

Appendix C
Criteria and analyses of the quantitative evidence

1. Newmann and Wehlage (1995).

Conceptual criteria

Author	Newmann, F.M. & Wehlage, G.G. (1995).
Country	USA
Concept	Schoolwide professional community Within schools
Definition	Professional community schools are the schools that "...found a way to channel staff efforts toward a clear, commonly shared purpose for student learning: they created opportunities for teachers to collaborate and help one another achieve the purpose; and teachers in these schools took collective – not just individual – responsibility for student learning" (p.10).
Operationalization	- Teachers pursue a clear shared purpose for all students' learning - Teachers engage in collaborative activity to achieve the purpose - Teachers take collective responsibility (p.37)
Type of trait	School trait, as part of the school organizational capacity (p.10)

Methodological criteria

Sample size	Four CORS studies: 1. SRS – School Restructuring Study 23 public schools; 125 classrooms; 2100 students (p.62) 2. (NELS:88)- National Educational Longitudinal Study of 1988 789 high schools nationwide; 9,631 students (p.62) 3. Study of Chicago School Reform 400 elementary and 40 high schools; 8,000 teachers and principals 4. Longitudinal Study of School Restructuring - 8 schools
Dependent variable	Authentic student performance (SRS); Conventional student achievement (NELS:88) Authentic pedagogy and Authentic instruction; All three were measured with standards on three criteria: construction of knowledge, disciplined inquiry and value beyond

	<p>school</p> <p>The outcomes were related to: Mathematics; Mathematics and Social Studies; Sciences</p>
The data source employed	<ol style="list-style-type: none"> 1. Teacher data; Student data 2. Teacher data; Principal data Student data 3. Teacher data; Principal data 4. Teacher data; Teacher interaction data
Type of test employed	<ol style="list-style-type: none"> 1. Narrative reports; Surveys; Test data 2. Surveys; Test data; Reports 3. Surveys; Case studies 4. Case studies; Interviews; Observations
Type of statistical modeling technique	<p>This paper presents a review of the results of data analysis performed on the SRS (as path-analysis) and NELS:88 data (as multivariate analysis). This study presents descriptive analysis and graphical representations of comparisons between students with different levels of professional community and their achievement.</p>
Results	<ol style="list-style-type: none"> 1. SRS data base <p>High professional community schools had higher levels of authentic student performance than low professional community schools with 31 percentile points (p.40).</p> <ol style="list-style-type: none"> 2. NELS:88 <p>Schools with high common curriculum, high level of collective responsibility and high level of academic press had greater student learning in mathematics and sciences, compared to schools with average and low levels (p.41) with a gain of 116 percentile points (p.44) (NELS:88)</p>
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i> <i>Model fit</i>	<ol style="list-style-type: none"> 1. SRS <p>Mediators: classroom authentic pedagogy (p.39) And Social support for student learning (p.39)</p> <ol style="list-style-type: none"> 2. NELS:88 <p>Facilitators: Common curriculum (p.40) And Academic press or priority on learning (p.40)</p>
Value added	<p>SRS</p> <p>Estimates took into account the effects of gender, socioeconomic status, race/ethnicity NAEP score on authentic performance (p.62).</p> <ol style="list-style-type: none"> 2. NELS:88 <p>Students' minority status, gender, SES, 8th-grade achievement, 8th- engagement in school</p>
Effect sizes reported	<p>Effect size are not clearly indicated</p>

2. Lee and Smith (1995)

Conceptual criteria

Author	Lee, V.E. & Smith, J.B. (1995).
Country	USA
Concept	As part of restructuring practices (p.241, 249); Communal organizational forms (p.241); Reforms with a communal form (p.244); Within schools
Definition	The communal organizations "...typically emphasize shared responsibility for work, shared commitment to a common set of goals, lateral communication and power in decision making (...) knowledge is seen as multidimensional and interdisciplinary, and teaching is responsive to students' opinions, talents and tastes". (p.243) "... aimed to maximize student learning" (p.244)
Operationalization	<ul style="list-style-type: none"> - Emphasis on staff solving school problems - Cooperative learning focus - Teacher teams have common planning time - School-within-a-school - Interdisciplinary teaching teams (p.249). (together with characteristics of restructuring schools, not reflecting the concept of community) (p.249).
Type of trait	School trait; part of the school organization or an organizational form (p.242)

Methodological criteria

Sample size	CORS study: NELS:88 820 high schools; 11,794 10 th grade students; 14.4 students per school
Dependent variable	Mathematics gain; Reading gain; History gain; Science gain; Academic engagement
The data source employed	School principals Student data
Type of test employed	School survey questionnaire Tests
Type of statistical modeling technique	Longitudinal design (8 th to 10 th high school grades); Exploratory analyses; One-way analysis of variance (ANOVA); Multivariate analyses (HLM) used to test the relation
Results	"Student attending schools with reforms consistent with the restructuring movement will learn more and be more engaged with school than will students in schools with more traditional reforms. The effects for schools without reforms, though

	smaller in magnitude, are consistently negative” (p.256). “These schools are simultaneously more effective and more equitable in terms of students’ engagement and learning” (p.257).
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	Facilitators: School size (p.245) “Students learn more in smaller schools and in schools with several practices that are consistent with restructuring” (p.259)
Value added	The effects of SES, minority status, gender and engagement were taken into consideration
Effect sizes reported	Effect sizes range from .35 in history to .59 in science. “The effects are consistent: <i>Restructuring-practice schools</i> have strong, positive, and significant effects on their students’ cognitive gains in first two years of high school” (grade 8 to grade 10) (p.256).

3. Marks and Louis (1997).

Conceptual criteria

Author	Marks, H.M. & Louis, K.S. (1997)
Country	USA
Concept	Professional community As part of “School organization for instruction” (p.248). Within schools
Definition	“Effective school organization for instruction begins with professional community” (p.248). “Professional community entails five essential features – shared norms and values, a focus on student learning, collaborative activity, de-privatization of practice, and reflective dialogue” (p.248).
Operationalization	Shared sense or purpose; Collaborative activity; Focus on student learning; Deprivatized practice; Reflective dialogue
Type of trait	School trait

Methodological criteria

Sample size	24 restructuring elementary, middle and high schools – 8 schools at each grade level; Urban schools, from 16 states and 22 school districts; 910 teachers ; 5,943 students
Dependent variable	Student academic performance in mathematics and social sciences, measured on three dimensions: analysis, disciplinary concepts and elaborated written communication (p.270).

The data source employed	Teacher data; Student data
Type of test employed	Questionnaire
Type o statistical modeling technique	HLM Correlation analysis was used to investigate the relation between professional community and student achievement
Results	The school-level correlation between authentic achievement and professional community is significant and positive (p.264). The classroom level correlation between authentic achievement and professional community (measured on individual teacher and achievement on classroom) is also significant and positive (p.264).
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	Professional community is investigated also as a dependent variable of the differences in teacher empowerment among and within schools (p.256). Other dependent variables used: collective responsibility for student learning and authentic pedagogy. These dependent variables can become mediators or facilitators.
Value added	There is no clear indication of the student variables controlled for; Teacher background and professional characteristics, as job satisfaction were controlled for (p.252).
Effect sizes reported	The school-level correlation is .36 (p<.05). The classroom level correlation is .18 (p<.05) (p.263).

4. Louis and Marks (1998)

Conceptual criteria

Author	Louis, K.S. & Marks, H.M. (1998).
Country	USA
Concept	Professional community Or schoolwide professional community Within schools
Definition	“Five elements of practice typify schoolwide professional community: shared values, focus on student learning, collaboration, deprivatized practice, and reflective dialogue (p.539). “These elements are not a hierarchy, but their presence distinguishes professional community that is schoolwide from other forms of school cultures” (p.539).

Operationalization	Shared sense or purpose; Collaborative activity; Focus on student learning; Deprivatized practice; Reflective dialogue (p.563)
Type of trait	School trait - "...it is a school organizational structure with an intellectually directed culture" (p.539). However, they control for subject matter (knowledge, instructional approaches and goals for students) and class subject matter (p.540).

Methodological criteria

Sample size	CORS study - Longitudinal Study of School Restructuring 24 schools, nationally selected, restructuring schools (eight schools at each grade level); 910 teachers; 5,943 students
Dependent variable	Authentic achievement - the intellectual quality of student performance; measured with standards on three dimensions of performance: analysis, disciplinary concepts, and elaborated written communication in Mathematics and Social studies (p.535)
The data source	Teacher data; Student data
Type of test employed	Survey data; 235 assessment tasks for teachers and students; Classroom observational data; In-depth case studies
Type o statistical modeling technique	One-way analysis of variance; HLM model Multilevel analytic technique Qualitative analytical methods
Results	In secondary schools: The achievement level is higher to the extent that schools are strong professional communities (p.549).
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	Mediators: Social support for achievement; Authentic pedagogy ; Technical organization of the classroom; Social organization of the classroom (p.535). Conclusion: Authentic pedagogy (p.550).
Value added	Their analyses controls for students' prior achievement gender, race, ethnicity and socio-economic status (p.540).
Effect sizes reported	Effect sizes are not clearly reported. A model with no classroom-level predictors, adjusting for grade level and student background variables, and with professional community as main predictor, accounts for 85% of the variation of student authentic achievement (.26, $p < .001$, the standardized coefficient of school professional community) (p.549). No effect is found when authentic pedagogy predictor is introduced.

5. Supovitz (2002)

Conceptual criteria

Author	Supovitz, J.A. (2002)
Country	USA
Concept	School culture (p.1592); Communities of instructional practice, as team-based schooling reform (p.1592) Within schools
Definition	“In communities of instructional practice, teacher teams continually explore their curricular and pedagogical strategies and the influences of these efforts on student learning (...) it will maximize their collective knowledge and skills but also facilitate their learning of new knowledge and skills...” (p.1592).
Operationalization	<i>As school culture</i> : Peer collaboration; Collective responsibility; Deprivatization; Reflective dialogue; Faculty influence; <i>And as team-based schooling</i> ³¹ : Academic preparation strategies; Collective team practices; Student grouping strategies
Type of trait	School trait, as part of the school culture survey;

Methodological criteria

Sample size	CPRE evaluation of team-based schooling in Cincinnati; Longitudinal study from 1997 to 2000; 79 schools in the district of Cincinnati; 3000 teachers and administrators; From 1918 students in grade 7 to 2868 students in grade 4.
Dependent variable	Student achievement in grades 4 through 8 in: Reading, Writing, Mathematics, Sciences, Citizenship Based on state tests results and assessments, standardized scores
The data source employed	Teacher data; Student data; Administrators data

³¹ From the author’s description of team-based schooling, it can be seen that teachers associated the characteristics of school culture with their understanding of communities of instructional practice or team-based schooling. “In this study I identified three particular attributes of communities of instructional practice that are empirically related to student performance. First, effective communities prepare for instruction collaboratively, taking advantage of preparation as a learning opportunity. They examine and discuss student work in relation to standards and how it is differentially produced through a variety of instructional practices. Second, community members sometimes teach together, often observe each other in the act of teaching, and always feel safe doing so. Based on these common experiences, they offer constructive criticism of each other’s strategies. Third, communities flexibility and purposefully regroup their students to take advantage of both the strengths of team members and the advantages of small student groups for particular instruction” (p.1617).
The conclusion is that the concept of team-based schooling is very close related to the characteristics of school culture (professional community characteristics) that they measure.

Type of test employed	Annual survey; Centralized tests and state assessments (Interview, Classroom observations, Document analysis)
Type of statistical modeling technique	T-tests used; Chi-square analyses OLS regression analyses; HLM analyses OLS regression analyses was used to test the relation between team-based schooling and student achievement
Results	T-test results indicated that team-based schooling had a stronger relation with school culture in the third year of the implementation. “Of the 25 regression results, 3 are statistical significant in favor of students in team-based schools, 7 are statistical significant in favor of students in non-team-based schools, and in 15 cases, there is no statistical difference between the two groups. (p.1612)” More specific, for secondary schools, there was a positive relation with mathematics and science in 7 th grade and only with citizenship in 8 th grade.
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	Moderators: School culture (investigated as a dependent variable) Teachers instructional practices (dependent variable)
Value added	The models controlled for: Prior achievement; Ethnicity; Gender; Lunch assistance (SES) (p.1603).
Effect sizes reported	“The magnitude of the differences is strikingly small, in most cases less than .1 SD between the performance of the students in the team-based and non-team-based schools... given the large sample sizes and consequent likelihood of statistical differences” (p.1612)”.

6. Visscher and Witziers (2003).

Conceptual criteria

Author	Visscher, A.J. & Witziers, B. (2003)
Country	The Netherlands
Concept	Professional communities - “...subject departments are viewed as the most important entity for promoting professional communities” (p.787). Within school
Definition	“...setting where teachers share values, try to improve instruction, and de-privatize classroom practice...” (p.788)
Operationalization	- Policy and evaluation (goal and content of teaching, student achievement is monitored, feedback to teachers)

	<ul style="list-style-type: none"> - Consultation and cooperation (frequency and nature of consultation, cooperation climate, mutual feedback on each other's work, developing learning materials) - Consensus (shared values, common views on teaching and teaching content, on subject matter goals, on school's tasks and functions) - Decision-making (how far teachers can decide on their teaching independently, the role of the department as a 'collective') - School leadership (directive and facilitative leadership) - Departmental leadership (if the head of department acts as an educational leader). (p.788-789) (variables on p. 791)
Type of trait	Subject department trait: mathematics

Methodological criteria

Sample size	39 mathematic departments; 169 mathematic teachers; 975 students
Dependent variable	Mathematics National Test scores (p.790).
The data source	Mathematic teachers data; Students data
Type of test employed	Questionnaires National tests
Type o statistical modeling technique	Multilevel data analysis on data aggregated at schoollevel
Results	“With respect to the impact of professional community on student learning, the research results indicate that some elements of practice have a negative relationship with student achievement (e.g. the extend to which department heads act as team leaders and the degree of consultation and cooperation within the department), while other have a positive one (e.g. school leadership, departmental policy making) (p.798)
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	In this study, school leadership and departmental leadership are considered part of professional community, and not investigated as facilitators (p.789) “Mathematics departments regulate the behavior of their teachers intensively with respect to teaching goals, instructional content and the nature of testing” (p.793)
Value added	Ethnicity; Gender; Repeating a school year; Parents' educational level;
Effect sizes reported	No clear effects are mentioned. In the empty model, 20% of the variance is localized at the school level and the final model indicates that 6% of the variance is explained by the professional community variables (p.796).

7. Bolam et al. (2005)

Conceptual criteria

Author	Bolam, R. et al. (2005)
Country	England
Concept	Professional learning community (p.iii); Within schools
Definition	“An effective professional learning community has the capacity to promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing pupil learning” (p.iii)
Operationalization	Shared values and vision; Collective responsibility for pupil’s learning; Reflective professional inquiry; Collaboration; Professional learning, as group and as individual (p.3) Three more characteristics were added at the end of this study: Inclusive membership; Mutual trust, respect and support; Openness, networks and partnerships; (p.iii)
Type of trait	School trait, including also: teaching assistants and support staff (p.v)

Methodological criteria

Sample size	393 primary, secondary and special EPLC schools, representative across England, (p.4); 158 secondary schools (p.186) Not clear the student sample size used (p.187); 16 schools for case studies
Dependent variable	Pupils’ progress between 1998 and 2002 in EPLS schools, based at schoolperformance measures obtained from the national pupil assessment (p.30)
The data source	Head teacher / department coordinator/or a senior member of the staff
Type of test employed	Questionnaires survey; Case studies
Type o statistical modeling technique	Correlation analysis ; Factor analysis Multilevel modeling used to calculate only student progress and value added School performance measures were correlated with “aspects of PLC factors” (p.30).
Results	- “Findings demonstrated a positive, though weak, link between full expression of PLC characteristics and pupil outcomes” (p.iii). - “Positive and statistical significant correlations were found for “aspects of PLC” and “school support for professional learning” (as Inclusive membership; Mutual trust, respect and support; Openness, networks and partnerships; (p.iii) only in terms of schools’ value added performance and not the initial performance scores (p.49).

	- “The highest mean level of teacher involvement in PLC-style activities reported by survey respondents was for two items: <i>collective responsibility for pupil learning</i> and <i>create conditions for pupils to feel the confidence to learn</i> ” (p.iii).
<i>Indirect effects</i> <i>Facilitators</i> <i>Mediators</i>	The qualitative study discovered three types of such factors: 1. Internal, or site-level facilitating factors 2. External, inhibitory factors 3. Site-level inhibitory factors (p.68). From the qualitative study, the facilitators were: Individual staff commitment and motivation; Links with other cluster-group schools; Site facilities; “ <i>Innovative and effective practice in managing human and financial resources</i> ” (p.iv).
Value added	Gender; Free school meals; English as a second language;
Effect sizes reported	The correlations of “aspects of PLC” and “school support for professional learning” with schools’ value added performance are fairly weak (no correlations reported are greater than 0.3) (p.49). Specific for each of the five characteristics of PLC, significant were: <i>Teachers creating the conditions for pupils to feel the confidence to learn</i> (r=.202), <i>teachers sharing a common core of educational values</i> (r=.188) and <i>teachers seeing the school as stimulating and professionally challenging</i> (r=.208) at p<.05. (p.52).