



BACKGROUND PAPER: ISSUES CONCERNING INNOVATION IN EDUCATION

‘Embracing Diversity: An International Review Of Innovation (United States, United Kingdom and Europe)’

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Executive Summary

This paper provides a broad overview of numerous models of specialist schools in the United States, the United Kingdom and mainland Europe. Specialist schools have been identified as schools that have adopted a specific set of philosophies and practices that differentiate themselves from other schools but are not so extreme to mark them as being outside the mainstream of the schooling system. They are specialist in that they are taking on board reforms that change the way that schooling is normally experienced by young people. The definition excludes one-off or small sets of marginalised schools, schools established primarily for religious indoctrination and schools that have not generally been subjected to research and/or accountability requirements.

Specialist schools in the UK are being created as an initiative of the UK Government. Schools are being invited to identify a specialism and are provided with additional resources to implement a specialist program. The Government expects there to be at least 2,000 specialist schools by September 2006. Specialisations can include Technology, Language, Sports, Arts, Business & Enterprise, Engineering, Mathematics & Computing and Science. New specialisations are also being recognised and will come into play as the program is rolled out across the country.

The six aims of specialist schools are:

- to extend the range of opportunities available to pupils which best meet their needs and interests
- to raise standards of teaching and learning in the specialist subjects
- to raise standards of achievement for all their pupils of all abilities
- to develop within the schools, characteristics which signal their changed identity and which reflect the school's aims
- to benefit other schools and the wider community in the area
- to strengthen the links between schools and private and charitable sponsors.

Evaluations indicate that the majority of specialist schools are extending the range of opportunities available to pupils and are using a range of effectively managed and sometimes imaginative strategies to raise standards. They also indicate that specialist technology, language and arts colleges are improving attainment at a faster rate than is the case nationally, but as a group, specialist sports colleges are not.

The USA has two nation-wide programs that support the development of 'specialist' schools. Schools in these programs are specialist in the sense that they have been given some operational latitude that marks them out from mainstream government schools. The two models of schooling are Magnet schools and Charter schools.

Magnet schools are public schools that offer a special curriculum capable of attracting substantial numbers of students of different racial backgrounds. In responding to student needs, Magnet schools have developed a specialisation in areas such as the arts, business, careers, communications, languages, giftedness, sport, mathematics, science and technology. Magnet schools may also offer the International Baccalaureate or adopt a Montessori learning approach. Research on these schools has been undertaken but not reported, and indeed, given the diversity of the Magnet school specialisations, it may be difficult to undertake research that enables generalisations about Magnet schools to be made.

Charter schools are public schools that come into existence through a contract with either a state agency or a local school board. This charter or contract establishes the framework within which the school operates and provides public support for the school for a specified period of time. The school's charter gives the school autonomy over its operation and frees the school from regulations that other public schools must follow. In exchange for the flexibility afforded by the charter, the schools are held accountable for achieving the goals set out in the charter including improving student performance. There are approximately 1,500 charter schools in operation in the USA, most of which are relatively small schools (the median enrolments in Charter schools is 137 students). Like Magnet schools, the diversity of schools that are encompassed in the Charter school model makes it difficult to generalise about their effectiveness. Indeed, the conclusion of one evaluation report was that definitive answers to questions about charter school innovation, accountability, equity, and student achievement remain elusive.

Another group of specialist schools described in this report are special because they adhere to a particular set of whole-school principles that inform the way the school operates and the way that teaching and learning is transacted. In essence, these are networks of schools that share common ideals, principles and practices and are committed to school effectiveness and improvement. Groups of schools included in the whole-school reform model include the Coalition of Essential Schools, Community for Learning schools, Expeditionary Learning Outward Bound schools and Success for All schools. In all ten whole-school reform models are described. All of them have subjected their programs to effectiveness evaluations, the results of which are very promising.

The specialist schools described from mainland Europe have been around for over fifty years and are based on the philosophies of renowned educators. The three specialist models are the Reggio Emilia, Steiner/Waldorf and Montessori approaches to early childhood education. Despite the fact that the ideas behind these schools were advanced many years ago, they appear to be growing in influence and the learning principles developed by these three models have spread around the world.

All three approaches represent an explicit idealism and are built on visions of how to improve human society by helping children to realise their full potential as intelligent, creative, whole persons. In each approach, children are viewed as active participants in their own development. These models have been extensively evaluated and advocates for the models claim substantial benefits from applying the respective philosophies to early childhood learning.

The fourth model described below is that of the Production School. This model originated in Denmark as a means for engaging students who were unprepared for more academic senior school learning. It is also spreading beyond its country of origin and is being sponsored in several countries by the European Commission.

The general conclusion to be drawn from the nineteen models briefly described in this report is that there are many ways in which schools could be assisted to improve and that most, or perhaps all of the models referred to, could provide a sound basis for a school specialisation program.

Finally, we have provided a list of contact points for each of the specialist school models described in this paper, for those wishing to learning more about particular programs.

Introduction

There is a wide range of atypical school types (including fundamental religious schools) in the United States, the United Kingdom and mainland Europe. This report provides a snapshot of various ‘specialist school’ models.

The definition of specialist schools adopted in this report is quite broad. Specialist schools have been identified as schools that have adopted a specific set of philosophies and practices that differentiate themselves from other schools but are not so extreme to mark them as being outside the mainstream of the schooling system. They are specialist in that they are taking on board reforms that change the way that schooling is normally experienced by young people.

The definition not only includes the specialist schools established under the specialist school policy initiative in the United Kingdom, but also refers to other models of ‘specialisation’ that distinguish a set of schools from those in the mainstream. Some of these specialisations are system initiatives (eg. production schools in Denmark and charter schools in the USA), and others are alternative schooling models built upon a coherent set of learning and child development theories (eg. many of the whole-school reform models in the United States). Several of the models have a long history and a devoted international following (eg. Steiner and Montessori schools) and others are relatively recent initiatives largely confined to a state or country (eg. the Boston Pilot Schools Network).

The definition excludes one-off or small sets of marginalised schools, schools established primarily for religious indoctrination and schools that have not been subjected to effectiveness evaluations and/or accountability requirements.

Examples of Specialist Schools in the United States

The first group of ‘specialist’ schools described below are those that have adopted programs of whole school reform. Ten different reform models are described. The magnet school is another form of specialist school that has evolved in the USA and the other model is that of the charter school.

The American Institutes for Research (AIR)¹ has documented twenty-four distinctive models of whole school reform and rated them in terms of their evidence of positive effects on student learning. The nine models described below have been selected from the AIR report as they were rated as having the most promising or strongest evidence of positive effects on student achievement. Other specialist school models described in the AIR report could not substantiate claims to being more effective than mainstream schools. The other whole school reform model described is the Turning Points program. This model was not included in the AIR report but has characteristics that are atypical of government schools and that free these schools up to adopt innovative approaches to school operations, the curriculum and teaching.

Coalition of Essential Schools (formerly 9-12, now K-12)

The Coalition of Essential Schools² is a national network of schools and centres engaged in restructuring schools to promote better student learning. It was founded by Ted Sizer in 1984. Twelve high schools in seven states joined the Coalition that year. In 1998 there were 251 full members, 275 planning schools, and 558 exploring schools. The schools share a set of ideas known as the Common Principles, which guide their whole-school reform efforts. (The Coalition of Essential Schools has also influenced school reform initiatives in Australia.)

The nine Common Principles that Sizer believed would lead to better teaching and more genuine learning are:

1. The school’s focus should be to help students learn to use their minds well.
2. Less is more. Students should achieve a thorough understanding of a few essential skills and subjects rather than a casual acquaintance with many.
3. The school’s goals should apply to all students.
4. Teaching and learning should be personalised to the greatest possible extent.
5. The school’s governing metaphors should be student-as-worker and teacher-as-coach.
6. To graduate, students should demonstrate mastery through public exhibitions rather than credits, grades, and test scores.
7. The school’s climate should be one of ‘unanxious expectation’, trust, and decency.
8. Teachers and administrators should consider themselves generalists’ first and specialists’ second, assuming joint responsibility for all students.
9. The school should aim for the following administrative and budgetary targets: 80 students per teacher; adequate time for teachers to plan together; competitive salaries; and per pupil costs not to exceed that of traditional schools by more than 10%.

The Coalition recently added a tenth principle encouraging schools to honour diversity, challenge inequity, and model democratic practices.

¹ The whole school reform descriptions used in this report are extracted from the AIR report. A copy of the report can be found at <http://www.ael.org> and <http://aasa.org>

² Web site: <http://www.ces.brown.edu>

These core principles are intended to serve not as a blueprint for education reform, but as a set of guidelines to help schools redesign themselves. Consequently, the Coalition imposes no specific curricular innovations or instructional techniques on member schools. Rather, it seeks out exemplars - schools that have done an especially good job of translating some or all of the principles into practice and shares their approaches with other schools.

The Coalition does not offer schools a standard curriculum or process for school change. Rather, it offers principles for school reform that (a) need to be interpreted and adapted to local conditions and (b) if fully realised, will result in significant changes in traditional practice.

The Coalition includes some extraordinary schools. However, there is little evidence of improved test scores overall as each school adopts the principles in the best way it can manage and the quality of the reform varies greatly from school to school. Some essential schools, such as Central Park East Secondary School in East Harlem³, have become famous for inspired work with students. Over 90% of Central Park's ninth graders graduate, for example, compared with 55% citywide. Of the graduates, over 90% attend college. Evidence also suggests that two overarching approaches used by essential schools, 'authentic pedagogy' and 'sense of community', can lead to higher student achievement. Researchers have also noted how difficult it can be to put essential school principles into practice in comprehensive high schools.

Community for Learning (K-12)

More than 200 schools across the US have adopted the Community for Learning⁴ Model (CFL) of schooling. This model is based on the belief that school is not the only place where students learn. They learn in a variety of environments, including libraries, museums, workplaces, and their own homes. Community for Learning (CFL) links the school to these and other institutions, including health, social services, and law enforcement agencies. The idea is to provide a range of learning opportunities for students, coordinate service delivery across organisations, and foster a community-wide commitment to student success.

The emphasis on collaboration extends into the classroom itself, where regular teachers and specialists work in teams to meet the diverse academic and social needs of all children. The instructional component of CFL is called the Adaptive Learning Environments Model (ALEM), an inclusive approach to meeting the learning needs of individual students in regular classes, including students with special needs. Using this approach:

- students are taught to take responsibility for planning and monitoring their own progress
- learning tasks are divided into small units and evaluated frequently
- teachers modify learning plans and instructional strategies on an ongoing basis
- students progress at their own pace, advancing when ready and taking extra time when necessary
- individualised attention is provided for those who are not progressing well and for those who are exceptionally talented and ready for advanced lessons in given subjects.

³ MacMullen, M. (1996). *Taking stock of a school reform effort: A research collection and analysis*. Providence, RI: Annenberg Institute for School Reform

⁴ Web site: <http://www.temple.edu/LSS>

An analysis of achievement data for the 61 schools that adopted the model in 1998 and 1999 was undertaken (Redding 2002)⁵. It revealed that after three years of implementation, 1998 CFL schools had made greater progress than the state as a whole on 63 percent of the reading measures and 68 percent of the mathematics measures. After two years of implementation, the 1999 CFL cohort had made greater progress than the state as a whole on about half the measures. This suggested that student performance tends to increase as schools have more time to implement the model.

Research⁶ has also revealed that implementation of CFL components leads to more ‘learner-centred’ instructional practices (i.e. providing positive classroom climate, honouring student voice, encouraging higher order thinking, and adapting to individual differences).

Core Knowledge (K-8)

The Core Knowledge Foundation is an independent, non-profit, non-partisan organisation founded in 1986 by E. D. Hirsch, Jr. The foundation’s essential program, a core curriculum entitled the *Core Knowledge® Sequence*, was first implemented in 1990⁷. By May 2002, it was being used in over 600 schools.

Core Knowledge:

- is based on the principle that the grasp of a specific and shared body of knowledge will help students establish strong foundations for higher levels of learning
- focuses on teaching a common core of concepts, vocabulary, skills, and knowledge that characterise a ‘culturally literate’ and educated individual
- seeks to increase students’ receptive and productive vocabulary, increase comprehension, and help build a general knowledge base, thus increasing academic performance
- provides a model of specific content guidelines for students in the preschool, elementary, and middle school grades in language arts, mathematics, science, history, geography, music, and fine arts
- supports students to build on knowledge from pre-kindergarten through grade eight
- typically comprises 50 percent of a school’s curriculum.

A three-year study (1995-98)⁸ compared student achievement at four Core Knowledge schools and four control schools and found that the Core Knowledge and control cohorts made similar gains in reading and mathematics on the CTBS and other norm-referenced tests. However, when Core Knowledge schools were excluded when fewer than 50 percent of teachers were implementing the sequence, the performance of the Core Knowledge students at the remaining schools was higher than that of control students in both subjects, particularly in the third-to-fifth grade cohort.

⁵ Redding, S. (2002). Community for Learning effectiveness study. Unpublished manuscript. Referred to in *The Catalogue of School Reform Models*, Northwest Regional Educational Laboratory (NWREL), Portland, 2002.

⁶ McCombs, B. L., & Weinberger, E. (2000). *National study of the Community for Learning program: Relationships between program implementation, learner-centeredness, and student academic and non-academic outcomes*. Unpublished manuscript. Referred to in *The Catalogue of School Reform Models*, Northwest Regional Educational Laboratory (NWREL), Portland, 2002.

⁷ Web site: <http://www.coreknowledge.org>

⁸ Stringfield, S., Datnow, A., Borman, G., & Rachuba, L. (1999). National evaluation of Core Knowledge sequence implementation: Final report. Baltimore: Johns Hopkins University, Center for Social Organization of Schools.

On tests created by the researchers specifically to measure achievement of Core Knowledge subjects, the Core Knowledge cohorts performed considerably better than control schools. Additionally, teachers at Core Knowledge schools reported that the model led to enhanced curricular coherence, increased teacher collaboration, and enriched classroom experiences for students.

Several other studies have demonstrated promising trends in test scores at a variety of Core Knowledge schools.

Different Ways of Knowing (PreK-8)

Different Ways of Knowing⁹ (DWoK) is a multi-year professional development program for teachers, administrators, and other stakeholders that provides an integrated approach to curriculum, instruction, assessment, and reporting. The program includes year-long curriculum modules that integrate social studies and history with language arts, mathematics, science, and the visual, performing, and media arts. The modules provide a foundation for teachers to use while developing their own year-round, inquiry-based instructional strategies linked to standards and goals for assessment.

The DWoK four-year pilot included 500 classrooms in five states. By 2001, the model had been implemented in 675 schools.

DWoK aims to engage and strengthen the multiple intelligences of students in grades preK-8. Specifically, it engages students in literacy and other skills development through hands-on, collaborative activities. The visual, performing, and media arts serve to develop students' literacy by tapping into their prior knowledge, deepening understandings through metaphor and analogy, enlarging opportunities for communication, and making connections to culture and lifelong learning.

DWoK has been studied by different independent research teams in three large-scale implementation trials¹⁰. Research findings included that:

- Students with one year in the DWoK program experienced approximately 8 percentile point gains on standardised language arts tests. Two-year participants gained approximately 16 percentile points. Over the same period, on average, students without DWoK experience showed no percentile changes in test scores.
- DWoK students scored higher on writing and drawing tests of social studies content knowledge.
- DWoK increased cognitive engagement and intrinsic interest in the humanities, and increased levels of achievement and motivation, as opposed to patterns of eroding motivation for non-DWoK students.

⁹ Web site: <http://www.dwoknet.galef.org/>

¹⁰ Catterall, J. S. (1995). *Different Ways of Knowing 1991-94 longitudinal study final report: Program effects on students and teachers*. Los Angeles: UCLA.

Peterson, J., Schwager, M., Crepeau, M., & Curry, K. (1998). *The Galef/WestEd evaluation of San Francisco Unified School District's (SFUSD) implementation of Different Ways of Knowing (DWoK) report*. San Francisco: WestEd.

Petrosko, J. M. (1997). *Study A: Implementation of student-centred teaching and learning practices and student assessment results for research demonstration site (RDS) schools participating in Different Ways of Knowing*. Louisville, KY: Galef Institute-Kentucky Collaborative for Teaching and Learning.

- DWoK schools demonstrated greater gains in all subjects (reading, writing, mathematics, science, social studies, arts and humanities, and practical living) than schools statewide over the two-year period.
- DWoK contributed to positive changes in teachers' beliefs, knowledge, and practice and in students' motivation.

Direct Instruction Model (K-8)

The Direct Instruction Model¹¹ has evolved from a theory of instruction developed by Siegfried Engelmann of the University of Oregon. The lead service provider for the model is the National Institute for Direct Instruction (NIFDI), founded and directed by Engelmann. More than 40 schools nationwide have implemented the model through NIFDI. Including sites contracting with other Direct Instruction providers, the model has been implemented in some 300 schools nationwide. Direct Instruction curricular materials have been used in thousands more schools.

Engelmann's theory of instruction is that learning can be greatly accelerated if instructional presentations are clear, rule out likely misinterpretations, and facilitate generalisations. Based on this theory, he and his associates have developed over 50 instructional programs in reading, language, mathematics, and other subjects. Each program is shaped through field tryouts; student errors are evaluated and lessons revised prior to publication. The lessons are fast paced, carefully scripted, and tightly sequenced.

The comprehensive Direct Instruction Model incorporates professional development and organisational components intended to optimise use of these programs, particularly the reading/language arts and mathematics programs. Through substantial training and in-class coaching, teachers learn to define tasks clearly, pre-teach sub-concepts and skills and work toward more complex concepts. They also learn to present highly interactive lessons to large and small groups, elicit frequent oral responses, ensure a high rate of teacher praise for responses, monitor and correct errors immediately, and periodically review skills and concepts. Mastery tests, given every few lessons, help teachers closely track student performance. Students are placed in appropriate instructional groups based on performance. Grouping may take place across classes and grades.

Students who progress faster or slower than expected are re-grouped accordingly. Those with special needs are included in regular classrooms except in the most extreme cases.

To support change in the classroom, the model requires significant school-wide change as well. The principal must attend training sessions, become knowledgeable about the model, and spend considerable time in classrooms monitoring teacher practice. A school management team consisting of the principal, the Direct Instruction building coordinator, and peer coaches (selected teachers who have received additional training) helps oversee implementation.

The school schedule is adjusted to maximise time on task for all students and to enable cross-class and cross-grade grouping. Student performance data are collected weekly, analysed off-site by NIFDI consultants, and discussed in a weekly conference call between NIFDI personnel and the school management team. A school-wide behavioural system that involves positive expectations, a time-out system, and procedures for celebrating student academic success is put in place.

¹¹ Web site: <http://www.nifdi.org>

In general, the entire school is organised to facilitate the training, monitoring, feedback, and problem-solving necessary to ensure successful implementation of the instructional system.

The instructional programs incorporated in the Direct Instruction Model have been the subject of numerous research studies over the past 30 years, including Project Follow Through¹², a large-scale federal research project that funded and examined multiple approaches to educating disadvantaged students from kindergarten to third grade. The Project Follow Through evaluation found that Direct Instruction was the most effective approach in all three areas studied: basic skills (reading, language, spelling, and math), cognitive skills, and affective behaviour. Many other evaluations of the programs, for both regular and special education students, have also found significant positive effects as measured by a variety of tests.

Several other studies reported positive effects¹³, including that Direct Instruction students continued to outperform control students in middle and high school, and that Direct Instruction students had higher graduation rates and college acceptance rates than control group students.

Expeditionary Learning Outward Bound (K-12)

Formed in 1992, Expeditionary Learning Outward Bound (ELOB)¹⁴ is based on the principles of Outward Bound, which educator Kurt Hahn founded in 1941. There were 115 ELOB schools as of December 2001.

Expeditionary Learning Outward Bound focuses teaching and learning toward enabling all students to meet rigorous academic standards and character goals. Curriculum, instruction, assessment, school culture, and school structures are organised around:

- producing high quality student work in learning expeditions
- long term, in-depth investigations of themes or topics that engage students in the classroom and in the wider world through authentic projects, fieldwork, and service.

In Expeditionary Learning schools, teachers, students, and school leaders build a culture of high expectations for all students. Teachers work collaboratively in teams, with regular common planning time to plan interdisciplinary expeditions, critique each others' expedition plans, and reflect on student work and teacher practices to improve curriculum and instruction. To strengthen relationships in the classroom, students stay with the same teacher or team of teachers for more than one year.

Teachers and school leaders participate in a sequence of on-site and national professional development activities, including planning institutes, workshops on using data on student achievement to improve curriculum and instruction, and seminars on incorporating state-of-the-art literacy practices. They also participate in intensive learning expeditions for teachers, Outward Bound courses for educators, and conferences that bring together Expeditionary Learning practitioners throughout the country.

¹² Stebbins, L. B., St. Pierre, R. G., Proper, E. C., Anderson, R. B., & Cerva, T. R. (1977). *Education as experimentation: A planned variation model*. Cambridge, MA: Abt Associates.

¹³ Adams, G. L., & Engelmann, S. (1996). *Research on Direct Instruction: 25 years beyond DISTAR*. Seattle, WA: Educational Achievement Systems. (Adams conducted the meta-analysis.)

Carlson, C. D., & Francis, D. J. (2002). *Increasing the reading achievement of at-risk children through Direct Instruction: Evaluation of the Rodeo Institute for Teacher Excellence (RITE)*. *Journal of Education for Students Placed At Risk*, 7(2), 141-166.

¹⁴ Web site: <http://www.elob.org>

Schools assess progress each year and use ELOB benchmarks to drive continuous improvement.

According to *An Educators' Guide to School-wide Reform* (American Institutes for Research, 1999), despite the fact that ELOB is a relatively new model, it is already amassing a 'promising' research base on student achievement effects. On standardised tests such as the Iowa Test of Basic Skills and the Georgia Curriculum-Based Assessment test, students in ELOB schools tend to perform well across subjects in comparison with other state and district schools. The *Educators' Guide* concluded that 'the research results indicated that ELOB can help to improve student achievement,' and that results were seen across subjects.

High Schools That Work (9-12)

High Schools That Work (HSTW)¹⁵ is an initiative of the Southern Regional Education Board (SREB) State Vocational Education Consortium that began in 1987. More than 1,300 schools are members of the HSTW network.

HSTW is a whole-school, research and assessment-based reform effort that offers a framework of goals and key practices for improving the academic, technical, and intellectual achievement of all high school students. HSTW blends traditional college-preparatory content with quality technical/vocational studies.

It provides technical assistance and staff development focused on techniques and strategies such as teamwork, applied learning, and project-based instruction. It also provides a nationally recognised yardstick for measuring program effectiveness: the HSTW Assessment, a test based upon the National Assessment of Educational Progress.

HSTW promotes a changed school environment as a context for implementing 10 key practices:

- (1) high expectations
- (2) challenging vocational studies
- (3) increasing access to academic studies
- (4) a program of study that includes four years of English, three of math, and three of science
- (5) work-based learning
- (6) collaboration among academic and vocational teachers
- (7) students actively engaged
- (8) an individualised guidance system
- (9) extra help
- (10) keeping score (using assessment and evaluation data to foster continuous improvement).

Three main ideas lay the foundation for HSTW:

- (1) Academic and vocational teachers, principals, and counsellors work together to establish a unity of vision, a common process for reorganising the school, and a plan for doing so.
- (2) Teachers and school leaders are empowered to accomplish their goals when they share expertise and learn from each other.
- (3) Assessment, evaluation, and feedback should drive the process and implementation of reform.

¹⁵ Web site: <http://www.sreb.org>

All sites are required to participate in the HSTW Assessment. Based on the curriculum frameworks for the National Assessment of Educational Progress, the assessment involves achievement tests in reading, mathematics, and science for 12th grade students about to complete a vocational or technical concentration.

The 260 HSTW sites that participated in the assessment in 1994 and 1996 showed significant improvement in mean reading and mathematics scores. Other factors, such as increased belief among teachers in students' capacity to complete challenging courses, increased collaboration among academic and vocational teachers, and increased guidance and advice, were also associated with higher achievement gains¹⁶.

Another study involving 393¹⁷ schools that had collected student test scores and student and teacher survey data in 1996 and 1998 reported significant rises over the two-year period in:

- (a) the percentage of students completing a rigorous program of study
- (b) the level of implementation of key HSTW practices
- (c) the percentage of students reaching HSTW achievement goals in reading, mathematics, and science.

Information collected through internal case studies, technical assistance visits, and annual progress reports suggests that when sites make progress in implementing the key practices, they tend to get the following results: improved achievement and higher attendance, graduation, retention, and post-secondary attendance rates. Likewise, dropout rates and discipline referrals tend to decline.

School Development Program (K-12)

The School Development Program (SDP)¹⁸, founded by child psychiatrist James Comer of Yale University, was first implemented in 1968 in the two lowest achieving schools in New Haven, Connecticut. As of September 2002, more than 800 elementary, middle and high schools had used the program, also known as the Comer Process.

Many children in inner city schools, Comer believes, come to school without the personal, social, and moral development necessary for academic success. To compound this problem, many school staff members, lacking adequate knowledge of child development and the children's home culture, are unprepared to deal appropriately with these students and their families.

To address these challenges, Comer developed a nine-part process to improve educators' understanding of child development and to foster healthier relations between school and home. Three mechanisms, three operations, and three principles guide the process:

Mechanisms

1. School Planning and Management Team: develops and monitors a Comprehensive School Plan; includes administrators, teachers, support staff, parents, and others.

¹⁶ Bottoms, G. (1997, June). *The 1996 High Schools That Work assessment: Good news, bad news and hope* (Research Brief No. 1). Atlanta: Southern Regional Educational Board.

¹⁷ Frome, P. (2001). *High Schools That Work: Findings from the 1996 and 1998 assessments*. Research Triangle Park, NC: Research Triangle Institute.

¹⁸ Web site: <http://www.comerprocess.org>

2. Student and Staff Support Team: helps improve the social climate of the school; includes social workers, counsellors, special education teachers, and other staff with child development and mental health backgrounds.
3. Parent Team: promotes parent involvement in all areas of school life.

Operations

1. Comprehensive School Plan: gives direction to the school improvement process; addresses academics, school climate, staff development, and public relations.
2. Staff Development Plan: focuses teacher training on needs related to the goals and priorities specified in the comprehensive plan.
3. Monitoring and Assessment: generates data on implementation and results; guides teams in modifying the school's approach where necessary.

Guiding Principles

1. No-Fault Approach to Problem-Solving: allows teams to analyse and solve problems without recrimination.
2. Consensus Decision Making: promotes dialogue and common understanding.
3. Collaboration: enables both the principal and the teams to have input on school management.

Several research studies reported that students in SDP schools had higher scores in reading and maths than did students in comparison schools and that higher-implementing SDP schools had a greater impact on reading scores relative to comparison schools than lower-implementing schools¹⁹. Encouraging evidence that SDP has a 'sustained effect' on student achievement has also been reported²⁰.

There is evidence that SDP has had a significant impact on other indicators of school improvement as well. A Chicago study found that, relative to control groups, students in SDP schools demonstrated 'less acting out' and greater ability to control their anger, and endorsed more 'conventional norms' about misbehaving.

Success for All/Roots & Wings (PreK-6)

Success for All/Roots & Wings²¹ is a comprehensive, whole-school reform model designed to boost the basic skills achievement of all students while building problem solving skills, creativity, and critical thinking. As of June 2001, Success for All, the reading component of the model, was operating in 1,800 schools. Some 200 of these schools have added the math, science, and/or social studies components that constitute Roots & Wings.

The purpose of Success for All/Roots & Wings is to create well-structured curricular and instructional approaches for all core academic subjects, pre-kindergarten to grade six, based on well-evaluated components and well-researched principles of instruction, assessment, classroom management, motivation, and professional development.

¹⁹ Cook, T. D., Murphy, R. F., & Hunt, H. D. (2000). Comer's School Development Program in Chicago: A theory-based evaluation. *American Educational Research Journal*, 37(2), 535-597.

²⁰ Becker, D. J., & Hedges, L. V. (1992). *A review of the literature on the effectiveness of Comer's School Development Program*. Unpublished manuscript prepared for the Rockefeller Foundation. Referred to in *The Catalogue of School Reform Models*, Northwest Regional Educational Laboratory (NWREL), Portland, 2002.

²¹ Web site: <http://www.successforall.net>

The model builds on the Success for All reading model, initiated in 1987, which provides research-based curricula for students in reading, writing, and language arts; one-to-one tutoring for primary grade students struggling in reading; and extensive family support services. To these, Roots & Wings adds MathWings and WorldLab. MathWings emphasises problem solving, reasoning, real-world applications, and communication. Students work in mixed ability groups, progressing from concrete experience with manipulatives to a more abstract understanding of mathematical concepts. Many MathWings units use works of literature to help students explore concepts in meaningful contexts.

WorldLab is an integrated approach to social studies and science for grades one through five that emphasises group simulations and investigations of real-world problems. For example, students pretend to be citizens of a town struggling with environmental issues. This simulation leads them to investigate real problems in their own communities. WorldLab is designed to build on knowledge and skills students are learning in language arts and mathematics classes. Physical education, music, and visual arts are used to enhance WorldLab simulations and investigations.

Success for All, the reading/language arts component of *Roots & Wings*, has been evaluated extensively, with statistically significant positive results for program students compared to control students across many studies.

Research on the Roots & Wings components is neither as extensive nor as rigorous as that on Success for All. However, available data²² do show positive trends for selected schools using these components in addition to Success for All.

National Turning Points Network

Turning Points²³ is a comprehensive education reform model that focuses on improving student learning. By working with Turning Points, middle school teachers are coached in tested, effective instructional methods geared specifically for the middle-level learner. Students and teachers are organized in new ways. Students are engaged in planning and managing their own learning. The school schedule may be redesigned. Professional development operates differently. New partnerships between the school and the community are created. Schools participate in a local, regional and national network of schools which helps them develop all facets of their schools. All of these efforts are focused squarely on improving learning, teaching, and assessment.

Turning Points schools are committed to:

- building leadership capacity and a collaborative culture
- improving learning, teaching, and assessment for all students
- data-based inquiry and decision making
- creating a school culture to support high achievement and personal development
- networking with like-minded schools
- developing district capacity to support school change.

²² Slavin, R. E., & Madden, N. A. (2000). Roots & Wings: Effects of whole-school reform on student achievement. *Journal of Education for Students Placed At Risk*, 5(1&2), 109-136.

²³ Web site: <http://www.turningpts.org/>

A number of research reports attest to the success of the Turning Points schools. A study²⁴ conducted in thirty-one Illinois middle schools indicates a rise in student achievement and other measures of school improvement; for example, in highly implemented schools, student achievement test scores in mathematics were 298, in language 315, and in reading 275, while the state mean was 250. The report concluded that meaningful improvement in student learning will occur in schools serving high percentages of low-income students and students of colour only if reform was comprehensive and integrative.

A report by the Center for Collaborative Education²⁵ examined changes in Boston middle schools' Massachusetts Comprehensive Assessment System scores from the 1998/1999 to the 1999/2000 school years. In this study, Turning Points schools generally outperformed non-Turning Points schools in all three subjects - English, mathematics, and science - in total score gains, in percent decrease of students at the failing level, and in percent increase of students in the Proficient and Advanced levels. In Turning Points schools that had full implementation services, gains in comparison to non-Turning Points schools were 1 1/2 to 2 times greater.

Magnet Schools of America

Magnet schools²⁶ are a product of the 'school choice' movement in the United States. They are based on the premise that all students do not learn in the same ways, and that, if a unifying theme or a different organisational structure can be found for students of similar interest, those students will learn more in all areas. Magnet school advocates believe that if a magnet school voluntarily attracts students and teachers, it will succeed because, more than for any other reason, those in attendance want to be there. They also believe that parents and students should be provided with the right to choose their school and that this right should not be restricted to the wealthy. Magnet schools are public schools and do not charge fees.

Building upon the 'alternative schools' movement of the 1960s and 1970s several states established a small number of schools with different organisational designs. In the early 1970s, the Performing and Visual Arts School Houston in Texas was described as working like a 'magnet' in attracting students. By 1975 the term was being used to describe types of fiscal assistance contemplated by the federal government and by 1980 most major cities had systems of magnet schools²⁷. Desegregation laws further extended the push to provide alternative settings for learning.

Federal courts that had routinely ordered school systems to racially desegregate themselves approved the establishment of special enrichment programs to help to overcome the effects of 'past discrimination'. Following this decision, almost every court order that mandated that schools desegregate had a voluntary component. This voluntary component became known as magnet schools.

²⁴ Felner, R. et al (March 1997). 'The impact of school reform for the middle years: longitudinal study of a network engaged in Turning points-based comprehensive school transformation.' *Phi Delta Kappan*, 78, pp. 528-550.

²⁵ Center for Collaborative Education (2001) *How Are Boston Pilot Schools Faring? An Analysis of Student Demographics, Engagement, and Performance*. Center for Collaborative Education, 1135 Tremont Street, Suite 490 Boston, MA 02120

²⁶ Web site: <http://www.magnet.edu/>

²⁷ A history of the development of magnet schools can be found at <http://www.magnet.edu/history.html>

The US Government funds a Magnet Schools Assistance program that provides grants to eligible local educational agencies to establish and operate magnet schools that are operated under a court-ordered or federally approved voluntary desegregation plan.

The statute defines a magnet school as a public elementary school, public secondary school, public elementary education centre, or public secondary education centre that offers a special curriculum capable of attracting substantial numbers of students of different racial backgrounds.

Magnet programs aim to eliminate, reduce, or prevent minority group isolation in elementary and secondary schools while strengthening students' knowledge of academic subjects and their grasp of marketable vocational skills. The special curriculum of a magnet school attracts substantial numbers of students from different social, economic, ethnic, and racial backgrounds and provides greater opportunities for voluntary and court-ordered desegregation efforts to succeed.

Magnet schools have adopted a range of themes or specialisations. These include the following:

- Academic/Academic Achievement
- ARTS: Fine and Performing
- Basic/Basic Skills/Fundamental
- Business/Finance
- Careers/Vocational: General and Specific
- Communications
- Culture/Multicultural/Humanities
- Enrichment/Academic Enrichment/Honours/College Preparation
- Modern Classical/Foreign Languages
- Gifted/Highly Gifted/Gifted and Talented
- Health/Physical Development
- Instructional Methodology/Teaching Approaches/Learning Styles
- International Studies
- International Baccalaureate
- Justice and Law
- Language Arts/Reading/Literature/English
- Mathematics
- Open/Ungraded/Individualised/Montessori
- Public Affairs and Citizenship
- Science
- Technology/Engineering/Computers
- Miscellaneous Theme Areas

A 2001 report²⁸ of the magnet schools assistance program provided evaluations of the success of magnet schools in relation to the key objectives of the program. However, no data was available in relation to the objective that the federally funded magnet programs eliminate, reduce, or prevent the incidence and the degree of minority student isolation in targeted schools.

In relation to the second objective that federally funded magnet programs strengthen students' knowledge of academic subjects and skills needed for successful careers in the future, the data was inconclusive. It was reported that a variety of factors impeded progress in conducting an analysis of student achievement gains. These factors included imprecision in some objectives; substantial changes in the state and district assessment programs upon which objectives were

²⁸ Web site: <http://www.ed.gov/pubs/annualreport2001/286.html>

based; grantee reliance on alternative assessments; and the delayed submission of student achievement results.

Charter Schools

Charter schools²⁹ are public schools that come into existence through a contract with either a state agency or a local school board. Most charter schools seek to realise an alternative vision of schooling. The charter or contract establishes the framework within which the school operates and provides public support for the school for a specified period of time. The school's charter gives the school autonomy over its operation and frees the school from regulations that other public schools must follow. In exchange for the flexibility afforded by the charter, the schools are held accountable for achieving the goals set out in the charter including improving student performance. Thirty-six states and the District of Columbia have charter legislation and 30 states and the District of Columbia had operational charter schools in 1999.

Interest in charter schools - where they are located, who they serve, what programs they offer, and how well they serve students - has been intense. In 1995, to help meet the need for information, the U.S. Department of Education began a program of national studies designed to answer these and other questions. The effort includes a National Study of Charter Schools, begun in 1995, a National Evaluation of the Federal Public Charter School Program (PCSP), which was launched in 1998, and a survey of all charter schools as a special component in the Department of Education's Schools and Staffing Survey (SASS). The Department of Education also has sponsored major studies of special issues affecting charter schools and has sponsored research through its grants programs.

Recognising the many issues that charter schools face as they initiate their programs, the Department of Education has also funded several demonstration projects. These projects support the development of model programs for public charter schools. Models include programs for outreach, collaboration, and leadership training. In addition, the Department of Education has sponsored programs offering fellowships for charter schoolteachers, and software development for administrative tasks.

A Fourth-Year Report of the National Study of Charter Schools (2000)³⁰ provides descriptive information on charter schools that were operating in the 1998-99 school year. Additional reports of the National Study address broad policy issues concerning the charter school movement and its potential effects on America's system of public education.

The National Study addresses three major research questions:

- How have charter schools been implemented?
- Under what conditions, if any, have they improved student achievement?
- What impact have they had on public education?

Drawing from research evidence, the National Study also asks broad policy questions:

- What models of education have charter schools developed that can be used by other public schools?

²⁹ For additional information on charter schools, see the following Web sites:

Center for Education Reform: <http://www.edreform.com/>

U.S. Charter Schools: <http://www.uscharterschools.org>

The Charter Friends National Network: <http://www.charterfriends.org>

National Association of Charter School Authorisers: <http://www.charterauthorizers.org>

³⁰ Web site <http://www.ed.gov/pubs/charter4thyear/es.html>

- What lessons can be learned from the charter school experience for public education, and what implications should be drawn for state and national policy?
- How might charter schools evolve in the coming decade?

In summary, the National Study report advises that:

- there are 1,484 charter schools in operation in the USA and that the demand for charter schools remains high with 7 of 10 charter schools reporting that they have a waiting list
- twenty-seven charter schools closed during the 1998-99 school year
- 250,000 students (0.8 percent of all public school students in the 27 states with open charter schools) are enrolled in charter schools in the 1998-99 school year
- most charter schools are small schools as the median enrolment in all charter school sites is 137 students per school, whereas all public schools in the charter states had a median enrolment of about 475 students
- nearly half of the charter schools have a grade configuration that deviates from the traditional elementary, middle, high school configuration (25% were K-8, K-12, or were ungraded, compared to less than one-tenth of all public schools)
- the median student to teacher ratio for charter schools of 16 students per teacher, was slightly lower than the 17.2 ratio for all public schools
- nearly 7 of 10 charter schools have a student racial/ethnic composition that is similar to their surrounding district
- charter schools typically have better access to computers compared to the average for all public schools.

The National Study also indicates that the greatest challenge facing charter schools appear to be resource related – either lack of start-up funds or inadequate operating funds. For schools that opened in 1998-99 school year, 39 percent cited start-up funds as a limitation, down from 59 percent for schools that opened in 1997-98 school year. The reduction is likely to reflect support from the federal charter school start-up funding program.

Charter schools have considerable autonomy. They are also held accountable to provide financial and student achievement reports to different constituencies. The National Study report indicates that the majority of charter schools:

- have primary control over most areas critical to school operations, including purchasing, hiring, scheduling, and curriculum, with Slightly fewer charter schools reporting that they had control over student admissions, student assessment, and budget
- provide one or more non-instructional services (eg. health services, social services, and before and after school care)
- are monitored for accountability in terms of school finances; student achievement, for compliance with regulations, for student attendance; and for instructional practices.

The twenty-seven charter states differ greatly in how they approach accountability, with some following a centralised state agency approach, others a market- driven approach, and still others a district-based approach that relies on local accountability within a framework of state testing.

Whist the National Study describes the types of accountabilities undertaken by schools; it presents no information about the outcomes of the various accountability processes.

Other research reports are briefly summarised below.

A study of charter schools in California³¹ focused on four questions: Who attends charter schools? How does student achievement in charter schools compare to achievement in conventional public schools? How are charter schools monitored? Does the operation of charter schools differ significantly from that of conventional public schools? According to the authors, the various answers to these questions suggest reasons for cautious optimism about the state's charter schools, although there is reason for concern about the performance of the state's cyber charter schools.

An analysis of comparative student achievement data revealed that charter elementary and secondary school students are performing slightly lower than their conventional public school counterparts in mathematics, they have comparable reading scores at the elementary grade level, but do slightly worse at the secondary grade level. The results also show that the performance of charter schools varies substantially with the type of classroom offerings available.

An analysis of Longitudinally Linked Student Data revealed that charter school students tended to do slightly worse in math than comparable students in both elementary and secondary schools and slightly higher in reading in elementary schools. Generally, it appears that charter schools are keeping pace with conventional public schools.

A policy brief by the *Consortium for Policy Research in Education*³² (2002) provides a review of the research on charter schools. The research evidence suggests, among other things, that students and parents are satisfied with their charter schools and that charter schools have a greater degree of autonomy than district-run public schools. However, definitive answers to questions about charter school innovation, accountability, equity, and student achievement remain elusive pending further research.

In relation to the way that charter schools are governed, the report advises that the governance of charter schools is diverse and includes schools that are dominated by teachers, by administrators, and by parents. Charter school leaders also come from more varied backgrounds than those in district school systems. A reduced influence of teacher unions is another management change found among charter schools.

This policy brief³³ also indicates that relatively little is known about what happens inside charter school classrooms. It concludes that broad findings about practices within schools would be difficult to make (even if there were more school-level research), given the *institutional* nature of charter school reform. Indeed, generalised statements about charter school instruction would be somewhat contrary to a reform meant to allow for a wide range of curricular and pedagogical approaches.

A study³⁴ by Brian et al 2002 reviews the empirical evidence about what we know and what we need to know about vouchers and charter schools. The authors examine the empirical evidence on questions about academic achievement, choice, access, integration and civic socialisation in

³¹ Web site: <http://www.rand.org/publications/MR/MR1700/index.html>. Zimmer, R. et al (2003) Charter School Operations and Performance: Evidence from California, RAND Corporation

³² Web site: <http://www.cpre.org/Publications/rb35.pdf>

This review article contains an extensive bibliography on charter schools.

³³ Web site: <http://www.cpre.org>. contains a more expanded version of the review.

³⁴ Web site: <http://www.rand.org/publications/MR/MR1118/>

Brian, P et al (2002) *Rhetoric versus Reality: What we know and what we need to know about vouchers and Charter schools* (RAND Corporation)

voucher programs and charter schools. Most significantly, the study finds that the existing evidence indicates that many of the important empirical questions about voucher programs and charter schools have not yet been answered, and that none of the important empirical questions has been answered definitively.

A study by Katrina Bulkley (2001)³⁵ examined whether charter schools are accountable for student results to charter school authorisers. The author suggests that contract-based accountability for educational performance in charter schools may not be working as proponents argued it would.

According to the study, charter school authorisers are in an ‘accountability bind,’ wanting to enforce accountability through the process of renewing charters, but finding it difficult to do so. The author identifies four challenges at the heart of this ‘bind’:

- Performance is not simple to define or measure, nor is ‘how good is good enough.’
- Other aspects of a charter school’s program, which are often more difficult to measure than test scores, are also important to families and authorisers. In this context, authorisers sometimes turn to proxies to assess charter school quality.
- Closing charter schools is difficult because teachers, parents and students become invested in particular charter schools and resist their closure.
- Charter schools have become a highly politicised issue, and some authorisers are concerned about their decisions reflecting poorly on charter schools as a reform idea.

Strengthening charter schools’ accountability to their authorisers, the author says, will require an ongoing relationship focused on accountability rather than one that enforces accountability at a single point – when the contract is up for renewal. Authorisers are working to establish more productive and educationally substantive relationships with charter schools that allow them to take some action, short of revoking or not renewing a charter school’s contract. Examples include emphasising the importance of the application process as a quality-control mechanism, intervening in charter schools’ operation, and providing technical assistance to help charter school leaders improve student performance and the functioning of their organisations.

Finally, a study by David Rogosa³⁶ of Stanford University re-examined conclusions drawn by Simeon P. et al³⁷ in their March 2002 report ‘California Charter Schools Serving Low-SES Students: An Analysis of the Academic Performance Index’ (hereafter SKK). The Simeon et al report sought to ‘compare student achievement between California charter schools and California non-charter schools while taking students’ socioeconomic status into consideration’. Rogosa argues that mistakes in the identification of schools and in the assembly of school data, plus flaws in their data analysis approaches, render the Simeon et al conclusions that charter schools were performing well incorrect. He suggests that even if the Simeon et al data and data analyses had been sound, the strong conclusions expressed in their report (and also in the press coverage of the report) were unwarranted.

³⁵ Web site: <http://epaa.asu.edu/epaa/v9n37.html>

Bulkley, K. (October 2001) *Educational Performance and Charter School Authorizers: The Accountability Bind*, Educational Policy Analysis Archives.

³⁶ Web site: <http://www.cde.ca.gov/psaa/apiresearch.htm>

³⁷ Web site: http://www.calstatela.edu/academic/ccoe/c_perc/rpt1.pdf

After reworking the data, Rogosa concludes that the improvement of students in non-charter California schools exceeds the improvement of students in California charter schools by about 4 points. He advises that an appropriate interpretation of a 4 point difference is: every other student getting an additional item correct on each Stanford 9 test – which in educational terms is a small gain.

Boston Pilot Schools Network

The Boston Pilot Schools began in 1995, as a research and development arm of the Boston Public Schools (BPS), to develop best practices and to be a catalyst for change that could be transferred to the rest of the system.

There are 13 schools spanning grades K-12 that make up the Boston Pilot School Network³⁸: These 13 schools, while members of the BPS, have freedom over budget, staffing, governance, curriculum/assessment, and the school calendar. The schools service approximately 3,900 students or over 6% of the total BPS enrolment, and the network's enrolment matches that of the BPS by race, gender, and income status. The schools are being developed as models for the future of urban public schools. Each of the schools is small, personalised, and democratic.

The Boston Pilot Schools Network engages in:

- leadership development for directors, teachers, students, and parents with a focus on creating democratic and shared decision making governance models
- shared accountability, to assist schools in assessing their progress and in developing models of authentic assessment for both students and staff
- political advocacy, that includes documentation and publicity of the Pilot schools' accomplishments, to ensure the support and resources for the Pilot schools that is necessary for them to be successful
- community organising, with the goal of broadening the constituency of the Pilot schools and strengthening the network's voice and support.

The eight principles of the Boston Pilot Schools Network are as follows:

1. Pilot schools should have high expectations for each and every student, and the education students experience should reflect these expectations.
2. The people closest to students should be the policy makers and the decision makers, including teachers, administrators, parents, and students themselves. This calls for democratic forms of school governance and facilitative leadership.
3. Schools should be small and personalised, so that teachers and students know each other well.
4. The school culture should promote innovation and risk-taking, and professional development should be an integral part of daily school life.
5. Learning should be purposeful, authentic, challenging, and creative, and build students' capacity to take responsibility for their own learning.
6. Authentic forms of assessment, such as portfolios and exhibitions, are keys to improving learning and teaching.
7. Families are critical partners in creating high performing Pilot schools.
8. The people who are responsible for the learning and decision making should be held responsible for the impact of the school in the lives of learners and of the community.

³⁸ Web site: www.bostonpilotschools.org

The five areas of autonomy granted to the Boston Pilot Schools are as follows:

1. *Staffing*: Pilot schools have the freedom to hire and excess their staff in order to create a unified school community. This includes:

- Deciding on staffing patterns which best meet the academic, social, and emotional needs of students
- Hiring staff that best fit the needs of the school, regardless of their current status (member of the district or not, although every teacher hired becomes a member of the local teachers union)
- Transferring staff (in excess of allocation) who do not fulfil the needs of the school into the district pool).

2. *Budget*: Pilot schools have a lump sum per pupil budget in which the school has total discretion to spend in the manner that provides the best programs and services to students and their families. This includes:

- A lump sum per pupil budget, the sum of which is equal to other BPS schools within that grade span.
- The district has moved toward itemizing all central office costs, and allows Pilot schools to choose to purchase identified discretionary district services or to not purchase them and include them in the school's lump sum per pupil budget.

3. *Curriculum and Assessment*: Pilot schools have the freedom to structure their curriculum and assessment practices to best meet students' learning needs. While acknowledging that all Pilot schools are expected to administer any state and district-required test, these schools are given the flexibility to best determine the school-based curriculum and assessment practices that will prepare students for state and district assessments. This includes:

- Schools are freed from local district curriculum requirement
- Graduation requirements are set by the school, not by the district, with an emphasis on competency-based, performance-based assessment.

4. *Governance and Policies*: Pilot schools have the freedom to create their own governance structure that has increased decision making powers over budget approval, principal selection and firing, and programs and policies, while being mindful of state requirements on school councils. This includes:

- The school's site council takes on increased governing responsibilities, including the following: principal selection, supervision, and firing, with final approval by the superintendent in all cases; budget approval; and setting of school policies.
- The school has flexibility to be freed from all district policies, and set its own policies that the school community feels will best help students to be successful. This includes policies such as promotion, graduation, attendance, and discipline.

5. *School Calendar*: Pilot schools have the freedom to set longer school days and calendar years for both students and faculty. In particular, research supports a correlation between faculty planning time spent on teaching and learning and increased student achievement. Scheduling, which allows for summer and school year faculty planning time, contributes to a more unified school community and educational program. This includes:

- Increasing planning and professional development time for faculty.
- Increasing learning time for students

- Organising the school schedule in ways that maximise learning time for students and planning time for faculty (eg. longer days Monday through Thursday in order to have half-days for students on Fridays, enabling faculty to have a significant planning and professional development block every Friday afternoon).

Several small-scale investigations³⁹ into the effectiveness of the pilot schools have been undertaken. The findings of these studies suggest that the Boston Pilot Schools are performing above general expectations. Student engagement in Pilot Schools is very good, with these schools having among the highest attendance and longest wait lists and among the lowest transfers out and suspensions in the district. Comparisons of standardised test scores reveal that Pilot Schools students score at or above the district average in all subjects. The research suggest that the Boston Pilot Schools have begun to demonstrate that, when urban public schools are provided increased autonomy and flexibility to adopt innovative practices and are held accountable for their results, student outcomes across a range of indicators improve.

Examples of Specialist Schools in the United Kingdom

Specialist Schools (England)

There are currently 992 operational specialist schools⁴⁰ in the UK: 443 Technology, 157 Language, 161 Sports, 173 Arts, 18 Business & Enterprise, 4 Engineering, 12 Mathematics & Computing and 24 Science Colleges. There are a further 217 schools which have been awarded specialist status but will not begin operating as specialist schools until September 2003.

The Government expects there to be at least 2,000 specialist schools by September 2006, across all the specialisations. Existing specialist schools are spread across all parts of England and are located in rural, inner city and other urban areas.

All specialist schools must still teach a broad and balanced curriculum, meeting the requirements of the National Curriculum. Alongside this they will provide enriched learning opportunities in their chosen specialist subject area. These opportunities might take the form of a wider range of courses, increased time devoted to specialist subjects and school time extension activities.

Specialist schools receive two sorts of additional funding:

- £100,000 (per application) for a capital project to enhance the facilities in the subjects related to the school's specialism
- recurrent funding of around £123 per pupil per year for four years, to implement their specialist school development plan.

In addition to the £100,000 capital grant the school itself must raise £50,000 in unconditional sponsorship (less for schools with fewer than 500 enrolments) towards the capital project. All specialist schools are expected to target around one-third of their specialist school grant on sharing resources and expertise in their specialist area with non-specialist schools and their local community.

Specialist schools are designated initially for a period of four years. Continued designation depends on satisfactory performance. Schools may be re-designated for periods of four years.

³⁹ Web site: http://www.ccebos.org/quant_report_final.pdf

⁴⁰ Web site: <http://www.standards.dfes.gov.uk/specialistschools>

The admission arrangements for specialist schools are the same as for any other maintained school. Admission authorities for 'schools with a specialism' may decide to select up to 10% of their pupils on the basis of aptitude for the specialism. This capacity applies to all 'schools with a specialism' not just to specialist schools. Only about 6% of specialist schools select any pupils on the basis of aptitude for the specialism.

The six aims of specialist schools are to:

- extend the range of opportunities available to pupils which best meet their needs and interests
- raise standards of teaching and learning in the specialist subjects
- raise standards of achievement for all their pupils of all abilities
- develop within the schools, characteristics which signal their changed identity and which reflect the school's aims
- benefit other schools and the wider community in the area
- strengthen the links between schools and private and charitable sponsors.

The two major reports on the effectiveness of Specialist Schools are the reports by Jesson D. and Taylor C (2002)⁴¹ and OFSTED (2001)⁴². Both of these reports provided positive evidence as to the effectiveness of the specialist schools program in increasing student attainment levels.

The Jesson Report (2002) concluded that specialist schools performed exceptionally well in 2002 both on an absolute basis and a value added basis and these results vindicated the UK Government's decision to expand the number of specialist schools to at least 2,000 by 2006.

The report reveals that on a variety of performance levels, specialist schools and city technology colleges are performing exceptionally well both individually and on an average basis.

- An average of 54.1% of pupils in the 656 specialist schools operating in summer 2002 gained five or more GCSE A*-C grades compared to 46.7% of pupils in all other comprehensive and modern schools. This 7.4 point difference is much greater proportionally than the small 0.3 point difference in average KS2 points per pupil in 1997 between the two groups of schools.
- Specialist schools increased the proportion of their pupils gaining five A*-C grades by 3.0 percentage points in 2002 compared with 2.0 points for all other schools.
- On a GCSE average capped point score basis (based on pupils' best eight GCSE results), specialist schools in 2002 performed better than other comprehensive and modern schools. The capped average points per pupil for all non-selective specialist schools is 35.8 points versus 33.3 for all other comprehensive schools.
- In the key subjects of English, maths and science, 41% of pupils in specialist schools achieved A*-C grades compared to 36% of those in other schools.

The findings of comparative achievement of Technology, Language, Sports and Arts specialist schools reveal that:

- Language Colleges had the best overall GCSE performance in 2002, with 60% of their pupils gained five or more A*-C grades, followed by Technology Colleges with 55% of pupils achieving these grades, Arts Colleges with 49% and Sports Colleges with 47%.
- However, on a value added basis, Technology Colleges performed best with a five-point advantage over their predicted score, followed by Language Colleges with a three point advantage. Sports and Arts Colleges achieved one point more than predicted.

⁴¹ Jesson D. and Taylor C. (2002) Education Outcomes and Value Added by Specialist Schools: 2002 Analysis, Specialist Schools Trust, UK.

⁴² OFSTED (2001) Specialist schools: An Evaluation in Progress, Office of Her Majesty's Chief Inspector of Schools, England.

- The 15 City Technology Colleges reported outstanding results in 2002. An average of 83% of pupils achieved 5+ A*-C GCSE compared to 46% for other schools in their area. Their value-added average was +18 points.

The report also revealed that pupils in specialist schools did consistently better at GCSE than those in other non-selective schools. This finding applies across the whole range of pupils' prior attainments. Interestingly, the 'advantage' is greatest for 'average' pupils (i.e. those with Key Stage 2 points scores of 25). This suggests that specialist schools achieve their better results by working more effectively with those pupils found in *all* schools, and not, as some have suggested, by 'selecting' the more able.

The OFSTED Specialist Schools Report (2001) set out to:

- identify the impact the specialist schools programme is having on attainment and the quality of provision in the designated schools
- evaluate how schools are managing their role, including their role in relation to other local schools and the wider community
- illustrate good practice and highlight factors accounting for it.

Evidence came from data about the 327 specialist schools designated and operating on or before September 1998, OFSTED school inspection reports and HMI reports to the DfES on the progress of individual schools.

The results achieved in the General Certificate of Secondary Education (GCSE) overall by the different types of specialist school vary. For example:

- More pupils in technology, language and arts colleges are achieving five or more GCSE A*-C and A*-G grades than in maintained schools nationally.
- The performance of pupils in sports colleges is below the national average in terms of A*-C grades and in line with the average in terms of A*-G grades.
- The trend of improvement in GCSE average points score in specialist schools has been slightly greater than the national rate.
- In each of the specialist subjects in technology and language colleges the average proportion of pupils gaining A*-C grades in 2000 was higher than the national figure. The proportion achieving this level in the specialist subjects in arts colleges was higher than the national average in all but music. In sports colleges the proportion was slightly below the national average.
- In GCSE examinations in 2000 the combined average points score for each pupil for specialist subjects was higher in technology, language, arts and sports colleges than the average for all other maintained secondary schools.
- Attendance was good and improving in the majority of schools.

Other findings included that:

- In over four-fifths of schools visited, there was clear evidence of a distinctive character based on the specialism. In the remaining schools visited there was some lack of commitment to the programme, and even some reluctance to be closely identified with it. In these schools little attempt had been made to promote a strong specialist character.
- In over half of the specialist schools visited, extra time was provided to expand the range of options at Key Stage 4, by means that included extending the length of the school day or week. There was no evidence that the balance of the curriculum had been significantly disturbed by these modifications.

- All specialist schools had provided some enrichment activities to broaden and deepen pupils' experiences and to provide opportunities for them to explore elements beyond their normal studies.
- Taken overall, the specialist technology, language and arts colleges operating at or before September 1998 performed better than national averages in relation to the GCSE average points scores gained in each year of their operation (1995–2000). The performance of specialist sports colleges as a group was below the national averages in each year.
- The rate of improvement at GCSE for specialist schools overall has been slightly greater than the national trend.
- Based on the proportion of pupils gaining five or more A*-C grades, attainment in the GCSE examinations was significantly higher in 2000 in the specialist technology, language and arts colleges in the survey than in maintained secondary schools nationally. In specialist sports colleges, the proportion was below.
- Based on the proportion of pupils gaining five or more A*-G grades, attainment was higher in each specialist type compared to maintained schools, except in sports colleges, where it was about the same.
- In all types of specialist school the relative performance of boys and girls was similar to the national picture, with girls out-performing boys by a significant margin.

The report concluded that

- the majority of specialist schools are extending the range of opportunities available to pupils and are using a range of effectively managed and sometimes imaginative strategies to raise standards;
- specialist technology, language and arts colleges are improving attainment at a faster rate than is the case nationally, but as a group, specialist sports colleges are not.

Several commentators have taken issue with the Jesson study. For example, a spokeswoman⁴³ for the National Union of Teachers (NUT) said it was not possible to compare 'unlike with unlike' It was argued that as specialist schools received additional resources and better equipment and facilities and were able to select pupils in all probability they should perform better. (Specialist schools are allowed to select up to 10% of its pupils on aptitude, but the majority do not do so.) The position of the National Union of Teachers is that the specialist school programme is divisive, creating a higher tier of better-funded schools.

Gorand and Taylor (2001) have developed a more detailed criticism⁴⁴. They observe that while the Jesson Report (2001) makes some reference to the issue of the structural advantages offered to a specialist school, such as from additional resources and increasing popularity of a school, it tends to play these down as explanatory factors. Gorand and Taylor consider that when Jesson suggests via value-added analysis that non-selective specialist schools out-perform other non-specialist schools, he not only ignores the differential funding but also the fact that proportionately more designated specialist schools are single-sex, ex-grammar, and foundation than would be expected. Yet Jesson feels able to compare the performance of, for example, secondary modern with that of specialist ex-grammar comprehensives when the socio-economic composition of the two groups is very different. They observe that 'while this does not invalidate the value-added analysis, it does suggest an alternative explanation not involving the specialism'.

They are concerned that a two-tiered system will be established as a consequence of:

⁴³ Source: Specialist schools 'get better results', BBC1 Wednesday, 1 May, 2002

⁴⁴ Gorand S. and Taylor C. (2001) Specialist Schools in England: track record and future prospects, Occasional Paper 44, Cardiff University School of Social Sciences, Wales

- additional funding (£100,000 of matched funding towards capital expenditure and a recurrent budget of £123 per pupil per year for the first four years)
- pupil selection (10% of pupils can be selected on the basis of their aptitude in a specialism).

They suggest that additional funds can improve teacher and pupil morale and can lead, on occasions, to greater pupil performance and that any kind of selection must enhance the school's ability to generate relatively higher examination results - at least in one subject. Whilst currently very few specialist schools conduct pupil selections Gorand and Taylor suggest that if specialist schools allocate 10% of places on aptitude in one year this will inevitably build into a student population that is more capable than the norm. This would occur as academic aptitudes tend to correlate with each other and general aptitude also tends to 'run' in families. So if in subsequent years the school selected the brothers and sisters of those at the school before allocating the 10% specialist places, it would be likely to raise achievement scores even further.

Gorand and Taylor analysed 28 specialist school case studies in detail and on the basis of their findings concluded that it is difficult to assess the likely drawbacks and advantages of increasing the proportion of specialist schools in England. For, in addition to the standard difficulties of establishing a causal model, the definition of specialism has changed over time (making longitudinal data volatile), as has nature of schools involved in the program.

Their second conclusion was that simple pronouncements about the relative cost/benefits of specialist schools, not based on such analytical complexity, are unlikely to be of much value (except perhaps politically).

Notwithstanding these comments, their study has suggested that schools that are selective, or are their own admissions authorities, or are specialist, tend to increase the socio-economic segregation of school intakes (or retain higher levels in an era when segregation is decreasing more generally). When schools have two or more of these characteristics together - foundation specialist or selective specialist for example - this tendency is far stronger and further enhances their ability to attract the most able and socially advantaged children.

They concede that the accounts of specialist schools and colleges with superior facilities, 'magic' white boards in every room, higher salaries, four-day working weeks for staff, home-grown curricula etc. are impressive, and worthy of emulation and improvement. However, they believe that to achieve this for *all* schools it would be necessary, although not necessarily sufficient, for taxpayers to approve increased *per capita* resources across the board, and for a revision of existing legislation to release schools from government control of their curriculum and day-to-day activities. They conclude that to simply allow more schools to become specialist, and perhaps allocate a proportion of their places to students on the basis of that specialism, cannot bring such changes about and that specialisation could lead to several clear disadvantages without any obvious compensation for most families.

Centres of Excellence (Scotland)

In Scotland, the equivalents of specialist schools⁴⁵ are called Centres of Excellence. These schools specialise in Music, Dance, Sport and Languages. They are funded by the Scottish Executive's Excellence Fund – £14 million over three years was set aside in 1999 to establish

⁴⁵ Wales and Northern Ireland do not have a national scheme of specialist schools.

and support these specialist centres. The specialist centres' facilities are designed to be national centres and accessible to pupils from all over Scotland.

Scotland's nine centres of excellence are focused upon assisting gifted children to maximise their potential, both academically and with regard to their particular talents. These centres offer a specific focus on a child's gift, whether it be music, sport, dance or language. The schools have to follow a Scottish curriculum; and unlike their counterparts in England the schools are selective – pupils can only gain admission if they have a particular aptitude in a 'specialist' subject.

Examples of Specialist Schools in Europe

Reggio Emilia, Steiner/Waldorf and Montessori are three progressive approaches to early childhood education that appear to be growing in influence and to have many points in common. Although originating in Europe, the learning principles developed by these three models have spread around the world.

All three approaches represent an explicit idealism and are built on coherent visions of how to improve human society by helping children to realise their full potential as intelligent, creative, whole persons. In each approach, children are viewed as active participants in their own development. The teachers in these approaches share in common the goals to be nurturers, partners, and guides to children. Partnering with parents is highly valued in all three approaches, and children are evaluated by means other than traditional tests and grades.

The fourth model described below is that of the Production School. This model originated in Denmark as a means for engaging students who were unprepared for more academic senior school learning. It is also spreading beyond its country of origin and is being sponsored in several countries by the European Commission.

Reggio Emilia Schools

Reggio Emilia is a city in northern Italy where educators, parents, and children began working together after World War II to reconstruct society and build an exemplary system of municipal preschools and infant-toddler centres. Under leadership of the visionary founding director, Loris Malaguzzi (1920-1994), the system evolved from a parent cooperative movement into a city-run system that exercises a leadership role in Italy and throughout Europe, and now increasingly in Asia, Australia, North America⁴⁶, and other parts of the world.

Reggio Emilia focuses on the infant and preschool years only and is not a formal model like Steiner/Waldorf and Montessori, with defined methods, teacher certification standards, and accreditation processes. Although the Reggio Emilia approach was developed for children under 6 and therefore is not an primary school approach, progressive educators in the have taken useful insights from Reggio Emilia into primary education (especially with respect to project work and observation/documentation).

⁴⁶ Web site: <http://ericece.org/pubs/digests/2000/new00.html>

Malaguzzi's vision of an 'education based on relationships' focuses on each child in relation to others and seeks to activate and support children's reciprocal relationships with other children, family, teachers, society, and the environment. Teachers⁴⁷:

- respond to children's interests and support children in exploring and investigating through words, movement, drawing, painting, building, sculpture, drama, music, etc.
- do not provide focused instruction in reading and writing
- foster emergent literacy as children record and manipulate their ideas and communicate with others negotiate teaching and learning activities
- foster close, multi-year adult-child and peer relations
- support children to undertake long-term, open-ended, collaborative projects
- maintain classroom environments that offer complexity, beauty, and a sense of security.

Waldorf / Steiner Schools

Waldorf or Rudolf Steiner schools are structured very differently to the majority of schools in that they are not hierarchical, nor do they have a Principal. They are independent, self-governing entities and therefore, each one will have individual characteristics. However, most of them follow, to some extent, the pattern of the first Waldorf School run by Rudolf Steiner for the children of workers at the Waldorf cigarette factory in Stuttgart in 1919. He developed a flexible curriculum that has evolved with time and has been adapted to local conditions in the various countries where Steiner schools are found.

It is claimed that Steiner schools now form the largest and fastest growing group of independent private schools worldwide. The European Council for Steiner Waldorf Education comprises 20 national Waldorf Associations, which represent 555 European schools and another 120 in North America. There is an international group of over 800 schools and 1200 kindergartens in many countries including Australia⁴⁸, Britain, Sweden, Austria, Norway, Germany, Switzerland, Holland, USA and Canada.

The international Steiner Waldorf curriculum, whilst firmly based in the cultural environment of each school, encourages children to value themselves as world citizens who will play a responsible role in determining the future. Steiner's theory of child development elaborated three cycles of seven-year stages, each with its own distinctive needs for learning. Before age 7, nursery and kindergarten children learn through imitation and doing. The educational focus is on bodily exploration, constructive and creative play, and oral (never written) language, story, and song. From 7 to 14 years, children stay with the same teacher and classroom group, and they become a very close-knit group as they explore the world through conscious imagination or 'feeling intelligence'. This approach fosters an integrated, multi-sensorial approach to learning and expression, with more emphasis on oral listening and memory than is found in other early childhood models for the primary years. During the high school years, the rational, abstract power of the intellect emerges, and adolescents focus on ethics, social responsibility, and mastery of complex and rigorous subject matter, with specialised teachers.

⁴⁷ Web site: http://www.designshare.com/Research/Tarr/Aesthetic_Codes_1.htm provides visual images of a Reggio Emilia environment.

⁴⁸ There are currently over 50 Steiner schools and kindergartens in Australia, 4 of which operate within the State system in Victoria.

The characteristics⁴⁹ of a Steiner school include the following:

- education is based on a holistic approach, balancing artistic, academic and practical work educating the whole child, hand and heart as well as mind
- imagination and creativity are cultivated as well as cognitive growth and a sense of responsibility for the earth and its inhabitants
- the curriculum encourages tolerance and understanding of human differences as well as fostering a sense of self-esteem and personal potential
- the developmentally-oriented curriculum is permeated with the arts
- the teacher remains with the class throughout the duration of the primary school years
- there is no school principal
- a board of management committee ensure that, within legal and financial constraints, the school fulfils its mission
- the board of management committee is run via a system of mandates and adheres to democratic principles
- spiritual considerations are consciously cultivated
- rather than a bureaucratic system of organisation, the school is seen as a partnership, with people who are responsible to each other and to the school.

The researchers were not able to locate evaluation reports on the success or otherwise of Steiner schools.

Montessori Schools

Maria Montessori⁵⁰ (1870-1952) was the brilliant figure who was Italy's first woman physician. After developing an innovative methodology for working with children with disabilities, she started her Casa dei Bambini (Children's House) in 1907 for children ages 4 through 7 in a housing project in the slums of Rome. Her movement spread to other countries, especially after the Fascist regime denounced Montessori methods of education and she left Italy.

In the United States, there was strong but brief interest from 1910 to 1920, but then Montessori education fell out of favour. During this time, however, the movement flourished in Europe and India. In the 1950s, American educator Nancy Rambush led a movement of renewal, and Montessori education spread as an independent school movement with currently probably 5,000 or more schools calling themselves 'Montessori' in the United States.

The Montessori teacher's role is that of an unobtrusive director of learning. In the classroom, children individually or in small groups engage in self-directed activity under the guidance of the teacher. Based on detailed, systematic observation of the children, the teacher seeks to provide an atmosphere of calm, productive engagement. Children alternate between long periods of intense concentration and brief moments of recovery or reorganisation. The teacher's goal is to help and encourage the children, allowing them to develop confidence and inner discipline so that there is less and less need to intervene as the child develops.

Many studies⁵¹ have demonstrated the effectiveness of Montessori methods and provided insight into children's gains with respect to reading and literacy, mathematics, and motivation. In 1991, graduates of the Montessori Head Start program at the Marotta Montessori Schools of Cleveland who entered the Cleveland Public Schools (CPS) were studied in relation to their CPS peers. California Achievement Test scores for Marotta graduates in grades one through eight were

⁴⁹ Web site: http://www.steiner-australia.org/other/school_structure.html

⁵⁰ The Montessori Education International Association web site is <http://www.montessori-ami.org/ami.htm>

⁵¹ Web site: <http://www.montessori-namta.org/generalinfo/rschsum.html>

compared with the overall scores of first- through eighth-graders in the Cleveland Public Schools and revealed that the former Montessori students consistently fared better.

A 1990 review of 244 studies of Montessori pedagogy, including 25 that focused exclusively on children of low socio-economic status (SES) found that overall low SES children benefited significantly from Montessori preschool, even if they attended for less than the full three years. They showed 'superior performance on measures of autonomy and curiosity' over low-SES children from other preschool programs and in later years they exceeded these peers in academic competence and achievement as well as attitude toward school.

Production Schools

In Denmark, there are approximately 110 production schools⁵² throughout the country. This school form emerged from an experiment combining education and production, carried out at the end of the 1970s, with mainly unemployed young people with a low level of educational attainment. The schools were and were established (and remain organised) as a municipal initiative. In several places, two or more municipalities share the operation of a production school. Over 5000 young (some unemployed) people are generally enrolled in Denmark's production schools.

The production schools distinguish themselves from most other school forms in that they have a continuous intake and large variations in the duration of the stay of the individual participants. A typical stay is of about six months' duration, but 25% stay at the production school for less than a month and 25% for more than six months. The Act on production schools stipulates that the stay must not exceed one year. The production schools' main objective is to strengthen the personal development of young people involved in the programs.

What makes the Danish production schools innovative is the fact that training and tuition are not delivered within a set curriculum or modules, but imparted in the form of so-called 'lines', thereby tailoring training to students' individual needs. The basic idea is learning by doing: whenever a problem occurs in a given working step, then the relevant theoretical tuition is organised to solve or cope with the problem (eg. a problem in the calculation of items of furniture is followed up by tuition in mathematics).

Many production schools offer lines with a strong environmental leaning. Practical training and theoretical tuition are combined in the fields of agriculture and forestry, landscape management, tourism and textiles. Work and activity areas are frequently selected in collaboration with industry and commerce. Activities are learned and subsequently performed on a routine basis. Production schools are profit-oriented and cover about 1/5 of their financial requirements through the provision of services or products for the local market, the remainder being state-funded.

There is both practical and theoretical training at a production school. As a rule, most of the training takes place in workshops where many different products are made. The trainees are also given the opportunity to go to classes in Danish, Arithmetic, IT and other subjects. Training is normally offered in the following fields:

- wood and metalwork
- drama and theatre

⁵² Web site: <http://www.r-u-e.dk/youngpeople/kap84.htm> and <http://pubuvm.hugin55.net.uni-c.dk/2000/prod/16.htm>

- textiles and design
- canteens and catering
- ecology and market gardening
- video and multimedia technology
- IT and communications.

The work in the workshop is intended to gradually motivate the young person for academic learning. It is considered that the young person will realise through practical work the necessity of academic basic knowledge and that success with practical work can be instrumental in undoing blockages to academic learning.

A survey⁵³ of production schools was undertaken in 2000 based on data collected in 1996-97 and 1999. The study focused on school profiles and participant profiles and describes the special pedagogical effects used within the school form and the benefit experienced by the participants. Half of the production school participants from 1996-97 indicated that they had not been satisfied or more or less satisfied with the basic school, whereas only 13% expressed that they had been extremely satisfied with the basic school. More than half of the participants from 1999 and from 1996-97 had dropped out of a course at upper secondary level before they came to the production school.

Student self-reports indicated mixed findings about the effectiveness of the production school, with 65% of the participants saying that they had received a vocational benefit from the course. However, very few considered that they had derived any academic benefits from their participation in the program. With regard to personal skills, such as ability to cooperate, to assume responsibility, to meet on time and keep appointments, very few of the participants from 1999 felt that they had derived any benefit. This however did not apply to the participants from 1996-97. Here, between 39% and 58% said that these skills have been strengthened. The researchers suggest that a certain distance in time may be necessary in order for young people to be able to assess this more personal benefit.

The survey also indicated that around half of the participants who stayed for a duration of between three to twelve months subsequently commenced a course of education, whereas the transition to unemployment was most pronounced for the group who stayed at the production school for under three months. The schools also showed mixed results in terms of transition success. According to the survey of the 1996-97-participants, 35% of the production school participants in 1999 were in employment, 16% were unemployed, 6% were on leave, and the remainder were either doing other things or there was no data.

About the Author

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⁵³ <http://pubuvm.hugin55.net.uni-c.dk/2000/prod/16.htm>

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High Schools That Work (9-12)

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Success for All/Roots & Wings (PreK-6)

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