The use of performance indicators in a school improvement policy: the theoretical and empirical context.

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Abstract

School effectiveness research and school improvement research are central in this article. Based on a study of the literature, the hypothesis is put forward that merging both research traditions might be favourable to foster the quality of education. A theoretical model is developed for School Improvement in terms of Performance Indicators (SIPI). This model is linked to the Flemish school effectiveness approach that is based on the CIPO-model in which Context, Input, Process and Output indicators are distinguished. A central issue in the SIPI-model is the use of performance indicators and the way schools receive feedback when participating in performance indicator studies, such as PISA or TIMSS. The article concludes with the outlining of number of conditions that have to be met at school level to improve the educational quality.

Key words:

Performance indicators  
School effectiveness  
School improvement  
School performance feedback
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1. Introduction and research question

Performance indicators help to describe and analyse key aspects of schooling. They help to evaluate and monitor the quality of education. Indicators provide an ‘at a glance’ indication of current conditions and may augur future prospects (Oakes, 1986). The question can be raised whether these indicators can be a basis for school improvement. For years, Flanders has participated in comprehensive international performance indicator studies, such as the Programme for International Student Assessment (PISA) and the Third International Mathematics and Science Study (TIMSS). Consequently, there is a wealth of information available that is useful to direct educational policy making at macro-level. In the present article we put forward the following general research question: How useful are performance indicators for a school improvement policy? To answer this question, two sub-questions are raised: (1) What is school improvement? and (2) What methodology – based on performance indicators - facilitates a school improvement policy?

We first investigate how school improvement is defined in the literature and which performance indicators might fit into a school improvement approach. The latter introduces the topic of school performance feedback as a methodology to foster school improvement, based on performance indicator studies.

2. School Effectiveness Research (SER)

The aim of school effectiveness research is to explain the differences between schools by means of specific criteria. School effectiveness research explores possible differences in learning output and whether these differences are related to teacher, class or school characteristics. Research-based estimates focusing on the size of explained variance by such school and classroom characteristics vary from 8% to 14% (Reynolds, Creemers, Stringfield, Teddlie, & Schaffer, 2002). In terms of pupil progress the explained variance by class/school related variables is more influential than background variables of the individual students (Sammons & Reynolds, 1997). This grounds the added value of schools in relation to educational development.

2.1 Historical traditions in SER

The school effectiveness research has a long tradition. Its history can be outlined in a variety of ways. In appendix 1 an overview is presented that is based on the model of Scheerens (Scheerens, 1992 and 2000). The next paragraphs present a condensed outline of the SER-history.

The origin of school effectiveness research can be traced back to the sixties and is rooted in equal opportunities research. The research of Coleman (Coleman et al., 1966) represents the foundations of school effectiveness studies. This study intended to reveal the extent to which school achievement is related to students’ ethnic and social background. The potential contribution of the school to learning achievement was examined. The results presented in the Coleman Report are extremely pessimistic: school characteristics account for only 10% of the variance in pupil performance and schools have little effect on students’ achievement that is independent of their family background and social context. In other words “Schools don’t matter”. Jencks et al. (1972) come to the same conclusions, namely school achievement is largely determined by the family circumstances of a pupil; all other factors are of secondary importance. As a response to these pessimistic views, other research started in the seventies to study more closely factors that are connected to school effectiveness.

A second generation of studies represents the economic approaches to school effectiveness. These studies investigate the influence of input and resources on the
school output. In this view, school effectiveness research is the study of ‘the scientific properties of school effects evolving from input-output studies to current research utilizing multilevel models’ (Reynolds, Teddlie, Creemers, Scheerens, & Townsend, 2000).

A third type of studies focuses on compensatory programmes. Compensatory programmes manipulate school conditions in order to raise achievement levels of disadvantaged groups of pupils; however, no overwhelming success could be established.

A fourth generation of studies attempts to disclose the ‘black box’ of the input-output approach towards the added-value of schooling. These studies focus on the organisation, structure and curriculum-content of schools. They are also labelled as ‘input-process-output’ research. Initially these studies try to identify and investigate unusually effective schools (outlier studies). More recently, the research pays attention to the ‘added value’ to analyse potential school effects: “Raw results tell parents the grades their children have obtained but they can say nothing about how well the school attended has performed. In contrast, value added results tell parents how effective their children’s school is in promoting achievement.” (Mortimore & Sammons, 1994). An example of this type of research is set up by Edmonds (1979) who listed salient features of effective schools: strong leadership, high expectations of pupils’ achievement, orderly atmosphere conducive to learning, emphasis on basic-skill acquisition, and frequent monitoring of students’ progress. Later effectiveness studies have replicated this five factor model, and have added other factors and/or applied another labelling of the factors (e.g. Mortimore, Sammons, Stoll, Lewis, & Ecob, 1988 and Levine & Lezotte, 1990).

A fifth tradition focuses on instructional efficacy. Teaching and classroom processes are central to this research of teachers and instruction. The studies can be subdivided into (1) research that examines the effectiveness of certain personal characteristics of teachers, (2) research that takes the teacher behaviour during lessons into account and (3) instruction effectiveness research.

Current effectiveness research focuses on the complex interaction of a large set of variables and processes to study the effectiveness of education; context, school, teacher and classroom characteristics are taken into account. The research is guided by integrated research models and reflects an international dimension. Reynolds (2000) states: “The benefits of international studies are potentially very great - in the chance to examine a greater range of educational factors and in the chance to generate middle range theory based upon the analyses generated by seeing which effectiveness factors are important in which country cultural contexts”.

Despite the – historical - differences in approaches to school effectiveness research (SER), there is a consensus about the basic set of process variables that correlate with school effectiveness:
- School climate and culture, such as a safe and orderly climate, high expectations and achievement orientation
- Purposeful teaching and class management
- Concentration on teaching and learning and opportunity to learn
- Co-operation, shared visions and goals
- Educational or professional leadership
- Frequent monitoring, evaluation and positive reinforcement
- Communication between the actors, pupil rights and expectations
- Parental involvement

Examination of these qualities of effective schools does not provide direct information to guide the use of these findings. School effectiveness research rather presents a vision of an effective schools, and hardly gives insight into ways to realize effective schools (Lezotte, 1989). Purkey and Smith (1983) come to the same conclusion: “Most current
school effectiveness research lists have a variety of potential ingredients, but offers little direction for mixing them together.” In other words, the variables are tendencies, not certainties and should not be regarded as a blueprint for realizing effective schools. This is in large due to, since the factors are interdependent, vary from school to school and only explain a part of the variance. Because the list of effective school factors cannot reproduce the complexity of education, researchers complement the research field with context-specific models of school effectiveness. Examples of these models are the integrated model of school effectiveness (Scheerens, 1992), the hierarchical elementary education effects model (Stringfield & Slavin, 1992) and Creemers’ comprehensive model of educational effectiveness (Creemers, 1994).

Considering SER-research, a long list of performance indicators has been studied. In figure 1 we list this large set of indicators, using the CIPO-model of Scheerens (1992) as a frame of reference. In view of the central research questions in this article, figure 1 will be discussed again when we present the analysis from the perspective of school improvement research.

<Insert Figure 1 about here>

### 2.2 Controversies about school effectiveness research

The school effectiveness approach has provoked a number of controversies in the literature. Three types of criticisms have been raised: methodological, ideological and pragmatic criticisms.

From a methodological point of view 4 issues of concern are being discussed. (1) The school effectiveness paradigm adopts a very mechanistic methodology and an instrumentalist approach to educational processes that fits into the ‘school accountability’ movement. (2) School effectiveness research – when it comes to student performance - builds mainly on performance tests that reflect a narrow knowledge domain: mathematics and literacy tests. Moreover, mostly only cognitive skills are being measured. This emphasis on examination results and test scores as key performance indicators results in a narrow analysis of what is considered as a good school. Educational success is reduced only to factors that can be measured (Morley & Rassool, 1999). This is a critical issue as it is also stated by Rose (1995): “If we think about education largely in relation to economic competitiveness, then we lose sight of the fact that the school has to be about more than economy. If we determine success primarily in terms of test scores, then we ignore the social, moral and aesthetic dimensions of teaching and learning – and, as well, we’ll miss those considerable intellectual achievements which aren’t easily quantifiable.”. (3) There are concerns about the possibility to generalise findings of SER research. Ouston (1999) wonders whether the features of effective schools really relate to all schools or just to those researched. (4) A fourth methodological concern fits in the debate about quantitative versus qualitative research traditions. In most SER-research there is an over-reliance on large-scale quantitative research at the expense of studies employing more detailed qualitative methodologies (Thrupp, 2001).

Secondly, there are critiques that centre on ideological issues. School effectiveness research does hardly pay attention to the overall goals of schools and education. Only the most obvious goal is taken into account, namely cognitive achievement. The diversity of school aims is neglected (Van Petegem, 1997). There is also an ideological concern that centre on assumptions about cause and effect. Are the characteristics of effective schools the result of being effective or the cause of the effectiveness (Ouston, 1999)? School effectiveness research is also criticised for the absence of a sound theoretical base. Researchers often randomly select factors to be studied without a priori postulation that
indicate the nature of the relationships. A number of the ideological criticisms can be countered by adopting the more recent integrated models for SER.

From a pragmatic point of view, a third set of critiques is put forward. School effectiveness research is often characterised by over-estimating the impact size of its findings. As stated earlier, only 8 to 14% of the variance in pupils’ achievement is accounted for by school/classroom variables. But school effectiveness researchers, like Stoll and Fink (Stoll & Fink, 1996), stress that this limited proportion of explained variance might be the crucial difference between success and failure of schools. Also Sammons and Reynolds (Sammons & Reynolds, 1997) come to this conclusion. Moreover, they stress that these school and classroom variables are of importance since they can be manipulated more easily than background characteristics and prior attainment of pupils. A second pragmatic point of criticism is the limited value of the promising SER-features to guide school and classroom practices. A third point of criticism is the failure of the school effectiveness movement to control the political abuse of its findings. These findings are often used in a too simplistic way by politicians and government officials (Elliott, 1996).

3. School Improvement Research (SIR)

The school improvement movement emerged initially as a reaction against school effectiveness research. The school improvement movement is both practice and policy oriented. Its major focus is on helping education to change or develop in a desired direction (Creemers, 2002). It is an approach to educational change that fosters student outcomes and strengthens the school’s capacity for managing change. In the context of this article, school improvement is defined as a dynamic, planned and rational change process with structural and cultural aspects. School improvement is a process that is planned along three stages, namely initiation, implementation and institutionalisation. It especially centres on changing the conditions of/for learning and related internal conditions in schools. Its ultimate goal is the more effective realisation of educational goals (van Velzen, Miles, Ekholm, Hameyer, & Robin, 1985; Lagerweij & Haak, 1994; Appelhof et al., 1986).

3.1 The development of the school improvement research tradition

The historical development of the school improvement movement can be described in five stages (Reynolds, Teddlie, Hopkins, & Stringfield, 2000; Fullan, 1998 and 1989; Hopkins & Reynolds, 2001).

The first stage is set in the mid 1960s and labelled as the curriculum reform movement. It was characterised by an emphasis on the adoption of fitting curriculum materials. This reform movement failed to have a long-lasting impact on teaching. Teachers were not involved in the production process and the teacher in-service training was often rudimentary. Also, hardly questions were asked about what was expected to happen after the adoption of the new curriculum materials.

The second stage reflected a period of documenting the failure of the initial SIR approach. Fullan (1989, p.3) e.g., states: “We learned more about what not to do than anything else (don’t ignore local needs; don’t introduce complex, vague innovations, don’t ignore training needs; don’t ignore local leaders and opinion makers; and so forth.)”. It became apparent that the implementation of changes was a complex and lengthy process that required a sensitive combination of strategic planning, individual learning and teacher commitment.

During the third phase a series of several successful school improvement projects were set up and studied. Evidence of success was defined as increases in student
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achievement, degree of institutionalisation or teacher practice mastery, teacher change and teacher commitment. Much was learned about the “dynamics of change” in the projects. However, the clear descriptions were not very helpful to manage the change processes (Fullan, 1989).

The shortcomings of the former stage, are dealt with in the next developmental stage of the SIR. Researchers and practitioners try to relate their knowledge about dynamics of change to the school realities. There is a shift from the “study of change” to the actual participation in school development. Attention is paid to influencing changes in the educational processes instead of focusing solely on school management issues or organisational characteristics. A bottom up approach is applied, in which problem owners at school level are actively involved in implementing improvement attempts.

In current school improvement research attention is paid to as well the school level as the classroom level. There is an emphasis on changing both school processes and pupil outcomes. Staff development, capacity-building, medium-term strategic planning, change strategies which utilise pressure and support and the intelligent use of external support agencies are considered to be of importance. Current school improvement research adopts a mixed methodological orientation in which bodies of quantitative data plus qualitative data are used to determine quality. These data are also passed on to the school. As such, feedback-loops can be developed to support improvement processes of schools. This fits clearly into the focus of the current article that looks at ways to use performance indicators in a school improvement oriented policy.

The current position of school improvement research can be best described by citing van Velzen et al. (1985). They summarise the state-of-the –art in SIR by referring to a number of assumptions:

− “The school is the centre of change. Reforms need to be sensitive to the context of the individual school and classroom.
− There is a systematic approach to change. School improvement is a carefully planned and managed process.
− The key focuses for change are the internal conditions of schools. These include for example the teaching-learning activities in the school, the schools’ procedures, role allocations and resource use that support the teaching and learning process.
− Schools must accomplish educational goals more effectively. The educational goals reflect the mission of the school. This suggests a broader definition of outcomes than scores on achievement tests. Schools also have to serve the more general developmental needs of students, the professional development needs of teachers and the needs of the community.
− There is a multi-level perspective. If quality has to be achieved, then the school is embedded in an educational system that works collaboratively. The roles of all actors should be defined and committed to the process of school improvement.
− Integrated implementation strategies are used. There is a link between top down and bottom up strategies. The former strategy provides a framework, resources and alternatives; the latter provides the energy and the school-based implementation.
− There is a drive towards institutionalisation. Implementation must be a part of the natural behaviour of the actors.”

In parallel to the model of school effectiveness that was presented in section 2.1, we can also structure the variables and processes that are considered of importance in SIR-research. We suggest doing this again by taking the CIPO-model as a frame of reference (Scheerens, 1992), although this model is rarely referred to in the school improvement literature. However, in the context of the present article, we state that adopting a comparable frame of reference is necessary in order to be able to link SER and SIR. The model as depicted in figure 2, is based on Fullan (1989), Fullan & Stiegelbauer (1991), Lagerweij & Lagerweij-Voogt (2004) and Appelhof et al., (1986).
3.2 Controversies about school improvement research

Also the school improvement research tradition has been criticized. Again, three types of critiques are being put forward: methodological, ideological and pragmatic criticisms.

An important methodological point of criticism on the school improvement movement is that it focuses mainly on practice and that scientific research is not at the centre of this movement (Stringfield, 1995, Stringfield, 1995; Creemers & Reezigt, 1997). From an ideological point of view, Van Petegem (1998) states that the school improvement movement does hardly consider clear educational goals.

A first pragmatic critique is that school improvement research rather provides schools with promising lines of thinking but never clear lines of action (Fullan, 2000). A second issue is that the change strategies are often treated as goals on their own instead of means to result in improved learning (Murphy, Evertson, & Radnofsky, 1991). Another pragmatic criticism concerns the major focus on the school level, and the limited focus on the classroom level. This results in a limited impact on pupils performance (Hopkins & Levin, 2000). Finally, SIR is said to adopt a too rational and technical model of change. This is in contrast with reality. Education in schools is a very complex, highly uncertain, and unpredictable system about which our knowledge is still incomplete (Glass, 1979). Moreover, school changes occur often in an intuitive and ad hoc way. School development is not always based on clear-cut and integral policies.

Considering these critiques, there is a need to extend the current school improvement approach, e.g., by merging the school effectiveness and school improvement research approaches.

4. Merging school effectiveness and school improvement research

The school effectiveness and school improvement studies build on separate bodies of knowledge and research traditions. This is not surprising, considering the rise of the school improvement movement as a reaction against the school effectiveness movement. In general, the school effectiveness movement investigates what constitutes school effectiveness, whereas the school improvement movement examines how schools improve or change. The main differences in approach are summarised in table 1.
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5. Performance indicators as the base for a methodology for school improvement

In its widest sense, a performance indicator summarizes statistical data about the ‘quality’ of an institute or system (Goldstein & Spiegelhalter, 1996). Educational performance indicators provide information about the current performance of a system, suggest whether good progress is being made, and caution about observed problem issues (Oakes, 1986). Quantitative or qualitative data are used to give an ‘at glance’ indication of the actual “state” of a school and may foretell future projections. Obviously, indicators do not reveal everything about a system. Since it is complicated to determine the quality of a school, an indicator is seen as a proxy, instead of a direct measure of school performance. These proxies may deal with different aspects of the system as presented in the frame of reference that has been applied in figure 1 and 2, i.e. context, input, processes and output indicators.

Indicators may serve three basic functions (Bertzeletou & Stavrou, 1997). Their first function is the measurement function, in order to undertake analysis, assessment, monitoring or evaluation of the quality of individual schools and education in general. The second purpose of indicators is communication. Indicators help to inform relevant stakeholders or society about the state or development of a particular educational system. Finally, indicators can be used for normative or standardisation purposes. Following this function, indicators show to what extent the actual situation deviates from an established bench, predefined standards or a set of goals. In other words, performance indicators allow value judgements about key aspects of the functioning of educational systems in a quantified way (Scheerens, 1990). The latter function clearly fits into a call for school accountability.

Many researchers believe that indicators are a valuable base to direct quality improvement of schools. Bosker and Scheerens (2000) conclude that paying attention to performance indices as part of the school culture can result in improved performance. Also Fullan and Hargreaves (1992) note that pupil achievement and performance data should be used as a springboard for action and that effective schools are actively interested in how well they are doing, and seek evaluative data to monitor and improve their progress. Smith et al. (2001) come to the conclusion that indicators play a role in improving the performance of schools since they can be used to assess a school’s performance, and indicate whether changes are necessary and/or assess whether changes result in improved performance”.

Researchers do not only believe that performance indicators are useful for school improvement, also current practice mirrors promising approaches (e.g. NCRL, 2000; Houston, 2002 and Osler, 2002).

In conclusion, indicators can lead to powerful opportunities for individual schools to analyse and improve their educational quality. However, an indicator system is only a
starting point. The screening instruments are only helpful to indicate where certain problems may be present, but they are not helpful to give a complete and precise diagnosis (Yang, Goldstein, Rath, & Hill, 1999). Performance indicators should be considered as a first step along the way to trying to understand what works, and how schooling can be improved (Fitz-Gibbon & Tymms, 2002). The present article focuses on an additional step to guarantee the relevance of performance indicators for supporting school improvement. This additional step builds on school feedback that makes use of the information from performance indicator studies. Van Petegem and Vanhoof (2004) indicate that this new emerging practice is valuable from both a governmental and school perspective:

1. By providing feedback to individual schools, the government entices schools to study and document their own operation. From a government point of view, the emphasis is not immediately on judging the quality of individual schools. The feedback of indicators is rather a tool to help schools to improve their quality.

2. From the point of view of the schools, feedback is a starting point to question and optimize underlying processes and to improve process and output elements. The feedback is a mirror to get a realistic picture of critical variables and to understand a need for change. Visscher and Coe (2003), state that successful innovations are much more likely to occur if schools themselves are convinced that changes are needed. They also believe that school performance feedback has a high potential to create this kind of understanding.

Giving feedback to schools is but one step. The next step is considering the way the feedback is used in the school. Rossi & Freeman (1993) and Smith (1995) distinguish different types of school feedback use. The information can be used instrumentally (i.e. as a basis for decision making), conceptually (i.e. influencing the thinking of decision-makers), or in a symbolic way (i.e. a selective use to substantiate a certain position or opinion). One can also distinguish a strategic use of the information that e.g., leads to selective student admission, teaching to the test, consciously depressing baseline test scores, etc. In this way school look more effective but the objective of school improvement will not be attained.

A number of conditions must be taken into account to make school feedback based on performance indicators useful and to assure the school improvement orientation. Building on the available literature we can present a first outline of a methodology that directs useful school feedback practices (Fitz-Gibbon & Kochan, 2000; Fitz-Gibbon & Tymms, 2002; Tymms & Albone, 2002; Van Petegem, Vanhoof, Daems, & Mahieu, 2004; Visscher, 2002 and Visscher & Coe, 2002).

First of all, the content of the school feedback should be perceived as relevant, accurate, up-to-date, reliable and valid, and inviting to set goals for improvement. This could imply fair comparisons with other schools. However, ranking of schools should be avoided and anonymity and confidentiality ensured. Feedback will lead to a better understanding of a school’s functioning if relationships between indicators are revealed, for instance indicating a school’s differential effectiveness.

With respect to the presentation of the feedback, attention is drawn to the representation modes (e.g. charts, graphs), the use of relative versus absolute data, the use of percentiles, T-scores, etc., as well as to the accessibility of the information (e.g. electronic, allowing tailored feedback, allowing schools to perform own analyses). Furthermore, confidentiality and anonymity of the feedback must be guaranteed. This emphasis on confidentiality is based on a concern to avoid unintended and undesirable side effects.

Also the support schools receive is of importance to guide correct interpretation and appropriate use of the indicators. The need for support to schools in interpreting and using the feedback is widely emphasized in the literature and corroborate by findings from school improvement research (e.g. Fullan, 1998; Slavin, 1998; and Smith, 1998. These basic conditions to base a sound methodology for school performance feedback have been summarized in figure 4.
With regard to a number of elements discussed above, the Flemish educational system take a very different position in the international context. For example, no central examinations are being organised. Schools are autonomous in granting diplomas. No performance based league tables have ever been published in Flanders; the government explicitly tries to prevent the establishment of such approaches. Nevertheless, there is a growing demand of schools to receive relevant and accurate information about the quality of their school performance (Van Petegem & Van Hoof, 2002). Until now, no national school performance feedback system has been set up. Only in the context of the TIMSS and PISA-studies, first experiences with school feedback to schools who participated in the studies have been organised. These individual feedback reports were rather an incentive for participation in the study and were not developed as a tool for self-evaluation or improvement. Moreover, the PISA and TIMSS studies also present some limitations in view of a use in the context of a school improvement approach. For example, the studies are limited to output measurements from a restricted sample of students in a number of classes at a certain moment. Hardly information about background variables of students, classes and schools have been gathered. A longitudinal perspective paying attention to a larger set of output and process measures would have been more adequate. PISA and TIMSS are rather intended to investigate the performance of general educational system and provide information at a national and international level. Therefore, PISA and TIMSS are not that valuable for grounding a school improvement approach at the meso (school) or micro (classroom) level.

6. Conclusion

School improvement was at the centre of this article. Both at theoretical and empirical level, school improvement was studied in relation to earlier conceptions that reflect a school effectiveness approach. From the study of the literature, we concluded that the school effectiveness and the school improvement paradigm can be linked in view of promoting quality improvement of education. In merging both approaches, performance indicators were discussed and their role in the assessment and evaluation of school quality. In the latter context the PISA and TIMSS studies were introduced. The potential of a school feedback system based on the indicator studies was explored. Critical issues and especially a number of condition were discussed that are essential to develop a methodology for school performance feedback.
7. References


Appendices

Appendix 1: General characteristics of types of school effectiveness research (Scheerens, 1992)

<table>
<thead>
<tr>
<th>Type of Effectiveness Research</th>
<th>Independent variable type</th>
<th>Dependent variable type</th>
<th>Discipline</th>
<th>Main study type</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Un)equal opportunities</td>
<td>Socio-economic status and IQ of pupil, material school characteristics</td>
<td>Attainment level</td>
<td>Sociology</td>
<td>Survey</td>
</tr>
<tr>
<td>Production functions</td>
<td>Material school characteristics</td>
<td>Achievement level</td>
<td>Economics</td>
<td>Survey</td>
</tr>
<tr>
<td>Evaluation of compensatory programmes</td>
<td>Specific curricula</td>
<td>Achievement level</td>
<td>Interdisciplinary pedagogy</td>
<td>Quasi-experiment</td>
</tr>
<tr>
<td>Effective schools</td>
<td>Process’ characteristics of schools</td>
<td>Achievement level</td>
<td>Interdisciplinary pedagogy</td>
<td>Case study</td>
</tr>
<tr>
<td>Effective instruction</td>
<td>Characteristics of teachers, instruction, class organisation</td>
<td>Achievement level</td>
<td>Interdisciplinary pedagogy</td>
<td>Experiment, observation</td>
</tr>
<tr>
<td>Effective education</td>
<td>Characteristics of teachers, classes and schools</td>
<td>Achievement level (cognitive and non-cognitive)</td>
<td>Interdisciplinary pedagogy</td>
<td>Quantitative and qualitative studies</td>
</tr>
</tbody>
</table>
### School Effectiveness Research vs School Improvement Research

<table>
<thead>
<tr>
<th>School Effectiveness Research</th>
<th>School Improvement Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>What needs to be changed in schools in order to become more effective?</td>
<td>How do schools bring about the processes of change?</td>
</tr>
<tr>
<td>Focus on theory and explanations</td>
<td>Focus on change in educational practice</td>
</tr>
<tr>
<td>Programme for research</td>
<td>Programme for innovation</td>
</tr>
<tr>
<td>Searching for stable causes and effects</td>
<td>Dealing with changing goals and means</td>
</tr>
<tr>
<td>Searching for objective knowledge</td>
<td>Dealing with subjective knowledge</td>
</tr>
<tr>
<td>Interested in abstraction and Generalisation</td>
<td>Interested in local factors</td>
</tr>
<tr>
<td>Output criterion, mostly cognitive skills</td>
<td>Processes</td>
</tr>
<tr>
<td>Roots in scientific research</td>
<td>Roots in educational practice</td>
</tr>
<tr>
<td>Top down</td>
<td>Bottom up</td>
</tr>
<tr>
<td>Quantitative techniques, sophisticated techniques for data analysis</td>
<td>Qualitative techniques</td>
</tr>
<tr>
<td>Focus on student learning / classroom level</td>
<td>Focus on school level</td>
</tr>
<tr>
<td>School = static</td>
<td>School = dynamic</td>
</tr>
</tbody>
</table>

*Table 1*: Differences between school effectiveness and school improvement research (based on: (Creemers & Reezigt, 1997))
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Figure 1: Model of school effectiveness (based on Scheerens, 1992)

**Context SER**
- National, political, economical, international, ... context
- Educational policy
- School sector, school category
- Study orientation
- School and class size
- School facilities, accommodation
- Location (urban/rural), recruitment area

**Inputs SER**
- Policy support
- Budget, per pupil expenditure
- Material resources
- Absenteeism, delinquency
- Teacher and student body composition
- *Classroom*: calm class group, problematic behaviour, study orientation, intelligence level
- *Pupil*: gender, age, socio-economic status, ethnicity, prior attainment, intelligence, motivation, education level of the parents
- *Teacher*: teacher education, experience, salary, gender, assignment size, staff stability

**Process SER**
- School climate (orderly, safe), a learning environment
- Achievement orientation, high expectations
- Leadership
- Consensus, cohesion
- Curriculum quality
- Assessment (district and school level)
- A learning organisation, professional development
- Focus on teaching and learning
- Effective learning time, time-on-task
- Structured teaching, classroom management
- Purposeful teaching
- Opportunity to learn
- Task oriented environment
- Teacher - student interactions
- Focus on basic skills
- Monitoring pupils’ progress and reinforcement
- Parent and community support

**Outputs SER**
- Student (cognitive) achievement, adjusted for:
  - Previous achievement
  - Intelligence
  - Socio-economic status
- Also non-cognitive outputs, such as wellbeing, self-image, ...
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Figure 4: Conditions to make school performance feedback useful for school improvement