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The use of theory in school effectiveness research revisited

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From an international review of 109 school effectiveness research studies, only 6 could be seen as theory driven. As the border between substantive conceptual models of educational effectiveness and theory-based models is not always very sharp, this number might be increased to 11 by including those studies that are based on models that make reference to specific broader conceptual principles. From this perspective, the most important conceptual/theoretical approaches are the dynamic model of educational effectiveness (Creemers & Kyriakides, 2006), micro-economic theory, and organizational scientific perspectives, like the Quinn and Rohrbaugh (1983) competing values framework. As the use of theoretical principles in educational effectiveness research is likely to remain eclectic rather than encompassing and re-constructive rather than pro-active, piecemeal improvement of conceptual models is seen as an effective approach to furthering the field, next to the search for theory-based explanatory mechanisms.

Keywords: theory; model; educational effectiveness; school effectiveness; research review

Introduction

More than once, the field of school effectiveness research has been accused of being empiricist with little attention for theoretical foundations (Mortimore, 1992; Reynolds, Sammons, De Fraine, Townsend, & Van Damme, 2011). In earlier contributions, attempts were made to map the results of school effectiveness research to more general management theories, in order to find key explanatory mechanisms behind the factors that appear to “work” (Creemers, Scheerens, & Reynolds, 2000; Scheerens, 1997; Scheerens & Bosker, 1997). Participation in a recent structured review and “research mapping” of school effectiveness research (Nordenbo et al., 2009) made for an opportunity to assess the current state of the art.¹

One of the themes addressed in the review study was the anchorage of studies in theory (Nordenbo et al., 2009, pp. 39–41). In this article, a more in-depth analysis of this theme, based on the 109 studies that were reviewed, is presented. The full overview of the 109 studies is presented in Appendix 1. Nordenbo et al. report that 65% of the studies originate from the USA; the rest of the studies is about evenly divided over the UK, The Netherlands, Australia, and Belgium.

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All studies were categorized on criteria relevant for theoretical anchorage and rated by the reviewers. Table 4.1, page 41 of the report by Nordenbo et al. (2009) indicates that 23 of 111 studies referred to a theory or used a more or less elaborated model. This article is based on a more in-depth analysis of the material in order to shed light on the following issues:

- the degree to which school effectiveness research is guided by theory;
- the gradual development and elaboration of models;
- the degree to which studies build on earlier research;
- a cursory description of the most important theoretical approaches used;
- a reflection on the relevance of theory-driven school effectiveness research.

Categories indicative of theoretical and conceptual scope of the studies

Following the reasoning of Snow (1973) that theory development can be seen as a gradual process, evolving from relatively simple generalizations of empirical facts to axiomatic theory, some preliminary stages were taken into consideration in the scoring categories for the review. Reference to earlier research and presenting an overview of earlier research was considered as a first, basic stage of conceptual underpinning of studies. Next, in-depth review of core factors, addressing foundational issues in school effectiveness research and use of conceptual models, were seen as subsequent stages in conceptual and theory-oriented work. Ultimately, studies that were explicitly driven by established theory were considered. In this way, the following categories were used:

- *Review of the school effectiveness research literature:* Most of the studies contain a more or less extensive review of earlier school effectiveness research and school effectiveness review studies. In itself, this can hardly be taken as an indicator of theoretical anchorage, but it shows at least that a study is placed in a certain research tradition and could in this way be better positioned to yield knowledge accumulation.
- *In-depth review of core factors:* The factors that are studied in school effectiveness research are sometimes rather broad concepts like leadership and school climate. Some studies provide more in-depth conceptual analysis and definition of one or two factors that have a central place. One could say that such conceptual analyses add to building blocks for further theoretical development.
- *Dealing with foundational issues in school effectiveness research:* Foundational issues of school effectiveness research deal with the stability, scope, and conceptual integrity of the overall concept of school effectiveness. Foundational questions are: whether a school that is effective in Year 1, is still effective in Year 1 + x (stability); whether a school that is effective in the final grade is also effective in the middle and early grades (scope); whether a school that is effective in one subject-matter area, or outcome dimension, is also effective in other outcome dimensions (consistency); whether a school that is generally effective for low-socioeconomic status (SES) students is also effective for high-SES students, and vice versa (differential effectiveness); whether malleable school factors interact with composition effects; the degree to which school effects can be explained by classroom effects, and so forth. Foundational issues

have to do with the demarcation of research into “good schooling” as a coherent research program.

- *Use of conceptual and path analytic models:* Quite a few studies arrange variables according to a multilevel input, process, output, and context model. Sometimes this is a mere ordering of variables, in other cases such models are actually tested by means of path analytic and multilevel statistical models. Such models can be the basis of a more elaborate causal ordering of factors as primary causal, intermediary, or intervening variables.
- *Established theory as a basis for guiding and interpreting school effectiveness research:* As a final category, the review study looked at studies that were driven by more established theory; reference to such theories, indication of the key explanatory mechanisms in these theories, and a clear connection of the theory with the study design were used as criteria for identifying studies for this category (further explanation is presented in the next section).

Established theory as a basis for developing and interpreting school effectiveness research findings

After the question “what works” comes the question “why does it work”? For this last question, one could try and connect to more established theory, either instructional/learning theory or management theory. The issue is to explain findings and construct hypotheses on the basis of more established theoretical principles. As we shall see, this was done relatively rarely in the reviewed studies; put differently, relatively few studies could be seen as “theory driven”.

All² studies were rated by five reviewers; consensus was verified on the union of “models” and use of established theory. Initial agreement on a total of 35 studies was reached in 15 cases; after discussion, agreement was reached on 23 studies to be categorized as “having anchorage in theory or at least in a conceptual multilevel model”. The complete categorization of the 109 studies is presented in Appendix 1.

Main results

Of the 109 publications that were analyzed, 93 contained a review of the research literature of some kind; 16 publications did not contain such a review. This outcome can be interpreted as a confirmation of the identity of the field and a basic notion of taking earlier research results in consideration; although there is little trace of studies actually building on previous studies. Recent studies exploring aspects of the dynamic model of educational effectiveness by Creemers and Kyriakides (2006) are more closely interrelated.

In the case of 17 publications, a more or less elaborate analysis was included about concepts representing specific effectiveness-enhancing conditions. References and concepts that were addressed are summarized in Table 1.

From this overview, it appears that, when constructs were analyzed and discussed in more detail, this concerned organization and leadership variables more than teaching conditions.

Foundational issues (stability, consistency between subunits, effect sizes, differential effectiveness) were discussed in 29 studies. An overview is given in Table 2.

The results summarized in Table 2 indicate that the most frequently addressed foundational issues are differential effectiveness and the issue of compositional

Table 1. Studies addressing conceptual analysis of school effectiveness-enhancing factors.

Reference	Construct	Country
Bamburg & Andrews, 1990	Instructional Leadership	USA
Borman & Rachuba, 2001	Resilience (succeeding disadvantaged students)	USA
Breaux et al., 2002	Instructional strategies for expository reading	USA
Bulach et al., 1995	School Climate	USA
Coates, 2003	Instruction Time	USA
Coco et al., 2004	Home, school and community partnership	USA
Griffith, 2002	Academic vs. Communal Support	USA
Hofman et al., 1996	Cohesiveness school/community	Netherlands
Hoy et al., 1990	School Health	USA
Kyriakides & Creemers, 2008	Teaching conditions	Cyprus/NL
Lassen et al., 2006	School wide positive behavior	USA
Papanastasiou, 2008 (TIMSS)	Transitional Teaching, Active Learning	International
Silins & Mulford, 2004	School Leadership, School Climate	Australia
Stringfield et al., 2008	Standard Operating Procedures	USA/UK
Sweetland & Hoy, 2000	Teacher empowerment, organizational climate	USA
Tarter & Hoy, 2004	Supportive structure, collective teacher efficacy, trust, politics	USA
Word et al., 1990	Class size	USA

effects and joint effects of malleable and composition variables. Including compositional variables in school effectiveness studies can be seen as a shift in the educational effectiveness research paradigm, with pioneering work from the research group of Jan van Damme, Belgium. Interestingly, foundational issues are more frequently addressed in European school effectiveness research studies than in studies carried out in the USA.

From the overview in Appendix 1, it becomes clear that in 22 of the 109 publications explicit models were used. In the majority of cases, these are conceptual path analytical models that causally order malleable school- and classroom-level conditions, co-variables at student level, and increasingly also indicators of school composition. A smaller portion of the model-driven studies is based on more elaborate conceptual models, particularly those by Creemers (1992) and Creemers and Kyriakides (2008); models by Teddlie and Stringfield (1993), Quinn and Rohrbaugh (1983), and Scheerens (1992) have also been used.

A relatively small minority of 14 studies appears to be based on more established theory; see the overview in Table 3. However, in three cases the theory referred to was not used to shape the research process, and had more of a general descriptive function. This applies to the studies by Booker, Invernizzi, and McCormick (2007), Calaff (2008), and Coco et al. (2004). These studies have not been included in Table 3.

A striking outcome is the fact that of the 11 more or less theory-driven studies, 5 are based on the models by Creemers (1994) and Creemers and Kyriakides (2008). In the next section, the contents of the various theories used in these school effectiveness research studies will be discussed.

Table 2. Overview of studies in which one or more foundational issues of school effectiveness were addressed.

Reference	Foundational issue addressed	Country
Binkowski et al., 1995	An enhanced definition of school effectiveness	USA
Bondi, 1991	Primary versus secondary school effects	Scotland
Borman & Rachuba, 2001	Competing models of school effects	USA
Breaux et al., 2002	Joint school and classroom instructional variables	USA
Calaff, 2008	Differential effectiveness	USA
Choi & Kim, 2006	Analysis of within school slopes	Korea/TIMSS
Dumay & Dupriez, 2007	Composition, process and joint effects	Int. TIMSS
Fend, 1998	Differential effects between school types	Germany
Grisay, 1994	Joint effects of school composition and malleable variables	France
Heck, 2007	Use of dynamic school indicators	USA
Hill et al., 1994	School versus class/teacher effects	Australia
Hofman et al., 2002	Cross-level mediation in school effectiveness models	Netherlands
Hoy et al., 1990	School effectiveness indicators as aspects of more fundamental dimensions	USA
Kyriakides & Creemers, 2008	Multifacet measurement model of effectiveness-enhancing conditions at classroom level	Cyprus/NL
Kyriakides & Tsangaridou, 2008	Application of an educational effectiveness model to a not often used subject: physical education	Cyprus
Opdenakker & Van Damme, 2007	Place and effect of compositional effects	Belgium
Pustjens et al., 2008	School careers as outcomes	Belgium
Reezigt et al., 1999	Size of school and class effects	Netherlands
Reynolds et al., 2002	Differential effectiveness	UK
Ross et al., 2006	Holistic concept of many factors working together	USA
Rumberger & Palardy, 2005	Examination versus tests as outcome variables	USA
Sammons et al., 1997	Examination versus tests, role of departments	UK
Senkbeil, 2006	Impact of compositional effects, typologies of schools	Germany
Smyth, 2000	Academic and non-academic outcomes	Ireland
Teddlie & Stringfield, 1993	Stability of school and teacher effects	USA
Van Damme et al., 2002	Composition and joint effects	Belgium
Van der Werf, 1997	Differential effectiveness	Netherlands
Van der Werf & Weide, 1996	Trade-offs between quality and equity	Netherlands
Witte & Walsh, 1990	Control for contextual conditions	USA

Brief description of selected theories

In this section, the contents of the most developed theoretical approaches that were represented in the studies analyzed will be discussed. Only those approaches were selected that contain ideas on specific hypotheses or at least general ideas on why certain factors addressed in empirical research would work. Articles that just contain

Table 3. Overview of studies in which more established theory was used.

Reference	Theory	Country
Coates, 2003	Micro-economic theory	USA
Griffith, 2003	Quinn & Rohrbaugh model	USA
Hofman et al., 1996	Coleman's functional community theory	Netherlands
Hoy et al., 1990	Parson's social systems' theory	USA
Kyriakides et al., 2000	Creemers comprehensive model	Cyprus
Kyriakides & Creemers, 2008	Dynamic model of educational effectiveness	Cyprus
Kyriakides & Tsangaridou, 2008	Creemers' comprehensive model	Cyprus
Reezigt et al., 1999	Carroll model, Creemers' model	Netherlands
Stringfield et al., 2008	Schools as high reliability organizations	USA/UK
Tarter & Hoy, 2004	Bolman & Deal and Hoy & Miskell as theoretical bases	USA
Van der Werf, 1997	Creemers' comprehensive model	Netherlands

descriptive theories of the school, or aspects of the school context, such as those by Booker et al. (2007 – Bronfenbrenner's ecological and sociocultural theory), Calaff, (2008 – Phelan, Davidson, and Yu's multiple world's model), Coco et al. (2004 – social constructivism and activity theory), and Fend (1998 – Fend's theory of the school) are not included in the summary. The theoretical approaches that will be discussed are: *the dynamic model of educational effectiveness* by Creemers and Kyriakides, addressed in various publications from the list; *micro-economic theory* (Coates, 2003), the *Quinn and Rohrbaugh competing values framework* (Griffith, 2003) in relation to schools as high reliability organizations (Stringfield, Reynolds, & Schaffer, 2008), Coleman and Hoffer's theory of social capital (Hofman, Hofman, Guldemond, & Dijkstra, 1996), and other *conceptions of well-functioning school organizations*, such as Hoy's concept of organizational health (Hoy, Tarter, & Bliss, 1990; Tarter & Hoy, 2004).

The dynamic model of educational effectiveness

The “dynamic model” by Creemers and Kyriakides (2006) builds on the “comprehensive model” of educational effectiveness, developed by Creemers (1994). This model has much in common with other integrated, multilevel educational effectiveness models such as those developed by Scheerens (1992), Slater and Teddlie (1992), and Stringfield and Slavin (1992). Common characteristics of these models are that they combine school-level and classroom-level factors that impact on achievement. Sometimes, a level of the larger context of the school is included as well. The basic rationale of these models is to take the primary process of teaching and learning as the core starting point of development. The well-known Carroll model (Carroll, 1963) is mostly chosen as a guideline for modeling the primary process, emphasizing time, opportunity to learn, and quality of instruction (Scheerens, 1992, pp. 24, 25). School-level conditions are seen as facilitating conditions of effective teaching factors, which leads to a specific interest in cross-level interactions (cf. Bosker & Scheerens, 1994). Creemers' comprehensive model defines quality, time, and opportunity as basic ideas behind factors at school and classroom level. Next, it goes one step further than the other similar models by defining formal

principles of educational effectiveness: consistency between activities at different levels, cohesion among units (e.g., staff), constancy (stability over time), and control (internal accountability).

The dynamic model adds several ideas to the already elaborated structure of the comprehensive model:

- a specific interest in studying development over time, not only of the dependent “effect” variables but also of the independent variables, that is, the malleable factors as classroom, school, and context level;
- consideration of non-linear relationships between the independent and dependent variables;
- next to the interest in cross-level interactions, specific attention for interrelations of factors at a specific level;
- a broad outlook on effectiveness criteria (not just cognitive outcomes);
- specific measurement dimensions of effectiveness-enhancing factors.

The latter characteristic makes the model quite complex. Different measurement facets are defined for all factors: frequency, stage, quality, and differentiation. My interpretation of these dimensions is that frequency stands for the quantitative intensity of a factor, stage refers to the duration of a factor being active, quality looks like construct validity (the properties of a construct as defined in the literature), and differentiation is about the adaptive implementation of a factor.

The comprehensive and the dynamic model have stimulated a number of empirical studies. The outcomes mostly speak to the tenability of certain school- and classroom-level factors. Few studies have actually investigated the theoretical properties, like the four c’s of consistency, cohesion, constancy, and control. In Creemers and Kyriakides (2008, Chapter 8), a study is reported in which the measurement dimensions have been tested. Results are in the direction of supporting the diversity rather than the communality of these measurement facets. This could be called good news for recognizing the complexity of educational effectiveness phenomena, but bad news for parsimony.

Education production functions

Education production functions describe education outputs (e.g., results on an achievement test) as a function of effort and monetary investments, taking into account innate abilities of pupils (cf. Hanushek, 1979; Monk, 1992). Basically, education production functions are identical to the regression models used in educational effectiveness research. The economic background of the production function approach is most evident from the choice of independent variables, which are usually concentrated on resource inputs of schooling (teacher remuneration, class size, teacher qualification, etc.). The basic education production function represents a model, rather than a theory, and the application present in the set of studies reviewed (Coates, 2003) is an attempt at overcoming underspecification of the model, in this case by employing a more refined measure of instruction time. In the wake of macro-economic studies that have sought to examine the economic gain of countries’ educational performance (Hanushek & Woessmann, 2009; Organisation for Economic Co-operation and Development [OECD], 2010), interest in production function research might be stimulated by trying to attribute increments of economic

growth to specific production elements, like early childhood education, standard-based examinations, average class size, and so forth (see, for example, Vermeer & Van der Steeg, 2011). The potential of micro-economic theory for educational effectiveness research is not so much given by production function research on its own, but rather by applications in which the behavior of actors, like students, teachers, and principals, is studied from the perspective of their utility functions (basically how their motivation is shaped given trade-offs between task-related and self-related idiosyncratic behavior). Interesting phenomena at school level that have been studied from this perspective are standard setting (De Vos & Bosker, 1998), assigning teachers to students (Monk, 1992), and school composition effects (Causa & Chapuis, 2009). Macrolevel interpretations, concerning combinations of autonomy and control in national education policies are given in Woessmann (2009). A broad overview in which educational effectiveness research is related to micro-economic theory is given in Scheerens and Van Praag (1998).

The Quinn and Rohrbaugh competing values framework

Authors like Cameron and Whetten (1983) and Quinn and Rohrbaugh (1983) discuss alternative models of organizational effectiveness. Each model is based on longstanding schools of thought in organizational and management science: the idea of economic rationality and rational planning, the idea of organizations as open systems, the human relations orientation, and the idea of formalized structure, the bureaucracy. Quinn and Rohrbaugh derive four distinct models from these basic orientations, the rational goal (RG) model, the open systems (OS) model, the human relations (HR) model, and the internal process (IP) model. Each is oriented towards a specific effectiveness criterion: RG towards primary production, OS towards adaptability and responsiveness towards the environment, HR towards staff job satisfaction, and IP towards formal structures and procedures. Griffith (2003) uses this framework to map malleable variables that have received empirical support in school effectiveness research according to each of these four models. For example, optimizing learning time is seen as a measure that fits RG, stimulating parental involvement as belonging to OS, participative leadership is subsumed under the HR model, and creating an orderly atmosphere is seen as a measure fitting the IP approach. By means of path analysis, Griffith models the effects of each of the four organizational models on student achievement. The Quinn and Rohrbaugh framework has also been used, with varying success, to model direct and indirect effects of school leadership (e.g., Ten Bruggencate, 2009; for an overview of studies, see Scheerens, 2012). By subsuming specific effectiveness-enhancing variables under four broader concepts, this approach succeeds in providing a more parsimonious conceptualization of educational effectiveness. The four orientations to organizational effectiveness can easily be interpreted as different strategies to school improvement. A next step in theory development might consist of placing the preference for a specific model in a contingency framework; hypothesizing, for example, that schools that are brought under a more high-stakes external accountability regime would be inclined to invest in effectiveness-enhancing factors associated with the rational goal model.

Two other theoretical contributions that are part of the set of studies that was analyzed can be seen, more or less, as more specific elaborations of one of the four models of organizational effectiveness. The first is the use of the theory of social

capital (Coleman & Hoffer, 1987) made in the article by Hofman et al. (1996). In the study in question, this theory is used as a basis to investigate the structural and value consistency between school and community. The authors found some evidence that these kinds of consistencies contribute to the explanation of the superior performance of private versus public schools. The approach in question is in line with the open system model, and the consistency principal as emphasized by Creemers (1994).

The second theoretical approach that is represented in the set of studies and can be associated with the Quinn and Rohrbaugh framework is the work on schools as high reliability organizations (Reynolds, Stringfield, & Schaffer, 2006). High reliability organizations operate in a context where failure to attain the key goals would be disastrous. Specific characteristics are: clear and finite goals, alertness to surprises and lapses, the imperative to identify flaws, use of powerful data-bases, standard operating procedures, rigorous evaluation, hierarchical structure, through collective decision making. High reliability organizations are very much in line with the internal process model, and are aligned to the rational goal model as well. Bureaucratic structuring and formalization of procedures are at the heart of this approach to school improvement.

Other conceptions of “good” organizational functioning of schools

In the articles by Hoy et al. (1990) and by Tarter and Hoy (2004), conceptions of effective organizational functioning of schools are used that are somewhat similar to the Quinn and Rohrbaugh framework, without the explicit reference to underlying schools of thought in organizational science. Basically, the approach, with reference to Parsons’ system theory of educational organizations (Parsons, 1961) and the organizational model of Bolman and Deal (2003), defines key facets of organizational functioning, such as structure, culture, human resources, adaptation to the environment and subsequently indicates what represents good and bad organizational performance. For example, leadership should be supportive and not down-right directive, teachers engaged rather than frustrated, and internal relationships should be based on trust. More specifically, Tarter and Hoy hypothesize that school structures should be enabling, the school culture should be characterized by trust, individual attitudes should be united in a sense of collective efficacy, and teachers should be oriented towards the goals of the school rather than to illegitimate self-related politics. Their empirical study supports these hypotheses. An important additional notion in these conceptions of “good” schools is the idea of alignment and consistency between facets and elements: “a healthy school is one in which technical, managerial, and institutional levels are in harmony” (Hoy et al., 1990).

Discussion

Modeling in school effectiveness brings structure to the field and can be seen as an open, rather inductive process. Reference to more established theory has the potential of laying bare underlying, explanatory mechanisms and of arriving at a smaller set of more general core constructs. Sometimes, conceptual modeling and use of established theory are combined, as is the case in the model developed by Creemers and Kyriakides (2006), by introducing concepts like consistency and reference to the Carroll model (1963) as a basic instructional theory. In this final

section, some conclusions are drawn about the state of play with respect to modeling and theory, with an eye to the heuristic potential of both.

Modeling

Taking the dynamic model by Creemers and Kyriakides as the most up-to-date multilevel model of educational effectiveness, the following observations can be made. First of all, the structure encompasses four levels, national context and policy, the school, the classroom, and the individual student. The overview of 109 studies, presented in this article, lays bare the fact that the classroom level has not been well integrated in the large majority of studies. Therefore, the appeal by the authors to build effectiveness models on strategies for effective instruction is still very much up to date. Integrating national policy levers as the highest aggregation level is rather unknown territory (in the overview of studies presented here only addressed in the article by Hofman et al., 1996) but offers great potential, particularly as a basis for making a connection with policy studies based on international assessment studies like the Trends in International Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA) (McKinsey, 2010; OECD, 2010). Secondly, drawing attention to overarching concepts like consistency is a key to investigating the kind of relationships between effectiveness-enhancing factors at various levels and a heuristic device for selecting variables. Thirdly, the model in question has already shown some proliferation of research studies and has the potential of bringing about a more coherent research program.

Connecting to more established theory

As earlier reviews, the current one underlines the relative scarceness of making use of more established theory in school effectiveness research. To the extent that it happens, several theories are being used at the same time. The complexity of educational “production” may be such that different units and levels are addressed by different theories. Still, the examples that were drawn from the set of studies, and the literature at large, provide hints about some key ideas behind factors that appear to work in education. These ideas are summarized under the headings of: anatomy of schools as organizations, emphasis in procedural rationality, and “alignment versus loose coupling”.

Anatomy of schools as organizations

The organizational models that were referred to in the studies by Griffith (2003) and by Hoy et al. (1990) consist of defining a small set of key facets of organizational functioning, like culture, structure, human relations, responsiveness to the environment, goal orientation, and formalization of procedure. Next, ideas on optimizing these organizational facets are addressed as attainable standards (e.g., staff satisfaction, student achievement) or as desirable qualifications of the facets themselves, like “trust” and sense of “collective efficacy”. Such approaches enable a categorization of school effectiveness-enhancing conditions under more general labels and have the advantage of creating more parsimony. Optimizing particular facets is sometimes presented as a competition among approaches (cf. Quinn & Rohrbaugh’s (1983) competing values framework). Alternatively, as empirical

research sometimes fails in distinguishing differences in effectiveness between, for example, human relations-related factors and rational goal factors, one could also take the position that all have their merit and preferably should be used together. A contingency approach would imply that certain facets, for example, formalization of procedure, are more effective in certain kind of situations, for example, a period of stability and internal tranquility, than in others.

Emphases in procedural rationality

Pro-active, synoptic planning, creating market mechanisms, and retro-active planning are different interpretations of rational strategy (Scheerens, 1997). In the case of synoptic planning, activities are structured and formalized in advance, as much as possible. The concept of high reliability organizations as addressed in one of the studies (Stringfield et al., 2008) is a good example of this approach. Another example is the use of standard operating procedures as propagated in quality management systems. Creating competition and market conditions is a way to align organizational and individual goals. It is the economists' remedy against inefficient organizational functioning. School autonomy, privatization, and free school choice are some of the factors that are highlighted from this perspective. Standard-based external accountability and different forms of internal school evaluation represent a more retro-active approach to planning. The basic idea is that outcome assessments precede planning and remediating activities. Examples of school-based evaluation approaches are school self-evaluation, performance feedback, and data-use systems. Hybrid forms of these three approaches exist; the best known example is the idea inherent in "new public management" to free process and control outcomes (combination of a market approach and state-based accountability).

Alignment versus loose coupling

The classical model of the school as a professional bureaucracy (Mintzberg, 1979) or a loosely coupled system (Weick, 1976) is a largely fragmented organizational structure, with high autonomy of teachers and little need of direct coordination and hierarchical leadership. To a large extent, the "modernization" of schools as organizations consists of bringing about better alignment between subsystems (such as grades), collaboration between teachers, and more pronounced hierarchical leadership. Creemers' emphasis on consistency and collaboration is a case in point (Creemers, 1994). Currently, task-related collaboration between teachers and professional development as learning from peers are seen as key levers of school improvement. In explorations of the differential effectiveness of national educational systems, the concept of vertical alignment is one of the more interesting considerations (McKinsey & Company, 2010). At the same time, it should be realized that loose coupling has some positive aspects as well, and that teacher autonomy is to some extent re-installed in more recent ideas on teacher autonomy and "ownership" as well as in distributed leadership. Striking a balance between control and autonomy, alignment, and loose coupling is treated as a central issue in recent contributions to the concept of high reliability organizations (Bellamy, 2011; Stringfield, Reynolds, & Schaffer, 2011).

In summary, one could say that these theoretical principles may be helpful for a concise discussion on effectiveness-enhancing strategies and allow for shaping the

directions of empirical studies. However, so far none of the approaches stands out as being superior, and the overall picture emerges that many roads lead to Rome. A blind spot in the presentation (prompted by the relative absence in the set of studies) is the place of instructional theory. Judging from recent meta-analyses (Scheerens, Luyten, Steen, & Luyten-de Thouars, 2007; Seidel & Shavelson, 2007), the same kind of conclusion about different strategies being about equally effective might be drawn. For example, the meta-analysis results cited hardly show much difference in effect sizes of direct, structured teaching approaches and constructivist-oriented teaching approaches. Perhaps a more general construct exists to explain the effectiveness of both approaches, like an explicit and consistent approach in applying either strategy. Louis, Dretzke, and Wahlstrom (2010) have coined the term “focused teaching” for such a generalized strategy. The focus of this presentation has been on relatively broad theoretical principles that could be connected to the conceptual models on educational effectiveness and the set of studies that was united under the title school effectiveness research. This orientation has left untouched several areas of theory-driven fundamental research, such as the application of micro-economic theory to specific educational issues (e.g., standard setting), and research on teaching.

As it comes to furthering educational effectiveness research, the piecemeal improvement of conceptual maps and multilevel structural equation models may be at least as important as a continued effort to make studies more theory driven. School leadership effect studies, using indirect effect models, are an interesting example of the improvement of conceptual models (e.g., Huber & Muijs, 2010; Heck & Moriyama, 2010; Scheerens, 2012).

Notes

1. For the review study, empirical studies examining the influence of school factors on achievement, after controlling for student background characteristics, between 1990 and 2005 were selected. Association with theory was not used as a criterion for selection.
2. In the version of the report that is on the website, a total of 111 studies is mentioned; later, 2 studies were dropped yielding the 109 used in this article (http://www.vasa.abo.fi/users/muljens/pdf/Nordenbo,_et_al._.pdf)

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Appendix 1. Overview of studies (– means that a criterion is not addressed)

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Adler, 2002, case study elementary school	studies on reading instruction	–	–	–	–	USA
Bamburg & Andrews, 1990, instructional leadership	–	Some organizational literature on goal concept and instructional leadership	–	–	–	USA
Barth et al., 1999, high-poverty schools	–	–	–	–	–	USA
Bearden, Bembry, & Babu, 1995, effective schools	Some review of school effectiveness literature	–	–	–	–	USA
Benton, Hutchison, Schagen, & Scott, 2003, grant-maintained schools	–	–	–	–	–	UK
Binkowski, Cordeiro, & Iwanicki, 1995, high/low elementary school	some	–	An "enhanced" definition of school effectiveness, including equity and school improvement	–	–	USA
Bondi, 1991, attainment of primary schools	Some review of UK effectiveness literature	–	Primary versus secondary school effects	–	–	Scotland

(continued)

Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Booker, Invernizzi, & McCormick, 2007, literacy gains in poor elementary schools	Some review of school effectiveness literature	–	–	–	Bronfenbrenners (1979) ecological and sociocultural theory is mentioned	USA
Borman & Rachuba, 2001, competing models of school effects	Systematic review of different strands of school effectiveness research	Construct of resilience, set of student background factors explaining which disadvantaged students succeed	Differential effectiveness 4 school effects models	–	–	USA
Bottoms, Han, & Presson, 2006, proven high school practices	–	–	–	–	–	USA
Bottoms, Presson, & Han, 2004	–	–	–	–	–	USA
Breaux, Danridge, & Pearson, 2002, school improvement expository reading instruction	Some school effectiveness literature review	Instructional strategies for expository reading	Joint school and classroom/instructional variables	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Brown & Medway, 2007, school climate and teacher beliefs N = 1 case study	Fair review of USA and UK school effectiveness research literature	–	–	–	–	USA
Bulach, Malone, & Castleman, 1995, variables related to student achievement	Fair review of school research literature, mainly US	– school climate	–	–	–	USA
Dronkers & Robert, 2008, private public PISA 2000	Review of literature on private and public schooling and school effectiveness	–	–	–	–	International (PISA 2000)
Dumay & Dupriez, 2007, joint effects, TIMSS	Extensive literature review	–	The issue of composition, process and joint effects	–	–	International, TIMSS, 2003
Calaff, 2008, supportive schooling	–	–	Emphasis on Latin students; differential effectiveness	–	Theoretical framework based on Phelan, Davidson, & Yu: <i>Multiple Worlds Model</i> , Teachers College Press, 1998	USA
Ceperley, 1999, implementation of Title I	–	–	–	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Choi & Kim, 2006, closing the gap, TIMSS study, Korea	–	–	Really an equity study, analyses of within school slopes	–	–	Korea TIMSS data
Coates, 2003, education production functions (instructional time and class size)	Production function literature	Instructional time	–	Education production function modelling	Micro-economic theory, Brown & Saks theoretical model of the role of instruction time, 1986	USA
Coco et al., 2004, home, school, community partnerships	Extensive literature review on social constructivism, and activity theory	Home school and community partnerships	–	Modeling numeracy learning activity systems on the basis of Activity Theory	Social constructivism, Vygotsky, Activity Theory	Australia
Coe et al., 1999 writing programs indicators	–	–	–	–	–	USA
Cooke, 2008, effective classroom instruction; high-performing – high-poverty urban schools	Broad literature review, Vygotsky's learning theory, Marzano's review of Effective schools research and Critical Race Theory	–	–	–	Literature review does not lead to a theory-based model, or theory-driven research	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Craig et al., 2005, 6 high-performing schools	Some review of mostly administrative reports, dealing with effectiveness-enhancing conditions	–	–	–	–	USA
Fend, 1998, <i>Qualität in Bildungswesen</i>	– not in this part of the book	–	Differential effectiveness between different secondary school types	–	Fend has an extensive descriptive theory of the school, which has no predictions for “what works”	Germany
Florida State Department of Education, 1994, Chapter I successful schools	Very limited references to poverty literature	–	–	–	–	USA
Foley, Klinge, & Reisner, 2007, evaluation of new century high schools	The report has a program theory, which is clearly based on school effectiveness research	–	–	–	–	USA
Franklin & Crone, 1992, indicators of Louisiana school effectiveness	– some literature on school effectiveness research and indicators, presented as “theoretical framework”	–	–	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Fullarton, 2004, closing the gap between schools, Australian TIMSS 95 and 99	Broad overview of effective schools research literature	–	–	–	–	Australia
Glidden, 1999, characteristics of high-performing low-income schools	3 literature references inequality of education studies	–	–	–	–	USA
Griffith, 2002, school learning, minority achievement, elementary schools	Broad literature review on different types of support	Academic support versus communal, expressive support (emphasis on quality of interaction)	–	–	–	USA
Griffith, 2003, schools as organizational models	Representative review of school effectiveness literature	–	–	Indicator model derived from Quinn and Rohrbaugh framework	Q and R.s models represents major thoughts in organization theory	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Grisay, 1994, effective junior schools in France	Limited reference to school effectiveness literature	–	Joint effects of school composition and malleable variables	–	–	France
Heck, 2007, teacher quality school context	References to – teacher effects, school effectiveness, instructional effectiveness, and production function literature	–	Use of dynamic school indicators, i.e., development of school factors over time	A multilevel model, Figure 1 and its corresponding path model in Figure 2 (latent curve model)	–	USA
Hill, Holmes-Smith, & Rowe, 1994, school and teacher effectiveness in Victoria	Review of school effectiveness literature	–	School versus class/teacher effects	Diverse path models for the analysis. Result of study is A heuristic model of school and teacher effectiveness	–	Australia
Hofman, Hofman, & Guldemond, 2002, school governance	Literature on school effectiveness and private public, school governance	–	The way cross level mediation occurs in multi level school effectiveness models	–	–	Netherlands

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Hofman, Hofman, Guldemond & Dijkstra, 1996, private – public schools	Review of literature on school effectiveness, private public differences, sociological theory	Cohesiveness is a core factor, analyzed at the level of community and school board	–	The study developed a basic path model for its analysis	Coleman's functional community theory was used to explain differing school effects between private public schools	The Netherlands * a more or less theory-driven study
Hopkins, 1999, Brownsville independent school district	–	–	–	–	–	USA
Hoy, Tarter, & Bliss, 1990, organizational climate, school health, and effectiveness	Literature on school climate, school culture, school effectiveness and organization sociological theory	School health as an encompassing factor of effectiveness-enhancing organizational cond.	School effectiveness indicators as aspects of more fundamental dimensions	–	Parson's social systems' theory. Imperative functions: adaptation, goal integration, goal attainment, latency	USA * a theory-driven study
Hughes, 1995, achieving despite adversity	5 references	–	–	–	–	USA
Jesse, Davis, & Pokorny, 2004, high-achieving middle schools	Review of: effective practices for Latino students, school effectiveness, teacher effectiveness, instructional effectiveness	–	–	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Johnson, 2002, high-performing, high-poverty urban elementary schools	–	–	–	–	–	USA
Jones, Tanner, & Treadaway, 2000, raising standard in mathematics	Literature on school and instructional effectiveness	–	–	–	–	UK
Jones, 2004, studying success at an “effective school”	Some reference to school effectiveness literature (Edmonds)	–	–	–	–	USA
Kennedy et al., 1993, Phase II Louisiana School Effectiveness Study	Some literature review school eff.	–	–	–	–	USA
Kitchen, DePree, Celedon-Pattichis, & Brinkerhoff, 2006, mathematics education at highly effective schools for the poor	Extensive review of literature on equity, school effectiveness and critical pedagogy	–	–	–	–	USA
Kyriakides, Campbell, & Gagatsis, 2000, classroom effect, Creemers’ model	Overview of school effectiveness literature	–	–	Creemers’ model	Carroll model	Cyprus

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Kyriakides & Creemers, 2008, testing the dynamic model	Representative review of school effectiveness research literature	Concentration on teaching conditions	– multifacet measurement model of effectiveness-enhancing conditions at classroom level	Intricate measuring model, multi trait multi method analysis, multilevel modelling	A priori conceptual measuring model.	Cyprus* a model-driven study
Kyriakides & Tsangaridou, 200, educational effectiveness in physical education	Review school effectiveness literature	–	Application of an educational effectiveness model to a not often used subject: physical education	Testing of Creemers' model	The Carroll model as a more basic theory on which the Creemers model is based	Cyprus* a model-driven study
Lamb & Fullarton, 2002, TIMSS	Brief review	–	–	–	–	International
Lamb, Rumberger, Jesson, & Teese, 2004	Limited review of production function literature	–	–	–	–	Australia
Lassen, Steele, & Sailor, 2006, school wide positive behavior	Review of literature on school discipline, positive behavior	School wide positive behavior as a central concept	–	–	–	USA
Lindsay & Muijs, 2006, underachievement in boys	Review literature on underachieving boys	–	–	–	–	UK

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Mahimuang, 2005, factors influencing achievement	Review of literature on value added and school effectiveness	–	–	Analysis model in Fig. 1	–	Thailand
Mandeville & Kennedy, 1993, mathematics achievement	Review of methodological literature connected to school effectiveness	–	–	–	–	USA
Martin, Mullis, Gregory, Hoyle, & Shen, 2000, effective schools in science and maths. TIMSS	–	–	–	–	–	International
Meelissen & Luyten, 2008, gender gap, TIMSS	Lit. on gender and achievement	–	–	–	–	International
Meijnen, Lagerweij, & De Jong, 2003, instruction young children	Literature on school effectiveness, cognitive development young children, early childhood education	–	–	–	No school effectiveness theory	Netherlands
Miles & Darling-Hammond, 1997, allocation of teacher resources	Limited literature review	–	–	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Mosenthal, Lipson, Mekkelsen, Russ, & Sortino, 2001, elementary schools, success in reading	Rather limited review of school effectiveness literature	–	–	–	–	USA
Mullis, Jenkins, & Johnson, 1994, effective schools math. NAEP	–	–	–	–	–	USA
Neumann et al., 2007, schools as differential learning environments; composition	Mostly German literature on composition effects	–	–	Analysis model in Figure 1	–	Switzerland
Opdenakker & Van Damme, 2007, effects of schools and classes	Review of school effectiveness research literature	–	Place and effect of compositional effects	The study is model driven. The model is multilevel and distinguishes malleable variables, context variables, and context effects	–	Belgium * this is a model-driven study
Papanastasiou, 2008, effective schools and teaching in mathematics, TIMSS	Extensive school effectiveness research review	Transitional teaching, active learning	–	–	–	International

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Perez et al. (AIR), 2007, educational adequacy	Literature on successful schools, effective schools	–	–	Summary multilevel path model, p. 63	–	USA
Picucci, Brownson, Kahlert, & Sobel, 2002, high performing high poverty	–	–	–	–	–	USA
Pollanen, 1991, equity and school effectiveness	School effectiveness and equity literature	–	–	–	–	USA
Pollard-Durodola, 2003, at – risk students	Limited lit. review	–	–	–	–	USA
Postlethwaite & Ross, 1992, IEA RL	Some lit. review	–	–	–	–	International
Pressley, Mohan, Raphael, & Fingeret, 2007, high achievement, elementary school	Lit. review on effective schooling and teaching in reading	–	–	–	–	USA
Pressley, Raphael, Gallagher, & DiBella, 2004, schools African American	Lit. review on effective schooling and teaching	–	–	–	–	USA
Pustjens, 2008, curriculum choice and success	Extensive review of school effectiveness literature	–	School careers as outcomes	–	–	Belgium

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Reezigt, Guldemond, & Creemers, 1999, comprehensive model educational effectiveness	Fair lit. review	–	Size of school and class effects	Creemers' integrated model	The Carroll model	Netherlands
Reynolds, Creemers, Stringfield, Teddlie, & Schaffer, 2002, international perspectives on school effectiveness	Fair lit. review	–	Differential effectiveness	–	–	International, 9 countries
Rogers et al., 2006, influence of selected factors on Alberta achievement test	–	–	–	–	–	Canada
Ross, Redfield, & Sterbinsky, 2006, effects comprehensive school reform	Principles of Comprehensive School Reform	–	Holistic concept of many factors working together	–	–	USA
Ross & Gray, 2006, school leadership effects	Yes, school leadership literature – (only Title 1 policy context	–	–	Indirect effect models of leadership	–	Canada
Rubenstein & Wodatch, 2000, improvement Title 1 secondary schools	–	–	–	–	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Rudd, Aiston, Davies, Rickinson, & Dartnall, 2002, high performing secondary schools	Very limited review	—	—	—	—	UK
Rumberger & Palardy, 2005, alternative indicators of high school performance	Very limited review	—	Examination versus tests as outcome variables	—	—	USA
Sammons, Thomas, & Mortimore, 1997, effective schools and departments	Fair lit. review	—	Examination versus tests, role of departments	—	—	UK
Senkbeil, 2006, effects of school factors on math and science performance	Extensive literature review	—	Impact of compositional effects, typologies of schools	Path model, p. 285	—	Germany
Silins & Mulford, 2004, schools as learning organizations	Fair lit. review	Leadership and school climate	—	Indirect effect model of leadership	—	Australia
Smyth, 2000, academic and non academic outcomes	Limited	—	Academic and non-academic outcomes	—	—	Ireland
Spencerport Central Schools, 1990, effective schools and effective teaching	Limited review	—	—	—	—	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Stringfield, Reynolds, & Schaffer, 2008, reform reliability	Literature review particularly about school improvement	Standard operating procedures	–	–	The idea of high reliability organizations, neo-institutional economics, bureaucracy, quality management	UK, Wales
Sweetland & Hoy, 2000, organizational model of student achievement	Limited review	Teacher empowerment; organizational climate	–	Path model, p. 724	–	USA
Tarter & Hoy, 2004, a systems approach to quality	Review of organizational theories	Supportive structure, collective teacher efficacy, trust, politics	–	The research was guided by regression models	Bolman & Deal and Hoy & Miskell as theoretical bases	USA * this is a theory-driven study
Taylor, Pearson, Clark, & Walpole, 2000, effective schools, reading	Some lit. review sch Effectiveness, reading	–	–	–	–	USA
Teddle & Stringfield, 1993, a 10-year study of school effects	Extensive review of school effectiveness research literature	–	Stability School and teacher effects	Teddle & Slater's typology of school effectiveness and leadership, p. 47 Chapter 4	–	USA

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Texas Education Agency, 2000, successful schools study	Some literature on school effects Latin students	-	-	-	-	USA
Thomas, 1995, primary school effectiveness	-	-	-	-	-	UK
Thomas & Collier, 1997, school effectiveness for language minority students	-	-	-	-	-	USA
Towns, Cole-Henderson, & Serpell, 2001, urban school success (minority effectiveness)	Some literature review	-	-	-	-	USA
Trautner, 1992, correlates of effective schools	Extensive literature review	-	-	-	-	USA
Van Damme, De Fraine, Van Landeghem, Opendakker, & Onghena, 2002, educational effectiveness in secondary schools	Extensive lit. review	-	Composition and joint effects	Multilevel model	-	Belgium, Flanders

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Van der Werf, 1997, high, average, and low effective schools	Fair lit. review	–	Differential effectiveness	Creemers' integrated model	School learning theory, Bloom, Carroll	NL
Van der Werf & Weide, 1996, effective and ineffective schools for ethnic minorities	Fair lit. review	–	Trade-offs between quality and equity	–	–	NL
Waxman, Garcia, & Read, 2008, urban middle-level schools	Review of school and instructional effectiveness literature	–	–	–	–	USA
Webster & Fisher, 2003, school environment math outcomes, TIMSS	Some literature review instructional effectiveness	–	–	Conceptual and path models, Figs. 1, 2, and 3	–	Australian TIMSS data
Willis, 1996, success African American schools	Review literature school effectiveness, schools with minority children	–	–	–	–	USA
Witte & Walsh, 1990, (EEPA) systematic test effective schools model	Literature review school and teaching effectiveness	–	control for context conditions	–	–	USA
Woessmann, 2003, school and family background East Asia, TIMSS	Production function literature	–	–	–	–	East Asia

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Appendix 1. (Continued).

<i>reference</i>	<i>Literature review school effectiveness</i>	<i>Review of core factors</i>	<i>Foundational issues addressed</i>	<i>Models</i>	<i>Use of established theory</i>	<i>National context of study</i>
Word et al., 1990, project STAR	–	Some references on class size	–	–	–	USA
Young, 2001, Western Australian school effectiveness study	Some review eff. schools literature	–	–	–	–	Australia
Young & Fraser, 1992, school effectiveness and science achievement	Overview of school effectiveness research	–	–	Scheerens, 1990, integrated school effectiveness model	–	Australia
Yu & White, 2002, value-added school effects	Overview of school effectiveness research	–	–	–	–	USA
Zigarelli, 1996, test of school effectiveness research	Research overviews school effectiveness cited	–	–	–	–	USA