources than short-sighted initiatives designed to bridge gaps or support various marginalised groups. In a study from 2012, the OECD points out that improvements for the worst-performing pupils do not need to take place at the cost of the high achievers. The results of PISA show that the countries that have made the greatest improvements or have the best results are those that have clear, ambitious guidelines and targets, have an overview of the pupils' results,

provide greater freedom to individual schools, do not educate pupils separately in compulsory school, invest in teachers' preparations and development and provide different types of support to schools and pupils that have poor results.




## The Difference between Inclusion and Integration

Inclusion is a concept that has come to express a democratic idea about how teaching should be organised. Claes Nilholm indicates that an important point of the concept is that the school will be designed to cope with the natural variation that is found amongst all people, rather than adapting to divergent pupils i.e. pupils whom one wants to integrate into activities and structures that are

not adapted for them. What he means is that it is important to differentiate the concepts *inclusion* and *integration*.

Integration involves adapting a pupil who diverges to an organisation, rather than adapting the organisation to the pupil. The problems that arise are then individualised and placed on the pupil, instead of on the organisation itself. Integration involves a more passive view of the pupil, and in the worst case, it precipitates large problems for all those involved: the integrated pupil, the teacher, the principal, the classmates and the parents.

Inclusion, on the other hand, points out the importance of an attitude in which it is normal to presuppose pupils' natural diversity and see this as something positive. The organisation should be adapted accordingly in order to satisfy these varying needs. In their knowledge review *Inkludering – en utmaning* (Inclusion – A Challenge), Claes Nilholm and Kerstin Göransson indicate that in inclusive teaching all pupils participate socially in the community, all pupils participate in learning and all pupils are involved in the democratic process. All individuals are assets; however, certain characteristics may not be regarded as assets. This relates to the idea that all pupils will gain something shared from education at the same time as education will encounter the pupils' differences.

Nilholm sums this up by saying that integration involves adapting divergent children to fixed school organisations that are not at all adapted to them, while inclusion involves changing the school environment to adapt it to the diverse variety of pupils that we have. Inclusion means that all pupils have the right to be

present in the classroom without exception. These ideas are very much in line with the requirements of the Education Act.

There are many, including researcher Bengt Persson, who indicate that there is a long tradition in preschool and school of a deficiency perspective. This involves shifting problems onto the individual child or pupil. This perspective is also called a *categorical perspective*.

The trend towards individualising problems, explaining problems as the pupil's fault, has been strongly criticised by both the Swedish National Agency for Education and researchers. The Swedish National Agency for Education's *Allmänna råd om arbete med åtgärdsprogram för elever i behov av särskilt stöd* (General Advice on Measures for Pupils with Special Needs) emphasises that the pupil should not bear the full burden of the problem; one must also look at the school and its organisation.

## Running Inclusion Processes

In order to run inclusion processes, someone must take responsibility. This appears clearly in the book *Att platsa i en skola för alla* (Fitting into a School for All) by Eva Hjörne and Roger Säljo. The book asserts that the whole education system, from administrative managers to principals and teachers, is inclusive in how it thinks and even acts. Otherwise, an individual perspective of inclusion will arise, and this in fact amounts to integration. This does not involve changing something in the organisations or in the way the professionals manage the situation; instead, the problem is passed to the pupil. It is then up to pupils to integrate themselves into the

fixed organisation. Inclusion processes must be run and observed constantly, as they are connected to the school's democratic role and are thus a natural part of the entire school's approach and organisation.

The Swedish Schools Inspectorate's review of principals' educational leadership indicates that there were pervading deficiencies in staff involvement in the participating schools' overall development work. In particular, the special educational perspective was absent. As a rule, special educators and special teachers have a very good overview of the results of pupils who do not reach the goals. In general, they are an important resource from whom the school leadership and other educators can seek advice and information about new knowledge and new perspectives on learning. This review concluded that staff with special educational training not only could contribute relevant educational knowledge but were also important stakeholders in organisational change in the school, providing better education support based on the pupils' needs. The Swedish Schools Inspectorate also noted that the pupils were not seen as a resource in the work to develop the school.

Peder Haug talks about how inclusion deals with social justice; everyone has the right to belong and participate in normal activities. The pupil, quite simply, has the right to instruction in their class. According to Haug, the presence of discriminatory solutions is a sign of incomplete inclusion.

The American researcher Thomas Skrtic wrote nearly 20 years ago that because the school is built on democratic principals, it is the school's duty to be a good

environment for the diversity of the children represented. Therefore, the school cannot place the burden of problems on the individual; instead, the pupils' differences should be regarded as an asset and a resource for the school's work. From a democratic perspective, it is thus preferable that inclusive forms of teaching be used. Skrtic also asserts that the present diagnosis culture is detrimental to pupils but beneficial to the school system itself. If a pupil has been given a diagnosis, it is his or her "fault" and not that of the school and/or the teaching, and thus the situation does not need to be changed. The goal is to make the pupil as "normal" as possible and minimise the divergence, particularly at a time in which diagnoses are on the increase and are often regarded as a support for the school as an organisation.

There are two cultural models in special educational research that illustrate how the work is often organised, *the bodily function model*. and how it could be organised, the *activity-related learning model*. In the bodily function model, a pupil's difficulty is isolated to an expert who will work to change the pupil's situation within a limited amount of time. This is based on an individualistic view with a medical/psychological perspective, which follows from a diagnosis and a recommendation and in which the change often takes place in the pupil. In the activity-related learning model, the problem is detached from the pupil; instead, the challenges and opportunities of encountering the pupil are discussed. Various perspectives and knowledge are offered to those who work with the pupil. The focus is on interaction and collective effort, which is closely monitored. The change results

from the organisation's ability to meet the specific need to increase the participation of all pupils.

Good teaching methods are fundamentally the same for all pupils but require fresh ideas and high expectations for all pupils within reasonable individual frameworks. Flexible, interactive procedures are required to support pupils' learning and participation, with the opportunity to interpret, understand, engage in and process information and to express themselves in different ways.

## Streaming

Streaming involves dividing pupils into different groups based on their level of knowledge. Streaming was one of the factors that the Swedish National Agency for Education identified as an important explanation for declining school results in its review *What Influences Educational Achievement in Swedish Schools?* The Swedish National Agency for Education stipulates that streaming and segregated teaching groups must be temporary and continually evaluated so that they do not lead to what are known as lock-in effects. Consequently, it is important that the choice of working practices and ways of working – for example, grouping the pupils – benefit the pupil's development and counteract the lock-in effects that limit the individual pupil's knowledge development. Hattie also concludes that streaming has not had a positive impact on pupils' learning and that it has, furthermore, had a clear negative impact on equivalence.

The Swedish National Agency for Education's *Allmänna råd om arbete med åtgärdsprogram för elever i behov av särskilt stöd* (General Advice on Measures for Pupils with

Special Needs) emphasises that there is a risk of negative consequences as a result of streaming in compulsory school that is not continually re-evaluated. A pupil occasionally working outside of the classroom does not necessarily imply that he or she has been placed in a segregated teaching group. To ensure that the pupil does not lose contact with peers, it is pertinent to limit the segregated teaching to those subjects in which the pupil's requirement for special support is especially great. In several studies, the agency has also identified a need to regularly evaluate given support initiatives more systematically.

Despite both research and steering documents unanimously advising against streaming, Joanna Giota and Ingemar Emanuelsson show in a survey study that streaming is common. A quarter of principals undertake some form of streaming of pupils in years 7–9. Streaming even takes place in years 1–3. For the older pupils, streaming or organised special teaching was more common in independent schools than in municipal schools. The most common approach was to use a categorical perspective which regards the problem as being with the individual instead of being motivated by how teaching can be structured in order to manage the pupils' diversity that is to say, an inclusive perspective. It appeared to be unusual to see pupils' needs for special support as related to the teaching or to the adults' or school's approach. Few principals in the study considered that the deficiencies might lie with the teachers and their teaching; problems were instead perceived as strictly dependent on the individual and localised to the pupil.

The results from a large number of international research studies indicate the stigmatising effects of special support, particularly if it is organised in segregational forms. There is a negative impact on the pupils' self-evaluation and motivation. According to the research, teachers often reduce the academic requirements, and there is a risk that teachers come up with simplified interpretations of the intentions of the curriculum. Furthermore, less effective teachers are, to a great extent, often attached to groups of pupils with various learning difficulties. *In Utmärkt undervisning*, Håkansson and Sundberg discuss how pupils that are streamed differ in their performance and when it comes to specific characteristics, such as gender and self-belief, but also in relation to their parents' socio-economic status and ethnicity. This is an example of stigmatisation and lock-in effects.

What does this differentiation mean for the pupils' results? International and Swedish research into differentiated teaching have both shown that educational attainment is not positively affected in classes where there is a homogeneous composition of pupils. Jan Håkansson and Daniel Sundberg argue that poorly performing pupils work best in heterogeneous groups. This also applies to average pupils. High achievers do well, regardless of the group they are in.

The structure of teaching materials can also have a classification effect. The Swedish National Agency for Education's review *What Influences Educational Achievement in Swedish Schools?* reported studies indicating that, compared to other countries, the teaching materials in Sweden were much better adapted to the pupils' read-

ing levels. A negative consequence of this may be that weaker pupils are not sufficiently challenged to develop their reading abilities.

Another form of streaming is the use of age-integrated classes (i.e. pupils of different ages in the same class). Age-integrated classes appear in many places in Sweden. Researcher Monica Vinterek indicates that there is no evidence in the research that classes of mixed ages benefit knowledge development in any decisive way. Hattie is also hesitant about whether age-integrated classes have any positive effect.

## Acceleration – Important for High Achievers

It is important to differentiate streaming from what Hattie calls *acceleration*. Acceleration involves allowing able pupils to work faster, taking on greater challenges or even skipping a class, but this does not mean that they are streamed into elite classes or into special groups. The pupils are allowed to do work that is more challenging for them. An important point is that they remain in a normal class and help to pull the rest of the class along. Acceleration has been shown to have a very strong positive impact on high-achieving pupils but also on the group as a whole. Acceleration has, in accordance with Hattie's research, been shown to be even more beneficial in certain subjects, mainly mathematics and science. The Swedish National Agency for Education's report *Högpresterande elever, höga prestationer och undervisningen* (High Achieving Pupils, High Performance and Teaching) points out the importance of high-achieving pupils' being allowed to work with content that challenges and

engages them under the guidance of a teacher. High expectations apply to all pupils, even the high achievers.

A trial of advanced upper-secondary school education currently underway in Sweden is one form of tiering. The pupils and teachers affected by this advanced education are generally satisfied, according to an evaluation that the Swedish National Agency for Education has conducted. The pupils highlight the teachers in-depth expertise and knowledge of the subjects as something that is very positive but also cite a high workload and a lack of time, which lead to negative feelings of stress.

Advanced education affects very few pupils, and it does not involve streaming in ordinary activities.

The Canadian researcher Michael Fullan states that when many people gather around the same idea, a systemic effect is achieved, which means that everyone performs better. Fullan's idea could be applied to discussions about the positive impact of acceleration on the entire group and how ineffective it is to separate pupils based on intellectual capacity and motivation.

While the potential conflict between meeting all the potential needs of students and expecting that all pupils will achieve the general goals remains, teachers need to focus on providing real learning opportunities and assessments for all young people.

## Peer Effects

How pupils in a class are affected by their peers is a relatively under-researched area, despite some international research having been conducted in this area. The results of the national and international studies that are available

show that peer effects are of great significance to pupils' results. Peers have a powerful impact on learning. A good social environment is a prerequisite for good learning, and peer effects have, accordingly, great influence in such an environment. This means that the composition of the class affects the pupils' learning and results.

In *Visible Learning and Visible Learning for Teachers*, Hattie argues that some of the factors that have the greatest positive impact in schools are the classroom climate and peer influence. A factor that has a direct negative impact is changing school; this agrees well with the reasoning about how important the influence of peers is to children and young people. Naturally, it is hard to frequently build new relationships. Hattie cites a prime example: the most decisive factor in the success of a new pupil in a class is gaining a friend within the first month. If the new pupil does not succeed in this, then his or her chances of success in school are markedly reduced. Feeling like you belong is key, and it is therefore important that work on relationships and values is always present as a natural part of schoolwork. Another very negative factor is having to repeat a class. Hattie says that if a school has not managed to help a pupil, it should not be permitted to hold on to that pupil for another year without great changes taking place at the school.

In their review, Håkansson and Sundberg point to poor performers and to boys in general as extra sensitive to peer effects. A similar conclusion is drawn by researcher Krister Sund, having looked at the Swedish situation – namely, the weakest pupils were those who benefited most from being in a good social environment.

For pupils with good results the peer effects were not as significant. It has also been shown that peer effects are greater for boys than for girls.

There are those who argue that educational attainment does not improve with the help of homogeneous classes. What is won through placing high-achieving pupils in the same group is lost to an equivalent extent by placing the poorly performing pupils together. Furthermore, there are negative social consequences as a result of lower self-esteem for the poorly performing pupils. The Swedish Institute for the Evaluation of Labour Market and Education Policy (IFAU) maintains that the results will become even more widely divergent if the groups become more homogeneous (i.e. the able pupils go one way and the weaker pupils the other). There is support for the statement that organisational differentiation at the compulsory school level causes increased variation in pupils' results.

## An Example of an Inclusive System

The Canadian province of Ontario has gained much attention for the change process that has been conducted which aims to help pupils achieve better results and reduce the gaps between pupils and schools at the same time. The report *How the World's Most Improved School Systems Keep Getting Better* highlights that one of the most important lessons learnt was that the focus must be on involving every pupil in the process. The term raising the bar and closing the gap was coined in order to illustrate the desired result.

A further key factor in the change process was that all teachers took part. It was also important to work with a few goals that permeated the entire school system (see also Timperley's model for professional learning in Chapter 3). The change process in Ontario rested on five building blocks:

1. Working with the entire field of education and building on good examples.
2. Respecting the profession, but guiding in a shared direction.
3. Working with steering documents and ensuring that teaching is not structured to "teach to tests".
4. Focussing on an entire school or school area and not on individual activities or teachers.
5. Building up a good support structure that can help in the change process at the policy and resource level.

## An Example of an Inclusive School

One example in Sweden is Nossebro School, which thanks to successfully undertaking a paradigm shift, has improved its results from the bottom level to the top level in less than five years. The wake-up call for Nossebro School was its pitiful performance in 2007. The school received a clear task from the politicians to begin a change process.

Researchers Bengt Persson and Elisabeth Persson write in *Inkludering och måluppfyllelse – att nå framgång med alla elever* (Inclusion and Goal Fulfilment – Achieving Success with All Pupils) that an important explanation for why the school successfully managed to change the course of its development was that the staff, politicians

and civil servants took collective action to implement the paradigm shift. This transformation consisted of moving the discussion away from the personal and the individual towards problems relating to structures, content and education. The discussion came to no longer revolve around unsuccessful learning initiatives, a pupil's terrible home life or whether someone was rowdy in the classroom. Instead, the educational problems came into focus and the teachers seized on the steering documents' wording that everyone has the right to be successful in school. Every pupil that failed was considered a failure of the school itself. Shifting the paradigm depended on strong educational leadership, with the principal's work clearly motivated by ideas of inclusion that succeeded in bringing along the staff, pupils, parents, civil servant and politicians (read more about educational leadership in Chapter 6).

The paradigm shift is explained by Persson and Persson as necessary for the change process in Nossebro, but there are also other factors that contributed to this success. Nossebro School has a competent teaching staff which used the school's existing capacity and developed this in a goal-oriented fashion. The head of compulsory school also consciously highlighted scientific knowledge and research as a basis for the change process, which raised the school's overall expertise.

Another success factor was engagement. International research shows that the teachers' ability to engage with each pupil is the single most important factor in successfully achieving good results. At Nossebro School this is called "having iron control", and in many ways it is a

consequence of the school's decision to take responsibility for the results of every pupil. Everyone in the organisation was also given time to reflect.

Inclusion was another key factor. The steering documents are also clear on this: The fundamental principle is that pupils will receive support within the scope of normal teaching, and a school must justify why it uses other solutions. Both the Compulsory School Ordinance and the new Education Act say the same thing. But exactly what this means is not so clear. What is plain, however, is that it does not simply involve the spatial placement of the individual but also requires that the school understand the variation amongst the pupils. The school will not tolerate destructive behaviour, but it will have a high level of preparedness to manage educational problems. All pupils will be allowed to succeed in the classroom. Pupils will not be given responsibility for their own learning. But conversely, pupils have knowledge about how they themselves would like things to be to allow them to cope better. Teachers can listen and support the pupils' confidence in their own abilities.

Nossebro School did away with the smaller special-education groups and also convinced the parents that this was the right way to go. At Nossebro School the teachers began working in pairs in the classroom. Their collaborative learning led to insightful and goal-oriented choices about how learning is achieved but also about which of the teachers would be paired up and work together. All teachers must be capable of contributing their expertise, and relationships must be characterised by professional confidence. Nossebro

School built up a confidence in its teachers which was based on the fundamental view that the teachers' areas of expertise should complement one another.

Persson and Persson see the change process at Nossebro School as a project that was just as much about fundamental values as it was about goal fulfilment. The working practices showed that all pupils have a right to pass and all have a right to improve. The school focussed on the entire social context. One example of this was that autistic children participated in normal lessons in normal classes. Gradually, the insight spread amongst both teachers and pupils that these children and pupils were not particularly different. However, they often found it hard to get across what they wanted to say. This insight contributed to providing a fundamental value – preserving our natural heterogeneity.

Persson and Persson point to the fact that it can be harder to start a change process while a school is still fairly high up in the rankings. But the justification is clear. The steering documents state that the school's duty is to ensure that all pupils pass. Another significantly more general lesson that can be learnt from Nossebro is that research must be given a greater role in school development. The responsibility lies with the schools, which are duty-bound to provide their pupils with the best education possible.

## SUGGESTED READING

Claes Nilholm, *Barn och elever i svårigheter – en pedagogisk utmaning* (Children and Pupils in Difficulty – An Educational Challenge). 2012.

Bengt Persson & Elisabeth Persson, *Inkludering och måluppfyllelse – att nå framfång med alla elever* (Inclusion and Goal Fulfilment – Achieving Success with All Pupils). 2012.

SPSM, *Inkluderande undervisning – en utmaning* (Inclusive Teaching – A Challenge). 2013.

CHAPTER 6

# Educational Leadership

## What is Educational Leadership?

Despite the fact that the discussion about how principals' educational leadership must be balanced against the teachers' autonomy has been ongoing since the school commission of 1946, there is no consensus about what educational leadership actually involves. This is true even though educational leadership has been highlighted in recent years as one of the key factors in the successful development of schools. This applies not just to the Swedish or Nordic contexts but also internationally. However, many researchers seem to agree that the principal's intimate knowledge of the day-to-day practice of the school and ability to communicate the school's goals is a factor that contributes to the pupils' successful learning.

Many principals claim that teachers often believe their teaching is a private matter, and this prevents principals from gaining insight into what happens in the classroom and prevents them from having an impact on educational decisions and practices. At the same time, there are many teachers who say that they want principals to come into the classroom and provide feedback on their teaching and with that "be seen".

The Education Act emphasises principals' responsibility for pupils' results and for their schools' fulfilment of goals but also for the development of their teachers'

expertise. The principal is thus in charge both of results and of the organisation, and the principal's role and authority were strengthened and clarified in the Education Act of 2010. In the previous Education Act, the word *principal* appeared 18 times; in the current version, it appears 118 times. As the educational leader of the organisation, the principal will, based on the structure and culture of the individual school, drive its development and ensure that goals are fulfilled.

In this context it is useful to differentiate between school leadership and educational leadership, even though there is an overlap between these two categories. Researcher Gunnar Berg indicates that school leadership, on one hand, is characterised by managerial and administrative leadership; the school's governance is the focus, and the principal's duty is to monitor and evaluate whether steering documents and directives are adhered to.

Educational leadership, on the other hand, involves the principal leading processes that relate to issues connected to the pupils' learning and knowledge development and where development of the teachers' expertise and of the school is the focus. Many principals feel that their time is increasingly taken up by administrative and financial tasks that are associated with school leadership rather than educational leadership. It may then be good to recall that the Education Act gives principals the opportunity to delegate a large number of responsibilities to other able personnel in the organisation.

Educational leadership is primarily a Scandinavian concept that, according to researcher Monica Törnsén, is used in order to describe principals' responsibility for

leading the educational activities of a school. The concept appears to incorporate both visiting the classroom and democratic leadership. The Scandinavian significance of the concept has a strong interface with English terms such as *supervision*, *instructional leadership* and *distributed leadership*.

Political scientist Evert Vedung is of the opinion that both principals and administrative managers need to focus strongly on their leadership and be aware of the significance of leadership to improving results. He thinks that leaders must preferably be up to speed on the subject itself and also have one eye on results and efficiency.

## Do Principals Have to Go into the Classroom?

Research in recent years has strongly supported the position that the principal's familiarity with the day-to-day practice of the school, the clarity of his or her educational leadership and the ability to communicate and instil the school's goals are fundamental to a well-functioning school. Principals need to make educational issues more visible and drive these forward, as well as to intensify dialogue with the teachers about the pupils' learning and about teaching situations. It is on the question of how this should be conducted that there is a difference of opinion.

The Education Act states that the principal has responsibility for the school's internal governance, and the Swedish Schools Inspectorate asserts in its quality review *Rektors ledarskap* (Principals' Leadership) that principals must take responsibility for both the structure and culture of their schools. According to the Swedish

Schools Inspectorate, regular visits to the classroom and the provision of constructive feedback to teachers are important tools for creating structure. The investigation into quality indicated, however, that principals rarely visited the classroom and thus did not have sufficient information for a discussion with the teachers on didactics and the quality of the teaching.

Olof Johansson asserts that an important issue in the current debate on educational leadership is whether the principal can exercise educational leadership without first-hand information about what takes place in the classroom. If the answer is yes, the definition of educational leadership comes to involve governance and management of the school's resources for educational activities. If the answer is no, then it is natural that the principal's educational leadership includes regular visits to the classroom in order to be present during the teaching itself. It is most common for the term *educational leadership* to suggest a blend of both interpretations.

According to Johansson, however, it is important that principals go into classrooms and involve themselves in the activities of the school. It is the principal who has overall responsibility for the entire school. By this Johansson means that it is the principal who has to ensure that the national knowledge goals are achieved, that the fundamental values are adhered to and that the school works in a way that ensures equality and respects the rights of the individual with a focus on goal fulfilment.

Researchers Ulf Blossing and Helene Ärlestig talk about the significance of principals observing and discussing

teachers' teaching but also say it is important that principals be able to lead an entire communication system.

In her research, Ärlestig has pointed out the importance of the principal's ability to communicate the content of the steering documents with the teachers and even the pupils. This clarity and ability have been shown to be very significant factors in good educational leadership and a good school structure. Pupils who are taught by teachers who understand and follow the wording of steering documents demonstrate better goal fulfilment. Hattie reasons along the same lines when he asserts that two powerful ways to improve goal fulfilment is for teachers to be familiar with and to share both leaning goals and criteria for goal fulfilment with their pupils.

## Strong and Encouraging Leadership

Educational leadership is characterised by collaboration and dialogue but also by the setting of boundaries. The aim is primarily to strengthen the pupils' learning, as well as the principal's own learning, and may to a certain extent be interpreted as a type of formative learning. Exercising qualified, sound educational leadership is demanding. Törnsén notes that more people, not just the principal, actually need to be involved in taking responsibility for the educational leadership of a school. The Education Act states clearly that a principal has plentiful opportunities to delegate tasks, and this ties in with Törnsén's research. It is important to remember that principals always maintain ultimate responsibility but within the scope of this have plentiful opportunities to hand over tasks to other employees. The principal is responsi-

ble for ensuring that the organisation functions well and that it develops. A principal, like all other leaders, must also question what it is that the organisation needs in order to work better. In schools and the education sector in general, we can never escape the huge significance of the context, and all who work in this sector must always critically review their activities based on the context in which they work.

Helen Timperley expresses similar thoughts and believes that successful leadership is more like a pattern of the impact of several actors than simply that of an individual person. Greater exchange between principals and teachers on educational and didactic issues encourages increased engagement and learning, which in turn spills over to the pupils.

Timperley believes that development plans for the teachers are at least as valuable as those for the pupils. She also thinks that principals must utilise their own systematic learning through the identification of professional learning goals for themselves and seeking help in order to achieve them. This is one part of systematic quality improvement. The principal must get the entire group behind him or her, not just those who are willing and are the most interested. It is not possible for principals to be well-versed in all subjects, but as a minimum they must know how to challenge and support their teachers so that they in turn can exercise their educational leadership in the classroom.

In *Visible Learning for Teachers*, John Hattie compares two different leadership styles used by principals and the effect these have on pupils' learning. He calls the first

leadership style *transformational* and the other *instructional*. The first is characterised by a charismatic leader who wants to create energy and have everyone gather around a shared goal. This in turn will improve the school's chances of coping with difficulties and achieving goals. The transformational leader is focussed on the relationship between the leaders and the teachers and does not always see the connection to the quality of the pupils' results. The point of this comparison is to show that stronger and, in the long term, more effective educational leadership is conducted within the framework of the instructional leadership style. The instructional leadership style's focus on the entire organisation, with a view to the pupils' goal fulfilment linked to long-term development has many points of contact with well-functioning systematic quality improvement.

The instructional leadership style focusses on the impact all those in the school have on the pupils' learning. Principals who employ this style of leadership ensure that they interfere as little as possible in the pupils' learning, have high expectations of their teachers, visit classrooms and are interested in analysing what is learnt in school and how this is done. The instructional leader builds a climate of trust in which it is possible to discuss what teaching's influence on learning actually looks like.

According to a meta-study covering 2,883 principals, the effect of transformational leadership was significantly lower than that of instructional leadership. Hattie maintains that it is important to think in terms of these questions: "Did the pupils gain the required knowledge?" "How do we know this?" "How can we use knowledge

about the pupils' learning in order to become better at teaching?" He believes that this is more constructive than questions such as "What is taught?" and "How is this taught?"

Hattie's opinion is that a school leader's most important task is to create a climate in which "teachers can talk about their teaching, where mistakes and errors are seen as important learning opportunities, where people are open to leaving erroneous knowledge and misunderstandings behind them, where teachers can feel safe to learn, re-learn and explore their own knowledge and understanding about and of teaching". Exactly the same guiding principle should be found in every classroom in every school.

The OECD accentuates the necessity of constantly building up principals' expertise with a focus on educational development. Principals must be able to lead processes of self-evaluation but also be able to deal with professional feedback and support their colleagues. The OECD believes that all countries should, at the national level, set up systems governing how this is done and create national channels for disseminating knowledge about self-evaluation, the evaluation of teaching and the planning of teacher's professional development.

The OECD has previously criticised Sweden in this respect. The OECD maintained that Sweden lacked external frameworks for school leaders to adhere to when providing feedback (often termed *teacher appraisal*). Nor was there a system for measuring teachers' expertise in various respects, which would support the principal. Sweden is building a system with, for example, induc-

tion years for newly qualified teachers and established career pathways. Teachers in Sweden have a high degree of autonomy, and in such a system it is especially important that there is a systematic framework for teacher appraisal, according to the OECD.

The OECD has also stated that Sweden must support the formulation of this assessment of teachers and principals. The OECD believes it is important that external evaluation take place that involves the identification of opportunities for improvement and that targeted initiatives to improve practice are offered. All those working in a school benefit from collaborating with a "critical friend". This applies to principals as well as to teachers. Having an experienced, preferably external, person monitoring and giving advice that relates to day-to-day work often has good results and leads to a deeper understanding of the activities being conducted. This applies both to school leadership and to the work of teachers.

## The Voices of 400 Principals – Examples of Proven Experience

The Swedish National Agency for Education in collaboration with the Swedish Schools Inspectorate arranged a number of conferences in 2011 in order to highlight principals' new and strengthened duties in the new Education Act. The principals who took part pointed to a number of factors that were seen as most important to the provision of good educational leadership.

The first factor was that the teacher's teaching and work with the pupils always constitute the focus of the teachers' and principals' conversations. The discussion

about educational leadership is often about the principal and the teachers but far too rarely about the pupils. The group of principals argued that educational leadership is fundamental to the pupils' achieving their goals and that it was necessary to see classroom visits from the pupils' point of view, instead of simply looking at what the teacher is doing. In order to be an active part of this conversation, principals must have insight into and knowledge of the context and conditions. There was widespread unity about principals' exercising educational leadership motivated by the reality in the classroom. A number of strategies were proposed here: that principals themselves regularly teach, that teachers' teaching is filmed in order to then be discussed with the teachers in charge, that a class is monitored for a whole day, and that principals sit in on the working group, listening in on the discussions and sensing the atmosphere in the group.

Another factor was for principals, in their leadership, to display trust and confidence. One way to instil confidence is to visit classrooms and provide feedback. Repeated visits provide security for both the teacher and the pupils, which in turn leads to development. Many of the participants believed it was important that principals create the conditions for communication. This applies to interaction between principals and teachers but also requires that principals create trust in conversations between teachers. Principals gain a large amount of credibility amongst both teachers and pupils through well-developed educational leadership that involves a classroom presence.

An additional factor was explained as showing "courage" in educational leadership. This concerns daring to

take the role of leader and providing feedback of various types and being persistent, partly in relation to the teachers and partly in relation to superiors, politicians and parents. One principal put this in the following words: "a courageous principal has a courageous organisation".

However, in this context it is important to remember that principals have an extensive and complex job in which support and understanding from the employer are ingredients that have an impact on how well this work can be conducted. Principals are the main link in the chain between the employer and policy, on one hand, and the staff, pupils and parents, on the other.

## Principals and Pupils

Collaboration is required in order to handle the principal's duties. A link to collaboration that is rarely used to its full extent is the link between the principal and the pupils. According to Hattie's understanding that by *making learning visible*, as pupils discover their own learning and feedback takes place via a number of channels (as in the interaction between teacher and teacher, between teacher and pupil and between pupil and pupil), a relatively underutilised potential may be that between pupil and principal. This then does not just involve participating in pupils' council meetings; rather, a more in-depth conversation and collaboration within several focus areas, such as the teaching's meaningfulness, relevance and attention-grabbing content, as well as its implementation. According to the Swedish Schools Inspectorate's review of educational leadership, pupils are seldom seen as a resource in the work to develop the school. The

compulsory school curriculum makes clear that pupils have the right to an influence in everything that affects their education and learning. In the review, the Swedish Schools Inspectorate stated that this right needed to be strengthened and that it is the principal in his or her capacity as a leader of the development process who has specific responsibility to ensure that this takes place. The learning environment and learning processes are matters that are important for the pupils, but they rarely participate in conversations that affect their learning. This also applies to the systematic quality improvement that has to permeate all activities in which the pupils' presence and participation should be strengthened.

## SUGGESTED READING

John Hattie, *Visible Learning for Teachers*. 2012.

The Swedish Schools Inspectorate, *Rektors ansvar för uppföljning och måluppfyllelse* (Principals' Responsibility for Monitoring and Goal Fulfilment) – Material to support principals and preschool heads develop their organisation. 2009.

Helen Timperley, *Realizing the Power of Professional Learning*. 2011.

CHAPTER 7

# Employers and Principals Create the Conditions for the School's Work Based on Scientific Knowledge and Proven Experience

In this review we have discussed the terms *scientific knowledge*, *proven experience* and evidence and what these terms can "signify" within the field of education. If you understand the significance of these and how they relate to one another it is easier to base your work on scientific knowledge and also to see the potential in working with education that is based on scientific knowledge and proven experience.

We have also provided a direction in which your work can move in order for you to better achieve all of the school's goals. Such a direction is to work long-term and with focus and to be motivated by your own context, to ask yourself questions such as "How does it look for me in my context and why am I doing this and for whom?" This also involves working systematically and not giving up, even though it can occasionally feel tough. It is important to point out that the employer and principal must contribute and lead by providing active support for this type of extensive development work if it is to have the intended effect.

If teachers are to work more systematically with, for example, formative assessment, they must "borrow time from the future" from the leadership of their school and their employer. Extra work is required when a teaching method is to be changed; therefore, teachers must be given the time to work on their new methods and lesson plans. The time will perhaps be regained, but not earlier than one or two years later. This means that long-term planning is required. Principals need, as shown by research into expertise development, to prioritise work on collaborative learning and create conditions within the organisation that allow teachers to develop the school together.

Naturally, the principal is a very important initial sounding board, so he or she must be attentive when teachers say that they want to begin working with scientific knowledge and proven experience as their basis. A first step can be for a small group of teachers to be allowed to purchase books, set up a reading group and begin conversing with one another about formative assessment, for example. The next step may be to begin talking about assessment at each working-group meeting, or perhaps to initiate special meetings to discuss this.

The employer also has a role to play, regardless of whether this is a municipality, an independent schools' organisation or an individual independent school. The employer must create conditions that allow the teachers to discuss and develop their teaching regularly and with a long-term perspective but must also provide the principal with a mandate to drive this development.

Scientific knowledge and proven experience contribute to systematic school development. The Swedish National Agency for Education's situational assessment from 2013 highlights three important areas:

- Every school must be developed into a good school.
- The system must ensure access to competent teachers.
- Schools and employers need to have a long-term focus.

These areas each contribute to ensure that children and pupils get the education they are entitled to. When this happens, good conditions are created for achieving good-quality, better results and equality of value.

# Bibliography


Berg, G. (2011). *Skolledarskap och skolans frirum* (School leadership and Free Space). Lund: Studentlitteratur.

Björklund, A. et al. (2010). *Den svenska utbildningspolitikens arbetsmarknadseffekter: vad säger forskningen?* (Swedish Education Policy's Effects on the Labour Market: What Does Research Say?) Report 2010:13. The Swedish Institute for the Evaluation of Labour Market and Education Policy (IFAU).

Black, W. & William D. (1998). *Assessment and Classroom Learning.* Assessment in Education: Principles, Policy & Practice, Vol. 5: Issue 1, p. 7-74.

Blossing, U. (2011). *Kan rektor omsätta ett pedagogiskt ledarskap?* (Can Principals Implement an Educational Leadership) I: Blossing, U (ed.) (2011). *Skolledaren i fokus: kunskap, värden och verktyg* (The School Leader in Focus: Knowledge, Values and Tools). 1st Ed. Lund: Studentlitteratur.

Bohlin, I. & Sager, M. (eds.) (2011). *Evidensens många ansikten: evidensbaserad praktik i praktiken* (The Many Faces of Evidence: Evidence-based Practice in Practice). Lund: Arkiv.

Bryman, A. (2011). *Samhällsvetenskapliga metoder* (Social Science Methods). Malmö: Liber.

Cordingley P, Bell M, Thomason S, Firth A. (2005). The Impact of Collaborative Continuing Professional Development (CPD) Classroom Teaching and Learning, in *Research Evidence in Education*. Routledge. London.

Darling-Hammon, L. & Lieberman, A. (eds.) (2012). *Teacher Education around the World. Changing Policies and Practices.* London: Routledge.

Fullan, M. (2010). *The Moral Imperative Realized*. Corwin Press Inc.

Giota, J. & Emanuelsson, I. (2011). *Specialpedagogiskt stöd, till vem och hur? Rektors hantering av policyfrågor kring stödet i kommunala och fristående skolor* (Special Educational Support, for Whom and How? Principals' Management of Policy Matters on the Support in Municipal and Independent Schools). (RIPS 1). Gothenburg: University of Gothenburg.

Göransson, K. et al. (2011). Inclusive Education in Sweden? A Critical Analysis. *International Journal of Inclusive Education.* Vol. 15, Issue 5. p. 541-555.

Hansson, Å. (2011). *Ansvar för matematiklärande – Effekter av undervisningsansvar i det flerspråkiga klassrummet* (Responsibility for Mathematics Learning – Effects of Teaching Responsibility in the Multi-lingual Classroom). Gothenburg Studies in Educational Sciences 313. University of Gothenburg.

Hargreaves, A. & Fullan. M. (2012). *Professional Capital. Transforming Teaching in Every School*. New York: Routledge.

Hargreaves, A. (2003). *Teaching in the Knowledge Society: Education in the Age of Insecurity*. Maidenhead: Open University Press.

Hattie, J. (2012). *Visible Learning for Teachers: Maximizing Impact on Learning*. London: Routledge

Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-analyses Relating to Achievement.* London: Routledge

Hattie, J & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research.* Vol. 77, No. 1. pp. 81–112.

Haug, P. (2012). *Kvalitet i opplæringa; Arbeid i grunnskulen observert og vurdert* (Quality in Training; Work in Compulsory School Observed and Evaluated). Samlaget.

Hejzlar, J. (2008). *Uppföljande utvärdering av lärarutbildningen* (Follow-up Evaluation of Teacher Training). Stockholm: Swedish national Agency for Higher Education

Hjörne, E. & Säljö, R. (2011) *Att platsa i en skola för alla* (Fitting into a School for All). Lund: Studentlitteratur.

Håkansson, J. (2013). *Systematiskt kvalitetsarbete i förskola, skola och fritidshem: Strategier och metoder* (Systematic Quality Improvement in Preschools, Schools and After-school Recreation Centres: Strategies and Methods). Lund: Studentlitteratur.

Håkansson, J. & Sundberg, D. (2012). *Utmärkt undervisning: framgångsfaktorer i svensk och internationell belysning* (Excellent Teaching: Factors for Success

in Swedish and International Studies). Stockholm: Natur & Kultur.

Höög, J. & Johansson, O. (eds.) (2011). *Struktur, kultur, ledarskap: förutsättningar för framgångsrika skolor* (Structure, Culture, Leadership: Conditions for Successful Schools). Lund: Studentlitteratur

Jönsson, A. 2011. *Lärande bedömning* (Learning Assessment). Malmö: Gleerups.

Katz, S., Dack, L. A. (2012). *Intentional Interruption - Breaking Down Learning Barriers to Transform Professional Practice*. London: Corwin Press Inc.

Klingberg, T. (2011). *Den lärande hjärnan* (The Learning Brain). Stockholm: Natur & Kultur.

Leo, U. (2010). *Rektorer bör och rektorer gör: en rättssociologisk studie om att identifiera, analysera och förstå professionella normer* (Principals Should and Principals Do: A Forensic Sociological Study to Identify, Analyse and Understand Professional Norms). Lund: Lund University.

Levinsson, M. (2013). *Evidens och existens: Evidensbaserad undervisning i ljuset av lärares erfarenheter* (Evidence and Existence: Evidence-based Teaching in the Light of Teachers' Experiences). Gothenburg: University of Gothenburg.

Lundahl, C. (2011). *Bedömning för lärande* (Assessment for Learning). Stockholm: Norstedt.

Lundgren, U.P., Säljö, R., Liberg, C. (eds.), (2010). *Lärande, skola, bildning: Grundbok för lärare* (Learning, School, Training: Core Book for Teachers). Stockholm: Natur & Kultur.

Marton, F. (2005). Om praxisnära grundforskning (On Practice-based Fundamental Research). *I Forskning av denna världen II – om teorins roll i praxisnära forskning* (I Research of this World – II On the Role of Theory in Practice-bases Research). Stockholm: Swedish Research Council.

Melander, H. & Sahlström, F. (2010). *Lärande i interaktion* (Learning in Interaction). Stockholm: Liber.

Mourshed, M, et al. (2010). *How the World's Most Improved School Systems Keep Getting Better.* McKinsey & Company.

Mouwitz, L. (2001). *Hur kan lärare lära? Internationella erfarenheter med fokus på matematikutbildning* (How Can Teachers Learn? International Experiences with a Focus on Mathematics Education). NCM report 2001:2. Gothenburg: National Centre for Mathematics Education, University of Gothenburg.

Nationellt centrum för matematik. http://ncm.gu.se/

Nilholm, C. (2012). *Barn och elever i svårigheter – en pedagogisk utmaning* (Children and Pupils in Difficulty – An Educational Challenge). Lund: Studentlitteratur.

Nottingham, J. (2010) *Challenging Learning.* Berwick upon Tweed: JN Publishing.

OECD. (2012). *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD.

OECD (2012). *Reviews of Evaluation and Assessment in Education*: New Zealand 2011. OECD.

OECD. (2011). *Education at a Glance.* OECD.

OECD. (2010). *The Nature of Learning: Using Research to Inspire Practice*. OECD.

OECD. (2007). Evidence in Education: Linking Research and Policy. OECD.

Persson, B. & Persson, E. (2012). *Inkludering och måluppfyllelse – att nå framfång med alla elever* (Inclusion and Goal Fulfilment – Achieving Success with All Pupils). Stockholm.

Rapp, S. (ed.) (2011). *Skolledarskap: Om att leda förskolans och skolans utvecklingsarbete* (School Leadership: Leading the Work to Develop Preschools and Schools). Stockholm: Norstedt.

Runesson, U. (2005). Beyond Discourse and Interaction. Variation: A Critical Aspect for Teaching and Learning Mathematics. *Cambridge Journal of Education*, Mar. 2005, Vol. 35 Issue 1, pp. 69-87.

Sahlström, F. 2008. *Från lärare till elever, från undervisning till lärande: Några utvecklingslinjer i klassrumsforskningen* (From Teacher to Pupils, from Teaching to Learning: Some Paths of Developments in Classroom Research). Stockholm: Swedish Research Council.

Sandberg. A. (ed.) (2009). *Med sikte på förskolan: barn i behov av stöd* (With A View to Preschool: Children in Need of Support). Lund: Studentlitteratur

Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher.* Vol. 15, no 2. Feb. 1986. pp. 4-14.

Swedish Schools Inspectorate (2012). *Rektors ledarskap med ansvar för den pedagogiska verksamheten* (Principals' Leadership with Responsibility for the Educational Activities). Quality Review. Report 2012:1.

Swedish Schools Inspectorate. (2010). *Rektors ledarskap: En granskning av hur rektor leder skolans arbete mot ökad måluppfyllelse* (Principals' Leadership: A Review of How Principals Lead Their Schools' Work towards Improved Goal Fulfilment). Quality Review. Report 2010:15.

The Swedish Education Act (2010:800). The Swedish Code of Statutes 2010:800.

Swedish national Agency for Education. (2013). *Skolverkets lägesbedömning 2013* (Swedish national Agency for Education's Situational Assessment 2013). Swedish national Agency for Education

Swedish national Agency for Education. (2013). *Allmänna råd om arbete med åtgärdsprogram för elever i behov av särskilt stöd* (General Advice on Measures for Pupils with Special Needs). Swedish national Agency for Education

Swedish national Agency for Education. (2012). *Allmänna råd om systematiskt kvalitetsarbete* (General Advice on Systematic Quality Improvement). Swedish national Agency for Education.

Swedish national Agency for Education. (2012). *Att se helheter i undervisningen – Naturvetenskapligt perspektiv* (Recognising Totality in Teaching – Scientific Perspectives) Swedish national Agency for Education.

Swedish national Agency for Education. (2012). *Högpresterande elever, höga prestationer och undervisningen* (High Achieving Pupils, High Performance and Teaching). Report 379. Swedish national Agency for Education.

Swedish national Agency for Education. (2012). *Likvärdig utbildning i svensk grundskola? En kvantitativ analys av likvärdighet över tid* (Equivalent Education in Swedish Compulsory Schools? A Quantitative Analysis over Time). Report 374.

Swedish national Agency for Education. (2012). *Effektiv kompetensutveckling* (Effective Expertise Development). Memorandum. Ref. No. 84-2011:1100. Swedish national Agency for Education.

Swedish national Agency for Education. (2012). *Promemoria om vetenskaplig grund och beprövad erfarenhet* (Memorandum on Scientific Knowledge and Proven Experience). Memorandum Ref. No. 00-2012:1700.

Swedish national Agency for Education. (2011). *Allmänna råd om planering och genomförande av undervisningen* (General Advice on the Planning and Implementation of Teaching). Swedish national Agency for Education

Swedish national Agency for Education. (2011). *Utvärdering av metoder mot mobbning* (Evaluation of Methods to Combat Bullying). Swedish national Agency for Education.

Swedish national Agency for Education. (2011). *Lesson study och learning study samt IKT i matematikundervisningen: En utvärdering av Matematiksatsningen* (Lesson Study and Learning Study, as well as ICT in Mathematics Teaching: An Evaluation of the Mathematics Initiative). Report 367. Swedish national Agency for Education.

Swedish national Agency for Education. (2011). *Promemoria om evidens på utbildningsområdet* (Memorandum on Evidence in the Field of Education). Memorandum Ref. No. 80-2011:980. Swedish national Agency for Education.

Swedish national Agency for Education. (2009). *What Influences Educational Achievement in Swedish Schools? A Systematic Review and Summary Analysis.* Swedish national Agency for Education.

Swedish national Agency for Education. (2007). *PISA 2006: 15-åringars förmåga att förstå, tolka och reflektera– naturvetenskap, matematik och läsförståelse* (PISA 2006: 15 Year-olds' Ability to Understand, Interpret and Reflect – Science, Mathematics and Reading Comprehension). Report 306. Swedish national Agency for Education.

Swedish national Agency for Education's assessment support. http://www.skolverket.se/prov-och-bedomning.

Skrtic, T.M. (ed.) (1995). *Disability and Democracy: Reconstructing (Special) Education for Postmodernity.* New York: Teachers College Press.

The Swedish National Board of Health and Welfare. (2010). *Social rapport 2010* (Social Report 2010). Stockholm: The Swedish National Board of Health and Welfare.

SOU 2009:94 (2009): Utredningen om utvärdering av utbildning. *Att nå ut och nå ända fram: hur tillgången till policyinriktad utvärdering och forskningsresultat inom utbildningsområdet kan tillgodoses: slutbetänkande* (Investigation into the Evaluation of

Education. To Reach Out and Reach All the Way: How Access to Policy-Directed Evaluation and Research Results within the Field of Education Can Be Delivered). Stockholm: Fritzes. http://www.sweden.gov.se/content/1/c6/13/67/78/6a1def7f.pdf

SPSM. (2013). *Inkluderande undervisning – en utmaning* (Inclusive Teaching – A Challenge). SPSM.

Sund, K. 2009. Estimating Peer Effects in Swedish High School Using School, Teacher, and Student Fixed Effects. *Economics of Education Review*, Vol. 28, Issue 3. pp. 329-336.

Teorell, J. & Svensson, T. (2007). *Att fråga och att svara: Samhällsvetenskaplig metod* (To Question and To Answer: Social Scientific Method). Stockholm: Liber.

Timperley, H. (2011). *Realizing the Power of Professional Learning*. Open University Press.

Timperley, H. A. Wilson, H. Barrar & I. Fung. (2007). *Teacher Professional Learning and Development: Best Evidence Synthesis Iteration*. Wellington, Ministry of Education. http://educationcounts.edcentre.govt.nz/goto/BES.

Törnsén, M. (2009). *Successful Principal Leadership: Prerequisites, Processes and Outcomes*. Umeå: Umeå University.

UNESCO (2009). *Policy Guidelines on Inclusion in Education*. UNESCO. http://unesdoc.unesco.org/images/0017/001778/177849e.pdf.

Vedung, E. (1998). *Utvärdering i politik och förvaltning* (Evaluation in Policy and Administration). Lund: Studentlitteratur.

Vinterek, M. (2003). *Åldersblandade klasser: Lärares föreställningar och elevers erfarenheter* (Mixed-Age Classes: Teachers' Notions and Pupils' Experiences) Lund: Studentlitteratur.
Wiliam, D. (2013). *Embedded Formative Assessment*. Bloomington: Solution Tree Press.
Ärlestig, H. (2008). *Communication between Principals and Teachers in Successful Schools*. Umeå: Umeå University.

FORSKNING
FÖR SKOLAN

**Educational programmes** must be based on scientific knowledge and proven experience. What does this mean and how can you do it?

In this knowledge review, the Swedish National Agency for Education has collected classroom-centred discoveries that have been discussed in recent years.

This review is intended to inspire teachers and principals, as well as forming a basis for discussions in schools and the organisations responsible for them about how to firmly root day-to-day school activities in scientific knowledge and proven experience.

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