



## SCHOOL EFFECTIVENESS: LITERATURE REVIEW

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*Abstract.* In this paper, the reader embarks on the first part of the review of school effectiveness research. The aim of the review is to offer a clearer picture on whether, which, and how much teacher and school variables impact student achievement, as there is currently no wider and accepted consensus on this matter, in spite of the wealth of various school effectiveness studies. An introduction is followed by a section on fragmented research paradigms. Four subsequent sections describe and critique findings from these paradigms, namely from student background, input-output, effective-schools, and instructional effectiveness studies. The paper concludes with the section on synthesis of findings, which implicate student background variables as the most important for student achievement, followed by instruction- and teacher-related variables (in very poor developing countries, input-output factors are also relevant for student success). Subsequent paper will showcase more recent school effectiveness studies that use appropriate methodology and conceptual framework for identification of the most important school effectiveness factors.

*Key words:* school effectiveness, fragmented research paradigms, student background, input-output, effective schools, instructional effectiveness.

### *Introduction*

During the last four decades, the field of school effectiveness has been explored from a variety of research paradigms using both qualitative and quantitative methods. However, at the heart of all school effectiveness research is an attempt to explain how school inputs, the context of schooling, and school processes affect school outputs (Figure 1, Scheerens, 2000).

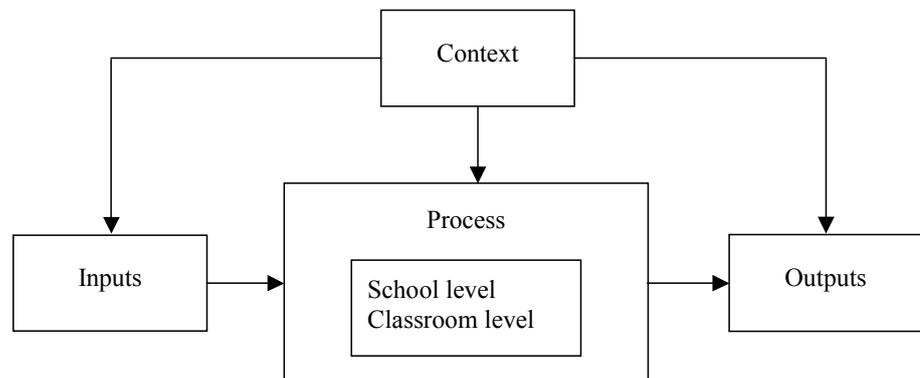
In general, school inputs include variables such as teacher qualifications, school infrastructure, and per-student expenditures. The context of schooling consists of variables such as support from higher administrative levels and school location. School processes encompass variables such as teacher behaviors, orderly atmosphere, and the quality of school curricula.

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Student achievement is usually considered to be the major school output. Student background (also a school input) is discussed separately because it is not under the control of the school system, and so it needs to be removed from examination of the impact of school factors on student achievement.

*Figure 1: A basic systems model of school effectiveness (Scheerens, 2000)*



In spite of the wealth of school effectiveness studies, there is still no complete picture on whether, which, and how much teacher and school variables that make up school inputs, processes, and context affect student achievement. This is largely due to the following four reasons:

- Three school effectiveness research paradigms have been used mostly in isolation of each other and without a conceptually integrated model to guide research, thus ignoring teacher and school variables identified in other paradigms.
- Most prior research has been undertaken in either industrialized or developing countries, possibly obscuring the importance of certain teacher and school variables present in other countries.
- Most prior research has used statistical procedures intended for only one unit of analysis (e.g., schools), whereas the hierarchical nature of schooling requires management of multiple units of analysis (i.e., schools, classrooms, and students).
- Most past studies have been in countries where students are assigned to different teachers each year, obscuring the possible cumulative effects of teachers.

This paper focuses on the first two problems; incidentally, it also represents a review of the older school effectiveness studies. The second part of

the literature review (to be published later) will address two other problems, as well as give insight into more recent and advanced school effectiveness studies.

### *Fragmented Research Paradigms*

In 1963, John B. Carroll postulated that student learning depends on time needed to learn (determined by a student's aptitude, ability to understand instruction, and quality of instruction) and time spent in learning (determined by the time allowed for learning and the student's perseverance). Later, Bloom (1976) elaborated on Carroll's model by positing that a student's cognitive and affective entry behaviors (the prerequisite learning and motivation) and quality of instruction determine learning outcomes. In both models, variables can be altered to both increase learning and reduce variation between students.

Most of research that ensued has been empirical and has focused on various parts of the two models, aiming to measure the above-mentioned, generalized variables in different ways. Of the thousands of studies that have been conducted, most have been undertaken within one of three different paradigms: (a) input-output studies, (b) effective-schools studies, and (c) studies on instructional effectiveness (Scheerens, 2000). *Input-output* studies have focused on finding relationships between various school inputs (excluding *student background* factors) *Effective-schools* research has emphasized the importance of school processes, particularly school organization and administrative practices. *The instructional-effectiveness* paradigm has centered on the links between teaching processes and school outputs. While each research tradition has made strides in discovering factors that consistently influence student achievement, little research has drawn simultaneously on all three paradigms.

### *Student Background Research*

The now-famous 1966 Coleman report found that in the United States student background (mostly socioeconomic) factors showed much stronger association with student achievement than any school-related factors, such as per-student expenditures and teacher qualifications (Coleman *et al.*, 1966). These findings were confirmed in numerous subsequent studies in *industrialized countries*.

Grissmer *et al.* (1994) used multiple linear regressions to identify the net impact of each of several student background factors on student achieve-

vement in mathematics and verbal/reading skills. For example, the difference between having a college-educated mother and a mother who did not finish high school resulted, on average, in about a half standard deviation difference in achievement. Being black resulted in a score that was, on average, half a standard deviation below the score for a white student. Differences in family income (\$40,000 vs. \$15,000), and family size (having four vs. having one sibling) showed an impact of around 0.10–0.20 standard deviations.

In the re-analysis of IEA data on student achievement, Heyneman and Loxley (1982) also used multiple linear regression to show that in industrialized countries various student background variables (the father's and mother's education, the father's occupation, the number of books in the home, the use of the dictionary in home, the sex of the student, and the age of the student) explained around 20% of total variance in science achievement (this constituted about 50% of explainable variance<sup>1</sup>).

PISA 2000 showed that several student background factors explained significant variance in the achievement of 15-year old students: parental occupational status, cultural possessions at home, parental involvement, home educational resources, participation in cultural activities, and family wealth (OECD, 2001). The same was true of some variables that capture learning strategies and attitudes: engagement in reading, interest in reading, control strategies, and time spent on homework (OECD, 2001). In single linear regression analyses, mother's education exhibited a large significant effect on student achievement (the difference between students whose mothers did not finish high school and those whose mothers finished high school was 45 points, with 500 being the average). Students from single-parent families performed 12 points below those from two-parent families. Students who were not born in the country of testing scored 71 points lower (a full proficiency level) than native students.

In multiple linear regression analyses where the above-mentioned variables (excluding learning strategies and attitudes variables) were simultaneously examined, their effect changed somewhat. Increase in one standard deviation in parental occupational status increased student achievement by 28 points on average. Students born in the country of testing performed better than non-native students by 26 points on average. Each additional year of parental education added 5 points to the student's score, while one

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<sup>1</sup> Another 20% of variance was explained by school track (general, vocational, or academic), school program (focusing on social science, natural science, etc.), and school variables (e.g., using textbook in science class). The remaining 60% could not be explained by any of the above variables.

standard deviation increase in indices of home educational resources and cultural possessions raised student achievement by 12 and 13 points, respectively. Living in a two-parent family was associated with 11-point higher achievement (OECD, 2001).

PISA 2000 highlighted the need to analyze the factors simultaneously with each other rather than independently, since only then their net effect on achievement can be accurately determined. Also, it is important to examine a wide range of literature-implicated variables, as the effect of a certain variable can considerably vary depending on the presence of other variables that potentially impact achievement.

Student background factors were shown to play an important role for student achievement in developing countries as well, but the magnitude of their effect is more debated than in industrialized countries. For example, using vote-counting method<sup>2</sup>, Velez *et al.* (1993) found that in many studies in Latin America student achievement showed positive association with parental education or occupation, family income, access to books, attitudes toward study, previous cognitive achievement, access to TV, and IQ / ability. Family size and student's age were shown to be negative predictors. Since the vote counting cannot provide the effect sizes (and many primary studies do not supply effect sizes, Fuller & Clarke, 1994), the magnitude of these findings cannot be estimated.

Heyneman and Loxley (1982) found that in four developing countries student background variables explained only a small percentage of total variance in science achievement: 2.7% in India, 6% in Thailand, 8% in Iran, and 8% in Chile. When taken as a percentage of variance that could be explained by all examined variables, student background accounted for 8.7% of explainable variance in India, 18.8% in Thailand, 47% in Iran and 23.5% in Chile. These numbers point to a modest influence of student background factors on student achievement.

Overall, student background factors are very important in both industrialized and developing countries. This conclusion is well established in industrialized countries, and more debated in developing countries.

### *Input-Output Research*

In many input-output studies, large data sets were analyzed and achievement test scores mostly taken as a measure of school output (Hanushek, 1989). The most frequently examined school inputs were measures of teacher cha-

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<sup>2</sup> This method simply counts the number of studies that found statistically significant positive effect of a variable, regardless of the effect size, sample size, or other study characteristics.

racteristics (experience, education, etc.), school infrastructure and services (facilities, class sizes, etc.), and per-student expenditures (Hanushek, 1989). While most researchers recognize that in industrialized countries, student background factors relate with school outputs more strongly than all schooling factors taken together, the magnitude of the effects of school inputs is nonetheless debated.

For example, Darling-Hammond (2000) analyzed state-level data controlling for student poverty and limited-English proficiency status and found that the percentage of teachers with full certification and a major in their field explained approximately half of total variability in student math and reading achievement. Payne and Biddle (1999) determined that, after controlling for district-level child poverty, the average level of curricular instruction and the percentage of non-white persons, district-level annual per-student funding had a significant influence on student achievement. Ferguson (1991) concluded that, after controlling for district-level socio-economic status, teacher test scores, teacher experience, and master's degree each explained 20–25%, 10% and 5% of inter-district variation in student achievement, respectively. Goldhaber and Brewer (1997) found that, after controlling for students' parental education, family income, sex, race, and family structure, teachers with certifications and bachelor and master degrees in mathematics produced significantly higher student test scores than teachers whose certifications and bachelor and master degrees were not in mathematics.

On the other hand, Rivkin *et al.* (2000) found that teacher experience beyond first several years and master's degree were not significant predictors of student achievement. In single linear regressions, PISA 2000 found that, on average, across OECD countries, input-output variables (teacher shortages, quality of the schools' educational resources, and quality of schools physical infrastructure), played very little role in explaining student achievement across schools (OECD, 2001).

Contradictory results are also present in the meta-analyses of input-output research. Hanushek (1989, 1997) used a vote-counting method and, across many studies, found no consistent relationship between school inputs (per-pupil expenditure, teacher salary, teacher education, teacher experience, and teacher / pupil ratio), and school outputs. On the other hand, Hedges *et al.* (1994) disputed Hanushek's findings on the grounds that a vote-counting method has a very low power to detect significant effects. The authors then used a combined significance test to show that there was a significant relationship between each of the above-mentioned variables and school outputs.

The problem with both primary studies and, by extension, meta-analyses that contain them, is that many are methodologically of poor quality (Hanushek, 1997). First, if output measures are not properly controlled for student socioeconomic status or prior achievement, the number of positive findings will be inflated. Second, if studies use aggregated data instead of individual student data, the school input effects will usually be misestimated (this effect is known as aggregation bias). Therefore, the results of the above-mentioned primary studies (except for Goldhaber and Brewer's) are not entirely credible because they used few control variables and/or aggregated data. In order to improve quality of studies, important student background variables need to be controlled for and proper units of analysis need to be used.

A third methodological shortcoming of past research, noted by many authors, is that studies vary dramatically in the choice of variables included in regression analyses. As a result, the effect of a particular variable on student achievement can vary from study to study depending on the presence of other variables in the analysis, particularly if the included and excluded variables are collinear<sup>3</sup>. This can result in contradictory findings and contribute to confusion about which variables are important for student achievement.

Two other related and more substantive issues with input-output studies were also mentioned by Hanushek (1989) and Scheerens (2000). First, existing measures of school inputs used in the majority of input-output studies are likely inadequate to fully capture the true effects of schools (Hanushek, 1989). For example, a teacher's degree probably does not fully measure all teacher's effects on student achievement, as teachers with the same degree probably teach differently, assign different homework and differently motivate the students. Second, most input-output studies assume a simple and direct relationship between inputs and outputs. In reality however, interactions between various inputs and their interactions with school processes and contexts, most likely act together to influence the outputs (Scheerens, 2000). In other words, particular teaching styles may be more effective for high-SES students, or less effective if undertaken in schools with poorly provided teaching tools. To the extent that these interactions among variables are disregarded in the input-output research, the effect of school inputs will be miscalculated.

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<sup>3</sup> For example, in their review of the impact of teacher qualifications on student achievement, Wayne and Youngs (2003) reported on five longitudinal studies that found a positive relationship between teacher test scores and student achievement and two longitudinal studies that found a negative relationship. The seemingly inconsistent findings became less inconsistent once it was revealed that the two studies that found a negative effect of teacher test scores on student achievement controlled for the rating of the teacher's college, which presumably captured a similar aspect of teacher quality as teacher test scores.

Findings of the input-output studies undertaken in developing countries are less controversial. The reviews of the studies that controlled for student background (Farrell & Oliveira, 1993; Fuller & Clarke, 1994; Hanushek, 1995; Velez *et al.*, 1993) used a vote-counting method to show that in many studies, the existing measures of school inputs, such as basic infrastructure, textbook availability, teacher education, per-student expenditure, and school facilities, consistently exhibited a significant impact on student achievement in developing countries. Since all the meta-analyses were of studies that controlled for student background, their findings are less likely to be inflated. However, studies undertaken in developing countries likely suffer from similar above-mentioned methodological shortcomings, namely omission of potentially important variables from regression equations. As a consequence of such differences, the coefficient estimates are likely to vary from study to study, and findings are likely to be mixed.

Harbison and Hanushek (1992) provided some estimation of the effects of school inputs in poor developing countries: supplying all school facilities to schools that had none increased achievement by 0.09–0.13 standard deviations and supplying a package of writing materials to students increased achievement by 0.30–0.50 standard deviations.

Heyneman and Loxley (1982) also provided some estimates of school effects: in developing countries schooling variables (all examined together) explained two to three times more achievement variance than in industrialized countries (after controlling for same student background factors). The proportion of total variance that was explained by schooling variables was 28% in India, 26% in Thailand, 9% in Iran, and 20% in Chile, while comparable percentages in industrialized countries ranged from 6% to 16%. Together with the school track variables (general, vocational, or academic) and school program variables (e.g., focusing on social science), the schooling variables explained 91.3% of explainable variance in India, 81.2% in Thailand, 53% in Iran, and 76.5% in Chile, while comparable percentages in industrialized countries were around 50% or less.

An explanation for the differences between the findings on student background and school inputs in industrialized and developing countries is given by Farrell and Oliveira (1993) and Scheerens (2000). Farrell and Oliveira suspect that industrialized countries are close to the limits of the perfectibility of the technology of schooling, so that even modest additional gains in achievement require costly and difficult educational efforts. Similarly, Scheerens attributes a larger impact of school inputs in developing countries, compared to industrialized countries, to the greater variance in both school inputs and outputs. The opposite is then true for industrialized coun-

tries: The smaller influence of school inputs and larger influence of student background in industrialized countries are probably explained by the smaller variability in school inputs and/or, less likely, greater variability in students' home educational environment and support.

Overall, input-output variables seem to be less relevant for student achievement in industrialized countries and more relevant in developing countries. Notwithstanding these general trends, input-output research in both sets of countries is likely to benefit from improved control of student background factors, an appropriate level of data aggregation, and, most crucially, the inclusion of additional variables that impact student achievement.

#### *Effective-schools Research*

In the third body of research examined in this literature review, researchers mostly used surveys, case studies and field studies to research organization, form, and content of high-end outlier schools and identify the factors that make them unusually effective (Levin & Lockheed, 1991, Scheerens, 2000). A summary of the five recent reviews of effective-schools studies points out that, for industrialized countries, consensus is greatest in the research community on the importance of the following factors: (a) achievement orientation (related to high expectations), (b) co-operation, (c) strong educational leadership, and (d) frequent monitoring of progress (Scheerens, 2000). Orderly climate also appears to be important. However, it seems that studies employing qualitative data and mixed studies find more support for the contribution of effective-schools factors than studies that rely solely on quantitative data. Both sets of studies, however, suffer from some methodological shortcomings, which results in a lack of consensus on the relevance of effective-schools variables for student achievement.

For example, in the seminal study "Fifteen Thousand Hours", Rutter *et al.* (1979) concluded that, after taking into account individual student characteristics, such as parental occupation and verbal reasoning, school characteristics most associated with student attainment on public academic exams were good classroom management, high expectations of academic success, modeling of good behavior by teachers, positive feedback, well-conducted lessons, staff cohesion in academic and disciplinary matters, and pleasant working environment (last two are effective-schools factors). The authors also found that the peer effect (larger presence of more able children) had an impact on achievement over and beyond what would be expected from individual characteristics. However, since the authors combined

the scores for all variables into one composite score, they did not assess the relative importance of individual schooling factors.

In the International School Effectiveness Research Project (ISERP), Reynolds *et al.* (2002) examined high- and low-achieving school outliers enrolling either low-SES or middle-SES children in nine industrialized countries. The authors used both quantitative and qualitative data to find that greatest differences between less and more effective schools were in child experiences in school during the day, instructional style, principal leadership, expectations for students, school goals, and inter-staff relations (the last four are effective-schools factors). The study also found that school-level variables appeared to be more salient for low-SES schools, while instructional variables were more important for middle-SES schools, which presumably already had in place those baseline school-level factors (e.g., orderly climate).

Sammons *et al.* (1998) conducted case studies of six outlier schools that were categorized as effective, ineffective, and mixed in a study of 94 London secondary schools<sup>4</sup>. The features of effective schools were high expectations and emphasis on academic achievement, encouragement of parental involvement, a principal's leadership, a strong management team, quality teaching in the school, and emphasis on homework.

Encouragement of parental involvement appears to play an especially prominent role in student achievement, probably because it taps into parental and home educational resources that have proven to have a considerable influence on student achievement. The majority of 29 controlled studies of cooperative efforts by parents and educators (Walberg & Paik, 2000) and 51 studies that examined family and community effects on student achievement (Henderson & Mapp, 2002) showed that parental involvement in school functioning and programs that actively engaged families in supporting student learning at home were associated with better school outputs.

However, some quantitative studies refute this. For example, in their review of five studies, Ellett *et al.* (1997) found little association between school environment and organizational variables (e.g., the nature of decision making), and student achievement. Similarly, van der Werf (1997) studied 560 low-, medium-, and high-achieving schools using one-way ANOVA to find that the only one school characteristic – school leadership – was consistently (negatively) associated with student achievement. PISA 2000 also found that teachers' morale and commitment, school autonomy, school se-

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<sup>4</sup> Schools were grouped into three categories by the HLM method that adjusted school mean scores for student background characteristics and prior achievement, and simultaneously used students and schools as units of analysis.

lectivity, and teacher autonomy each explained around 0.5–2% of total variance in single linear regressions. Only principals' perceptions of student-related factors affecting school climate (e.g., absenteeism) explained 5.8% of the variance (OECD, 2001).

However, the above-mentioned research is problematic. For example, it is possible that even the educational leadership variable in the van der Werf study would not have been significantly associated with achievement had the other variables been simultaneously tested. On the other hand, the reverse is also plausible: Additional effective-schools variables might have appeared significant if they acted together with other effective-schools or instructional-effectiveness variables<sup>5</sup>. The same holds true for PISA 2000, since the importance of each effective-schools variable was assessed individually. The possibility that such suppression effect occurs can be minimized by simultaneously examining all relevant, theoretically-implicated variables.

Several quantitative meta-analyses of available studies concluded that the contribution of effective-schools variables to student achievement was small to modest (the correlation coefficients ranged from -0.02 to 0.20 without controlling for student background (Scheerens, 2000)). If the student background had been included, the correlation coefficients would have likely been even smaller, since student background variables would have captured a considerable portion of the relationship between student achievement and effective-schools factors. Wang *et al.* (1994) also found that variables such as district policies or school organization were associated with student achievement only moderately in comparison with instructional-effectiveness variables (see next section). Also, international comparative studies pointed out that the consistency of effective-schools factors was very low across various countries (Scheerens, 2000).

The definition and operationalization of the effective-schools factor categories may vary widely between studies. A restricted range of variation also may exist in school organization, form, and content, which precludes quantitative studies from finding significant effects of effective-schools variables, but does not impact qualitative researchers who study high-end outliers. Similarly, the failure to consider important effective-schools variables, variables from two other research paradigms and student background factors may inflate the findings of studies that focus only on certain ef-

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<sup>5</sup> A study by Gutman and Midgley (as cited in Henderson & Mapp, 2002) shows this is possible: High grades were obtained by students who experienced a combination of either high parent involvement and high teacher support or high parent involvement and student sense of belonging at school, but not by students who experienced only one of the three examined variables. This is known as suppression effect.

fective-schools factors. The inconsistency of the findings between the countries could be due to the different cultural contexts, which foster or oppose a particular effective-schools factor, such as parental involvement (Fuller & Clarke, 1994). Last, but not least, effective-schools factors may be too removed from students to considerably impact student achievement, unlike more proximal factors, such as teachers (Wang *et al.*, 1994).

Effective-schools factors have been rarely examined in developing countries. Fuller and Clarke (1994) found that, in over 100 studies, effective-schools factors were examined only three to four times. In Latin America and the Caribbean, the effective-schools factors were explored rarely (Velez *et al.*, 1993). In over 50 studies reviewed by Farrell and Oliveira (1993), four out of seven analyses found the quality of the principal to be significantly correlated with student achievement.

Studies that did explore effective-schools factors in developing nations suffer from several problems mentioned before. An example comes from a study of Gonakelle school in Sri Lanka (Little & Sivasithambaram, 1991). The authors attributed the school's high mathematics achievement over others in the district to interplay between enthusiastic, local teachers, teacher stability, and the strong leadership of an active principal. However, considering that the initial average achievement of the Gonakelle students was much higher than the district average, and that no other control variables were examined, the above-mentioned effective-schools factors could not be solely credited for Gonakelle student achievement.

In Colombia, a massive project called Escuela Nueva was implemented in rural schools beginning in 1975. The hallmarks of Escuela Nueva were strong teacher-parent-community relationships, active learning curriculum, critical thinking, cooperation, self-instructional materials, individualized learning, teacher training program, monthly teacher support groups, joint teacher and student management of school, and frequent visits from supervisors (Rugh & Bossert, 1998). Several evaluations found varied success of Escuela Nueva students in Spanish and mathematics (Rugh & Bossert, 1998). However, the exact contribution of each of the factors that comprised Escuela Nueva schools cannot be properly assessed if student background factors and factors that potentially impact student success (e.g., dropout rates) are not examined simultaneously.

In summary, the relevance of effective-schools factors in industrialized countries is debated. They were not adequately explored in developing countries. Future effective-schools research needs to be more specific in the definition and operationalization of effective-schools factors, examine a range of variation in school organization, form, and content, examine cultu-

ral factors or factors at higher administrative levels, utilize better analytical methods, and include additional variables that impact student achievement.

### *Instructional-effectiveness Research*

The final body of research examined in this paper – the instructional-effectiveness paradigm – has mostly focused on teacher behaviors and practices in the classroom. Instructional-effectiveness studies, mostly undertaken in industrialized countries, were often based on experimental design (Scheerens, 2000; Walberg & Paik, 2000).

Several important reviews of instructional-effectiveness research (Brophy & Good, 1986; Wang *et al.*, 1993; Creemers, 1994; Scheerens, 2000; Walberg & Paik, 2000) singled out the following teaching behaviors as the ones most consistently associated with student achievement: emphasizing academic instruction; maximizing efficient time on task; actively teaching (vs. allowing individual, unsupervised study by students); adjusting the difficulty and cognitive level of tasks and questions to the students; structuring, outlining, and reviewing lessons; questioning, testing and providing homework; prompting and providing feedback; ensuring clear correspondence between covered material and tests (so-called opportunity to learn); monitoring for completion and accuracy in supervised independent seatwork and homework; teaching of learning strategies; providing corrective instruction; preparing in advance; being flexible, clear and enthusiastic; having high expectations; maintaining an orderly atmosphere; having quality academic and social interactions with students<sup>6</sup>.

The results of three meta-analyses estimated that instructional-effectiveness variables had modest to large effects on student achievement (Scheerens, 2000). For example, transformed correlation coefficients for student achievement and opportunity to learn, co-operative learning, feedback, and reinforcement were 0.15, 0.27, 0.48, and 0.58, respectively. However, because student background variables were not controlled for, it is likely that these correlation coefficients were somewhat inflated.

Even though it appears that instructional-effectiveness factors play an important role in industrialized countries, several problems with instructional-effectiveness research still exist. First, some of the experimental research was done in a short period of time, and it is not clear how powerful

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<sup>6</sup> It should be noted that some of the findings were dependent on the context, such as grade level or student SES / ability. For example, teacher's focus on basic skills and encouragement of overt student participation was especially effective in the early grades, while more drill, review, and practice appeared effective for low-SES students (Brophy & Good, 1986).

the findings are in long-term educational situations. Second, experimental research is also susceptible to the Hawthorne effect, that is, any innovation can artificially increase the effects of the experiment simply due to its novelty (Weiss, 1998). Third, non-experimental studies on instructional effectiveness might artificially show large results if they omitted other theoretically-implicated variables from consideration. Fourth, instructional-effectiveness variables likely exert differential effects in different contexts (different student composition, grade levels, subject matter, etc.).

The available evidence suggests that some instructional-effectiveness factors, although rarely explored, may play important roles in developing countries. For example, significant positive associations were found in several reviews between student achievement and instructional time and frequency of homework (Fuller & Clarke, 1994), time on task and homework practices (Velez *et al.*, 1993), the length of the instructional program, homework frequency, teacher's expectations of student performance, and teacher's time spent on class preparation (Farrell & Oliveira, 1993). However, these findings need to be corroborated as they were based on a small number of analyses. Due to the vote-counting method applied in the reviews, the effect sizes were not available.

While consensus seems to be forming in industrialized countries that instructional-effectiveness factors are important for student achievement, research on instructional effectiveness in both the industrialized and developing world would benefit from studies that simultaneously include other relevant student background and school effectiveness factors, use precisely specified and operationalized factors, and show substantial range of variation in instructional practices.

### *Synthesis of Findings from Research Paradigms*

In summary, three research paradigms have been mostly used in isolation from each other. Table 1 summarizes the most common findings of each of the three major research paradigms, as well as the common findings about student background factors that most impact achievement.

In both industrialized and developing countries student background factors play a large role in student achievement (more so in industrialized countries). Input-output variables seem to be more important in developing countries. Instructional effectiveness factors seem to have an important role in both sets of countries, while the impact of effective-schools factors seems to be most debated. The implications of these findings are the following: (1) While educational system cannot be held responsible for the impact of

student background factors on achievement, it can nonetheless aim to modify its extent (e.g., it can encourage and facilitate parental involvement in school work); (2) Education policymakers and practitioners should strive to improve instructional effectiveness factors, as teaching and learning process appears to have the largest impact on achievement of all school effectiveness factors that are in realm of the educational system.

*Table 1: School Effectiveness Factors*

Student Background	Input-Output	Effective Schools	Instructional Effectiveness
<ul style="list-style-type: none"> <li>• parental educational attainment</li> <li>• parental occupational status</li> <li>• family wealth</li> <li>• cultural possessions at home (books, art)</li> <li>• communication on social issues and aspects of culture</li> <li>• family structure</li> <li>• student age</li> <li>• student gender</li> <li>• parental involvement in school work</li> </ul>	<ul style="list-style-type: none"> <li>• teacher qualifications (experience, salary, education, sex)</li> <li>• school infrastructure and services (facilities, availability of textbooks, class size, administrative expenses)</li> <li>• average per-student expenditures</li> </ul>	<ul style="list-style-type: none"> <li>• strong educational leadership</li> <li>• emphasis on acquiring basic skills</li> <li>• orderly and secure environment</li> <li>• high expectations of student achievement</li> <li>• frequent assessment of student progress</li> <li>• co-operation</li> <li>• strong parental outreach</li> </ul>	<ul style="list-style-type: none"> <li>• clarity of presentation</li> <li>• flexibility</li> <li>• enthusiasm</li> <li>• clear correspondence between covered material and tests</li> <li>• teaching skills until mastery is achieved</li> <li>• time on task</li> <li>• graded homework</li> <li>• direct, structured teaching</li> <li>• advance preparation of teachers</li> <li>• teaching of learning strategies</li> <li>• classroom management</li> <li>• teacher and student academic and social interactions</li> </ul>

Subsequent paper will solidify these conclusions by showcasing more recent school effectiveness studies that use appropriate methodology and conceptual framework for identification of the most important school effectiveness factors.

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Јелена Теодоровић  
ШКОЛСКА ЕФИКАСНОСТ: ПРЕГЛЕД ЛИТЕРАТУРЕ  
*Анстракт*

У овом раду читаоцу се нуди први део прегледа истраживања о школској ефикасности. Циљ овог прегледа јесте да понуди јаснију слику у погледу тога да ли, које и у којој мери, варијабле наставника и школе утичу на постигнуће ученика, с обзиром да тренутно не постоји шири и прихваћени консензус у вези са тим, упркос обиља разних истраживања школске ефикасности. Након увода, следи део о фрагментираним истраживачким парадигмама. Четири дела који следе описују и критикују налазе из ових парадигми, наиме, порекло ученика, input-output, ефикасне школе и истраживања наставне ефикасности. Рад се завршава делом о синтези налаза, који показују да су варијабле које се односе на порекло ученика најважније за њихово постигнуће, а следе варијабле које се односе на наставу и наставнике (у веома сиромашним земљама у развоју, input-output фактори су такође релевантни за успех ученика). Други део приказа ће представити нека новија истраживања о школској ефикасности која користе одговарајућу методологију и појмовни оквир за идентификовање најважнијих фактора школске ефикасности.

*Кључне речи:* школска ефикасност, фрагментирани истраживачки парадигме, порекло ученика, инпут-оупут, ефикасне школе, наставна ефикасност.

Елена Теодорович  
ЭФФЕКТИВНОСТЬ В ШКОЛЕ: ОБЗОР ЛИТЕРАТУРЫ  
*Резюме*

В предлагаемой работе излагается первая часть обзора исследований эффективности в школе. Цель данного обзора – дать как можно более ясное представление о том, влияют ли переменные преподавателей и школы на постижение учащихся, и если да, то какие и в какой степени. Дело в том, что сегодня нет общепринятого или хотя бы широко распространенного мнения по этому вопросу, несмотря на обилие разных исследований эффективности в школе. После введения автор переходит к рассмотрению фрагментированных исследовательских парадигм. Последующие четыре части работы посвящены описанию и критике исследовательских результатов, полученных в рамках упомянутых парадигм, в частности таких, как происхождение учащихся, input-output, эффективные школы и исследования эффективности в обучении. Заключительная часть работы предлагает синтез результатов, показывающих, что переменные, связанные с происхождением учащихся, имеют решающее значение для их постижений, тогда как на втором месте находятся переменные, связанные с обучением и с преподавателями (в предельно бедных развивающихся странах факторы input-output также значимы для успеваемости учащихся). Вторая часть обзора представит некоторые современные исследования об эффективности в школе, использующие адекватную методологию и понятийную рамку для выявления важнейших факторов эффективности в школе.

*Ключевые слова:* эффективность в школе, фрагментированные исследовательские парадигмы, происхождение учащихся, input-output, эффективные школы, эффективность обучения.