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HIGH SCHOOL FLEXIBILITY ENHANCEMENT:
A LITERATURE REVIEW

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PURPOSE

A SUPPORT RESOURCE FOR SCHOOL ADMINISTRATORS

This literature review is intended to help inform the development and implementation of innovative, educationally sound high school redesigns in Alberta. It is provided as a support resource for school administrators involved in Alberta Education's *High School Flexibility Enhancement Project*.

Support is provided in the form of

- a brief history of Alberta Education's *High School Flexibility Enhancement Project*;
- a definition and discussion of the Carnegie Unit, a term and measure associated with high school scheduling;
- an overview of foundational principles, supportive strategies, and evident benefits and challenges related to high school redesign as gleaned from a review of literature;
- descriptions of several North American high school redesign models and initiatives that are realizing student benefits;
- links to a variety of resources that have been developed to support educational leaders as they design or redesign high schools (look for the wrench icons); and
- suggestions for further reading in the form of a bibliography, links to relevant web sites, appendices and endnotes.



Note that the foundational principles, models, and supporting strategies gleaned from the literature on high school redesign in North America are intended to inform but not necessarily prescribe high school redesign efforts in Alberta. School administrators involved in the *High School Flexibility Enhancement Project* are invited to consider the information and resources offered in this literature review as they collaborate with stakeholders to develop and implement high school redesigns that suit their schools' unique contexts.

This literature review is provided as a support resource for school administrators involved in Alberta Education's *High School Flexibility Enhancement Project*. It is intended to *help inform* the development and implementation of innovative, educationally sound high school redesigns in Alberta; it is *not necessarily intended to prescribe* any particular set of foundational principles, high school redesign models or combination of supporting strategies.

BACKGROUND

AN EXPLORATION OF HIGH SCHOOL REDESIGN

Alberta Education initiated the *High School Flexibility Enhancement Project* in response to expressed interests by education stakeholders to examine the time requirement attached to high school credits. This two-stage, four-year (2009-2013) pilot project involves one school in each of nine school jurisdictions. The purpose of the pilot project is to

- determine whether the requirement of students to have access to 25 hours of face-to-face instruction per high school course credit should be maintained;
- explore the relationship between hours of face-to-face instruction and student success; and
- explore various innovative and educationally sound high school redesigns with the purpose of benefiting students learning and success in high school.

It is anticipated that the initiative will also help to address apparent inconsistencies between beliefs expressed in the *Guide to Education: ECS to Grade 12*¹ and funding policies related to timetabling in regular high schools. For example:

- The *Guide to Education* states that “some students can acquire the knowledge, skills and attitudes specified for one credit in a course of studies in less than 25 hours, while others may require more time.” The *Guide* also encourages school authorities “to adopt alternatives to the current Carnegie Unit and organizational and scheduling model.”
- Yet, the *Funding Manual for School Authorities*ⁱⁱ states that if a course is delivered in a face-to-face, “bricks and mortar” classroom-based setting, the course must be timetabled for both students and teachers at 25 hours per credit (the Carnegie Unit). Although exceptions are made for 3-credit courses (62.5 hours of instruction) and summer break, evening and weekend courses (16 hours of instruction per credit), the consequences of these funding policies dictate program delivery methods in regular high schools.

The *High School Flexibility Enhancement Project* will explore various research-based and educationally sound high school redesigns with the purpose to benefit students’ learning and success in high school.

Representative pilot schools were selected based on geographical location, socio-economic diversity, size of community, public and separate school designation, and performance on key indicators of the Accountability Pillar. All participating students will continue to be taught Alberta Education’s Programs of Study, evaluated on the mandated learner objectives, and provided with the supports they need to be successful. Educators involved in the pilot are expected to exercise their professional responsibility as per the *Teaching Quality Standard*ⁱⁱⁱ and the *Principal Quality Practice* document (2006 Draft). All participating high schools will report to Alberta Education their progress towards stated project goals.

THE CARNEGIE UNIT

An understanding of the history of the Carnegie Unit is important in discussions about enhancing high school flexibility. As prescribed in the *Funding Manual for School Authorities*, Alberta Education adapted the Carnegie Unit such that 25 hours of face-to-face instruction was required per high school credit, with a 5-credit course requiring 125 hours of face-to-face instruction.¹ Further background in the form of a definition and discussion of the Carnegie Unit is provided below.

DEFINITION

Established in 1906, the Carnegie Unit is a strictly time-based measure of educational attainment. It was developed to measure the amount of time a student spent studying a subject (e.g., 120 hours in one subject earns the student one "unit" of high school credit). Fourteen units were deemed to constitute the minimum requirement for four years of academic or high school preparation. The Carnegie Foundation currently holds no position on the unit system.^{iv}

DISCUSSION

Shedd (2003)^v described some of the initial benefits of the Carnegie Unit's "single, standardized, and comprehensive system" in terms of its potential to measure relative faculty workloads and the cost of instruction per student hour. She also stated that this standardized measure helped colleges evaluate students from different school systems, and aided teachers, administrators, and school boards in their efforts to monitor educational resource inputs and results.

As early as 1966,^{vi} Hamilton argued that although the Carnegie Unit "may have served some kind of purpose in its day, it is becoming evident that [this] Standard Unit describes very little about the secondary school experiences of an individual and predicts nothing. ... [It] contributes nothing to the development of creative approaches and provides no guidance for educational improvement. ... educational groups should forget the Unit and focus their attention on providing freedom and supportive guidance to local school leadership."

Decades later, Maeroff (1993)^{vii} agreed, stating that "the Carnegie Unit, which helped put secondary education on a solid footing in the early decades of the 20th century, has increasingly transformed itself into a restraint on teaching and learning."

Noone and Swenson (2001)^{viii} shared their supporting perspectives, stating that although the Carnegie Unit is supposed to measure time-on-task or the amount of time a student spends with their teacher, it usually measures the amount of time for which a course is scheduled. They viewed the Carnegie Unit as an "anachronism" or relic and reported that many institutions are requiring a much greater emphasis on assessing student learning rather than "seat time"; on

Researchers are questioning whether the longevity of Carnegie Unit is attributable to its adaptability or whether it is a sign of the basic calcification of education.

Shedd (2003)

¹ Note: Online, correspondence, self-directed and home education environments are not held accountable for 25 hours of instruction per credit.

measuring outcomes rather than inputs.

More recently, Shed (2003)^{ix} described the development of the student credit hour as being rooted in “events such as the explosion of enrollments, the desire to ensure that all students learn to a common standard, the need to correlate high school graduation requirements with college admission standards, pressures for public accountability, desires for greater institutional efficiency and productivity, student transfer and mobility, and attention to the quality and integrity of the collegiate curriculum.” She indicated that the measure has remained essentially unchanged since this industrial era and questioned whether that is attributable to its adaptability or whether it is a sign of the basic calcification of education. Shed further stated that increasing frustrations arise because of the inadequacies of the credit-hour measure in terms of its inattention to student learning and its time-and-location-based method for recording learning.

FOUNDATIONAL PRINCIPLES GUIDING HIGH SCHOOL REDESIGN EFFORTS

OVERVIEW

A review of the literature reveals several sets of foundational principles that are serving to guide high school redesign efforts. For example, principles have been put forward by the Association for Supervision and Curriculum Development (ASCD), the Canadian Coalition of Self-Directed Learning (CCSDL), the Coalition of Essential Schools (CES), the Learning Environments Consortium International (LEC International), the Manpower Demonstration Research Corporation (MRDC), the National Association for Secondary School Principals (NASPP), the National Conference of State Legislatures (NCSL), the School Redesign Network (SRN), and the Office of Vocational and Adult Education, U.S. Department of Education.

An analysis of these sets of principles reveals some common underlying themes. Organizations that are striving to support meaningful high school redesign are focusing on the following:

- **Mastery Learning:** In order to progress and graduate, students are required to “exhibit mastery” or demonstrate their depth of understanding of curriculum through performance-based evaluations.
- **Rigorous and Relevant Curriculum:** All students are expected to attain learner objectives as defined in challenging and engaging curricula, curricula that have been designed to meet the career and/or post-secondary aspirations of students as well as the needs of the business community and higher education institutions.
- **Personalization:** The unique needs of *every* student (e.g., developmental level, cognitive/learning style, interests, and prior knowledge and skills) are met through differentiated instructional practices which are informed by ongoing and multiple forms of assessment.
- **Flexible Learning Environments:** Flexible learning environments are created in terms of time (flexible scheduling and pacing) and structure (e.g., internships, online education, project-based learning, and independent study), thereby providing students with a range of learning options.
- **Educator Roles and Professional Development:** The role of the teacher as guide, coach and career mentor, and the role of the administrator as instructional leader are supported through professional development opportunities within collaborative and collegial school environments and professional learning communities.
- **Meaningful Relationships:** Students and adults know each other well. Their relationships are characterized by frequent positive interactions, and genuine care and concern on the part of adults for students’ well-being, intellectual growth, and educational success.
- **Home and Community Involvement:** Student learning environments are extended and supported by engaging home, business, community, and post-secondary education partners.

Several organizations are focusing their high school redesign efforts around similar underlying themes as follows:

- Mastery learning
- Rigorous and relevant curriculum
- Personalization
- Flexible learning environments
- Educator roles and professional development
- Meaningful relationships
- Home and community involvement

Overviews of the foundational principles developed by several organizations are provided below.

**ASSOCIATION
FOR
SUPERVISION
AND
CURRICULUM
DEVELOPMENT
(ASCD)**

In 2006, ASCD made high school redesign one of its top legislative priorities, developing the *ASCD High School Reform Proposal*^x to help the U.S. Congress foster the innovation needed to fully support high school students.

The ASCD's research-based proposal focuses on the following five key elements:

1. *Multiple assessments*: portfolio assessments, demonstrations, oral presentations, and applied projects are needed to help teachers improve instruction and measure the full breadth of student learning.
2. *Personalized learning*: student engagement is improved when they work with educational mentors and career coaches and take ownership for connecting their learning with future goals.
3. *Flexible use of time and structure*: learning must be organized according to each student's needs in mastering academic subjects. A variety of learning environments, not necessarily bound by graduation, time and attendance requirements, should be explored including internships, online instruction, and independent study.
4. *Professional development for teachers and school leaders*: educators must be supported in terms of learning how to teach in new and innovative ways.
5. *Business and community engagement*: students should be provided with learning opportunities outside the classroom that "harness the relevance and needs of business with the academic rigour of the school curriculum."

**CANADIAN
COALITION OF
SELF-DIRECTED
LEARNING
(CCSDL)**

Established in 1995, the Canadian Coalition of Self-Directed Learning (<http://www.ccsdl.ca/>) is an organization of secondary schools in Canada that is dedicated to the "personalization of learning which takes into account individual student characteristics, talents, interests and academic backgrounds."

The five foundational principles adopted by the CCSDL arose from the efforts of the National Association for Secondary School Principals and the Model Schools Project. The CCSDL principles^{xi} are briefly described as follows:

1. *Teacher advisory*: teachers build meaningful and healthy relationships with students that help students discover and develop their personal talents and interests through opportunities for learning offered in the school, home and community.
2. *Individualized scheduling*: each student's schedule is uniquely designed or individualized to the extent that every student, with guidance, has opportunities to explore potential interests and talents in all areas of human knowledge and activities.
3. *Continuous progress*: curriculum is re-conceptualized around its big ideas or essential learnings. Teachers and students assess their progress by continuously connecting with these essential learnings.
4. *Independent study*: independent study is viewed as part of the teaching/learning cycle where essential learnings are first discussed in a large group. These big ideas are then elaborated upon in more intimate or

small group settings and delved into through independent study where students have opportunities to explore avenues of personal interest.

5. *Differentiated staffing*: differentiated staffing revolves around providing the necessary instructional, clerical and general assistance required to support the four key professional duties of educators, namely developing curriculum, advising and guiding students, assessing student progress, and collaborating with colleagues.

The Coalition of Essential Schools (<http://www.essentialschools.org/>) has identified ten research- and practice-based principles (2006)^{xii} for creating personalized, equitable, and academically challenging learning environments. The CES's principles are founded on their belief that

- rigorous intellectual goals must apply to all students;
- each student is known well;
- the school models democratic practices and strives for equitable outcomes;
- school and community resources are focused on the school's intellectual purpose; and
- diplomas are awarded on the basis of mastery.

The CES's ten principles are briefly described below:

1. *Learning to use one's mind well*: This principle expresses what the CES believes should be the central intellectual purpose of a school.
2. *Less is more, depth over coverage*: This "less is more" principle speaks to the need to ensure each student masters essential skills and areas of knowledge that reflect the traditional academic disciplines but are also shaped by the "intellectual and imaginative powers and competencies that students need."
3. *Goals apply to all students*: This principle stresses the need to use a variety of instructional approaches to help all students succeed.
4. *Personalization*: This principle highlights the need to make decisions about class size, curriculum, resources, and pedagogies so that teaching and learning are "personalized to the maximum feasible extent."
5. *Student-as-worker, teacher-as-coach*: Coaching to help students learn how to learn is the prominent pedagogy described by this principle.
6. *Demonstration of mastery*: This principle is founded on the CES's belief that graduation should be dependent on a final successful "exhibition of mastery" or "performance of real tasks" and not restricted by age grading and/or time-based credit systems. Mastery would be attained by providing students with intensive supports while completing specific projects, using multiple forms of evidence to understand learner's strengths and needs, and planning accordingly for further assistance.
7. *A tone of decency and trust*: This principle is based on the values of high expectation, trust, fairness, generosity and tolerance. It stresses the importance of appropriate student incentives and parental involvement.

8. *Commitment to the entire school*: This principle is about educators seeing themselves as generalists first and specialists second, and about educators recognizing their obligations as teachers, counselors and managers.
9. *Resources dedicated to teaching and learning*: This principle focuses on budgetary decisions that support personalized learning, allow for collaborative teacher planning, and ensure competitive salaries.
10. *Democracy and equity*: This principle speaks to the requirement that schools demonstrate non-discriminatory, democratic, and inclusive policies, practices, and pedagogies. It is about honoring diversity and building on the strength of communities.

The Learning Environments Consortium International (LEC International, <http://www.lecforum.org/>)^{xiii} which was formed in 1975 at the conclusion of the Model Schools Project^{xiv} is committed to the design and redesign of schools and the personalization of student learning. The LEC International believes in

- a diagnostic/prescriptive model of education;
- a leadership-team approach to school administration, with the principal serving as instructional leader;
- a personalized strategy of instruction, with teachers acting as learning facilitators and teacher advisors; and
- a systematic and performance- based evaluation of students, teachers, and programs.

The LEC International defines personalized education as "an attempt to achieve a balance between the characteristics of the learner and the learning environment." LEC International believes personalized education can be accomplished in various ways including continuous-progress curriculum, schools-within-schools, learning teams, contract learning, and project approaches.

The LEC International personalization model has the following characteristics:

1. *Teachers as Coaches and Advisors*: Teachers have dual roles as coaches and advisors.
2. *Student Learning Characteristics Understood*: Relevant student learning characteristics are diagnosed, including developmental level, cognitive/learning style, and prior knowledge and skills (learning history).
3. *Collegial, Constructivist, and Collaborative School Cultures*: Schools have a culture of collegiality that is characterized by a constructivist environment and collaborative learning arrangements.
4. *Interactive Learning Environments*: Learning environments are characterized by small school and group sizes, thoughtful conversation, active learning experiences, and authentic student achievement.
5. *Flexible Scheduling and Pacing*: Schedules and pacing are flexible but provide adequate structure.
6. *Authentic Assessment*: Information about student learning is gathered on the basis of performance in a field of knowledge, often involving a public product or presentation (e.g., portfolios, exhibitions), and is measured

**MANPOWER
DEMONSTRATION
RESEARCH
CORPORATION
(MDRC)**

against published performance standards.

The Manpower Demonstration Research Corporation (<http://www.mdrc.org/>), now known simply as MDRC, is a nonprofit, nonpartisan social policy research organization. A 2006 MDRC research report^{xv} identified the lessons learned from evaluations of three high school redesign interventions being implemented in low-performing urban and rural high schools throughout the U.S. Five lessons learned serve as guiding principles for high school redesign:

1. *Personalized and orderly learning environments*: Positive school climates need to be created, where students and adults know each other well and where adults express care and concern for students' well-being, intellectual growth and educational success.
2. *Interconnected changes in scheduling and curriculum*: Students who enter high school with poor academic skills need assistance in the form of double-blocked classes (students meet daily for extended periods) and intensive semester-long "catch-up" classes.
3. *Instructional improvement*: Instruction must be improved by providing well-designed curricula as well as by supporting educators in their collaborative efforts to implement these curricula and improve their pedagogical practice (e.g., thematic instruction). Teachers need to participate in professional learning communities where administrators take an instructional leadership role.
4. *Career awareness and work internships*: Establishing structured school-employer partnerships, which engage students in career awareness sessions and work internships, helps meet the need of preparing students for the world beyond high school.
5. *Supporting change*: Successful implementation of high school redesigns need to be supported by investing in skilled personnel, analyzing the adequacy of what is already in place, determining the capacity of existing personnel to envision and implement change, supporting the implementation of redesigns at district and school levels, having high ambitions yet reasonable expectations, and allowing sufficient time for effective implementation to be demonstrated.

**NATIONAL
ASSOCIATION OF
SECONDARY
SCHOOL
PRINCIPALS
(NASSP)**

The NASSP Model Schools Project^{xvi} was put forward to address the realities that students learn at different rates and in unique ways, learning should relate to the maturity and readiness of each learner and provide personal satisfaction, and teachers have special talents and weaknesses. The associate directors of the Model Schools Project identified five foundational principles upon which to base constructive change in high schools.

1. *Principal's role*: The school principal must devote the majority of his or her time to the improvement of instruction.
2. *Teacher's and student's roles*: The instructional staff must be organized using instructional aides to give teachers more freedom for instructional planning. Teachers need to be "content facilitators" preparing large-group presentations, supervising small-group discussions, arranging their schedules to coach students in their subject-areas, and serving small

groups of students as academic advisors. Students, in turn, must take responsibility for their educational success by making mature decisions about their use of time, materials and equipment.

3. *Independent study*: Students need time for independent study.
4. *Curriculum*: The curriculum must offer continuous contact with essential materials in the basic areas of human knowledge.
5. *Schools and resource*: School buildings, equipment, supplies, and money must be effectively and efficiently utilized.

Note: These principles are currently reflected in the design of the NASSP's Breaking Ranks Model.

**NATIONAL
CONFERENCE OF
STATE
LEGISLATURES
(NCSL)**

Drawing on recent research about what works for high school students and what works at the state policy level to improve high school performance, the NCSL (2005)^{xvii} showed that successful high schools provide

- rigorous academic coursework;
- relevant learning opportunities; and
- meaningful relationships with instructors who are qualified to help students achieve high standards.

The NCSL described this environment of rigour, relevance and relationships in more detail by outlining the following three characteristics of successful high schools:

1. *Rigorous Academic Coursework*: Rigorous academic coursework involves
 - a. setting high expectations for all students;
 - b. providing support for low-performing students through intervention programs and extended learning opportunities; and
 - c. having each student complete a college- or work-ready curriculum to graduate.
2. *Relevant Learning Opportunities*: Relevant learning opportunities are those that create multiple pathways to graduation, link subject areas to personal experiences, and connect to the world of work. Relevant learning opportunities are created through
 - a. smaller learning communities;
 - b. personalized learning opportunities;
 - c. college-level learning opportunities in high school; and
 - d. an understanding of post-secondary admissions and placement processes.
3. *Meaningful Relationships*: Meaningful relationships are established
 - a. with excellent teachers and principals;
 - b. through continuous interaction between students and adults; and
 - c. by ensuring no high school students are anonymous.

Using lessons learned from several successful small school redesign implementations, the School Redesign Network (2002)^{xviii} at Stanford University (<http://www.srnleads.org/>) points out that high school redesign efforts need to

- promote meaningful, sustained relationships among teachers and students;
- ensure that curriculum and instructional practices help all students achieve at high levels;
- ensure that teachers are experts at their craft;
- use strategies that engage families in schools; and
- ensure that decisions are made democratically.

They identified the following ten features that are characteristic of successful small schools:

1. *Personalization*: Staff and time need to be organized to create longer student-teacher interactions in smaller classroom populations to foster deeper understanding of student skills, needs and aspirations.
2. *Continuous Relationships*: Schools should employ “looping,” a strategy that allows teachers and students to stay together for multiple years. This aids in the continuation of personal relationships and reduces time spent establishing new relationships, norms, and routines. Teachers can also be trained as advisors, so as to offer more personalized guidance than might be possible with a counselor who serves hundreds of students.
3. *High Standards and Performance-based Assessment*: Schools should set high standards that are buttressed with high support. Support can be created through joint curriculum planning, and the establishment of expectations based on school-wide standards and performance assessments.
4. *Authentic Curriculum*: Schools should focus instruction on active learning for real-world contexts that require students to use higher-order thinking, weigh ideas and alternatives, develop critical writing and analyzing skills, and utilize communication skills in front of an audience.
5. *Adaptive Pedagogy*: Schools should use differentiated instruction to foster learning skills and to meet the differing needs and strengths of individual students.
6. *Multicultural and Anti-racist Reaching*: Schools should commit to the promotion of diversity and respect. The goal is to create a safe and caring environment that allows students to feel accepted, understood, appreciated, and connected to the curriculum.
7. *Knowledgeable and Skilled Teachers*: Schools should help support and prepare teachers as planners, assessors, and leaders in the classroom. Teachers must be able to make content accessible, understand the needs of students, and have a deep knowledge of the learning process.
8. *Collaborative Planning and Professional Development*: Schools should commit time and resources to collaborative planning and professional development for teachers. Joint planning allows for the development of a well-sequenced education plan as well as the maintenance of a repertoire

of relevant instructional strategies.

9. *Family and Community Connections*: Schools should develop working and friendly relationships with families and communities. These types of relationships provide additional insights about students, better enabling teachers to personalize instruction.
10. *Democratic Decision-making*: Schools should strive for a collaborative voice in governance, engaging teachers as well as parents, students, and the community in the school's decision-making process.

In 2003, the U.S. Department of Education launched the *Preparing America's Future High School Initiative* (PAF:HSI).^{xix} The vision for the initiative was stated as follows: "every American youth will complete high school with the academic knowledge and skills needed to make a successful transition to postsecondary education or training without needing remediation." The four themes underlying this vision were described as follows:

1. *High expectations for all students*: This theme emphasizes the need to challenge all students to meet high expectations, with a rigorous core curriculum to match those expectations.
2. *Innovative learning structures that fully engage students*: Drawing on a growing body of evidence that supports small personalized schools, this theme highlights the need to provide students with a range of learning options that engage and challenge them to reach their individual potential.
3. *High quality teaching and leadership*: This theme is about effective school and district leaders as well as caring, knowledgeable and effective teachers working together with a sustained focus on student achievement.
4. *Accelerated transitions to work or further education*: This theme focuses on the need for high schools, higher education and the business community to work together to define the necessary knowledge and skills for success after high school as well as to help students understand and acquire the knowledge and skills.

HIGH SCHOOL REDESIGN EFFORTS IN NORTH AMERICA

OVERVIEW

Several high school redesign models have evolved from the foundational principles outlined in the previous section. Many of these models have been implemented in one form or another across North America over the past few decades. Some of the more intensively studied models include the America's Choice Model; the Breaking Ranks Model; the Career Academies Model; the Early College High School Model; the First Things First Model; several Small Schools models; and the Talent Development High School Model.

Each of these models are summarized below. The summaries include the name and a brief description of the model as well as a description of some of the locations where the model was implemented including descriptions of participating student populations where available. Links to implementation support resources are also provided where available. Case studies, describing specific school or district implementations of these models, are referenced within the model summaries and can be found in **Appendix B: Case Studies**.

The foundational principals are also evident in the designs of several high school reform initiatives including the High Schools That Work (HSTW) School Improvement Initiative; the Model Schools Project, and several Rigor, Relevance and Relationships initiatives. See the section entitled **Other High School Redesign Initiatives** for more information about these initiatives.

Organizations have been established to support those schools and districts engaged in these various initiatives. For example, in 1995, the Canadian Coalition of Self-Directed Learning was established when several Canadian high schools began to see the benefits of high school redesign and decided to support each other in that effort. U.S.-based organizations supporting high school redesign include the Coalition of Essential Schools, the School Redesign Network, and the Learning Environments Consortium International to name a few. See the section entitled **High School Redesign Support Activities** for more information about these organizations.

Collectively, these models, initiatives, and support activities illustrate some of the promising practices in high school redesign. A review of these promising practices reveals several common characteristics that can be linked to the foundational principles of high school redesign. For example, most models or initiatives

- establish high expectations for all students with respect to their preparedness for post-secondary education and/or careers;
- integrate, to varying degrees, rigorous standards-based core academic curricula with career/technical curricula;
- provide extensive student supports (e.g., mentors, faculty advisors, peer tutors, academic supports such as catch-up or extension classes, internships, and differentiated instruction);
- are structured around a small learning community;
- support teacher professional growth (e.g., professional development opportunities, common planning times);

A review of the promising practices in high school redesign reveals several common characteristics as follows:

- High expectations are set for all students in terms of post-secondary and career preparedness.
- Academic curricula are integrated to varying degrees with career/technical curricula.
- Extensive supports are provided to both students and teachers.
- Schools are structured around small learning communities.
- Meaningful relationships are promoted and sustained.
- Home-school-community alliances are nurtured.

- actively promote meaningful and sustained student-adult relationships; and
- nurture home-school-community alliances (e.g., parents, businesses, community organizations and/or post-secondary institutions are engaged as learning partners).

Many of these high school redesign models employ similar combinations of strategies, have realized similar benefits, and have experienced similar challenges. To avoid duplication, the strategies, benefits and challenges are detailed in subsequent sections of this literature review (see the sections entitled **Strategies that Support the Foundational Principles of High School Redesign**, **Benefits of High School Redesign**, and **Challenges Associated with High School Redesign** respectively).

AMERICA'S CHOICE MODEL

Developed in 1998 by the National Center on Education and Economy (NCEE), the *America's Choice Model* is a standards-based, comprehensive high school reform model that “seeks to ensure that all students are successful on local and state assessments, are prepared to do college-level work without remediation, and are ready to participate in today’s economy.”^{xx} The *America’s Choice Model* is based on national and international research of best practices related to performance standards and assessments; curriculum and instruction; cross-age tutoring; student citizenship; teacher–student relationships; planning, leadership and organization; professional development; and community and family outreach.^{xxi}

America’s Choice schools have the following characteristics:

- Small learning communities (no more than 400 students) that encourage strong relationships and promote student engagement.
- Lower and upper divisions of students that focus, respectively, on core curricula and incorporate a research project with final oral and written student presentations.
- Curriculum for each grade that is aligned with internationally benchmarked standards in English language arts, mathematics, science, and applied learning.
- Teachers that stay with the same students (lower and upper divisions) for at least 2 years.
- Systems that support the early identification of students who are having trouble.
- Supports that ensure students receive the extra attention they require (e.g., students who are performing below grade level are provided with specialized, intensive math and literacy courses, literacy coaches, “safety net programs” involving daily math instruction, and “Ramp-Up to Advanced Literacy programs” involving year-long, double-period literacy classes).
- Student achievement data that is used to inform instruction.
- Extensive professional development (e.g., academic coaches).^{xxii xxiii}

The *America's Choice Model* is a standards-based, comprehensive school reform model that “seeks to ensure that all students are successful on local and state assessments, are prepared to do college-level work without remediation, and are ready to participate in today’s economy.”
Public Schools of North Carolina (2009)

Several states have implemented the *America’s Choice Model* in some form including but not limited to California, Florida, Mississippi, New York, and North Carolina.^{xxiv} One such implementation, known as “e21 Students First: Education for the 21st Century (e21) High School Redesign Initiative,” involved several schools from the Sacramento City Unified School District. See **Appendix B: Case Studies – Case Study 1: Sacramento City Unified School District** for more information about this implementation.



For more information about the *America's Choice Model*, see the America's Choice: Great Solutions for Student Performance website at <http://www.americaschoice.org>. The resources offered on this website include

- information on school design;
- resources to support literacy and mathematics interventions; and
- professional development resources.

BREAKING RANKS MODEL

The National Association of Secondary School Principals (NASSP) in partnership with the Carnegie Foundation for the Advancement of Teaching made recommendations that led to the development of the *Breaking Ranks Model*. According to the NASSP (2001), this model provides “concrete examples and useful methods to bring about change in schools” as well as “a context for how data can be used to support a school reform process.”^{xv}

The design of the *Breaking Ranks Model* was based on a new paradigm for high schools² that was shaped by responses to the following questions:

1. What performance standards should be held for all students?
2. What kinds of learning opportunities will enable a diverse student population to achieve these standards?
3. What does it take to transform high schools so that all students achieve these standards?

The *Breaking Ranks Model* is a capacity-building approach that employs the systematic and strategic use of data to support student success and continuous school improvement.

Lachat (2001)

The aims of the *Breaking Ranks Model* are to help low-performing schools become more student-centered, responsive to diversity, connected to the realities of today's world, personalized, intellectually rigorous, and driven by a focus on success for all students. It is a capacity-building approach that employs the systematic and strategic use of data to support student success and continuous school improvement.

The core vision of the model is based on the belief that “the high school is, above all else, a learning community, and each school must commit itself to expecting demonstrated academic achievement for every student in accord with standards that can stand up to national scrutiny.” The overall goal of the *Breaking Ranks Model* is “to help high schools improve learning opportunities and achievement results for all students.” The model has four key objectives as follows:

1. All students have access to rigorous, standards-based, real-world instruction.
2. High schools are structured into small, personalized learning communities.
3. Staff have the capacity to systematically and strategically use data for the purposes of equity, accountability, and instructional improvement.
4. Collaborative leadership strategies engage staff, students, parents, and the broader community in supporting student and school success.

The *Breaking Ranks Model* was implemented in eight Rhode Island high schools located in three, high-poverty, urban districts with ethnically-diverse student populations. Most students were achieving at the lowest levels on

² See **Appendix A: Comparison of Traditional and New Paradigms for High Schools**

state standards-based assessments in English language arts and mathematics; student literacy was also identified as a major issue. For more information about the experience of these Rhode Island schools including a framework diagram, see **Appendix B: Case Studies** – Case Study 2: Rhode Island High Schools.



For more information about the *Breaking Ranks Model*, see

- the Breaking Ranks Processes section of the Center for Secondary School Redesign website at http://www.cssr.us/breaking_ranks_processesN.htm;
- Lachat; “Data-Driven High School Reform: The Breaking Ranks Model;” 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf; Retrieved February 2009;
- NASSP; “Breaking Ranks II: Strategies for Leading High School Reform;” 2004;
- the *Using Data as a Lever for Change* section of this literature review; and
- the school improvement section of the National Association of Secondary School Principals website at http://www.principals.org/s_nassp/sec_inside.asp?CID=1162&DID=54968.

CAREER ACADEMIES MODEL

The *Career Academies Model* has been widely adopted in the U.S. for over 35 years. Its aim is to blend academic rigour with engaging and relevant experiences in the workplace using curriculum that fosters college-readiness and workplace knowledge.^{xxvi}

The key features of the *Career Academies Model* are as follows:

- A “school-within-a-school” structure, typically enrolling 30-60 students per grade. Students remain with the same teachers over time.
- An integrated academic and career-oriented curriculum that uses career strands as an organizing framework for teaching and learning, and as a means to engage students’ interests and energies. Career strands are organized around themes such as health, business and finance, hospitality, and computer technology.
- School-employer partnerships that result in the provision of career awareness activities and work internship opportunities.

The *Career Academies Model* employs a small learning community structure and integrates academic and career-oriented curriculum with workplace experiences.

Thomas (2009)

In 1996, the MDRC (1996)^{xxvii} identified several shared characteristics of Career Academies following an extensive evaluation of ten sites. These characteristics, as excerpted from MDRC’s report, are provided below:

Table 1: Shared Characteristics of Career Academies

School-Within-a-School Organization	Combined Academic/Occupational Curriculum	Employer Partnerships
<ul style="list-style-type: none"> • Clusters of students who share several classes each day and have some of the same teachers from year to year. • Clusters of teachers from academic and vocational disciplines who are scheduled to have mostly Academy students in their classes, who make a commitment to meeting with each other on a regular basis, and who share in decision-making related to administrative policies, curriculum content, and instruction. • A teacher or director who assumes lead responsibility for administrative tasks and usually serves as a liaison to the school principal and other building administrators, school district officials, and employer partners. 	<ul style="list-style-type: none"> • Academic courses that meet high school graduation and college entrance requirements, and occupation-related courses that focus on the career theme. • Shared planning time for Academy teachers to coordinate course content and instructional strategies. • Employability skills that are taught in the vocational courses and in one or more academic courses. • Work-based learning opportunities for students that link classroom activities to work internships with local employer partners. • Career and college counseling to inform students about options and planning for further education and employment. 	<ul style="list-style-type: none"> • An advisory group that includes representatives from the local employer community, the Career Academy, and the school district. • A coordinator who serves as the liaison between employers, the Career Academy, and the school district. • An internship program that combines school- and work-based supervision and learning. • Financial or in-kind support from employers.

Several Career Academies were also implemented and studied from 1993 to 2006 in nine locations in the U.S. including San Jose, Santa Ana, and Watsonville, California; Washington, DC; Miami Beach, Florida; Baltimore, Maryland; Pittsburgh, Pennsylvania; and Socorro, Texas. Students who attended these schools represented a 30% African-American and 56% Hispanic mix, with 24% receiving welfare or food stamps, 39% attaining a 24th percentile or lower performance on state assessments in math, and 35% attaining a 24th percentile or lower performance on state assessments in reading.

It is estimated that as of 2008, 2,500 U.S. schools have adopted this model. Information about a state-wide implementation of the *Career Academies Model* can be found on the Florida Department of Education website.^{xxviii} Smith (2008) described how one school in Oakland, California successfully implemented the *Career Academies Model* in a report entitled, “Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance.”^{xxix} For more information about this latter implementation, see **Appendix B: Case Studies** – Case Study 3: Oakland, California.



For more information about *Career Academies* (and small learning communities), see the Career Academies Support Network (CASN) at <http://casn.berkeley.edu>. The resources offered by the CASN include

- publications focused on theory, research, standards of practice, and implementation of Career Academies;
- planning, school re-structuring, and self-assessment guides;
- course sequences and web-based teaching and learning resources; and

- handbooks, forms, and toolkits for supporting internships, mentors, business partners, steering committees, and employers.

For information about some of the long term impacts of Career Academies, see the Benefits section of this literature review and the report entitled, *Career Academies: Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood* (June 2008) at <http://www.mdrc.org/publications/482/overview.html>.

EARLY COLLEGE HIGH SCHOOL MODEL

The *Early College High School Model* allows students to earn a high school diploma and up to two years of college credit toward a bachelor’s degree. Early college high schools are small schools that blend high school and college in a rigorous yet supportive program, compressing the time it takes to complete a high school diploma and the first two years of college.^{xxx}

As of 2007-08, 100,000 students in 250 schools across 24 states are attending early college high schools.^{xxxi} Two thirds of these students are African-American or Latino. Eight of these schools serve First Nations students while another twelve schools serve students who have previously dropped out or were otherwise unsuccessful in traditional high schools. Nearly 60% of the participating students are eligible for free or reduced lunch.

The design features that are common to early college high schools include the following:

- Students have the opportunity to earn an Associate’s degree or up to two years of transferable college credit while in high school.
- Mastery and competence are rewarded with enrollment in college-level courses and the opportunity to earn two years of college credit for free.
- The years to a postsecondary degree are compressed.
- The middle grades are included in the school, or there is outreach to middle-grade students in order to promote academic preparation and awareness of the early college high school option.
- Schools provide academic and social supports that help students succeed in a challenging course of study.
- Learning takes place in small, personalized learning environments that demand rigorous, high-quality work and provide extensive support.
- The physical transition between high school and college is eliminated and with it the need to apply for college and for financial aid during the last year of high school.^{xxxii}

Early college high schools are small schools (less than 100 students per grade) that blend high school and college in a rigorous yet supportive program, compressing the time it takes to complete a high school diploma and the first two years of college.

The Early College High School Initiative;
earlycolleges.org

Early college high schools also share the attributes of high-performing small schools, such as:

- A focus on research-based goals and an intellectual mission;
- Small, personalized learning environments, with no more than 100 students per grade;
- Respect and responsibility among students, among faculty, and between students and faculty;
- Time for staff collaboration and for including parents and the community in an education partnership;
- Technology as a tool for designing and delivering engaging, imaginative curricula; and

- Rigorous academic standards for both high school work and the first two years of college-level studies.
xxxiii

The *Early College High School* model differs from dual enrollment, Advanced Placement, and other pre-college programs in terms of the reach and coherence of the blended academic program and its focus on underrepresented students.

One successful implementation of the *Early College High School* model is evidenced in Dayton, Ohio. Most of the approximately 400 students who attend the Dayton Early College Academy live in poverty, yet “administrators predict that, by 2007, the school’s first graduating class will have met both the state of Ohio and the University of Dayton’s performance standards and will be well-positioned to finish their bachelor’s degree requirements. Many of these graduates will be the first generation in their family to attend college.” For more information about this implementation, see **Appendix B: Case Studies** – Case Study 4: Dayton, Ohio.

Early college high schools are also being implemented in more than 100 schools in North Carolina as part of the North Carolina New Schools Project.
xxxiv



For more information about over 200 schools that have implemented the *Early College High School* model, see Early College High School Initiative at <http://www.earlycolleges.org>. The publications available on this site include

- descriptions of the core principles of the model;
- statistics about the growth and impacts of the initiative;
- descriptions of several implementations of the model;
- research and evaluation reports, planning and diagnostic tools, rubrics, and community involvement approaches;
- tips on how to design and finance early college high schools; and
- information about policies that support the model.

FIRST THINGS FIRST MODEL

First Things First is a research-based high school reform model developed in 2000 by the Institute for Research and Reform in Education (IRRE).
xxxv It is also part of the U.S. Department of Education’s Comprehensive School Reform Demonstration Program.
xxxvi

The key features of this program include

- theme-based small learning communities that promote a personalized learning atmosphere and usually involve up to 350 students;
- cohort scheduling where students stay with their key teachers for several years;
- a family advocate system in which students meet regularly with a paired faculty advisor who monitors that student’s progress and works with the student’s parents to promote success; and
- several instructional improvement efforts aimed at helping teachers ensure that classroom instruction is “more rigorous and involving” as well as aligned with state and local standards.

The *First Things First Model* incorporates theme-based small learning communities, personalized learning environments, a family advocate system, faculty advisors, and several instructional improvements.

*U.S. Department of Education,
Comprehensive School Reform
Demonstration Program*

First Things First Programs were implemented and studied from 1999 to 2004 in several high schools in Kansas City, Kansas; Houston, Texas; Greenville and Shaw, Mississippi; and in the Riverview Gardens School District, in Missouri. Students attending these schools represented a 46% African-American and 39% Hispanic mix, with 65% of students qualifying for free or reduced-price lunch programs. 44% of students were failing or in the bottom 2 proficiency categories in math, and 37% were failing or in the bottom two proficiency categories in reading.



For more information about the *First Things First Model*, see the First Things First section of the Institute for Research and Reform in Education web site at <http://www.irre.org/ftf>. The resources available on this site include

- a framework for and descriptions of the steps involved in implementing the model;
- approaches to improving teaching and learning as well as student-teacher relationships;
- discussions of how “theory of change” approaches can be used to plan school reforms;
- family advocate system guides;
- research assessment manual; and
- third-party evaluation reports.

SMALL SCHOOLS MODELS

School-within-a-School, *Small Learning Communities* or *Stand-Alone Small Schools* are models based on creating smaller groups of learners than one might expect in a traditional high school building. According to Cotton (2001),^{xxxvii} small schools have been defined operationally by Meier (1998) as a high school of a “reasonable size” (usually between 200 to 400 students); a school small enough

- for all faculty members to “sit around a table” to resolve issues;
- for everyone to be known well by everyone else;
- for schools and families to collaborate face-to-face over time;
- so that children belong to the same community as the adults in their lives;
- so that students feel safe and are safe;
- so that “phony” data can easily be detected by any interested party; and
- so that stakeholders can never say they weren’t consulted.

Cotton (2001) also noted that small size alone does not improve the quality of schooling. She stressed the importance of effectively using organizational arrangements and instructional methods to attain a more positive school climate and higher student achievement. She synthesized the experiences of several practitioners and information from researchers who indicated that to become true learning communities, small schools must have

- *self-determination*: autonomy, separateness, distinctiveness, self-selection of teachers and students, and flexible scheduling;
- *identity*: vision and mission, thematic focus, focus on student learning, detailed planning;
- *personalization*: knowing students well, heterogeneity or non-tracking, looping, parent and community involvement;
- *support for teaching*: leadership and decision making, professional development and collaboration, integrated curriculum and teaching teams, a large repertoire of instructional strategies; and

- *functional accountability*: multiple forms of assessment, support from districts, boards and legislatures, networking with other small schools, and thorough implementation.

As outlined in the *Foundational Principles* section of this literature review, the School Redesign Network (2009)^{xxxviii} has identified ten features that characterize successful small schools including personalization, continuous relationships, high standards and performance-based assessment, authentic curriculum, adaptive pedagogy, multicultural and anti-racist teaching, knowledgeable and skilled teachers, collaborative planning and professional development, family and community connections, and democratic decision-making.

The Office of School Redesign for the New York City Department of Education has developed a framework for small learning communities in the city.^{xxxix} The four core elements of the framework include the following:

1. Facilitative and Distributive Leadership
2. Dedicated Teaching, Learning and Support Teams
3. A Data-driven System of Accountability
4. Rigorous Curriculum and Instruction Centered on a Unifying Focus and Designed for All Students

The ten features that characterize small schools include: personalization, continuous relationships, high standards and performance-based assessment, authentic curriculum, adaptive pedagogy, multicultural and anti-racist teaching, knowledgeable and skilled teachers, collaborative planning and professional development, family and community connections, and democratic decision-makings.

Coalition of Essential Schools

For information about specific implementations of the small school model in the U.S., see **Appendix B: Case Studies** – Case Study 5: Bronx, New York; Case Study 6: Central Park East Schools, New York; and Case Study 7: Austin Texas.



For more information about *Small Schools Models* and their implementation, see the following resources:

- See the Small Schools Project website at <http://www.smallschoolsproject.org>. This website, part of the Coalition of Essential Schools Northwest Center,
 - offers information about the core characteristics and benefits of small schools;
 - provides resources for those considering a small school start-up;
 - provides resources to help teachers create rigorous personalized learning environments;
 - describes several implementation of small schools in the U.S.;
 - provides several tools for getting started, looking at student work, building family and community connections, facilitating meetings and groups, and using protocols; and
 - provides links to research and other related publications.
- See the Coalition of Essential Schools website for the following:
 - Over sixty publications to support those interested in implementing some form of the small school model (<http://www.essentialschools.org/cs/resources/query/q/860?x-r=runnew>).
 - Research about the Coalition of Essential Schools, Small School Project (http://www.essentialschools.org/pub/ces_docs/ssp/research/research.html).
 - Links to affiliate schools and districts of the Coalition of Essential Schools (<http://www.essentialschools.org/cs/schools/query/q/562?x-r=runnew>).

- See the article by Oxley and Kassissieh, Northwest Regional Educational Laboratory, entitled, “From Comprehensive High Schools to Small Learning Communities: Accomplishments and Challenges” (2008) at <http://tottonham.library.ualberta.ca/posttweb/servlet/DownloadDocument?8791423.pdf>.
- From The Principals’ Partnership, see the Research Brief entitled *Small Learning Communities* at <http://www.principalspartnership.com/smalllearning.pdf/>. This research brief offers guiding questions for those considering the small school approach, identifies challenges and strengths associated with small learning communities, and describes various structures for small learning communities. Links to several online resources including links to four schools who are implementing a small school model are provided.

TALENT DEVELOPMENT HIGH SCHOOL MODEL

The *Talent Development High School (TDHS) Model* is a comprehensive high school reform model developed by the Johns Hopkins University Center for Research on the Education of Students Placed At Risk (CRESPAR). The *TDHS Model* includes a

- Ninth Grade Success Academy that features daily 90-minute, year-long instructional blocks for mathematics and English classes;
- a Freshman Seminar that teaches study and computer skills as well as helps students understand the continuity from high school to college and careers; and
- a Career Academy, beginning in the sophomore year (grade 10), where students focus on a specific career choice.

Each Academy ensures academic rigor by requiring students to take college preparatory courses.^{xi}

The *Talent Development High School Model* is a comprehensive high school reform model that requires students to take college preparatory courses and incorporates

- a ninth-grade academy with year-long instructional blocks for math and English;
- a freshman seminar to aid the development of study and computer skills as well as career awareness;
- a career academy.

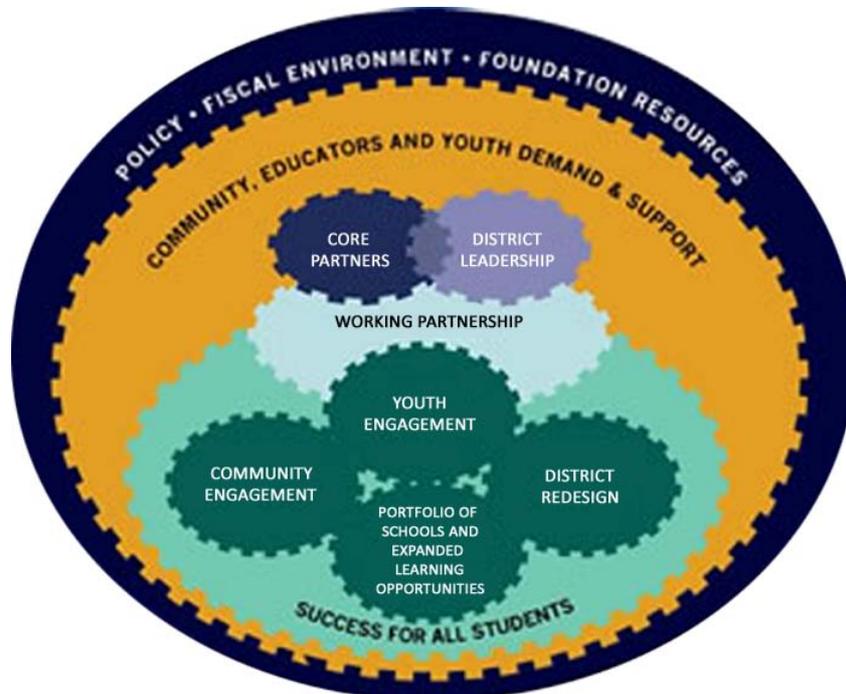
Baldwin (2000)

The five critical components the Carnegie Corporation’s implementation of this model, known as the *Schools for a New Society Initiative*, are identified as follows:

1. *Encouraged and supported partnerships*: partnerships among businesses, universities, parent and student groups, and community organizations committed to school reinvention are encouraged and supported.
2. *Accountability for high academic standards*: schools are held accountable for helping every student meet high standards to better prepare them for participation in higher education, in the workforce, and in 21st century society.
3. *Higher graduation requirements*: all students are expected to take and succeed in rigorous courses that help them achieve their goals for college, work, and life.
4. *Small learning communities*: large high schools are expected to personalize student learning experiences by transforming themselves into small learning communities.
5. *Intensive professional development*: teacher practice is improved through intensive professional development and opportunities for collaborative planning.

The Carnegie Foundation developed the “cogs” diagram^{xlii} (seen Diagram 1) to illustrate the key elements of mobilizing the work towards this model, including redesigning school districts, committing to youth engagement, mobilizing community engagement, and working with core partners.

Diagram 1: Schools for a New Society Initiative - Cogs



Several implementation of the *Talent Development High School Model* have been undertaken. Beginning in 2000, the Carnegie Corporation implemented the *Talent Development High School Model* as a district-wide reform in Boston, Chattanooga, Providence, Sacramento, San Diego, Worcester, and Houston. Public schools in North Carolina also adopted the model. Five high schools in Philadelphia, Pennsylvania implemented the model from 1999-2004. Students in these implementations represented an African-American (75%) and Hispanic (23%) mix, with many qualifying for free or reduced-price lunch programs (86%). 86% of students were below the basic levels of performance in math, and 76% were below the basic levels of performance in reading.



For information about the *Schools for a New Society Initiative*, see <http://www.carnegie.org/sns/index.html>.

For information about implementations of the *Talent Development High School Model* in North Carolina, see <http://www.ncpublicschools.org/turnaround/models/talent/>.

For information about implementations of the *Talent Development High School Model* in Pennsylvania, see the documents entitled *The Talent Development High School Model: Context, Components, and Initial Impacts on Ninth-Grade Students' Engagement and Performance* at <http://www.mdrc.org/publications/388/overview.html> and *Making Progress Towards Graduation: Evidence from the Talent Development High School Model* at <http://www.mdrc.org/publications/408/overview.html>. See an overview of the model at http://www.mdrc.org/project_29_17.html.

OTHER HIGH SCHOOL REDESIGN INITIATIVES

The foundational principals are evident in the designs of several high school reform initiatives including the *High Schools That Work (HSTW) School Improvement Initiative*; the *Model Schools Project*, several *Rigor, Relevance and Relationships* initiatives, and the *Schools for a New Society Initiative*.

High Schools that Work (HSTW) School Improvement Initiative

The *High Schools that Work (HSTW) School Improvement Initiative* was launched in 1987 by the Southern Regional Education Board (SREB), U.S. It is a large-scale effort that involves state, district and school leaders partnering with teachers, students, parents, and the community to improve student achievement. Similar to other models, this initiative involves

- providing students with opportunities to learn a rigorous academic core with either a career/technical or academic concentration;
- creating supportive adult-student relationships that involve extra academic help and transition supports;
- teacher advisors working with students and parents to set post-secondary and/or career goals as well as helping to choose appropriate courses/programs; and
- school leaders supporting what and how teachers teach by providing common planning time and professional development that is aligned with school improvement plans.

The HSTW framework³ consists of the following goals, and key practices and conditions:

- *Goals:*
 - Increase percentages of students who meet national reading, mathematics and science performance standards and proficiency levels.
 - Increase percentages of high school students who graduate within four years of entering grade 9 and who complete college-preparatory courses in mathematics, English language arts, science and social studies with either an academic or career/technical concentration or a blend of both.
 - Advance state and local policies that sustain school improvement efforts.
 - Have all students leave high school having met post-secondary standards without the need for remediation.
 - Increase the percentages of middle grades students who are prepared to succeed in college-preparatory courses upon entering high school.

The *HSTW School Improvement Initiative* is a large-scale effort where educational leaders, teachers, students, parents and the community partner to provide students with

- opportunities to learn rigorous core curriculum with either an academic or career focus;
- necessary academic and transition supports;
- meaningful student-adult relationships; and
- teacher advisors who help them set goals and select courses

In addition, teachers are provided with common planning time and professional development opportunities aligned with HSTW goals.

Southern Regional Education Board (2005)

³ Note: A modified HSTW framework has been developed for schools with high percentages of students who are performing below acceptable standards.

- *Key Practices:*
 - High expectations and frequent student feedback.
 - Upgraded academic programs of study that align with state and national standards and proficiency levels.
 - Intellectually challenging career/technical studies in high-demand fields that emphasize academic rigor as well as employability skills.
 - Work-based learning opportunities.
 - Multi-disciplinary teacher teams work together to integrate reading, writing and speaking in all curricular areas, as well as mathematics in science and career/technical studies.
 - Research-based instructional strategies and technology are used to engage students.
 - Guidance, advisement, and mentorship systems support students and parents in setting goals, choosing courses, reviewing progress, managing successful transitions, and suggesting interventions as necessary.
 - Structured systems that provide extra help when needed.
 - A culture of continuous improvement informed by student assessment and program evaluation data.
- *Key Conditions:*
 - A clear and actionable mission.
 - Strong district and school leadership.
 - District and school plans that create an structure and process for continuous improvement.
 - Qualified teachers.
 - A commitment by school leaders and teachers to the HSTW goals.
 - Flexible scheduling.
 - Support for professional development including instructional materials and planning time.^{xiii}

SREB claims that more than 1,200 schools in 31 states are currently using the HSTW framework goals and key practices to raise student achievement and prepare students for careers and further education. For example, Ohio has implemented the *HSTW School Improvement Framework* in 35 high schools and 20 middle schools.^{xliii} For more information about this initiative see **Appendix B: Case Studies** – Case Study 8: High Schools That Work, Southwest Ohio.



For more information about the *High Schools That Work*, see the Southern Regional Education Board (SREB) High Schools That Work (HSTW) web site at <http://www.sreb.org/programs/hstw/hstwindex.asp>. The website provides

- opportunities to register for conferences and workshops (see Professional Development);
- links to related newsletters, case studies, research briefs, brochures, development guides, progress reports, (see Publications and Materials);
- descriptions of exemplary school and classroom practices (see Outstanding Practices); and
- provides information about the collection of student academic achievement (see Assessment and Using Data).

For information about another implementation of the HSTW model in Kentucky, see

Gibbs, H.; *Techniques*; “Reinventing America’s High Schools: Examining A High School That Works;” May 2006; http://www.acteonline.org/uploadedFiles/Publications_and_E-Media/files/files-techniques-2006/Examining-a-High-School-That-Works.pdf; Retrieved February 2009

Model Schools Project (MSP)

The *Model Schools Project* (MSP), sponsored by the National Association of Secondary School Principals (NASSP), spanned the years from 1969 to 1974. According to Keefe and Amenta (2005), this project “represented the culmination of that era’s seminal thinking about school renewal. It proposed a comprehensive model of school restructuring that was adopted by thousands of junior and senior high schools throughout the U.S. and Canada.”^{xliiv}

The MSP was founded on five principles of operational change for high schools. These principles are still in use by the NASSP today.

1. *Principals as instructional leaders*: School principals devote most of their time to the improvement of instruction.
2. *Teachers act as learning facilitators*: Instructional staff members are organized, using instructional aides, to give teachers more freedom for instructional planning, planning that accommodates individual differences and maximizes personal talents.
3. *Students as independent learners*: Students need more time for independent study.
4. *Curriculum design*: Curriculum must provide continuous contact with essential materials in the basic areas of human knowledge.
5. *School management*: Buildings, equipment, supplies and money must be better utilized.

Although many high schools and middle schools embraced the MSP, most were unable to sustain its vision. This was due, in large part, to the fact that schools lacked two or three of the required institutional commitments (e.g., commitment from the school board, the superintendent, and the community; strong principal leadership; seed money; three to five years for implementation). It was also recognized that a single model of schooling was unsuitable for all schools and that a much longer time was needed for “real institutionalization.” In addition, although considerable formative evaluation was available, compelling summative evaluation of outcomes was not. The education community and public were not convinced.

The lasting influences of the MSP on contemporary education lie in its impacts on

- the changing roles of principals, teachers and students;
- the commitment by school boards, school personnel, and the community to shared management of schools;
- curriculum design in terms of recognizing the value of basic (essential), desirable (elective), and enriched (career-oriented) curriculum;
- the recognition of the importance of flexible school schedules, personalization, school cultures and climates, and assessment and evaluation.

The Learning Environments Consortium International sustained the impetus of the MSP when that project formally ended in 1975. The LEC International continues to serve those committed to school renewal. The Coalition of Essential Schools is another group committed to carrying on the kind of school change pioneered by the MSP.

Bishop Carroll High School in Alberta and Thomas Haney Secondary Centre in British Columbia are examples of schools whose personalized learning designs were influenced by the Model Schools Project. For more information about these schools see **Appendix B: Case Studies** – Case Study 10: Bishop Carroll High School, Alberta and Thomas Haney Secondary Centre, BC.



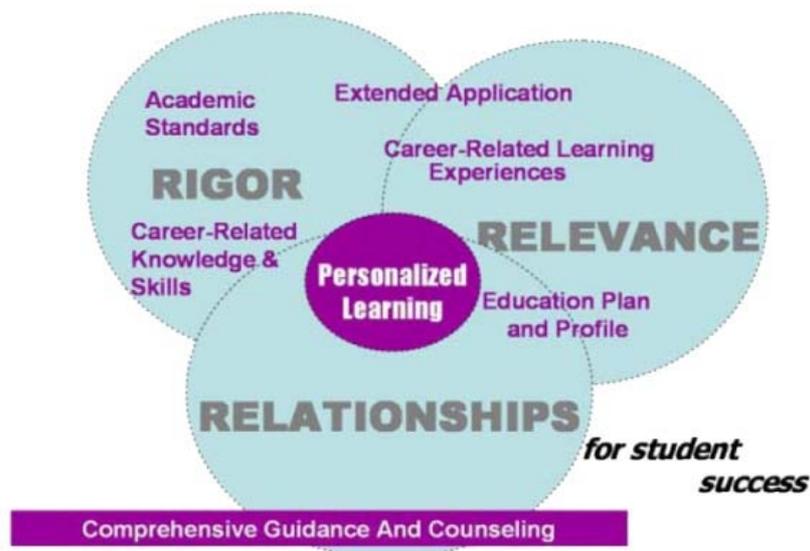
For more information about the *Model Schools Project*, see the article by Keefe and Amenta, *Phi Delta Kappan*, entitled “Whatever Happened to the Model Schools Project” (March 2005) at http://findarticles.com/p/articles/mi_6952/is_/ai_n28260068; Retrieved February 2009.

For more information about current model schools projects see the Model Secondary Schools Project website at <http://www.modelschoolsproject.org/>.

Rigor, Relevance, and Relationships Initiatives

Several initiatives are underway that are based on the National Conference of State Legislatures’ (NCSL) foundational principles of rigor, relevance and relationships. Among these are high school redesign implementations in Oregon, Louisiana and Florida. Oregon’s Department of Education has illustrated the rigor, relevance and relationship model with the following Venn diagram (see Diagram 2).

Diagram 2: Rigor, Relevance and Relationships Model^{xiv}



For more information about the implementations in Louisiana and Florida, see **Appendix B: Case Studies** – Case Study 9: Louisiana and Florida.

HIGH SCHOOL REDESIGN SUPPORT ACTIVITIES

Canadian Coalition for Self-Directed Learning

The *Canadian Coalition of Self-Directed Learning* is an organization of secondary schools in Canada that are dedicated to the personalization of learning. CCSDL schools believe that “learning flourishes in an environment where the learner is able to control and direct their learning” and that individual student characteristics, talents, interests and academic backgrounds need to be taken into account. Although the schools in the coalition are all

unique, they share some common fundamental practices that describe a self-directed school (see pp. 10-11 of this Literature Review). Many of these fundamental practices arose out of the Model Schools Project. Member schools include

- Bishop Carroll High School, Calgary, Alberta (<http://www.bchs.calgary.ab.ca/>);
- Frances Kelsey Secondary School, Mill Bay, British Columbia (<http://www.fkss.ca/>);
- Mary Ward Centre for Self-Directed Learning, Toronto, Ontario (<http://maryward.ca/>);
- St. Joseph Catholic High School, Edmonton, Alberta (<http://stjoseph.ecsd.net/>);
- Thomas Haney Secondary School, Maple Ridge, British Columbia (<http://www.thss.ca/>); and
- Westmount Secondary School, Hamilton, Ontario (<http://www.hwdsb.on.ca/westmount/Westmount/Welcome.html>).

U.S.-based High School Redesign Support Organizations

Several organizations support high school redesign efforts in the U.S. including but not limited to the following:

1. America's Choice: <http://www.americaschoice.org>
2. Career Academy Support Network: <http://casn.berkeley.edu>
3. Center for Secondary School Redesign: <http://www.csr.us/>
4. Coalition for Essential Schools: <http://www.essentialschools.org>
5. Early College High School Initiative; <http://www.earlycolleges.org>
6. Institute for Research and Reform in Education – First Things First: <http://www.irre.org/fft>
7. Knowledge Works Foundation – Ohio High School Transformation Initiative: http://www.kwfdn.org/high_schools/ohsti
8. Learning Environments Consortium International: <http://www.lecforum.org>
9. Manpower Demonstration Research Corporation: <http://www.mdrc.org/>
10. National Academy Foundation: <http://www.naf.org>
11. Northwest Research Educational Laboratory – The Core and More Framework: <http://www.nwrel.org/csdi/rss/coremore/framework.php>
12. School Redesign Network: <http://www.srnleads.org/>
13. Southern Regional Education Board (SREB) – High Schools That Work (HSTW): <http://www.sreb.org/programs/hstw/hstwindex.asp>
14. The Model Schools Project: <http://www.modelschoolsproject.org>
15. U.S. Department of Education – Small Learning Communities Program: <http://slcp.ed.gov/>

STRATEGIES THAT SUPPORT THE FOUNDATIONAL PRINCIPLES OF HIGH SCHOOL REDESIGN

OVERVIEW

According to the literature, many effective strategies exist to make high schools more supportive, more rigorous, and more oriented toward students' futures. The Coalition of Essential Schools highlighted several of these effective classroom practices and aligned them to their foundational principles for high school redesign.^{xlvi} Their list of effective classroom practices for high school redesign included

- asking essential questions;
- developing habits of mind and heart; and
- using interdisciplinary curriculum, performance-based assessments, culturally responsive pedagogies, differentiated instruction, and student-centered teaching and learning strategies.

See **Appendix C: CES School Benchmarks – Classroom Practices** for more information about these strategies.

Nair (2003) identified thirty strategies that enable schools to become places “where diverse talents are recognized and nurtured, where every student is made to feel special, has an opportunity to realize his or her full potential and succeed on his or her own terms.” These strategies include multi-age classes, cooperative learning, student advisories, laptops and wireless technology, portfolio-based assessment, and student-led performances to name only a few. See **Appendix F: Thirty Strategies for Education Reform** for more information about these strategies.

According to the MRDC (2008)^{xlvii}, school district leaders stressed that regardless of which combination of strategies are employed, it is critical for school districts “to identify and make use of the key “levers” most likely to affect systemic change.” The levers most often cited include:

- *Standards*: Establish higher, uniform standards for curriculum, service and work-based learning, college preparation, and graduation requirements.
- *High School Options*: Increase the number and types of secondary schools, create new stand-alone small schools or restructure comprehensive high schools into schools-within-a-school, and provide more alternative pathways for students who are not thriving within a regular high school setting.
- *Workforce Planning and Professional Development*: Improve teacher quality through targeted recruitment and incentive programs as well as invest in school-based professional development activities for principals and teachers that are focused on instructional improvement.
- *Data-informed Decision Making*: Improve decision making by developing assessment and tracking tools for teachers, increasing data management and analysis capacity at the school and district levels, and implementing data systems that measure growth and progress as well as outcomes.

Regardless of which combination of strategies are employed, school district leaders stressed that

- the “key” strategies most likely to affect systemic change must be identified and used;
- structural change and instructional improvement were seen to be the twin pillars of effective high school redesign; and
- sustained transformation requires concurrent implementation of multiple strategies.

MRDC (2008)

- *Community Engagement*: Forge relationships with youth development and community organizations to support the emotional, physical, and social development of students as well as create partnerships with colleges, universities, and businesses to help students understand the multiple pathways that lead from high school to post-secondary education and/or the world of work.

The MRDC also indicated that school district leaders recognized that their redesign efforts were most effective when they were coordinated and comprehensive. The MRDC identified “structural change *and* instructional improvement as the twin pillars of effective models” and stated that “sustained transformation will take place only when multiple levers are activated together.”

As mentioned previously, several strategies have been shown to support successful high school redesign efforts (e.g., catch-up courses, cohort scheduling, safety-net programs, faculty advisory systems, heterogeneous grouping, inter-disciplinary and thematic instruction, professional learning communities, project-based learning, universal design for learning, and so on). Although it is beyond the scope of this literature review to elaborate on all of these strategies, some of the strategies that support, in particular, the foundational principles of high school redesign are described in more detail in this section of the literature review. The strategies have been clustered as follows:

- *Assessment for Learning Strategies*
- *Authentic Curriculum and Pedagogy* (Addressing 21st Century Skills and Providing Career Awareness and Work Internships)
- *Personalization* (Differentiating Instruction, Flexible Scheduling and Heterogeneous Grouping, and Using Technology to Personalize Learning)
- *Using Data as a Lever for Change*

Where available, resources that are specific to the Alberta context have been identified to support the implementation of these strategies.

ASSESSMENT FOR LEARNING STRATEGIES

Personalization, a foundational principle of high school redesign, is accomplished in part through differentiated instructional practices that are informed by ongoing and multiple forms of assessment. Researchers agree that “assessment for learning” strategies including performance-based assessments contribute to successful high school redesigns (Clark, 2008; Black and William, 1998; Darling-Hammond, 2002).

The Alberta Assessment Consortium (AAC)^{xlviii} defines *assessment for learning* as “assessment experiences that result in an ongoing exchange of information between students and teachers about student progress toward clearly specified learner outcomes (also called diagnostic and formative assessment).”

Clark (2008)^{xlix} describes assessment for learning (AfL) as a means to inform, support and enhance the learning process; it focuses on the quality of learning, provides advice and feedback for improvement and emphasizes cooperative learning. He stresses that AfL is founded upon five fundamental principles that revolve around positive classroom interactions. These principles involve students receiving the following:

- A clear understanding what they are trying to learn, and what is expected of them.
- Feedback about the quality of their work.
- Advice about how to make improvements.

Researchers agree that “assessment for learning” strategies including performance-based assessments contribute to successful high school redesigns (Clark, 2008; Black and William, 1998; Darling-Hammond, 2002).

- Help in deciding what needs to be done next.
- Awareness of who can give them help.

Black and William (1998)ⁱ provide firm research evidence that AfL is an essential component for learning and that its use can raise student achievement. Clark (2008) provides additional theoretical arguments for wide-scale implementation of AfL and offers several examples of assessment for learning in practice.

Performance-based assessment is one method of AfL. According to the AAC, it is a “measure of assessment based on authentic tasks such as activities, exercises, or problems that require students to show what they can do.” Darling-Hammond (2002)ⁱⁱ identified performance-based assessment systems as one of the ten features of successful small high schools. She stated that to be effective, these systems should be based on common school-wide standards, integrated into daily classroom practice, and used to help students understand what is expected of them. These systems typically involve the use of

- portfolios that demonstrate in-depth study by student (e.g., research papers, scientific experiments, mathematical models, literary critiques and analyses, arts performances);
- rubrics that embody a set of standards against which students’ products and performance are judged;
- oral presentations to groups of teachers, peers, or others in the school or community that can be used to help assess in-depth understanding and student readiness for graduation; and
- opportunities for students to revise and improve their work.



The AAC offers professional development opportunities in Alberta (see <http://www.aac.ab.ca/develop.html>) and provides its members with links to several resources and publications (see <http://www.aac.ab.ca/resources.html>) related to assessment for learning strategies.

For more information about assessment for learning strategies, see

- Black, P. et al; *Assessment for Learning: Putting it into practice*; Open University Press; 2003;
- Davies, A.; *Making Classroom Assessment Work*; Classroom Connections International, Inc; 2000;
- AAC’s publications entitled *Refocus: Looking at Assessment For Learning - Second Edition (2005)* and *A Framework for Student Assessment Second Edition*; and
- Dimartino et al; *Principal’s Research Review: Supporting the Principal’s Data Driven Decisions*; Vol. 2, Issue 4; “Authentic Assessment;” July 2007; http://www.csr.us/Principals%20Research%20Rev_v2-0707.pdf.

The Western and Northern Canadian Protocol for Collaboration in Education released *Rethinking Classroom Assessment with Purpose in Mind* (2006) to support teachers in assessing their students effectively, efficiently and fairly. This document

- describes the teacher’s role in assessment for learning (e.g., aligning instruction with targeted outcomes, identifying student learning needs, selecting and adapting materials and resources, creating differentiated teaching strategies and learning opportunities for students, and providing immediate feedback and direction to students);
- describes what questions should be asked to inform the planning of assessment for learning (e.g., Why am I assessing? What am I assessing? What assessment method should I use? How can I ensure quality in the assessment

- process?); and
- provides several examples of assessment for learning in action.

AUTHENTIC CURRICULUM & PEDAGOGY

Darling-Hammond (2002) describes authentic curriculum and pedagogy as essential characteristics of successful small schools. She defines authentic curriculum as “a rich and interesting curriculum full of powerful ideas and experiences aimed at inspiring its students with the desire to know more, a curriculum that sustains students’ natural drive to make sense of the world and trusts in their capacity to have an impact upon it.” Such a curriculum would challenge students to understand concepts deeply, find and integrate information, assemble evidence, weigh ideas, and develop skills of analysis and expression. She defined authentic pedagogy as “instruction [that is] focused on active learning in real world contexts [and calls] for higher-order thinking, consideration of alternatives, extended writing, and an audience for student work.”ⁱⁱⁱ

Authentic curriculum and pedagogy are essential characteristics of successful small schools.

Darling-Hammond (2002)

Strategies and examples related to authentic curriculum and pedagogy were described by Darling-Hammond (2002) as follows:

1. Demand intellectually challenging work (e.g., students should read and write extensively in all classes, apply their learning to novel problems, produce significant analytical work, present and orally defend project results).
2. Link curriculum to students’ lives and interests (e.g., relate historical issues to the present day, compare classic and contemporary authors and artists).
3. Engage students in project-based learning where students must work independently or collaboratively to solve complex problems that culminate in real-world products.
4. Forgo superficial content coverage and strive for in-depth understanding. In other words, judiciously select topics to provide a framework for related key ideas in the academic disciplines they are studying.
5. Build a sense of responsibility among students through community service and internships.
6. Develop a commitment to the learning process by helping students connect with and/or enroll in local post-secondary institutions.

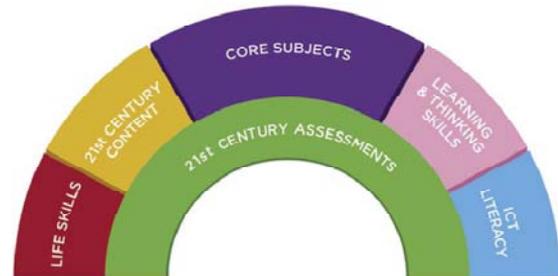
The concept of authentic curriculum is elaborated below in terms how to effectively address important 21st century skills and provide career awareness opportunities and work internships. The concept of authentic pedagogy is discussed below, in terms of how to effectively differentiate instruction, reorganize time and heterogeneously group students, as well as how to use technology to personalize learning.

Addressing 21st Century Skills

The use of rigorous and relevant curricula is a foundational principle for high school redesign. The U.S.-based *Partnership for 21st Century Skills* states that “high schools must be designed, organized and managed with a relentless focus on the results that matter in the 21st century.” Their vision for 21st century learning defines “results that matter” in terms of the following key curricular and assessment elements:

1. *Core subjects*: English, reading or language arts, mathematics, science, foreign languages, government, arts, history, and geography (defined in the No Child Left Behind Act of 2001).
2. *21st century content*: global awareness; financial, economic, business and entrepreneurial literacy; civic literacy; and health and wellness awareness.

3. *Learning and thinking skills*: critical thinking and problem-solving skills, communication skills, creativity and innovation skills, collaboration skills, contextual learning skills, and information and media literacy skills.
4. *ICT literacy*: the ability to use technology to learn content and skills so that students know how to learn, think critically, solve problems, use information, communicate, innovate and collaborate.
5. *Life skills*: leadership, ethics, accountability, adaptability, personal productivity and responsibility, people skills, self-direction, and social responsibility.
6. *21st century assessments*: a balance of high-quality standardized assessments and effective classroom assessments must measure all five preceding elements.^{liii}



To achieve these results, the partnership describes five ways in which advocates for high school redesign and advocates for 21st century skills can work together.

1. Ensure 21st century knowledge and skills outcomes drive high school designs or redesigns.
2. Fully and strategically integrate core curriculum and 21st century content, skills, and assessments so that all students are able to demonstrate mastery of 21st century knowledge and skills before they leave high school.
3. Ensure assessments measure what is valued.
4. Improve professional development with a focus on teaching and measuring 21st century skills.
5. Partner with business and community-based organizations to extend learning beyond the classroom.



For more information about how to design high schools to support the attainment of 21st century skills, see <http://www.21stcenturyskills.org>.

Providing Career Awareness and Work Internship Opportunities

High school redesign efforts in Louisiana include a focus on career exploration and planning. Components of their programs include

- providing a career-planning website to help students explore careers, develop long-term education and career plans, and create and maintain personal portfolios for tracking and demonstrating their progress along a chosen career pathway (see <https://www.laeportal.com/>);
- administering career interest inventories and assessments to guide students and their parents in selecting career pathways that suit each student's interests and aptitudes;
- offering elective "education for careers" courses for students pursuing a career area of concentration;
- providing job shadowing opportunities and work internships;
- broadly communicating high-demand, high-wage jobs in the state;
- aligning academic core curriculum with essential workplace competencies;
- infusing work-based learning activities and integrating workplace literacy skills throughout the curriculum;
- adopting curriculum aligned with industry-based certification requirements;

- articulating high school career and technology courses with those offered by the state’s community and technical colleges;
- increasing the pool of qualified career and technology instructors; and
- expanding career and technology programs to meet workforce demands.

These career-focused activities align with what is already occurring in many high schools in Alberta.



For more information about career awareness and work internship strategies, see

- the Career and Technology Studies (CTS) portion of the Alberta Education website at <http://www.education.alberta.ca/teachers/program/cts.aspx>;
- What’s New – March 2008; Council on Alberta Teaching Standards; *Educators as Career Advisors: ALIS Can Help*; http://www.teachingquality.ab.ca/WhatsNew/2008_3.html; Retrieved February 2009; and
- What’s New – September 2007; Council on Alberta Teaching Standards; *Resources to Support Student Transitions from High School to Post-secondary Education or Employment*; http://www.teachingquality.ab.ca/WhatsNew/2007_09.html; Retrieved February 2009

PERSONALIZATION

Differentiating Instruction

Researchers refer to the concept of personalization using various terms including differentiated instruction, personalized instruction, personalized education, and adaptive pedagogy.

- McQuarrie et al (2008)^{liv} defined differentiated instruction as “a way of thinking about and approaching the planning and implementation of curriculum and instruction that acknowledges that individual learners may have different levels of aptitude, achievement, interest, motivation, needs and ability. To differentiate instruction requires intentional planning to make the curriculum, instruction and learning environment meaningful and appropriate for each student.”
- Keefe and Jenkins (2000) defined personalized instruction as the “effort on the part of a school to take into account individual student characteristics and needs, and flexible instructional practices in organizing the student learning environment.”^{lv}
- Lowery et al (date unknown) defined personalized education as a “system of teaching and learning that involves all aspects of the school-community.” Key to this system, Lowery added, were diagnoses of individual learners’ entering behaviors, customization of approaches based on these diagnoses, one-to-one interaction between student and teacher, and encouragement of creativity and self-direction. Other components of a personalized education system include flexibility of time, space, grouping, materials, and staff utilization.^{lvi} Lowery identified Bishop Carroll High School in Calgary, Alberta and Thomas Haney High School in Maple Ridge, British Columbia as exemplars of a continuous progress personalized model of education. See **Appendix B: Case Studies** – Case Study 10: Bishop Carroll High School, Alberta & Thomas Haney High School, BC (Personalized Schools) for descriptions of these personalized schools.
- Darling-Hammond (2002) calls this kind of teaching “adaptive pedagogy” where modes of teaching are adjusted to individual backgrounds, talents, interests, and the nature of past performance. Adaptive pedagogy involves using multiple instructional strategies to support active learning and give students

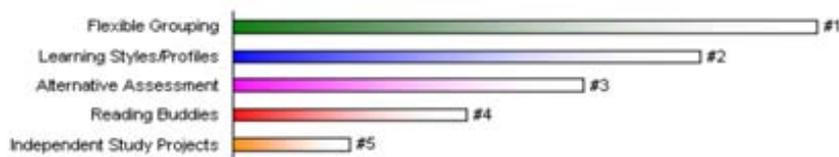
different entry points to learning. These strategies may include whole class lectures, guide inquiry, small group work, discussions, independent work, projects, experiments, research, construction of models, use of technology and the arts for accessing and expressing ideas, and teacher interaction with individuals and small groups.^{lvii}

Common to each of these definitions is the use of multiple instructional strategies to accommodate students' diverse learning needs, strengths, and interests. A recent review^{lviii} of Alberta school improvement projects that focused on differentiating instruction, in which 31% of the projects took place in high schools, revealed that as many as 21 distinct strategies for differentiating instruction were in use. These strategies are listed below in order of the percentage of educators who used the strategy.

- Flexible grouping (100%)
- Tiered assignments (95%)
- Learning styles/profiles (95%)
- Alternative assessments (84%)
- Adjusting questions (84%)
- Small group work (84%)
- Student interest (84%)
- Graduated rubrics (79%)
- Peer tutoring (68%)
- Tiered products (68%)
- Learning Centres (68%)
- Readiness/Ability (63%)
- Enrichment Clusters (58%)
- Independent Study Projects (53%)
- Compacting Curriculum (53%)
- Anchoring Activities (53%)
- Learning Contracts (49%)
- Peer Teaching (49%)
- Reading Buddies (37%)
- Choice Boards (26%)
- Drill-focused Tasks (16%)

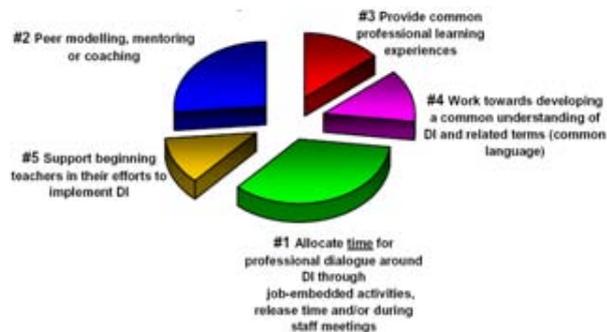
Of these, strategies involving flexible grouping, learning styles/profiles, alternative assessment, reading buddies and independent study projects were believed to be the most effective (see Diagram 3).

Diagram 3: Top Five Rank Ordered Strategies for Differentiating Instruction



Focus group participants were asked to identify how teachers could best be assisted with their professional growth in the area of differentiating instruction. Their rank ordered responses are provided in Diagram 4.

Diagram 4: Top Five Rank Ordered Strategies for Professional Growth



Several benefits of differentiating instruction were realized through these projects. In general the authors stated that their findings suggest that “differentiated instruction clearly has the potential to create environments that maximize learning and the potential for success for ALL students, regardless of skill level or background.” According to this report, differentiation that begins with and is shaped by ongoing assessment for learning activities realized benefits, in each of the two categories that follow:

Effective Pedagogies and Learning Supports

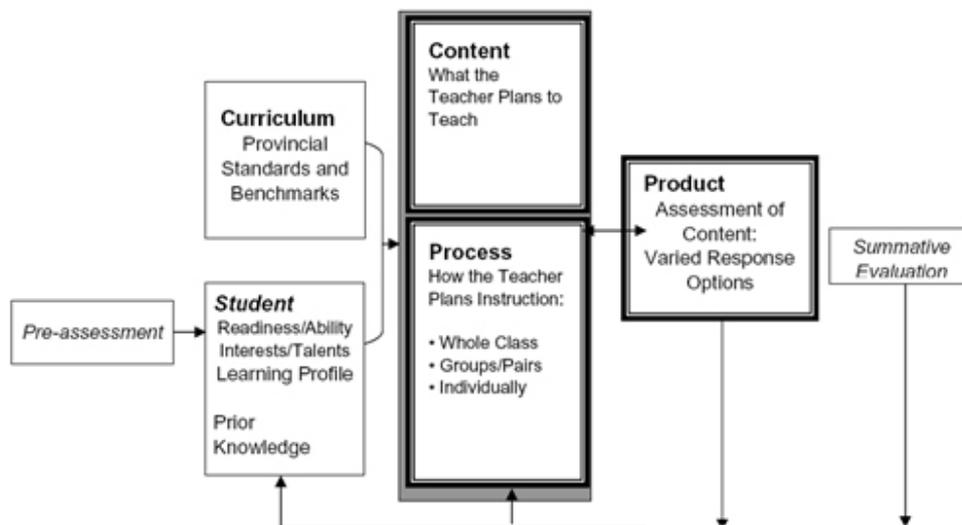
- Differentiated instruction enhances student self-confidence and engagement.
- Differentiated instruction helps students become more self-directed and metacognitive as learners.
- Technology, when used appropriately, enhances teachers’ abilities to differentiate instruction and engage students.
- Differentiated instructional practices enhance teachers’ abilities to reach all learners.
- Students who are more at risk or have higher needs receive more benefits from differentiated (targeted) and intensive support.

Effective Project Supports

- Enhanced student learning starts with purposeful, high quality professional development.
- Effective AISI project management supports the efforts of schools in creating differentiated learning environments for teachers and students.
- Student learning is a collective responsibility that requires clear communication among stakeholders.
- Staff expertise, leadership, commitment and continuity increase the likelihood of AISI project success.
- Embedding differentiated practices into student learning takes time, even when excellent teacher learning is taking place.

McQuarrie et al (2008)^{lix} adapted a diagram that depicts the learning cycle and decision factors that could be used to plan for and implement differentiated instruction (see Diagram 5).

Diagram 5: Learning Cycle and Decision Factors Used to Plan and Implement Differentiated Instruction (adapted from Oaksford and Jones, 2001)



Jenkins and Keefe (date unknown) provided the following typology for improving teaching and learning through a personalized instructional approach (see Diagram 6).^{ix}

Diagram 6: Typology for Personalized Instruction

		THOUGHTFULNESS LEVEL			
		1	2	3	4
INTERACTION LEVEL	1	Individualized instruction	Accelerated learning; mastery learning; direct instruction	Independent study/quest; Montessori approach	
	2	Experiential learning	Style-based instruction	Technology-assisted learning	
	3		Cognitive skill development; inquiry approaches	Contract learning; peer tutoring	Authentic pedagogy
	4			Dewey's Project Learning; reciprocal teaching	Guided practice; cooperative learning; cognitive apprenticeship; topic study



For more information about differentiating/personalizing instruction, see the following resources:

- Dimartino and Clarke; *Personalizing the High School Experience for Each Student*; ASCD; 2008.
- ASCD's 2006 video series with facilitators guide entitled, "High Schools at Work: Creating Student Centered Learning."
- Keefe and Jenkins; "Personalized Instruction;" Date Unknown; http://www.lecforum.org/publications/Jenkins_Keefe_KAPPAN_Article_1.htm; Retrieved February 2009.
- **Appendix E: A Comparison of Traditional and Personalized Educational Environments.**
- From The Principals' Partnership, see the Research Brief entitled *Personalized Learning in the High School* at <http://principalspartnership.com/personalizedlearning.pdf>. This research brief provides a summary of the research on personalized learning and provides links to online resources including sample personalized learning plans.
- Office of Education Policy and Innovation; Department of Education and Early Childhood Development; State Government of Victoria; Paper No. 11; *Personalizing Education: from research to policy and practice*; September 2007; <http://www.eduweb.vic.gov.au/edulibrary/public/publ/research/publ/personalizing-education-report.pdf>; Retrieved February 2009.

Flexible Scheduling, Heterogeneous Grouping, and High School Structuring

Flexible scheduling and mixed ability or heterogeneous grouping can help personalize the learning environment and enhance all students' opportunities to excel (Cushman, 1989; Smith, 2008; Clark 2006; Nair, 2003; and Garrity et al, 2007). A variety of flexible scheduling options and grouping structures in use in redesigned high schools are described below.

Flexible Scheduling:

Flexible scheduling (i.e., varying the length of classes, the school day, and the school year) supports authentic pedagogy; allowing teachers to

- support academic achievement by facilitating enrichment and catch-up learning opportunities;
- engage students with in-depth, experiential learning through team teaching, thematic instruction, inter-disciplinary instruction, and/or project-based learning;
- arrange for work-based learning opportunities and internships for their students;
- arrange for college-level learning experiences for their students;
- invite business and community volunteers into the classroom; and
- engage in collaborative instructional planning with their peers.

Flexible scheduling and mixed ability or heterogeneous grouping can help personalize the learning environment and enhance all students' opportunities to excel.

Cushman, 1989; Smith, 2008; Clark 2006; and Garrity et al, 2007

According to Cushman (1989),^{lxi} successful high school scheduling must be driven by educational principles; schedules must be flexible and evolve with the vision of a particular school. From a review of disparate high schools, Cushman described three types of high school schedules in use in the mid-1980s. These schedules reflected different educational principles in each of three schools:

- In one school-within-a-school, a team of four teachers works with 80-100 students in groups of 20-25 at a time, teaching science, math, history and English language arts on alternate days – three times one week, twice the next. Teachers have common planning time and students rejoin the larger student body for their electives. This schedule reflects the priorities of personalization, relationships, and extended time for academic subjects yet compromises choice of electives.
- Another high school schedule is premised on the “less-is-more belief” where electives are stripped. This schedule involves two-hour interdisciplinary classes held every morning and afternoon, with a student- teacher advisory period scheduled four days a week. One morning a week, all students go into the community for service projects, while teachers meet to make plans together. Spanish is the only language offered, for one hour before school four days a week; and any other electives take place in the two hours after school is officially over.
- A third schedule employed at a college preparatory school for sixth through twelfth graders, comprises only the core subjects, and focuses each year on a central theme. Art, music and a modern language are considered part of the core and students choose between French and Spanish. This schedule involved double-period interdisciplinary time blocks that met twice weekly with shorter lessons on alternate days. Teachers were focused on analysis and critical thinking in a seminar context.

Smith (2008)^{lxii} describes another type of scheduling, called cohort scheduling or looping, that he sees as “a hallmark of small learning communities.” Cohort scheduling allows students to remain together over several

years, ideally with the same teachers. Nair (2003)^{lxiii} agrees stating that “having the same teacher and classmates for two or more years provides stability for students, reduces anxiety and increases confidence.”

Clark et al (2006)^{lxiv} produced a high school scheduling guide that

- discusses the importance of scheduling to the success of small learning communities and career academies;
- describes some of the challenges, constraints and conflicts involved in high school scheduling;
- discusses who needs to be involved in establishing and revising schedules;
- describes a five-stage master scheduling process;
- provides a list of scheduling product providers;
- defines several types of schedules (e.g., traditional, modular, block, and trimester) and includes examples of each; and
- provides a glossary of scheduling terms and a bibliography.

Heterogeneous Grouping:

Based on experiences at a school in Rockville Centre, New York,^{lxv} de-tracking or heterogeneous grouping, combined with pre-International Baccalaureate (IB) curricula, resulted in dramatic increases in the proportion of students enrolling in IB courses and in the proportion of students pursuing the full IB diploma. Upon reflection of their progress in offering all students a rigorous academic curriculum in de-tracked or heterogeneous classes, educators identified the following six areas as critical for success:

- Carefully design, implement and regularly review curriculum as well as frequently observe classrooms.
- Carefully balance classes so that high-achieving, struggling and special education students are able to achieve.
- Collect, disaggregate, analyze and disseminate data to demonstrate the impacts of the program on all students.
- Establish and measure progress toward the goal of “all students deserve the best curriculum.”
- Sustain professional development and provide educators with time for collaboration and reflection.
- Persist with vigilance towards heterogeneous grouping.

Specific strategies employed in these schools included personalizing learning through the use of writing portfolios and individual conferences, every-other-day support classes, extension activities, and differentiating instruction.

High School Structuring:

Many high school redesigns involve the creation of smaller learning communities, but as has been previously described, the size and structure of these small learning communities vary. Broward County schools offered the following descriptions of Small Learning Communities (SLCs) Structures.^{lxvi}

- Pure SLCs: Students take at least 75 percent of their courses within their SLC, including all core courses and at least one thematic elective each year. Core and thematic teachers teach their SLC students 90 percent of the time.
- Academies: Academies are sub-groups within schools, organized around particular themes. For example, career academies integrate academic and vocational instruction, providing work-based learning opportunities for students, and preparing students for post-secondary education and

employment. Academies are small, focused and personalized learning communities where integrated academic and occupation-related classes enhance real-world relevance and maintain high academic standards. Local employer partnerships provide program planning guidance, mentors, and work internships. Building relationships between students and adults (teachers as well as work-site supervisors and other employer representatives) is emphasized.

- **Houses Plans:** House plans divide students in a large school into groups of several hundred, either across grade levels or by grade levels. Students take some or all courses with their house members and from their house teachers. House arrangements may be yearlong or multiyear arrangements. House plans personalize the high school experience, but usually have limited effect on curriculum or instruction. Each house usually has its own discipline plan, student government social activities, and other extracurricular activities, although students may also participate in activities of the larger school. Grouping ninth-graders into a separate house is one way to ease freshman transition to high school.
- **A School-Within-a-School:** A school-within-a-school is a small, autonomous program housed within a larger school building. Schools-within-schools are generally responsible to the district rather than to the host school's principal, and are formally authorized by the superintendent and/or board of education. Schools-within-schools have their own culture, program, personnel, students, budget, and school space, (negotiating the use of common space with the host school in the same way office building tenants arrange for use of shared conference facilities). Like academies, the school-within-a-school structure supports constructive relationships between and among students and teachers by grouping students together each year to take core courses with the same group of teachers, thus increasing the supports students receive from peers, teachers, and other adults.



For more information about flexible scheduling, heterogeneous grouping, and high school structuring, see

- the scheduling resources listed on the Coalition of Essential Schools website at <http://www.essentialschools.org/cs/resources/query/q/861?x-r=runnew>; and
- the grouping resources listed on the Coalition of Essential Schools website at <http://www.essentialschools.org/cs/resources/query/q/862?x-r=runnew>.

Using Technology to Personalize Learning

Based on a review of several Alberta Initiative for School Improvement (AISI) technology projects, Parsons (2004)^{lxvii} reported that technology can help to personalize the learning experience. This was especially true in cases where implementations of technology in classrooms had the following characteristics:

1. Involved lead teachers who were technologically savvy as well as good with people.
2. Supported teachers by helping them minimize the risks associated with technology use and by helping them apply new skills shortly after training as well as by providing them with opportunities to work collaboratively with other teachers.
3. Encouraged exploration of readily-available technologies.
4. Employed project-based and peer-to-peer teaching.
5. Employed school websites and e-mail to help teachers and schools effectively communicate with parents.
6. Encouraged parental support for student learning by sharing and celebrating student successes with parents.
7. Integrated technology and curriculum

8. Job-embedded professional development.
9. Employed meta-cognitive thinking and constructivist pedagogy.
10. Involved long-term, big-picture thinking.

The following key themes were determined to hold the most promise for using technology in the classroom to benefit student learning:

1. Creating a culture of collaboration in both learning and leadership;
2. Applying meta-cognitive, project-based teaching methods;
3. Providing teachers with the tools and professional development they need to learn technological skills; and
4. Encouraging life-long learning in teachers as a way to improve student learning.

Technology's influence on high school completion was described in a literature review released by Alberta Education in June 2007. The findings of this literature review indicated that technology-based teaching and learning strategies have been shown to

- improve the relevancy and richness of students' learning experiences;
- nurture collaborative learning communities;
- motivate and engage students;
- offer students choice and flexibility;
- improve students' chances of academic success;
- strengthen teacher-student and home-school relationships; and
- improve the level of independent learning among students.

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Parsons (2004)

Distributed learning, as described by Alberta Education^{lxviii}, has the potential to further personalize student learning by offering “multiple channels of learning and teaching through a variety of delivery formats and mediums—print, digital (online), and face-to-face classroom delivery methods—allowing teachers, students, and content to be located in different, non-centralized locations. ... It offers the potential of exploring different relationships and building highly personalized and individualized learning opportunities for student success, as well as expanding teacher expertise to critically influence and support student learning.” A background report for the Discover Phase of Alberta Education's Distributed Learning Strategy, also states “Technology-infused pedagogies have the potential to enhance achievement, create new learning possibilities, and extend interaction with local and global communities. [It] makes possible the evolution of a synchronous, teacher-centred model of education into a collaborative, creative, and student-centred learning paradigm: distributed learning. Because it supports inquiry-based learning in and between classrooms, homes, communities, and beyond, student-centred distributed learning is essential to fostering 21st century skills. ... It has the potential to redefine pedagogical models by breaking down barriers of time and location, enabling students to access information in a self-paced, exploratory fashion, as well as to create knowledge through virtual communities and knowledge webs.” Alberta Education describes several ways in which student learning may be personalized through the use of distributed learning (see the Interactive Map found at http://arpdc.ab.ca/InteractiveMap_22oct/InteractiveMap.html for detailed descriptions).

Stansbury and Smith (2009)^{lxix} describe several classroom-based examples in which technology was used to personalize instruction, enhance learning with multimedia components, help students construct new knowledge,

and motivate students to learn (e.g., students use the Internet and other research tools to investigate a topic (I-Search), students solve a problem or answer a complex question through a WebQuest, students use a Role-Audience-Format-Topic-Technology or RAFTT strategy to illustrate their understanding of a concept).



For more information about using technology to personalize learning, see

- Parsons, J.; University of Alberta; *AISI Technology Projects Research Review: Summary of Findings from Cycle One (2000-2001 to 2002-2003)*; 2004; <http://education.alberta.ca/media/325809/What10.pdf>; Retrieved February 2009;
- Learning Cultures Consulting Inc.; *Technology's Influence on High School Completion: Literature Review*; June 2007; <http://education.alberta.ca/media/823068/techandhighschoolsuccess.pdf>; Retrieved February 2007
- Alberta Education's Distributed Learning Forum Online Community at <http://arpdc.ab.ca/DLForumA/main.html> including the Background report for the Discover phase at <http://www.arpdc.ab.ca/DL-pdf/Background.pdf> and the Interactive Map at http://arpdc.ab.ca/InteractiveMap_22oct/InteractiveMap.html;
- International Society for Technology in Education: <http://www.iste.org/>; and
- Consortium for School Networking: <http://www.cosn.org/>.

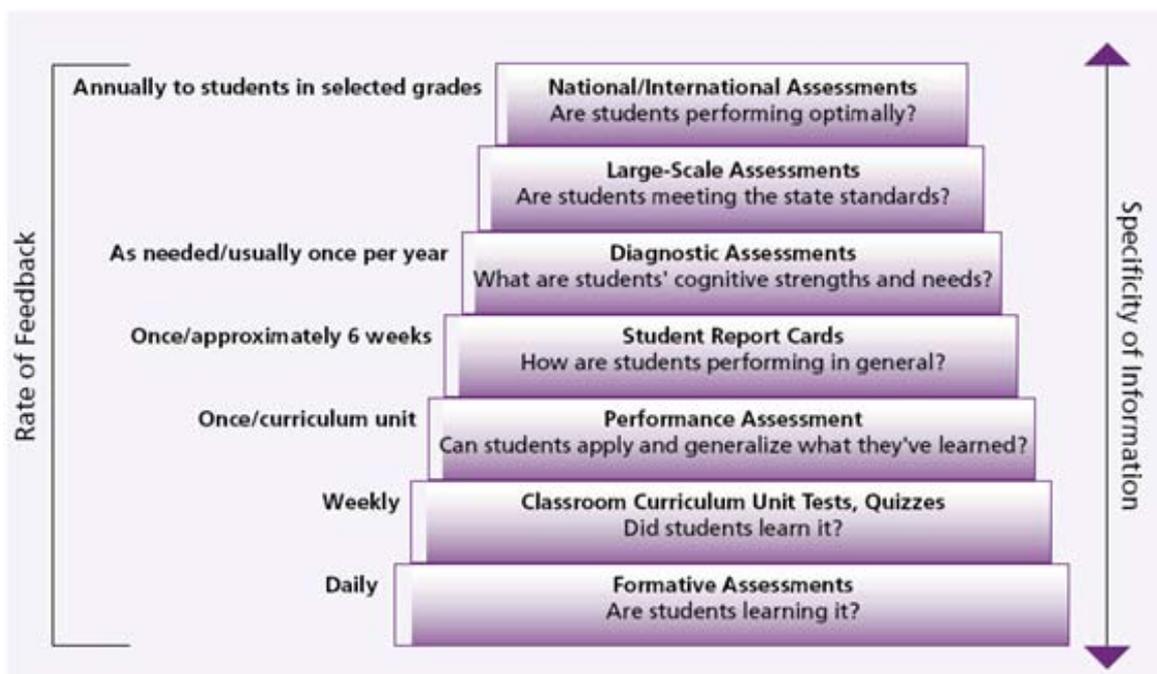
USING DATA AS A LEVER FOR CHANGE

Using data to leverage change was a key strategy associated with the *Breaking Ranks Model*. According to Lachat (2001), an emerging body of literature underscores that “better use of data is essential to improving the quality of learning in high schools.”

Lachat (2001) indicated that data can range from rich and complex student assessment data (such as that illustrated in Diagram 7), to information about programs, classroom practices, and learning environments. Citing the Regional Alliance for Mathematics and Science Education, Lachat identified ten ways that such data can be used as a lever for change:

1. To uncover problems that might otherwise go unnoticed.
2. To convince people of the need for change.
3. To confirm or discredit assumptions about students and school practices.
4. To reveal causes of problems, pinpoints areas where change is needed, and to guide resource allocation.
5. To help schools evaluate program effectiveness and to keep the focus on student learning results.
6. To provide feedback to inform course corrections.
7. To prevent over-reliance on standardized tests.
8. To prevent one-size-fits-all and quick-fix solutions.
9. To enable schools to respond to accountability questions.
10. To build a culture of inquiry and continuous improvement.

Diagram 7: Student Assessment Data

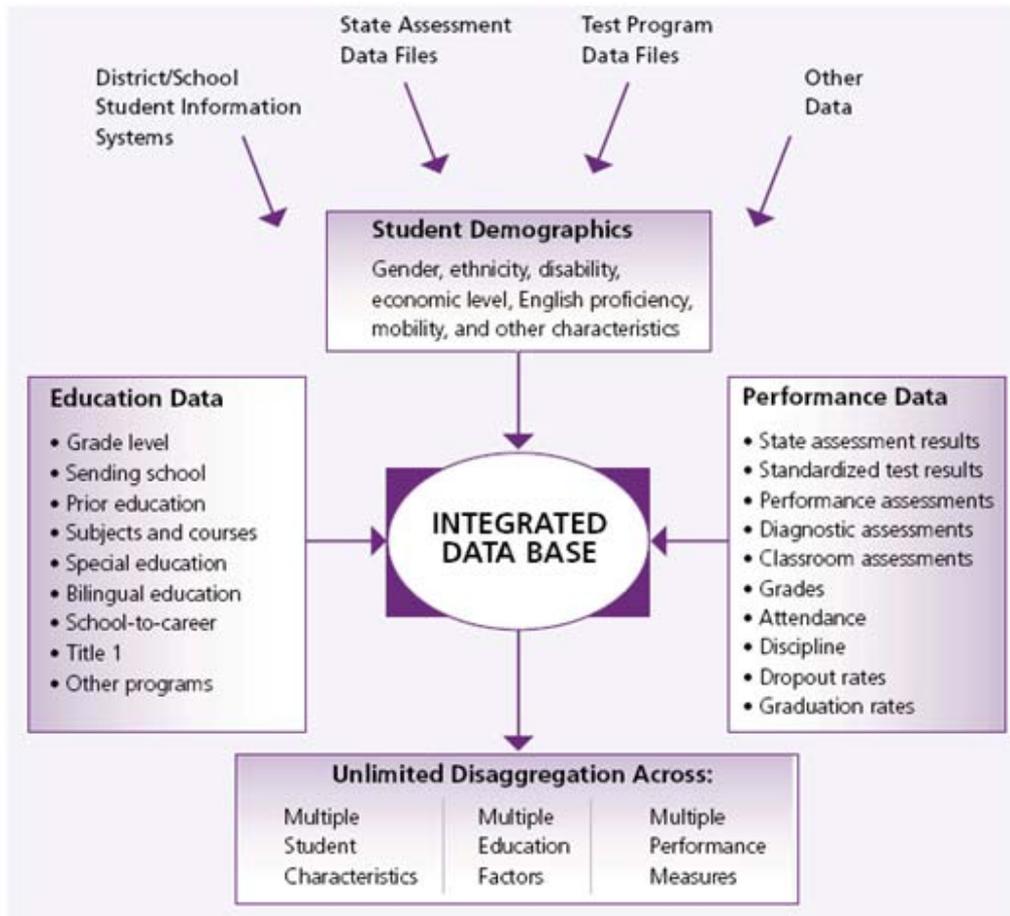


Lachat quotes fellow researchers who stated that managing this data and using it “to address problems, target improvements or monitor progress requires a good data-management system along with the skill, time, and organizational structures to use data effectively.” The Center for Resource Management (CRM), a partner in the research related to the *Breaking Ranks Model* highlighted the following essential requirements of an information system that would : 1) produce the data necessary to support systemic change and 2) focus continuous improvement on student learning and achievement. These requirements included

- the capacity to integrate and disaggregate multiple types of assessment and performance data;
- the capacity to import data from school information systems to avoid redundancy in data entry;
- flexibility in terms of addressing individual school characteristics, priorities, and diverse information needs;
- the capacity to reveal relationships among data (e.g., demographic data (e.g., gender, ethnicity, economic status, special needs, language proficiency, aspirations, attitudes), student education data (e.g., school, grade level, courses, special programs, internships), and student performance data (e.g., attendance, diagnostic assessments, classroom assessments, state assessments)); and
- the capacity to present data in formats that support longitudinal analysis of specific student cohorts, decision-making, program evaluation, and communication of results to pertinent stakeholders.

The database developed to support the *Breaking Ranks Model* is illustrated in Diagram 8: *Breaking Ranks High School Database* below:

Diagram 8: Student Assessment Data



For more information about how to use data as a lever for change, see the report entitled, “Data-Driven High School Reform: The Breaking Ranks Model” (2001) at http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf. In addition to the information provided above, this report identified

- potential barriers to using data (e.g., cultural resistance, fear and fatalism, data complexity, lack of skills and experience, lack of access to meaningful disaggregated data);
- ways in which data can help to stimulate change;
- how various schools built their capacity to use data for change; and
- the lessons learned by schools as they transitioned to data-driven high school reform.

BENEFITS OF HIGH SCHOOL REDESIGN

OVERVIEW

Lachat (2001)^{lxx} and other authorities^{lxxi} in the educational reform literature provide evidence that sustained efforts to transform high schools can help prepare students for the demands of a “technological and global society characterized by rapid change and unprecedented diversity” as well as a work environment that demands individuals who can “understand multidimensional problems, design solutions, plan their own tasks, evaluate results, and work cooperatively with others.” These authors concur that by focusing on teaching and learning to close the achievement gap, by enhancing the capacity of teachers to alter and personalize class time and instruction, and by empowering school boards and other stakeholders to reorganize and redesign the structure of their schools and classes, meaningful changes can be made to better prepare all students for engagement in college and careers in the 21st century.

In particular, the literature agrees that the following benefits can be realized by enhancing flexibility in high schools:

- Higher Student Achievement Levels
- Higher Retention, Promotion, and Graduation Rates
- Improved Student Engagement/Participation
- Success for Disadvantaged Youth
- Smoother Transitions to Post-secondary Education and Careers

“...we have evidence that small schools are indeed better for our children: All else equal, they produce higher achievement, lower dropout rates, greater attachment, and more participation in the curricular and extracurricular activities that prepare students for productive lives. There is real potential for the current small schools movement to transform the educational landscape ... for the better.”

Darling-Hammond; School Redesign Network, Stanford University; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works* (2002)

HIGHER STUDENT ACHIEVEMENT LEVELS

Most high school redesign efforts target an increase in student achievement as one of their primary goals. To accomplish this, many of these programs suggest the development of smaller, more personalized learning communities including the formation of schools-within-a-school; restructuring school districts; building new smaller schools; locating small schools on college campuses; and other methods of decreasing class and school sizes.

Smaller learning communities, such as those created in the First Things First program, have demonstrated success at increasing student achievement levels. An eight-year study by Quint et al (2005)^{lxxii} carried over eight years indicated that high school students enrolled in First Things First schools in Kansas City, Kansas, “registered large gains on a wide range of academic outcomes that were sustained over several years and were pervasive across the district’s schools.” Students greatly improved scores on standardized state reading and math tests. The study suggested as high as double-digit increases in the percentage of students who scored at levels deemed proficient or higher and double-digit decreases in the percentage of students who registered scores deemed unsatisfactory.

Research of other reform programs attest to similar increases in levels of student achievement. Kemple et al (2005)^{lxxiii} measured the effectiveness of the Talent Development Model employed in high schools in Philadelphia. His Study showed that the program had substantial positive effects on attendance, course credits earned, tenth-grade promotion, and algebra pass rates, particularly for students in very low-performing schools. Research by May

et al (2004)^{lxxiv} concerning America's Choice schools highlighted that students consistently outperformed or learned more than other local students not enrolled in America's Choice schools. Other reforms that have demonstrated student achievement gains include High Schools That Work; Career Academies, and Early College High Schools, to name a few.^{lxxv}

HIGHER RETENTION, PROMOTION AND GRADUATION RATES

Many high school redesign efforts focus on increasing rates of student retention, grade promotion, and graduation in high schools. Several research-based programs have demonstrated success in terms of increasing these rates. Of particular note are the Talent Development Model and the Early College High School model.

The Talent Development Model, as measured in a study by MDRC (2005),^{lxxvi} recorded strong impacts on student retention and grade nine promotion rates in the five Philadelphia high schools studied. "Talent Development produced substantial gains in attendance, academic course credits earned, and promotion rates during students' first year of high school...The improvements in credits earned and promotion rates for ninth-graders were sustained as students moved through high school." There were also strong indications that the program was improving graduation rates, although further research is required to confirm the reliability of this benefit.

The Early College High School model boasts strong improvements in retention and graduation rates. Based on a ten year study of New York City schools by Lieberman (2004),^{lxxvii} the percentage of students who stayed in school was 97% in comparison to the 70% of other city schools. The study also showed that the program increased graduation rates (to a high of 87%); of these graduates, 90% went on to attend college.

IMPROVED STUDENT ENGAGEMENT/PARTICIPATION

Many high school redesign efforts attempt to foster student engagement and participation. Klem and Connell (2008)^{lxxviii} examined the relationship between student engagement and achievement and praised the First Things First Model as making progress towards increasing levels of student engagement. In particular, they identified four trends that emerged in Kansas City schools using a First Things First model:

1. The percentages of students reporting high levels of support increased.
2. The percentages of students reporting low levels of support decreased.
3. Attendance, persistence, and graduation rates improved dramatically in high schools.
4. System-wide improvements were registered in academic performance.

Research by the MRDC (2008)^{lxxix} demonstrated that small schools and small learning communities are effective means of creating more personalized environments capable of increasing student engagement.

In addition, improvements in student engagement in the learning process have been evidenced in schools implementing the following models or initiatives: Career Academies; Rigor, Relevance, and Relationships; and Early College High School. In each case, student engagement was improved by making the learning material more relevant in terms of linking to students' future plans for college or careers.^{lxxx}

SUCCESS FOR DISADVANTAGED YOUTH

Although high school redesign efforts aim to realize benefits for all students, many initiatives focus special attention on disadvantaged youth including minority students, students with diverse needs, students from lower socio-economic situations, students with behavioural issues, and other students failing to meet academic expectations.

A number of studies have documented gains for disadvantaged youth.

- A study by May (2004)^{lxxxix} indicated that “Minority students in America’s Choice schools — African Americans and particularly Hispanics — learned more than their peers in other district schools...Both African American and Hispanic students who attended America’s Choice schools also consistently out-gained White students, reducing the gaps in performance between White and minority students.”
- The Talent Development High School Model is another example of a high school redesign effort that has succeeded in helping disadvantaged students. A nonpartisan study by Kemple et al (2005)^{lxxxix} of 20 cohorts of grade nine students in the School District of Philadelphia, one of the most troubled educational districts in the country, concluded that Talent Development improved rates of attendance, promotion, and credits earned as well as increased the likelihood of graduation.
- Eight-year findings^{lxxxiii} have shown that Career Academies programs produced sustained employment and earnings gains for its students, particularly among young men, and that students were more likely to be living independently with children and a spouse or a partner. The authors of this research report stated that their “findings provide convincing evidence that increased investments in career-related experiences during high school can improve students’ postsecondary labor market prospects.”

Other programs with explicitly documented success for disadvantaged youth include First Things First, and Early College High School.^{lxxxiv}

SMOOTHER TRANSITIONS TO POST-SECONDARY EDUCATION AND CAREERS

One way to assess the effectiveness of an educational program is to measure its impact on the performance and success of its students after graduation. In addition to looking at the number of students that attend college, one helpful measure is to identify the number of students that experience sustained employment and earning gains after graduation. An effective educational model would prepare its students to competitively participate in the workforce; it would equip students with the skills, knowledge, and experience to sustain employment and earning gains.

Several reform programs have research supporting the effectiveness of their model at attaining these goals.

- One of the most notable is Career Academies. Eight-year findings^{lxxxv} have shown that Career Academies programs produced sustained employment and earnings gains for its students, particularly among young men, and that students were more likely to be living independently with children and a spouse or a partner. The authors of this research report stated that their “findings provide convincing evidence that increased investments in career-related experiences during high school can improve students’ postsecondary labor market prospects.” For student transitions to college, the Early College High School model is a good example of a program that fosters educational development and prepares students for the transition to postsecondary education. By placing the high school in direct contact and dialogue with a local college, students witness college-level education first-hand. This appears to better prepare and motivate students to continue their education.
- In a ten year study^{lxxxvi} of New York City schools that employed a Middle College model, the direct predecessor and framework for the Early College High School model, 90% of graduates went on to study at the college level.

OTHER BENEFITS

Research has suggested additional benefits arising from high school redesign efforts. These benefits include, but are not limited to the following:

- *Safer and More Caring and Orderly Schools:* Initial research seems to suggest that smaller, more personalized learning communities result in a safer and more caring and orderly learning environment for students. Career Academies, for example, limits school sizes to around 250 students, which helps to create a more supportive

and intimate environment. This environment is intended to address feelings of anonymity and solitude by stimulating more personalized relationships between students and teachers and between peers. In a study^{lxxxvii} of Career Academies, the author states that “Many students describe their Career Academies as being “like a family” and report that they “give them courage to do what they need to do” to succeed in high school.”

- *Schools as Professional Learning Communities*: High school redesign models, particularly those that attempt to create smaller, more personalized learning environments, increase the sense that the school is a professional learning community. In these schools, teachers actively work on collaborating to create compatible curriculum and consistent assessment procedures as well as work at developing personalized student-teacher relationships and differentiated instruction that meets the diverse and individual needs of students. In a study^{lxxxviii} of Career Academies, surveyed teachers reported having “more opportunities to collaborate with each other are more likely to see their environment as a learning community, and are more likely to develop more personalized relationships with their students.”

CHALLENGES ASSOCIATED WITH HIGH SCHOOL REDESIGN

Although research indicates that high school redesign efforts are showing promise, Quint et al (2008)^{lxxxix}, Darling-Hammond (2002), Pecheone (2006), McNeil (2003), Century and Levy (2002) and Brand (2004) identify challenges that must be overcome in order for localized high school redesign efforts to succeed. Some of the key challenges that have been identified include the following:

- *Estimating Time and Resource Commitment:* In order for redesign efforts to succeed, adequate time and resources must be made available and sustained. Many schools and stakeholders underestimate what is required or attempt to alter the amounts committed part way through the process. In an article on redesign for the School Redesign Network, Darling-Hammond (2002)^{xc} states that the first and most important challenge for bringing about high school redesign is securing and maintaining adequate resources.
- *Engaging Stakeholders in the High School Redesign Process:* To ensure the immediate and continuing success of high school redesign efforts, leaders must foster and sustain the interest and input of all stakeholders. Redesign leaders must develop avenues for input, create methods for updating and communicating progress, and provide impetus and a rallying point for involved commitment from students, staff, parents, and the community. In an article^{xcii} on the redesign efforts of the Austin Independent School District and the School Redesign Network (SRN), Pecheone (2006) states, “Building a deep understanding and authentically engaging all stakeholders in the need for change is vital in creating momentum and support for redesigning secondary schools.”
- *Localizing High School Redesign to the School/Community:* Individual schools, even within a single school district, have unique needs, strengths, and aspirations. In order to properly address these unique characteristics, redesign models must be localized or tailored to suit the individual school. In a review of school reform and governmental policy, McNeil (2003)^{xciii} described how redesign models cannot be properly implemented or supported if the needs, strengths and visions of a school are not taken into account. Century and Levy (2002)^{xciii} identify three aspects of a localized context that, if not accounted for, could challenge the effectiveness of high school redesign efforts: 1. school (or district) culture; 2. decision making structures; and 3. equity issues.
- *Implementing and Sustaining a Redesign Model:* Theoretical or historical effectiveness of a particular high school redesign model does not guarantee success. Serious challenges to the success of redesign efforts arise if schools or school districts are unable to provide strong leadership, a clear vision, openness to community input, and effective communication. Century and Levy (2002)^{xciv} stated that to sustain high school redesigns, leaders must be responsive to varying program needs, shifting district conditions, and the viewpoints of stakeholders. “The important finding then, is that the strategic decisions leaders make must be sensitive to the district’s circumstances and culture if they are to contribute to the program’s sustainability.”

As Brand (2004)^{xcv} explains in a review of American high school transformations, successful redesign requires the unity of plan, motivation, and effort from all stakeholders to overcome any challenges that arise; it requires the “synchronization of many discrete efforts.”

BIBLIOGRAPHY

Note: All online references were retrieved February 2009.

1. Alberta Education; *Funding Manual for School Authorities: 2008-2009 School Year*; (2008); http://education.alberta.ca/media/822819/21552_fund_manual_october_2008.pdf
2. Alberta Education; *Guide to Education: ECS to Grade 12*; (2008); <http://education.alberta.ca/media/832568/guidetoed.pdf>
3. Alberta Education; *Teaching Quality Standard Applicable to the Provision of Basic Education in Alberta (Ministerial Order (#16/97))*; (1997); <http://education.alberta.ca/department/policy/standards/teachqual.aspx>
4. American Youth Policy Forum, *Schools for a New Society Roundtable: Chattanooga and Providence Update*; May 2006; <http://www.aypf.org/forumbriefs/2006/fb051506.htm>
5. American Youth Policy Forum; *Forum Brief*; "States and Districts Can Make Progress and Close the Achievement Gap: Research Reveals Clear Results in School Improvement in Schools Using America's Choice School Design;" July 16, 2004 Forum; <http://www.aypf.org/forumbriefs/2004/fb071604.htm>
6. Baldwin, J.; *2001 Carnegie Challenge: Creating a New Vision for the Urban High School*; 2000; <http://www.carnegie.org/pdf/urbschl.pdf>
7. Black, P. and William, D.; *Phi Delta Kappan*, Vol. 80, No. 2; "Inside the Black Box: Raising Standards Through Classroom Assessment;" 1998; <http://www.pdkintl.org/kappan/kbla9810.htm>
8. Brand, B.; *Transforming the American High School*; December 2004; <http://www.aypf.org/publications/Transforming%20the%20American%20High%20School.pdf>
9. Century and Levy; "Sustaining Your Reform: Five Lessons from Research"; *Benchmarks: The Quarterly Newsletter of the National Clearinghouse for Comprehensive School Reform*; Summer 2002; <http://www.centerforcsri.org/pubs/bench/benchsm02.pdf>
10. Clark, Dayton, Tidyman, and Hanna; *Scheduling for Small Learning Communities / Career Academies*; 2006; http://casn.berkeley.edu/resources/scheduling_guide.html
11. Clark, I.; *Florida Journal of Educational Administration and Policy*; Vol. 2, Issue 1: "Assessment is for Learning: Formative Assessment and Positive Learning Interactions;" Fall 2008; http://www.coe.ufl.edu/leadership/fjeap/V2/FJEAP_Fall%202008_Clark-3.pdf
12. Coalition of Essential School; *DRAFT Coalition of Essential Schools Benchmarks: Principles in Practice*; http://www.essentialschools.org/pdfs/CES_School_Benchmarks.pdf
13. Coalition of Essential Schools; *The CES Common Principles*; August 2006; http://www.essentialschools.org/pub/ces_docs/about/phil/10cps/10cps.html
14. Cotton, K. et al; Northwest Regional Educational Laboratory; *New Small Learning Communities: Findings from Recent Literature*; December 2001; http://www3.scasd.org/small_schools/nlsc.pdf
15. Cushman, K.; *Horace*; Vol. 5, No. 4; "Scheduling the Essential School;" May 1989; http://www.essentialschools.org/cs/resources/view/ces_res/14
16. Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf
17. Dimartino et al; *Principal's Research Review: Supporting the Principal's Data Driven Decisions*; Vol. 2, Issue 4; "Authentic Assessment;" July 2007; http://www.cssr.us/Principals%20Research%20Rev_v2-0707.pdf
18. Fiscal Research Division; North Carolina General Assembly; *Fiscal Brief: North Carolina High School Reform*; December 21, 2007;

- http://www.ncleg.net/fiscalresearch/frd_reports/frd_reports_pdfs/fiscal_briefs/High%20School%20Reform%20Fiscal%20Brief_Final_12%2021%2007.pdf
19. Garrity and Burris; *School Administrator*; "Personalized learning in de-tracked classrooms: Rockville Centre makes strides in transforming high school instruction for heterogeneous student groupings;" September 2007; http://findarticles.com/p/articles/mi_m0JSD/is_8_64/ai_n27373589/pg_1?tag=content;col1
 20. Gibbs, H.; *Techniques*; "Reinventing America's High Schools: Examining A High School That Works;" May 2006; http://www.acteonline.org/uploadedFiles/Publications_and_E-Media/files/files-techniques-2006/Examining-a-High-School-That-Works.pdf
 21. Hamilton, N.K. "What Can be Done about the Carnegie Unit." *Educational Leadership* (January 1966). http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_196601_hamilton.pdf
 22. Jenkins, Keefe; *Strategies for Personalizing Instruction: A Typology for Improving Teaching and Learning*; Date Unknown; http://www.lecforum.org/publications/personalized_instruction_typology_article_1.htm
 23. Jurich, S. and Estes, S.; American Youth Policy Forum; *Raising Academic Achievement: A Study of 20 Successful Programs*; <http://www.aypf.org/publications/RAA/RAA.pdf>
 24. Keefe and Amenta; *Phi Delta Kappan*; "Whatever Happened to the Model Schools Project;" March 2005; http://findarticles.com/p/articles/mi_6952/is_/ai_n28260068
 25. Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>
 26. Kemple, Herlihy, and Smith; *Evidence from the Talent Development High School Model*; 2005; <http://www.mdrc.org/publications/408/overview.html>
 27. Kemple, J. J.; Rock, J. L.; *Executive Summary, Career Academies: Early Implementation Lessons from a 10-Site Evaluation*; July 1996; <http://www.mdrc.org/Reports/ca-exsum-2.pdf>
 28. Klem and Connell; *Relationships Matter: Linking Teacher Support to Student Engagement and Achievement*; Tenth Biennial Meeting of the Society for Research on Adolescence; March 2004
 29. Kristin, Sunny; *A Picture of High School Redesign: Eight Great Schools*; July 2005; <http://www.ncsl.org/programs/educ/HSRedesignEightGreatSch.htm>
 30. Kristin, Sunny; *Effective High School Reform: Research and Policy That Works*; July 2005; <http://www.ncsl.org/programs/educ/EffectiveHSReform.htm>
 31. Lachat, Mary Ann; The Education Alliance, Brown University, Providence Rhode Island; *Data-Driven High School Reform: The Breaking Ranks Model*; 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf
 32. Lieberman, Janet; *The Early College High School Concept: Requisites for Success; Jobs for the Future*; 2004; <http://www.earlycolleges.org/Downloads/ECHSConcept.pdf>
 33. Lowery, R. et al; *Personalized Schools*; date unknown; http://www.lecforum.org/publications/l_j_t_pers_schools_article_1.htm
 34. Maeroff, Gene (October, 1993). "The Assault on the Carnegie Unit". *Education Week*; <http://www.edweek.org/ew/articles/1993/10/13/06maerof.h13.html>
 35. Martinez and Klopott; *The Link between High School Reform and College Access and Success for Low-Income and Minority Youth*; 2005; http://www.pathwaystocollege.net/pdf/HighSchoolReform_FullReport.pdf
 36. May, H., Supovitz, J. & Perda, D.; Philadelphia: Center for Policy Research in Education, University of Pennsylvania; *A longitudinal study of the impact of America's Choice on student performance in Rochester, New York, 1998-2003*; 2004; http://repository.upenn.edu/cgi/viewcontent.cgi?article=1099&context=gse_pubs

37. McNeil, Patricia; *Rethinking High School: The New Frontier for Policymakers*; The Aspen Institute: Aspen Program for Education; 2003; <http://www.aspeninstitute.org/atf/cf/%7BDEB6F227-659B-4EC8-8F84-8DF23CA704F5%7D/ECSRethinkingHighSc.pdf>
38. McQuarrie, L., McRae, P., and Stack-Cutler; *Alberta Initiative for School Improvement: Differentiated Instruction – Provincial Research Review (Choice, Complexity and Creativity)*; February 2008; http://education.alberta.ca/media/747920/differentiated_aisi99xx.pdf
39. Meier, Deborah; *Educational Leadership*; "The Big Benefits of Smallness;" September 1996, Vol. 54, No. 1; http://www.ascd.org/publications/educational_leadership/sept96/vol54/num01/The_Big_Benefits_of_Smallness.aspx
40. Nair, P.; *30 Strategies for Education Reform*; 2003; <http://fieldingnair.com/30strategies.pdf>
41. National Center on Education and Economy; *The Education Innovator*, U.S. Department of Education, "America's Choice Lifts Students to Reach the Achievement Bar"; October 25, 2004; <http://www.ncee.org/ncee/news/detail.jsp?setProtocol=true&id=74>
42. Northrop, D.; *Mosaic: An EDC Report Series*; "Merging Life Skills and Academic Rigor;" Fall 2005; http://main.edc.org/files/pdfs/Mosaic_High_School.pdf
43. Office of School Redesign; *Framework for SLCs in NYC*; 2008; http://schools.nyc.gov/NR/rdonlyres/D382BC43-4A32-4C79-9EF5-DBDE346A652A/51302/framework_2008121108.pdf
44. Office of Vocational and Adult Education; U.S. Department of Education; *Preparing America's Future: The Secretary's High School Initiative*; Launched in 2003; <http://www.ed.gov/about/offices/list/ovae/pi/hsinit/index.html>
45. Oxley and Kassissieh; Northwest Regional Educational Laboratory; *Forum*, Vol. 50, No. 2; "From Comprehensive High Schools to Small Learning Communities: accomplishments and challenges;" 2008; <http://tottonham.library.ualberta.ca/posttweb/servlet/DownloadDocument?8791423.pdf>
46. Palmer Noone, L and Swenson, C. "5 Dirty Little Secrets in Higher Education." *Educause* (November/December 2001). <http://net.educause.edu/ir/library/pdf/ERM0161.pdf>
47. Parsons, J.; University of Alberta; *AISI Technology Projects Research Review: Summary of Findings from Cycle One (2000-2001 to 2002-2003)*; 2004; <http://education.alberta.ca/media/325809/What10.pdf>
48. Partnership for 21st Century Skills; *Results that Matter: 21st Century Skills and High School Reform*; March 2006; <http://www.21stcenturyskills.org/documents/RTM2006.pdf>
49. Pecheone, R.; Tytler, p.; and Ross, P.; "Austin Independent School District and the School Redesign Network at Stanford University: A Partnership for Successful School Redesign"; School Redesign Network (SRN) at Stanford University; 2006; <http://www.srnleads.org/data/pdfs/austin.pdf>
50. Public Schools of North Carolina; *School Turnaround: America's Choice*; <http://www.ncpublicschools.org/turnaround/models/americaschoice/>
51. Quint, Bloom, Rebeck Black, Stephens and Akey; *The Challenge of Scaling Up Educational Reform: Findings and Lessons from First Things First*; July 2005; <http://www.mdrc.org/publications/412/overview.html>
52. Quint, Janet; *Meeting Five Critical Challenges of High School Reform: Lessons from Research on Three Reform Models*; May 2006; <http://www.mdrc.org/publications/428/full.pdf>
53. Quint, Thompson and Bald; *Relationships, Rigour and Readiness: Strategies for Improving High Schools*; October 2008; <http://www.mdrc.org/publications/498/full.pdf>
54. Sacramento City Unified School District; *e21 Students First: Education for the 21st Century (e21) High School Redesign Initiative: Report to the Community 2002-2007 and Beyond*; Spring 2008; http://www.scusd.edu/com_office/e21/e21%20report%20pdf.pdf

55. Shedd, Jessica; *New Directions for Higher Education*; "The History of the Student Credit Hour;" 2003; <http://virtual.parkland.edu/todtreat/presentations/cetl03/shedd2003%20history%20of%20credit%20hour.pdf>
56. Smith, Colwell, and Bruno; *Along the Road to Rigor, Relevance and Relationships: Volusia Plan for Secondary Redesign*; Summer Conference Presentation; <http://www.volusia.k12.fl.us/k12redesign/files/powerpoint%20files/FASA%20Summer%20Leadership%202006.ppt>
57. Smith, Thomas; National High School Center; *Linking Research and Resources for Better High Schools*; "Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance;" August 2008; http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-01-08.pdf
58. Smith; *Volusia County Schools Secondary Redesign Plan*; 2007; <http://www.volusia.k12.fl.us/secondaryredesign/>
59. Southern Regional Education Board; "High Schools That Work: An Enhanced Design to Get All Student to Standards;" 2005; http://www.sreb.org/programs/hstw/publications/2005Pubs/05V07_enhanced_design.pdf
60. Stansbury and Smith; *eSchoolNews*; "Technology Empowers Differentiated Instruction;" February 2, 2009; <http://www.eschoolnews.com/news/top-news/index.cfm?i=57064>
61. The Council of Chief State School Officers; Vol. 1. Issue2; *High School Redesign Monthly*; "Strategies to Support Student Success;" April 2005; <http://www.ccsso.org/content/pdfs/HSRedesignApril05.pdf>
62. Ungerleider, Charles; Evaluation of the Ontario Ministry of Education's Success Strategy/Learning to 18 Strategy: Final Report; 2008; http://www.edu.gov.on.ca/eng/teachers/studentsuccess/CCL_SSE_Report.pdf
63. U.S. Department of Education; Comprehensive School Reform Demonstration Program Overview; <http://www.ed.gov/programs/compreform/2pager.html>
64. Washor, E.; Mojkowski, C.; *Educational Leadership*; Vol. 64, Issue 4; "What do you mean by rigor?" December 2006 / January 2007
65. Washor, E.; *Innovative Pedagogy and School Facilities: The story of the MET School in Rhode Island – a drama, history, doctoral thesis and design manifesto*; 2003; <http://www.designshare.com/Research/Washor/Pedagogy%20and%20Facilities.pdf>
66. Worsley, D. et al; The Education Alliance at Brown University; *Changing Systems to Personalize Learning: Teaching to Each Student*; 2003; http://www.alliance.brown.edu/pubs/changing_systems/teach_to_student/TeachingEachStudent.pdf

RELEVANT WEB SITES

1. Alberta Assessment Consortium: <http://www.aac.ab.ca>
2. America's Choice: <http://www.americaschoice.org>
3. Canadian Coalition of Self-Directed Learning: <http://www.ccsdl.ca/>
4. Career Academy Support Network: <http://casn.berkeley.edu>
5. Center for Secondary School Redesign: <http://www.cssr.us/>
6. Coalition for Essential Schools: <http://www.essentialschools.org>
7. Early College High School Initiative; <http://www.earlycolleges.org>
8. Florida Department of Education: Career Academies:
http://www.fldoe.org/workforce/careeracademies/ca_home.asp
9. Institute for Research and Reform in Education – First Things First: <http://www.irre.org/ftf>
10. Knowledge Works Foundation – Ohio High School Transformation Initiative:
http://www.kwfdn.org/high_schools/ohsti
11. Learning Environments Consortium International: <http://www.lecforum.org>
12. Manpower Demonstration Research Corporation: <http://www.mdrc.org/>
13. National Academy Foundation: <http://www.naf.org>
14. National Clearinghouse for Education Facilities: <http://www.edfacilities.org>
15. Northwest Research Educational Laboratory – The Core and More Framework:
<http://www.nwrel.org/csdi/rss/coremore/framework.php>
16. School Redesign Network: <http://www.srnleads.org/>
17. Southern Regional Education Board (SREB) – High Schools That Work (HSTW):
<http://www.sreb.org/programs/hstw/hstwindex.asp>
18. The Model Schools Project: <http://www.modelschoolsproject.org>
19. U.S. Department of Education – Small Learning Communities Program: <http://slcp.ed.gov/>

APPENDICES

APPENDIX A: COMPARISON OF TRADITIONAL AND NEW PARADIGMS FOR HIGH SCHOOLS

The following comparison was excerpted from Lachat, Mary Ann; The Education Alliance, Brown University, Providence Rhode Island; *Data-Driven High School Reform: The Breaking Ranks Model*; 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf; Retrieved February 2009

TRADITIONAL SCHOOL PARADIGM

- The "inputs" and process of education are emphasized over results. Curriculum is "covered," and instruction is organized around limited time units prescribed by the school schedule. Schools accept the failure of a significant number of students.
- Learning is organized around a standardized curriculum delivered in standardized time periods. Credentials are awarded based on "time served," issued in "Carnegie Units."
- The curriculum is derived from existing content, which is most often determined by textbooks. The curriculum is organized around a set of units, sequences, concepts, and facts.
- Assessment is done at the end of instruction and is narrowly focused on lower-level and fragmented (end-of-unit) skills that can be assessed through paper-pencil responses. Norm-referenced standardized test results are the basis of accountability.
- School accountability is defined in terms of programs offered, attendance and dropout rates, the number of students who are credentialed, and the results of norm-referenced tests. There is minimal systematic monitoring of student progress on an ongoing basis.
- School improvement focuses on: improving the existing organization; adding new programs; changing textbooks; offering teacher workshops; improving school climate; and increasing staff participation in decision making.

NEW PARADIGM FOR SCHOOLS

- The school mission emphasizes high levels of learning for all students. Diverse abilities, developmental levels, readiness, and learning styles are addressed so that all can succeed. There is flexibility in the use of instructional time with an emphasis on learning, not how much content has to be "covered."
- Learning is organized around what students should know and be able to do. Credentialing is based on student demonstration of proficiency in these knowledge and skill areas.
- The curriculum is derived from standards that define what students should know and be able to do. Subject matter is "integrated" around "real-world" tasks that require reasoning, problem solving, and communication.
- Assessment is integrated with instruction and focuses on what students understand and can do. Methods assess students' competencies through demonstrations, portfolios of work, and other measures. State-based assessments are the basis of external accountability.
- The school is accountable for demonstrating that all students are developing proficiencies that represent high-level standards for what students should know and be able to do. There is an emphasis on frequent monitoring of student progress.
- The emphasis is on systemic reform of school structures, the curriculum, and instructional practices. Collaborative leadership and continuous professional development are emphasized. Improvement is based on sound data about student learning and achievement.

Case Study 1: Sacramento City Unified School District (America’s Choice Model)

The America’s Choice Model was implemented in several schools from the Sacramento City Unified School District in the early 2000s. The district partnered with Linking Education and Economic Development (LEED), the Carnegie Corporation of New York, and the Bill & Melinda Gates Foundation to implement a system-wide high school redesign. Community members, teachers, principals, parents and students worked together to create new models for high school learning in the 21st Century. Their initiative is known as the “e21 Students First: Education for the 21st Century (e21) High School Redesign Initiative.”

In 2008, the partners reported the results of the first five years of implementation of the e21 Initiative including accomplishments, lessons learned, and ongoing challenges.^{xvii} The report captured ten key accomplishments over the five years of implementation including

1. increased educational options (e.g., 36 theme-based small learning communities and 6 innovative small high schools have been established);
2. increased graduation rates from 76.1% to 86.8%, despite higher graduation requirements and increased enrolments;
3. decreased dropout rates from 13% to 7%;
4. increased academic achievement and proficiency scores (e.g., English language arts pass rates on state assessments increased from 68% to 73% with similar gains in mathematics);
5. increased academic rigor (e.g., students completing University of California coursework increased by over 12%; enrolment in AP classes increased by 30%);
6. increased focus college readiness (e.g., “college-going cultures” have formed, counselors are focused on college counseling resulting in increased enrolments in local post-secondary institutions, career themes in small learning communities align with university courses or majors);

Changes Made to Create a College-Going Culture

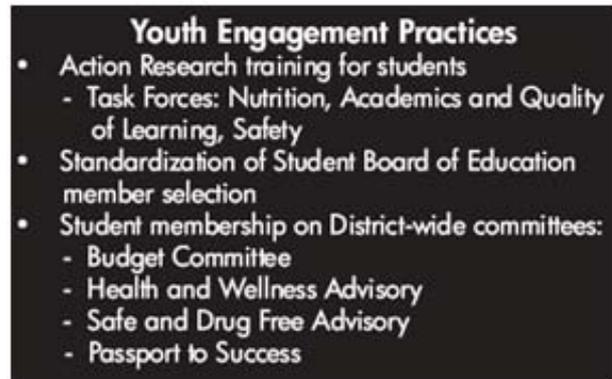
<p>Increased coursework requirements</p> <ul style="list-style-type: none"> • English – 4 years • History/Social Science – 4 years • Math – 2 years • World Language – 1 year • More University of California “a-g” electives 	<p>Increased rigor in coursework</p> <ul style="list-style-type: none"> • Core courses college preparatory, University of California “a-g” aligned • Increasing number of Career & Technical Education classes are now University of California “a-g” aligned 	<ul style="list-style-type: none"> • College visits by Small Learning Communities • Career and college speakers • Early Assessment Program (Sacramento State)
<p>Enhanced graduation requirements</p> <ul style="list-style-type: none"> • Algebra I and Geometry • Technology Literacy • Senior Project • World Language • English 12 	<p>Concurrent enrollment with colleges</p> <ul style="list-style-type: none"> • Partnerships with community colleges and universities • Dual enrollment and credit 	<p>Increased Advanced Placement classes</p> <ul style="list-style-type: none"> • Increased number of sections • Increased number of under-represented students • Higher number of females than males in higher level math and science courses
<p>Increased college awareness</p> <ul style="list-style-type: none"> • PSAT free for all 10th graders • Career and college planning 		

7. increased teacher effectiveness through access to more professional learning opportunities focused on developing leadership skills, effective instructional practices, and professional learning communities;
8. increased personalization (e.g., 85% of students agreed that they have access to a counselor on campus and a good relationship with one or more teachers);
9. increased career preparation (e.g., business partnerships doubled, internships almost tripled, and career and technical preparation classes quadrupled);

10. increased youth voice (e.g., a Youth Congress and Student Advisory Council (SAC) were established, an SAC representative sits on the district board and co-chair some district-wide committees).

The report also identified eight policies that were established to support the initiative.

1. Equity, access and achievement.
2. Student engagement, development, and voice.
3. Standards-aligned system for teaching and learning.
4. Safe environments for learning and work.
5. Investing in our employee.
6. Parent/family engagement.
7. Strong relationships with our parents.
8. Mission-driven, empowering infrastructure.

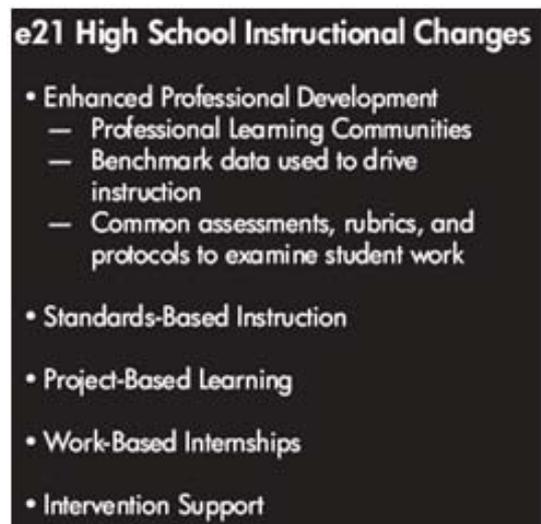


Based on the lessons learned throughout the implementation, the authors stressed the importance of

- investing time to engage all stakeholders;
- providing many opportunities to deepen teaching and learning;
- understanding the need to nurture and sustain relationships with students, parents, community-based organizations and businesses;
- prioritizing internal and external communications; and
- recognizing the complexity and importance of facilities.

Finally, the report identified the following seven elements considered essential to successful high school reinvention:

1. Small, caring, personalized learning communities.
2. Student-centered system with student supports and safety nets.
3. Student pathways to the world of work and post-secondary education.
4. Rigorous, relevant, standards-driven teaching and learning.
5. Culture of continuous learning.
6. Collective responsibility.
7. Home-school-community alliances.



These essential elements align with those identified by the Association for Supervision and Curriculum Development following their research of schools using the *America's Choice Model*.^{xvii}

For more information, see the full report at: Sacramento City Unified School District; *e21 Students First: Education for the 21st Century (e21) High School Redesign Initiative: Report to the Community 2002-2007 and Beyond*; Spring 2008; http://www.scusd.edu/com_office/e21/e21%20report%20pdf.pdf; Retrieved February 2009

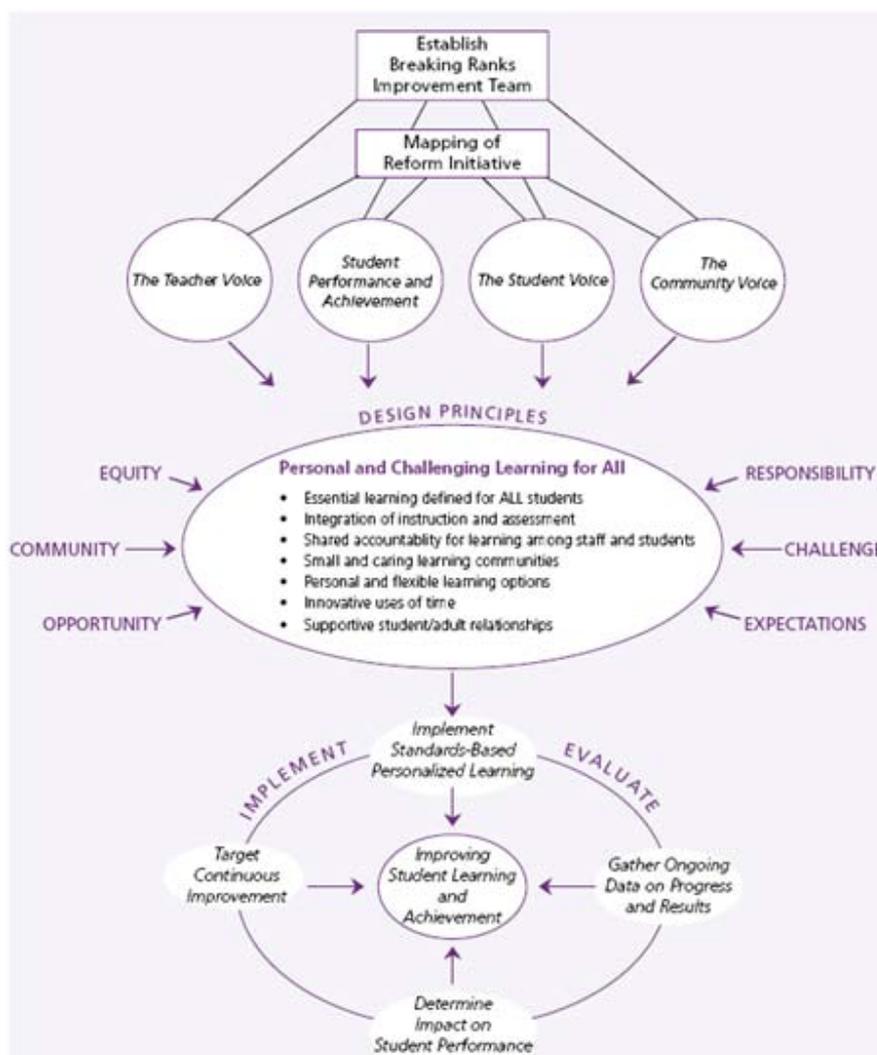
Case Study 2: Rhode Island High Schools (Breaking Ranks Model)

Schools in Rhode Island, Massachusetts transitioned to the Breaking Ranks Model of data-driven high school reform by

1. applying lessons from research and practice;
2. identifying meaningful questions about student performance;
3. ensuring a positive focus on continuous improvement;
4. establishing an information system that had the capacity to integrate and disaggregate a range of data to serve multiple purposes; and
5. providing timely data as well as time and opportunities for inquiry and data-driven dialogue.

Those involved in this implementation used recommendations from the NASSP to develop a framework for their implementation of the Breaking Ranks Model. This framework helped educators understand the relationships among the aspects of high school redesign (see Diagram 9).

Diagram 9: A Framework for the Breaking Ranks Model



Some of the steps involved in their implementation of this framework were described as follows:

- Spent the first year building the capacity of staff to use data (i.e., reduce cultural resistance to data use by disaggregating data and presenting it in ways that addressed pertinent questions and concerns from staff, ensure ongoing access to data, and increase staff confidence and skills to use data using guiding questions) and thereby created a culture of data use.
- Used data to overcome false assumptions (e.g., high absence rates did not necessarily correlate with poor achievement), improve instructional practice, support staff beliefs about the success of small learning communities, examine equity issues and grading criteria, and aid planning for incoming freshman students.

For more information about the implementation of the Breaking Ranks Model in Rhode Island High Schools, see the report by Lachat entitled, “Data-Driven High School Reform: The Breaking Ranks Model;” 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf.

In addition, see American Youth Policy Forum, *High School Redesign in Rhode Island: Performance-based Graduation System*; 2008; <http://www.aypf.org/tripreports/2008/tr031208.htm>; Retrieved February 2008. This report captures the experiences of Rhode Island educators in terms of the lessons they have learned, and what they identify as the essential catalysts for change.

Case Study 3: Oakland, California (Career Academies Model)

In a report entitled “Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance,” Smith (2008) described how one school implemented the *Career Academies Model*. The school, known as the LIFE Academy, blended the successful characteristics of a career academy with the strengths of a small school to serve a highly disadvantaged population in Oakland, California. Smith provides evidence that since this school was created in 2001, it has established a creditable record of academic performance and is succeeding in terms of graduating students and sending them to college.

LIFE Academy began as a “transplant” from an existing health academy previously housed in a large comprehensive high school. Many of its teachers moved to the newly-established school. LIFE Academy employs 16 teachers and has 250 students, more than 90% of whom have minority backgrounds, 75% of whom are classified as socioeconomically disadvantaged, and most of whom enter the academy reading at a fifth-grade level.

Three career strands are offered including biotechnology, medical, and metal health strands. Students follow a traditional, yet science focused, curriculum in the first two years. In grade ten, students select their preferred strand. Each strand is supported by a separate advisory group that provides curriculum input and work internships. In the biotechnology strand, participating firms commit to hiring students once they have completed certificate programs at a local community college. Internships for the mental health strand are provided by a consortium of social service agencies, while internships for the health strand are provided by the local children’s hospital.

The school environment is informal and supportive. The small size of the school ensures all students and teachers know each other. Ninth-grade students are assigned older students as mentors and tour nearby colleges. A Career and College Information Center (CCIC), sponsored by a local educational consortium, is open and staffed by local college students for much of each school day. CCIC staff and recent graduates from LIFE Academy visit classroom regularly to talk about college. Teachers and counselors track individual student’s progress and help keep them focused on college and career goals. Collectively, these strategies support a college-going culture.

For more information about this implementation of the Career Academies Model see the report by Smith of the National High School Center entitled, “Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance” (August 2008) at http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-01-08.pdf.

Case Study 4: Dayton, Ohio (Early College High School Model)

One successful implementation of the *Early College High School* model is evidenced in Dayton, Ohio. Most of the approximately 400 students who attend the Dayton Early College Academy live in poverty, yet “administrators predict that, by 2007, the school’s first graduating class will have met both the state of Ohio and the University of Dayton’s performance standards and will be well-positioned to finish their bachelor’s degree requirements. Many of these graduates will be the first generation in their family to attend college.”^{xviii}

The key to the Academy’s reported success is personalization (Kristin, 2005). Staff identify students’ interests, strengths and needs through initial home visits; they then use this information to develop unique learning plans for each student. Learning plans include specific goals and strategies tailored to students’ strengths and weaknesses. Personalized learning plans are discussed and adjusted throughout the year to ensure students’ goals are attained and additional goals are developed.

Another component of the Academy’s success is the partnership between Dayton Early College Academy, the University of Dayton, and Sinclair Community College. These partners provide high school students with access to college classes as well as the supports necessary for college success (e.g., many students receive full tuition waivers and additional academic support through college-level tutors). The majority of students take one to two college-level classes at a time.

The Dayton Early College Academy describes its mission and program as follows:

Mission: to maximize each student’s unique potential through a personalized accelerated academic program.

Program:

- Accelerated and compacted high school curriculum driven by students’ intellectual curiosity.
- Project and problem-based learning.
- Small student-teacher ratio.
- Supportive community of learning partners.
- Performance-based assessment using portfolios and exhibitions.
- Seamless transition from high school to college.
- High school and college teachers who motivate and transform.
- Personalized support for each student.
- Individualized academic programs based student interests and needs.
- High school diploma along with up to two years of college work can be completed.
- Quality preparation for Ohio Graduation Tests and College Board Tests.
- Community based learning through internships.
- Small, safe school environment.
- Learning by doing.
- Real skills leading to real opportunities.

For more information about the Dayton Early College Academy, see <http://www.daytonearlycollege.org/>.

Case Study 5: Bronx, New York (School-within-a-School Model)

One example of the *School-within-a-School Model* is being implemented in a large high school of 1500 students in Bronx, New York^{xcix}. Each school within this high school is autonomous, with its own principal, staff, parent coordinator, and guidance counselor. The principals of each school address joint administrative issues as needed. The schools share a psychologist, a clinical social worker, and a biology lab as well as common spaces (e.g., hallways, gymnasium, and cafeteria). All students, regardless of which school they attend, must pass state-level exams, including English, mathematics, U.S. history, global history, and science.

The five schools within this school include:

1. An *international school* that serves an immigrant population representing thirty different countries. English language supports, peer coaching, cooperative learning, and 75 minute classes characterize this school. For more information about the Bronx International High School, see <http://bxihs.morriscampus.org/>.
2. A *school for violin and dance* where music education is viewed as a fundamental discipline. Students are expected to have an interest in but not necessarily a talent for violin or dance. For more information about the High School for Violin and Dance, see <http://www.hsforviolinanddance.org/index.jsp?rn=4253349>.
3. A *school of excellence* that focuses on arts integration and partners with a nonprofit organization dedicated to enabling at-risk students to graduate and go on to college or a career. Instructional teams of about 80 students engage in extended activities (e.g., tutoring, chess, academic and social clubs) throughout the day and participate in a range of career and post-secondary awareness activities. For more information about the Morris Academy for Collaborative Studies, see <http://www.bxmacs.org/>.
4. A *leadership academy* that focuses curriculum through scientific inquiry and prepares students for ongoing studies in the sciences. This school has strong parental involvement, is partnered with local churches, and requires students to wear uniforms. For more information about the Bronx Leadership Academy II, see <http://www.bronxleadershipacademy2.org/?rn=8787194>.
5. The original *general track* high school which is to be eventually replaced by another small school.

Case Study 6: Central Park East, New York and Ohio (Small Schools Models)

Central Park East, New York

Based on experience in New York's Central Park East Schools where over 50,000 students attend small schools, Meier (2002)^c describes seven reasons why small schools work. These include:

1. *Governance*: Small faculties (groups of 20 or less) are more efficient and effective than large faculties (e.g., communication, agility, responsiveness).
2. *Respect*: A culture of respect is based on "mutual knowledge;" on students and teachers really knowing and understanding each other.
3. *Simplicity*: Curriculum and instruction are more easily personalized than in large and complex bureaucracies.
4. *Safety*: Safety and security are fostered in environments where students are well known and cared for.
5. *Parent involvement*: Parents are more likely to be involved when they believe that teachers/advisors actually know their children and want to work together to support their child's learning.
6. *Accountability*: How well schools are doing in terms of graduation and dropout rates, post-secondary attendance rates, teaching practice, and professional ethics are more easily identified in small schools.
7. *Belonging*: Cross-generational and cross-disciplinary relationships among students and teachers are more likely in small learning communities.

One such small school is the Central Park East High School (CPEHS). The mission of this school is "to continuously have parents, teachers, students and community based organizations work together to create dynamic personalized learning plans based on students' own academic history, personal goals, and interests; in order to facilitate each child reaching his or her full potential." For more information about CPEHS, see <http://www.cpehs.org/home.aspx>.

Ohio

Based on more than 30 years of research, the Transformation Initiative was designed to respond to a lack of engagement, low achievement, and low graduation rates in fifteen of Ohio's large urban high schools. These high schools are being turned into 44 smaller (400 students or less) high schools where students receive personal attention and are provided with a relevant and rigorous curriculum supported by the following innovations:

- Schools tailor learning to fit students' individual learning styles.
- Students declare "Majors," such as business or health, so that learning becomes more relevant to students.
- Team-based projects replace traditional teaching approaches.

The Transformation Initiative is supported by the Knowledge Works Foundation, the Bill & Melinda Gates Foundation, the Ohio and U.S. Departments of Education, and the Ford Foundation, in addition to local community-based foundations.

More information about this initiative can be found at http://www.kwfdn.org/high_schools/ohsti/. The resources available on this site include

- student video stories that can be viewed online at <http://www.kwfdn.org/realitycheck/>;
- case studies that cover the first 3 to 5 years of implementation of the *Transformation Initiative*;
- research reports (e.g., "Dollars & Cents: The Cost Effectiveness of Small Schools"); and
- a searchable database of "fast facts" or statistics about the current state of education in Ohio and across the U.S.

Case Study 7: Austin, Texas (Small Learning Communities Model)

An implementation of the *Small Learning Communities Model* began in 2005 in a school district in Austin, Texas. To better prepare its students for the 21st century the Austin Independent School District (AISD, <http://www.austinisd.org/>), in partnership with the School Redesign Network (SRN), developed the High School Reform Redesign initiative. AISD identified the goals of their initiative as follows:

- To dramatically increase high school completion rates for all students regardless of background.
- To better prepare students so that graduation means college and career readiness.
- To ensure the provision of clear pathways to career success.

AISD worked with the SRN to tailor its redesign plans to particular contexts and communities. Together they established an eight phase redesign process. The phases of the redesign process are described below.

1. *Securing a Commitment for Change*: redesign efforts are more sustainable when all stakeholders are engaged and ultimately committed to the change. Conversations and strategic planning sessions involving stakeholders at community forums, board meetings, conferences, and community leaders' meetings can help to secure this commitment.
2. *Creating a Shared Vision for Change*: families, teachers, and administrators must have a shared understanding of the need for change. This could involve communicating the results of data analyses and proposed changes through a series of professional development opportunities and public forums.
3. *Engaging All Stakeholders and Deepening Understanding*: building a deep understanding and authentically engaging all stakeholders through ongoing workshops and forums helps to create momentum and sustain support.
4. *Developing a Portfolio of Schools Through a Request for Design Process*: an inquiry-based process that draws on promising practices from across the nation and takes into account local needs and factors, when reviewed and informed by local stakeholders, will reflect a best-thinking and relevant plan for that particular school.
5. *Coaching to Support Redesign*: coaching and technical assistance from a network (such as SRN) provides an excellent resource for answering questions and developing and supporting a redesign plan.
6. *Request for Design (RFD) Review Process*: a process combining the critiques of internal and external review panels helps to improve the redesign plans in particular the efficiency and quality of implementation and the strengthened alignment between the plan and the redesign guiding principles.
7. *Support for Strategic Planning*: effective strategic planning requires communication between developed redesign committees, school boards and principals, and professional support in order to smoothly transition from design and planning to preparation for implementation.
8. *Examining the Role of the Central Office in High School Redesign*: the transformation of the school or school district's central office into a center for support and guidance ensures that assistance and leadership is readily available.

The eight phase process resulted in the approval of the AISD High School Design Plans by the AISD Board of Trustees.

From its work with AISD, SRN identified four lessons it learned concerning the redesign process:

1. Establish clearer frameworks.
2. Establish professional learning communities at all levels.
3. Encourage greater student participation.
4. Adapt to organizational change.

For more information about the Austin Independent School District, see Pecheone, R.; Tytler, p.; and Ross, P.; "Austin Independent School District and the School Redesign Network at Stanford University: A Partnership for Successful School Redesign"; School Redesign Network (SRN) at Stanford University; 2006; <http://www.srnleads.org/data/pdfs/austin.pdf>; Retrieved February 2009

Case Study 8: High Schools That Work, Southwest Ohio

High Schools That Work, Southwest Ohio (HSTW SW Ohio, <http://www.hstw.org/>) is a local consortium of school districts that is dedicated to building the capacity of their member districts to improve student academic and career-technical performance. Their Board of Directors is comprised of educators, parents, and business and community leaders. HSTW SW Ohio is a "not-for-profit" organization sustained by grants and contributions from member districts.

Beginning in 1998, the Consortium worked with six high schools to implement the key practices and conditions of the *High Schools That Work* model. The Consortium has grown to include 29 high school sites, 10 career centers, and 23 middle school sites, with 10 more schools expected to implement the model in 2009-10. Links to the Consortium's schools can be found at <http://www.hstw.org/schools.html>.

The Consortium offers services and products to support the implementation of the HSTW model, including: coaching and consultation, presentations, support for professional development events and professional learning communities, research and data dissemination, grant management, technical assistance, advocacy and publications.

Case Study 9: Louisiana and Florida (Rigor, Relevance and Relationships Initiatives)

Louisiana

The purpose of Louisiana’s high school redesign initiative is to “develop statewide policies and guiding principles that require all high schools to redesign their programs to create rigorous academic and career pathways.” The state’s plans focus on the 9th grade, this grade being viewed as the most critical to students’ future success. Their plans were based on the following recommendations compiled by a high school redesign commission:

- Require four units of math and English language arts for high school graduation.
- Strengthen the career-technical curriculum by expanding its rigor and flexibility.
- Modify the accountability tool to align with the goals for increased rigor in high school curriculum.
- Improve alignment of graduation exit exams and end-of-course tests with more comprehensive curriculum.
- Improve dropout prevention and recovery efforts with a focus on grade 9 (e.g., bridge programming, personalization strategies, early warning systems, catch-up courses)

The four goals for high school redesign in Louisiana are as follows:

- Reduce dropouts and increase high school graduation rates.
- Increase student readiness for post-secondary education.
- Increase career readiness of students.
- Increase participation in post-secondary education.

Strategies in use to address the challenges that students face with high school courses include:

- Extra instruction for students in areas of weakness in the first and second years of high school.
- Credit recovery and remediation programs.
- Attention to early warning signs (for example, 77% of students who fail freshman English currently do not graduate).
- Providing mentors and small learning communities.
- Engaging students in courses that are relevant to their future plans.

Three state initiatives have been undertaken to address the commission’s recommendations as follows:

- *A Ninth Grade Initiative*: This initiative involves the use of strategies that have been proven through research to smooth the transition to high school for ninth grade students. Strategies in use include:
 - Teaming w/ structured common planning time;
 - Freshman Academy – separate school-within-a-school;
 - Mentoring Program (Pairing at-risk students with a caring adult);
 - Advisory Program (Small groups focusing on strategies for success);
 - Freshman Transition Skills Course;
 - High school readiness activities for 8th grade students/parents;
 - Summer bridge program for at-risk students;
 - Freshman Orientation Day(s); and
 - Increased parental contacts/involvement.
- *A High Schools That Work Initiative*: The Louisiana Department of Education signed a contract with the Southern Regional Education Board (SREB) to provide training and assistance, over a three year period, to twenty-two

selected schools to implement the High Schools That Work model and become Louisiana Schools of Innovation and Improvement (LASII) demonstration sites. SREB will provide professional development, technical assistance and review visits, on-site coaching assistance, electronic and telephone support and summer institutes.

- *An Innovative High Schools Initiative*: The purpose this initiative is to explore models that will increase career and college readiness through a direct connection to technology and project-based learning. Key components of high school models will include
 - project- and problem-based learning;
 - 1:1 computer ratios in every classroom;
 - rigorous and relevant curriculum;
 - life skill development (project management, collaboration, leadership);
 - flexible business/education environment which provides internship;
 - teacher collaboration, team teaching, and curricular integration;
 - caring community of learners with adults as advisors;
 - authentic assessment which includes student presentation;
 - opportunities for early college credit;
 - facilities that support team teaching; and
 - professional development to support ongoing high school innovations

For more information about the school redesign efforts in Louisiana, see the High School Redesign section of the Louisiana Department of Education website at <http://www.louisianaschools.net/lde/hsr/home.html>. In addition, see the publications entitled *High School Counts: Louisiana's Goals to Achieve Student Academic and Career Success* (Summer 2008) at <http://www.louisianaschools.net/lde/uploads/13153.pdf> and *Building a Better Future for Louisiana Students Through High School Redesign: High School Redesign Commission Report – Phase 2* (Spring 2007) at <http://www.doe.state.la.us/lde/uploads/11051.pdf>.

Florida

The high school redesign plan used by Volusia County Schools in Florida, as reported in 2006^{ci}, incorporated four priority high school redesign components as follows:

- High expectations with rigor and relevance.
- Grade level transitions.
- Sustained and supported staff development.
- Supportive student-teacher relationships.

These components are founded on seven guiding principles and five best practice indicators as follows:

- Guiding Principles:
 1. The principal is the instructional leader for professional learning communities.
 2. Curriculum is non-negotiable.
 3. Each student will learn.
 4. The primary focus is instruction not structure.
 5. Each school has a unique learning culture.
 6. Decisions are based on data analysis.
 7. Teachers will provide optimal learning opportunities to ensure all students learn.
- Best Practice Indicators:
 1. Core Academic Rigor
 2. Acceleration Mechanisms – Stretch Learning
 3. Progress Monitoring for Continuous Improvement

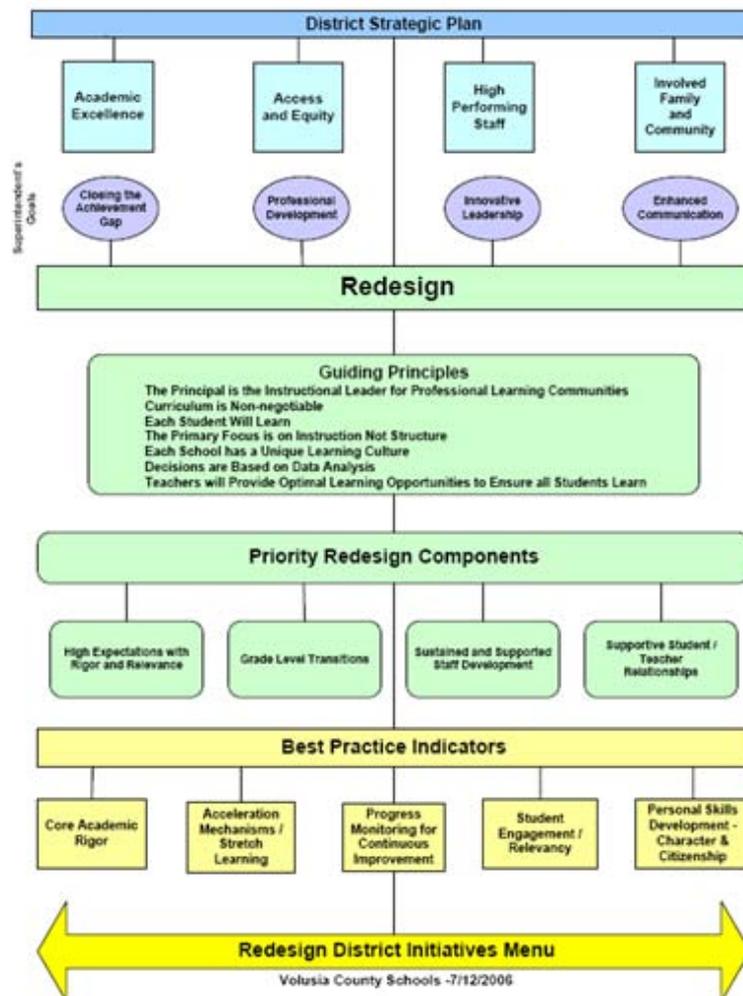
4. Student Engagement and Relevancy
5. Personal Skills Development, Character & Citizenship

The year one goals for this strategic redesign plan included the following:

1. Create and implement a framework for rigorous and relevant secondary curriculum.
2. Create multiple career-focused pathways.
3. Provide effective leadership development opportunities for administrators, teachers, parents and the community focused on instructional practices and strategies.
4. Provide opportunities that include a caring adult relationship with each student.

Volusia County's redesign flowchart is illustrated in Diagram 10.

Diagram 10: Redesign Flowchart



For more information about the high school redesign efforts in Volusia County, Florida, see <http://www.volusia.k12.fl.us/secondaryredesign/>. This website offers timelines, action plans, indicator rubrics, process rubrics, PowerPoint presentations, and resources to support the development of professional learning communities.

Case Study 10: Bishop Carroll High School, Alberta & Thomas Haney Secondary Centre, BC (Personalized Schools)

The following two descriptions were excerpted from an article by Lowery et al (date unknown) entitled, "Personalized Schools" found at http://www.lecforum.org/publications/l_j_t_pers_schools_article_1.htm.

Bishop Carroll High School

Bishop Carroll is a high school which was specifically designed with the intent of providing a continuous progress personalized model of education. Under the direction of their teachers, Bishop Carroll students proceed through their courses, working at their own speed and consulting with the teachers as required.

At Bishop Carroll, students work independently and complete courses throughout the year. They also take exams when they are ready for them, maintaining their own rate of continuous progress. Final exams may be written every day of the year in the Testing Centre. Only students who are writing Grade 12 Diploma exams or Advanced Placement exams have to meet external schedules.

Much of the course material is assembled in self-study packages so students can work continuously on their studies. Many students extend their learning time into the evenings, weekends, and school holidays. Each school day itself is continuous, with students stopping for lunch and breaks at times that they choose. All students schedule their own learning and testing to meet their own time requirements. Students who start late in the year, or leave early, or have to miss school time during the year, do not miss classes, assignments or exams. Students who are involved in mentoring, job-shadowing, work experience or interdisciplinary studies are afforded the flexibility to pursue their interests, without jeopardizing their studies. These activities are scheduled by each student, not by the school.

All courses have been packaged as independent-study materials known as learning guides. The learning guides tell students exactly what they must learn, show them how to learn it, and prepare them for testing and evaluation. Learning guides include a wide variety of activities such as reading books and articles, viewing videos and other media, completing questions and other assignments, conducting experiments, drawing sketches, playing instruments, and so on, depending on the subject.

Teachers are always available in the Resource Centres to meet with individuals who want help with a learning guide activity. This one-on-one consultation is a powerful teaching/learning setting. With one teacher or assistant for every 12 students at Bishop Carroll, students are able to get help whenever they need it. But students at Bishop Carroll also have many opportunities for group learning. The learning guides often direct students to participate in team learning and seminars as well as large group presentations.

Every Bishop Carroll teacher acts as a teacher advisor, responsible for overseeing the educational progress of a number of students. Each student is assigned to a teacher advisor and remains with that advisor until graduation. This allows the teacher advisor and the student to establish a strong and productive relationship. Teacher advisors meet with students as a group at least twice daily, and individually, as often as necessary. It is the teacher advisor's responsibility to know how well students are doing in all subjects, to help students set goals, to help motivate them, to assist in career planning, and to stay in touch with parents.

Student work units completed in the learning guides are recorded daily by the teacher advisors. Students and teacher advisors jointly plan each student's schedule and constantly monitor achievement. The teacher advisors issue progress reports on a regular basis so parents can keep close tabs on the amount and quality of student work. Parents are urged to stay in touch with the teacher advisors by telephone or through personal interviews.

Universities and colleges use scores on government diploma examinations to rate Alberta students. The provincial Diploma exams regularly reveal both the strength of the academic program at Bishop Carroll and its students' commitment to success. The average Bishop Carroll Diploma exam results are constantly among the highest in the province.

Thomas Haney Secondary Centre

Thomas Haney was designed and constructed with a personalized education program in mind. Typical classroom spaces were replaced by large open spaces that encourage student and teacher collaboration. Much of the students' work is completed individually and in small groups. The curriculum requirements of the Ministry of Education are presented in a format that enables students to work at their own pace on learning tasks commensurate with their learning styles. Each academic course is defined in terms of units and learning guides. A course is composed of four units with five learning guides written for each unit.

Each student develops a personalized educational plan with the assistance of a teacher advisor. Teacher advisors work with a multiage group of approximately 18 students. They meet with their advisees each day for 30 minutes at the beginning of the day to plan their daily schedules and then again at lunch for five minutes to check attendance. Advisors are empowered to assign students to appropriate learning centres for varying lengths of time. Required group meetings are placed first on the daily schedule. The remainder of the day is planned for individual and group work as appropriate for each student.

Physical education and music students meet in groups two to three times per week. Physical education is divided into four units: team games, individual events, personal development and outdoor pursuits. Each unit equals 25 % of the total course and offers a variety of activities to meet the requirements. Choral and instrumental music students work individually and meet in small group practice sessions, in addition to meeting as a total group.

Teacher advisors monitor student progress continuously using a computer network that links teacher "outstations" with a central control center. Advisors access advisee records as needed. The school administers the Learning Style Profile developed by the National Association of Secondary School Principals. The results of this instrument are used by teacher advisors and teachers to assist students in selecting activities within learning guides and in choosing appropriate learning environments.

A recent assessment of secondary schools in British Columbia indicated that Thomas Haney outscored all schools on the final English provincial examination and the final English literature examination. One Haney student attained the highest mark in the province on the French examination. The Province, Vancouver's major newspaper, ranked Thomas Haney as the number one secondary school in the province based on the results of the provincial examinations completed in 1996. Rolfsen (1997), a news writer for the local paper, concluded that Thomas Haney has "become the place for teens to go if they want to learn to be more independent."

For more information about the personalized learning environment at Thomas Haney Secondary Centre, see the Jenkins and Keefe article entitled, "Two Schools: Two Approaches to Personalized Learning" at http://www.lecforum.org/publications/Jenkins_Keefe_KAPPAN_Article_2.htm.

Case Study 11: Met School (Metropolitan Regional Career and Technology Center), Providence, Rhode Island



First opened in 1996, the Met School in Providence, Rhode Island (<http://www.themetschool.org/Metcenter/home.html>) was collaboratively designed by Littky and Washor to answer the question “What’s best for kids?” Their design took into consideration research that demonstrates schools need to be smaller, parents need to be involved, and curricula needs to be personalized. The Met is grounded in the philosophy of educating one student at a time and the principles of rigor, relevance and relationships. The core tenets of a Met education include:

1. Learning in the real world;
2. Advisory and assessment;
3. Applied academics and assessment;
4. Health and wellness; and
5. Travel opportunities. (See http://www.themetschool.org/Metcenter/The_Education.html for more information about these tenets.)

The Met design can now be found in 36 schools across 16 cities and 12 states.

The school maintains a student to teacher ratio of 15:1, and focuses on creating a strong community for its students, engaging families in their education, and using non-traditional methods of student evaluation. The Met School expanded across Providence to a network of six small schools of 120 students each. It reports one-third the dropout rate, one-third the absentee rate, and one-eighteenth the suspension rate of typical public high schools in Providence. In addition, the school reports that every graduate has been accepted into college, regardless of family educational background. For more assessment measures, see http://www.themetschool.org/Metcenter/Facts_and_Data.html.

The senior thesis project of a Met student named Cory typifies the learning experience in the school. Washor (2006-2007)^{cit} described Cory’s experience as follows:

Cory spent 10 months photographing a local landmark called the Old Royal Mill, working with a professional photographer as his mentor. Cory not only perfected his photographic technique, but--guided by teacher Charly Adler--he also studied the physics of light and the lenses and chips that capture and process light. He studied the chemistry of producing photographs from old-fashioned cameras as well as film processing. Cory explored composition in both art and writing so that he could write more effectively about his artistic process and his photographs. He consulted with other photographers, read and researched, and spent hours at various times of the day taking photographs and analyzing their technical and aesthetic qualities.

Finally, Cory exhibited a portfolio of his photographs at the Met School's bookstore and café. His reflection on the project shows the depth of his exploration:

I grew up around [the Old Royal Mill], although not thinking much of it. I became further fascinated by it when I was 16. The show hanging in the gallery where I was doing an internship at the time featured a collection of works done by an artist named Jennifer Jutra. The exhibition consisted of a series of color photographs taken in the mill. The work captivated me and left me with questions as to how I could have lived so close to such a beautiful place and never had any interest whatsoever in exploring it. It would take me several years to do so.... The body of work you see here represents 10 months of shooting and, consequently, 10 months of discovery: discovery within the [mill] buildings, discovery within the community built around them, and discovery within me and my own creative nuances.

Cory's progress shows that getting relationships and relevance right prepares students to embrace rigorous learning opportunities. Cory's teacher was there when he was emotionally and intellectually ready for the rigorous challenges of this project.

As Mike Rose argues in *The Mind at Work: Valuing the Intelligence of the American Worker* (2004),

We mistake narrowness for rigor, but actually we are not rigorous enough.... [Rigor] demands more, not less, from those of us who teach, who organize work, or who develop social policy. To affirm this conception of mind and work is to be vigilant for the intelligence not only in the boardroom but on the shop floor; in the laboratory and alongside the house frame; in the workshop and in the classroom. This is a model of mind that befits the democratic imagination. (p. 216)

Northrop (2005)^{ciii} described a similar experience for another Met student named Krupka as follows:

Krupka [took] his love of cooking into his business entrepreneurship class and has started to learn how he could convert that passion into a profession. Like hundreds of students around the country who are using the Ford Partnership for Advanced Studies curriculum (Ford PAS), Krupka is exploring a variety of business, engineering, and technology challenges designed to prepare him for postsecondary education and the workplace.

The Ford PAS curriculum used at the Met School and referred to in this article was described by Northrop (2005) as follows:

Ford PAS brings together academic and technical skills to create activities that engage young people, have meaning for them, and help them invent a new future for themselves... Throughout its five courses, Ford PAS fuses its academic, business, and technology subject matter with the life skills that high school students are working to develop, such as critical thinking, problem-solving, teamwork, communication, and personal management. The modules, which emphasize student participation and contributions, begin with an introduction to the world of business, product development, and manufacturing and go on to explore how businesses adapt to change, how decision makers use and manage data, and how designers are meeting twenty-first century challenges. The final section covers basic principles of the global economy.

For more information about the Ford PAS, see <http://www.fordpas.org>, in particular the brochure entitled, "Big Picture Learning," which can be found at <http://www.bigpicture.org/wp-content/uploads/2008/11/big-picture-brochure.pdf>.

Recommendations related to the architectural design of the Met School can be found at Washor, E.; *Innovative Pedagogy and School Facilities: The story of the MET School in Rhode Island – a drama, history, doctoral thesis and design manifesto*; 2003; <http://www.designshare.com/Research/Washor/Pedagogy%20and%20Facilities.pdf>;

Retrieved February 2009

APPENDIX C: CES SCHOOL BENCHMARKS – CLASSROOM PRACTICES

The Coalition of Essential Schools (CES) defined and aligned the following classroom practices to their foundational principles.^{civ}

Foundational Principle	Classroom Practices
Learning to use one’s mind well	Essential questions (see #3 below) Habits of mind and heart (see #4 and 5 below) Interdisciplinary curriculum (see #6 below) Performance-based assessment (see #7 below) Student-centered teaching and learning (see #8 below)
Less is more: depth over coverage	Essential questions Habits of mind and heart Interdisciplinary curriculum
Goals apply to all students	Culturally responsive pedagogies (see #1 below) Differentiated instruction (see #2 below) Performance-based assessment
Personalization	Culturally competent pedagogies Differentiated instruction Student-centered teaching and learning
Student-as-worker, teacher-as-coach	Interdisciplinary curriculum Student-centered teaching and learning
Demonstration of mastery	Performance-based assessment
A tone of decency and trust	Culturally responsive pedagogies Habits of mind and heart
Democracy and equity	Culturally responsive pedagogies Differentiated instruction

1. *Culturally responsive teaching* is a pedagogy that recognizes the importance of including students’ cultural references in all aspects of learning (Ladson-Billings, 1994).
2. *Differentiated instruction* is recognizing students’ varying background knowledge, readiness, language, preferences in learning, and interests, and reacting responsively. Differentiated instruction addresses the needs of students of differing abilities and learning styles in the same class. The intent of differentiating instruction is to provide multiple access points for diverse learners to maximize growth and individual success by meeting each student where he or she is and assisting in the learning process from that point. Differentiated Instruction is a series of essential strategies for working in heterogeneous classrooms and eliminating tracking.
3. *Essential questions* are the starting point to develop curricula. Curriculum and courses should be organized not around answers but around big ideas—questions and problems to which content represents answers. Essential questions on every level—from the most encompassing school-wide questions to the specific question posed in a particular unit of a particular course—should shape the way students learn to think critically for themselves. Consequently, essential questions are related to the school’s goals: that each student master a limited number of essential skills and areas of knowledge (see Habits of Mind and Heart).
4. *Habits of mind* are a set of thinking dispositions that help people develop their critical and creative thinking skills. They are the characteristics of what intelligent people do about problems whose resolution is not immediately apparent; that is, they are the mental habits individuals can develop to render their thinking and learning more self-regulated. The habits of mind are not designed to be thinking tools, rather they are designed to be dispositions adopted when using a thinking tool.

5. *Habits of heart* are a collection of emotional dispositions designed to help people develop their social-emotional intelligence. Habits of heart help people care for, identify with, and honor others as well as respect the emotions and rights of others and how they see the world. The phrase also describes an ability, capacity, or skill to perceive, assess, and manage one’s own emotions and the emotions of other individuals and groups.
6. *Interdisciplinary curriculum* combines several school subjects into one active project or is organized to cut across subject-matter lines, bringing together various aspects of the curriculum into meaningful association. It focuses on broad areas of study since that is how children encounter subjects in the real world—combined in one activity. In the interdisciplinary curriculum, the planned learning experiences not only provide the learners with a unified view of commonly held knowledge (by learning models, systems, and structures) but also motivate and develop learners’ power to perceive new relationships and thus to create new models, systems, and structures. Interdisciplinary curriculum involves using the knowledge view and curricular approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience.
7. *Performance-based assessment* While any assessment system should include multiple assessment types that are matched with the needs of teachers (to make decisions regarding instruction) and learners, demonstration of mastery on school-wide outcomes and high-level competencies should be assessed using a performance-based system. A performance-based assessment system is an integrated approach to education that underpins the culture of a school and links together a number of factors:
 - Curriculum
 - Instruction
 - Variety of student work over time
 - Continuous assessment
 - External oversight
 - High standards
 - Professional development

Using a performance-based assessment system requires that assessment must not stand apart from the day-to-day work and schooling, of every student; it must be continually incorporated into all activities. A performance-based assessment system requires students to engage in time-intensive, in-depth research projects and papers, to engage in rigorous performance tasks that require students to think like historians, solve problems like mathematicians, conduct experiments the way scientists do, critically interpret works of literature, and speak and write clearly and expressively. As in the time-honored tradition of the Ph.D. defense, students in a performance-based assessment system must orally present and defend completed work to external assessors.

8. *Student-centered teaching and learning* focuses on the needs, abilities, interests, and learning styles of the students and has many implications for the design of curriculum, course content, and the interactivity of courses. Accordingly, a prominent pedagogy will be teacher-as-coach, to encourage students to learn how to learn and thus to teach themselves, rather than the more traditional teacher-centered learning with teacher-as-deliverer-of-instructional-services, which places the teacher at its center in an active role and students in a passive, receptive role. This pedagogy acknowledges student voice as central to the learning experience for every learner and requires students to be active, responsible participants in their own learning. To capitalize on this, teaching and learning should be personalized to the maximum feasible extent. Decisions about the details of the course of study, the use of students’ and teachers’ time, and the choice of teaching materials and specific pedagogies must be unreservedly placed in the hands of the staff and students.

For more information about these benchmarks as well as the benchmarks for organizational practices, see http://www.essentialschools.org/pdfs/CES_School_Benchmarks.pdf. For information about how to use the benchmarks, see <http://www.essentialschools.org/pdfs/Guides/How%20to%20use%20Benchmarks.pdf>. This information is also available in a hyperlinked table of the CES School Benchmarks at http://www.essentialschools.org/pub/ces_docs/schools/benchmarks/benchmarksTOC.html.

APPENDIX D: CAREER ACADEMIES – PROS AND CONS

The following table of pros and cons was excerpted from a summary of research and implications on high school reform strategies released by a school district in North Carolina. See the full report entitled *High School Reform Strategies: A Summary of Research and Implications* at <http://www.chccs.k12.nc.us/ISD/HighSchoolreformCareerA.pdf> (no publication date, retrieved February 2009).

High School Career Academies as a Reform Strategy	
PROS	CONS
Potential to provide more meaningful coursework through integration of academics with career interests and real-world examples and experiences	Potential to decrease student diversity through self-selected, smaller communities unless types of academies attract diverse groups of students
Partnership with and support of business partners increases authenticity of learning, student motivation and engagement, and employer satisfaction with graduates' preparation	No impact on improving student achievement unless strategies for improving student preparation are incorporated, and more academic and interpersonal support for achieving more rigorous standards is provided
Productive strategy for creating smaller learning communities	On-going increased expense of creating smaller learning community (estimated at 3-5% budget increase)
Proven effective strategy for decreasing dropouts	Difficulty determining a regional approach or selecting an academy that will attract adequate student enrollment (i.e., minimum 400 students/10 faculty), perhaps leading to transportation issues
Proven strategy for increasing likelihood of pursuing post-secondary study	Could have detrimental impacts on at-risk and mid-level students if interpersonal supports not increased
Potential for increasing standards for all students by incorporating more rigorous career-oriented college prep course requirements for all students	Potential issues related to perceptions of parents and students about the goals of college prep versus career-oriented college prep
Career-area focus can help encourage collaboration and professional learning communities among teachers across disciplines	Career-area focus does not, in and of itself, necessarily promote development of professional learning community
Opportunity for students to experience career-related work such as projects, internships and apprenticeships Opportunities for teachers to collaborate with business/community to incorporate more authentic applications of academic knowledge into courses	

APPENDIX E: A COMPARISON OF TRADITIONAL AND PERSONALIZED EDUCATIONAL ENVIRONMENTS

Amenta and Lowery offered the following comparison of traditional and personalized learning environments, excerpted from an article entitled; “Personalized Learning Environments” (see http://www.lecforum.org/publications/Pers_Learning_Environments_Article_1.htm for more information).

Traditional Learning Environment	Personalized Educational Environment
<p>Teacher A: Has several classes of 25 to 35 students for a semester or a year. Has a new class(es) of students each semester or year. Responsibilities:</p> <ol style="list-style-type: none"> Cover course content in a given time allocation. Test for levels of student achievement on given content. Teach all students of various abilities at the same time. Meet with and report to parents about success/failure of 80 to 100 students. Keep class attendance records on 80 to 100 students. 	<p>Teacher B: Works in a resource center learning environment based on a continuous progress format, with students of various grade and achievement levels. Responsibilities:</p> <ol style="list-style-type: none"> Advise and monitor a group of 20 to 25 students during their total high school careers. Develop learning guides for assigned subject areas. Meet with students in small group seminars. Coach students in small groups and in one-on-one instructional settings. Evaluate student achievement on specific subject content. Meet with and report to parents about the success/failure of 20 to 25 students.
<p>Example - Mathematics</p> <ol style="list-style-type: none"> May be offered for 40 to 80 minutes per day for a semester. All students take a test at the same time covering selected content. Instructional time is the same for all students, high achievers and low achievers. All students complete the course at the same time. Grades may range from F to A, 0 to 100 percent. 	<p>Example - Mathematics:</p> <ol style="list-style-type: none"> The students complete the course unit by unit based upon mastery. The instructional time may vary for each student. Students complete each course relative to individual pace and achievement. Student take tests when they are ready. Student grades will vary from credit to A, from 70 to 100 percent. The minimum accepted level is set by school policy.
	<p>Student Role in a Personalized Learning Environment</p> <p>Students come to school with differences in life experience, cultural/ethnic/racial background, family structure, learning style, etc. They also bring differences in motivational preferences, intellectual aptitudes, personality, physical characteristics and abilities, and learning rates.</p> <p>In the personalized learning environment, the student is appreciated for these differences, and is assumed to have strengths and limitations that are demonstrated within these differences.</p> <p>A personalized program attempts to meet the needs of</p>

Traditional Learning Environment	Personalized Educational Environment
	<p>individual students. It is characterized by the values of trust, cooperation, respect, honesty and integrity. Student-staff interaction takes place in a variety of locations and utilizes a variety of teaching methodologies.</p>
	<p>Teacher Role in a Personalized Learning Environment</p> <p>Teachers in a personalized environment serve as advisors, diagnosticians, instructors, and facilitators. The teacher is an advisor to students, a facilitator of learning, a diagnostician of the learning process, and a role model. The teacher is first and foremost a person dedicated and committed to students and their work. To be successful, teachers must be innovative and risk-takers, excited about learning and willing to improve. They must have a commitment to ongoing professional development. Typical challenges for teachers under personalization include identifying student needs and learning style, and developing a flexible array of programs in order to provide all students with opportunities for success. A major organizational component of personalization is that each teacher serves a dual role. All teachers are engaged in advisement which places major emphasis on knowing and helping some twenty to twenty-five advisees as total individuals. In addition, each teacher is a facilitator of instruction, providing students with subject matter instruction and coaching in one or more of the academic disciplines.</p> <p>For a school to operate in a continuous progress fashion, each student must have an individual schedule or timetable. This scheduling process involves teacher to student discussion and teacher monitoring of student achievement and behavior on a regular basis. The teacher advisor becomes the vehicle for communication between the home and the school. This constant contact between teachers and students over a period of time can promote the positive and humane climate so desired in all schools. LEC teachers have heard students say, "Trust me, give me some power to act and let me be responsible, but don't wash me out if I fail a task." Students want someone to stand by and be ready to support their actions. It is here that the role of teacher advisor is so important.</p>

APPENDIX F: STRATEGIES FOR EDUCATION REFORM

Nair (2003) and Jurich and Estes (2000) identify several strategies that support the foundational principles of high school redesign.

Jurich and Estes (2000)^{CV} used the following diagram to capture the various categories of strategies associated with successful youth programs (see Diagram 11).

Diagram 11: Strategies of Successful Youth Programs



In the following table, Nair (2003)^{vi} lists 30 reform strategies that have been linked to “new paradigm schooling” which is founded on the principles of leadership, lifelong learning and cultural diversity. These strategies have been associated with one or more of the following three categories:

- *Pedagogy* which refers to any strategy that requires teachers to adopt teaching methods or practices in order to implement the strategy.
- *Organization* which refers to the need for support from the school administration, educational establishment or other governmental or constituent group in order to implement the strategy.
- *Non-Academic* which refers to any strategy that has non-academic benefits.

According to Nair (2003) organizing the strategies in this manner “clearly shows why they are important and how they can benefit schools.”

Number	Reform Strategy	Pedagogy	Organization	Non-Academic
1	Personalization	X		X
2	Multi-age Classes	X	X	X
3	Small Learning Communities		X	X
4	Student Advisories		X	X
5	Small Learning Communities with Academies		X	X
6	Multidisciplinary Curricula with Block Scheduling	X	X	
7	Cooperative Learning	X		X
8	Project-Based Learning	X		X
9	Peer Tutoring	X		X
10	Peer Instruction	X		
11	Team Teaching	X	X	
12	Community Service Learning	X	X	X
13	Looping		X	
14	Business Partnerships for Assessment, Resources and Funding	X	X	
15	Global Connections	X	X	X
16	Internships	X	X	X
17	The Resurgence of Art	X		X
18	Laptops and Wireless Technology for Anytime, Anywhere Learning	X	X	X
19	Parent Involvement		X	X
20	Student-Led Performances	X		X
21	Non-Academic Life Skills Curricula	X		X
22	Meaningful Career Counseling			X
23	Social/Emotional Counseling			X
24	Physical Fitness Programs - Beyond Sports			X
25	Outdoor Learning			X
26	Student-Run Independent Newspaper		X	X
27	Relevant Staff Development and Adequate Staff Preparation Time		X	
28	Portfolio-Based Assessment	X	X	
29	New Paradigm School Buildings		X	
30	After School Programs and Community Use of Schools		X	X

ENDNOTES

- ⁱ Alberta Education; *Guide to Education: ECS to Grade 12*; (2008); <http://education.alberta.ca/media/832568/guidetoed.pdf>; Retrieved February 2009
- ⁱⁱ Alberta Education; *Funding Manual for School Authorities: 2008-2009 School Year*; (2008); http://education.alberta.ca/media/822819/21552_fund_manual_october_2008.pdf; Retrieved February 2009
- ⁱⁱⁱ Alberta Education; *Teaching Quality Standard Applicable to the Provision of Basic Education in Alberta (Ministerial Order #16/97)*; (1997); <http://education.alberta.ca/departement/policy/standards/teachqual.aspx>; Retrieved February 2009
- ^{iv} The Carnegie Foundation for the Advancement of Teaching; <http://www.carnegiefoundation.org/about/sub.asp?key=17&subkey=1874>; Retrieved February 2009
- ^v Shedd, Jessica; "The History of the Student Credit Hour"; *New Directions for Higher Education*; no. 122; Summer; 2003; <http://virtual.parkland.edu/todtreat/presentations/cetl03/shedd2003%20history%20of%20credit%20hour.pdf>; Retrieved March 2009
- ^{vi} Hamilton, N.K. "What Can be Done about the Carnegie Unit." *Educational Leadership* (January 1966). http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_196601_hamilton.pdf; Retrieved February 2009
- ^{vii} Maeroff, Gene; *Education Week*; October, 1993; "The Assault on the Carnegie Unit"; <http://www.edweek.org/ew/articles/1993/10/13/06maerof.h13.html>; Retrieved February 2009
- ^{viii} Palmer Noone, L and Swenson, C. "5 Dirty Little Secrets in Higher Education." *Educause* (November/December 2001). <http://net.educause.edu/ir/library/pdf/ERM0161.pdf>; Retrieved February 2009
- ^{ix} Shedd, Jessica (2003). "The History of the Student Credit Hour". *New Directions for Higher Education*; <http://virtual.parkland.edu/todtreat/presentations/cetl03/shedd2003%20history%20of%20credit%20hour.pdf>; Retrieved February 2009
- ^x See information about the ASCD High School Reform Proposal at http://www.ascd.org/public_policy/High_School_Reform/High_School_Reform_Summary.aspx. A summary of the proposal can be found at <http://www.ascd.org/ASCD/pdf/newsandissues/High%20School%20Reform%20One%20Page%20Summary.pdf>. Retrieved February 2009
- ^{xi} These foundational principles were identified in a presentation by Gerry Fijal at the CCSDL 3rd Annual Conference held in October 2000 in Edmonton, Alberta.
- ^{xii} Coalition of Essential Schools; *The CES Common Principles*; August 2006; http://www.essentialschools.org/pub/ces_docs/about/phil/10cps/10cps.html; Retrieved February 2009 Note: CES offers a box set of three DVDs (\$100 USD) that provide overviews of the implementations of these principles in several U.S. schools (see <http://store.essentialstore.org/dvd-2disc-se.html> for information).
- ^{xiii} Learning Environments Consortium International; <http://www.lecforum.org/index.html>; Retrieved February 2009
- ^{xiv} The Model Schools Project; <http://www.modelschoolsproject.org/>; Retrieved February 2009
- ^{xv} Quint, Janet; *Meeting Five Critical Challenges of High School Reform: Lessons from Research on Three Reform Models*; May 2006; <http://www.mdr.org/publications/428/full.pdf>; Retrieved February 2009
- ^{xvi} Keefe and Amenta; *Phi Delta Kappan*; "Whatever Happened to the Model Schools Project;" March 2005; http://findarticles.com/p/articles/mi_6952/is_/ai_n28260068; Retrieved February 2009
- ^{xvii} Kristin, Sunny; *Effective High School Reform: Research and Policy That Works*; July 2005; <http://www.ncsl.org/programs/educ/EffectiveHSReform.htm>; Retrieved February 2009
- ^{xviii} Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ^{xix} Office of Vocational and Adult Education; U.S. Department of Education; *Preparing America's Future: The Secretary's High School Initiative*; Launched in 2003; <http://www.ed.gov/about/offices/list/ovae/pi/hsinit/index.html>; Retrieved February 2009. See links to the supporting issues papers, that describe the issue, related research and noteworthy practices for each of the four principles at <http://www.ed.gov/about/offices/list/ovae/pi/hsinit/highspec.html>.

<http://www.ed.gov/about/offices/list/ovae/pi/hsinit/options.html>,
<http://www.ed.gov/about/offices/list/ovae/pi/hsinit/teach.html>, and
<http://www.ed.gov/about/offices/list/ovae/pi/hsinit/trans.html>.

^{xx} Public Schools of North Carolina; School Turnaround: America's Choice;
<http://www.ncpublicschools.org/turnaround/models/americaschoice/>; Retrieved February 2009

^{xxi} For more information about the America's Choice Model, see National High School Center; betterhighschools.org; America's Choice; http://www.betterhighschools.org/map/choice.asp#_ftn1; Retrieved February 2009.

For more information about the research that supports this model, see *America's Choice School Design: A Research-Based Model* (2002) at http://colosus.ncee.org/pdf/acsd/research/research-based_model.pdf; Retrieved February 2009

^{xxii} Fiscal Research Division; North Carolina General Assembly; *Fiscal Brief: North Carolina High School Reform*; December 21, 2007;
http://www.ncleg.net/fiscalresearch/frd_reports/frd_reports_pdfs/fiscal_briefs/High%20School%20Reform%20Fiscal%20Brief_Final_12%2021%2007.pdf; Retrieved February 2009

^{xxiii} National Center on Education and Economy; *The Education Innovator*, U.S. Department of Education, "America's Choice Lifts Students to Reach the Achievement Bar"; October 25, 2004;
<http://www.ncee.org/ncee/news/detail.jsp?setProtocol=true&id=74>

^{xxiv} For a list of America's Choice High Schools by state see the *Summary of National High School Alliance Partner Survey* at <http://www.hsalliance.org/downloads/mapping/SurveyReportDec2006.pdf>. Retrieved February 2009

^{xxv} Lachat, Mary Ann; The Education Alliance, Brown University, Providence Rhode Island; *Data-Driven High School Reform: The Breaking Ranks Model*; 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfrm.pdf; Retrieved February 2009

^{xxvi} Smith, Thomas; National High School Center; *Linking Research and Resources for Better High Schools*; "Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance;" August 2008;
http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-01-08.pdf; Retrieved February 2009

^{xxvii} Kemple, J. J.; Rock, J. L.; *Executive Summary, Career Academies: Early Implementation Lessons from a 10-Site Evaluation*; July 1996; <http://www.mdrc.org/Reports/ca-exsum-2.pdf>; Retrieved February 2000

^{xxviii} Florida Department of Education: Career Academies; http://www.fldoe.org/workforce/careeracademies/ca_home.asp; Retrieved February 2009

^{xxix} Smith, Thomas; National High School Center; *Linking Research and Resources for Better High Schools*; "Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance;" August 2008;
http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-01-08.pdf; Retrieved February 2009

^{xxx} The Early College High School Initiative; <http://www.earlycolleges.org/>; Retrieved February 2009

^{xxxi} See <http://www.earlycolleges.org/schools.html> for a map of the Early College High Schools in the U.S.

^{xxxii} See <http://www.earlycolleges.org/overview.html> for the answers to frequently asked questions about early college high schools.

^{xxxiii} See <http://www.earlycolleges.org/overview.html> for the answers to frequently asked questions about early college high schools.

^{xxxiv} For more information about the North Carolina New Schools Project, see
<http://www.ncpublicschools.org/turnaround/models/newschools/>. North Carolina is also implementing the America's Choice and Talent Development High School models in their state.

^{xxxv} Institute for Research and Reform in Education; <http://www.irre.org/>; Retrieved February 2009

^{xxxvi} U.S. Department of Education; Comprehensive School Reform Demonstration Program Overview;
<http://www.ed.gov/programs/compreform/2pager.html>; Retrieved February 2009

^{xxxvii} Cotton, K. et al; Northwest Regional Educational Laboratory; *New Small Learning Communities: Findings from Recent Literature*; December 2001; http://www3.scasd.org/small_schools/nlsc.pdf; Retrieved February 2009

^{xxxviii} Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009

-
- ^{xxxix} Office of School Redesign; *Framework for SLCs in NYC*; 2008; http://schools.nyc.gov/NR/rdonlyres/D382BC43-4A32-4C79-9EF5-DBDE346A652A/51302/framework_2008121108.pdf; Retrieved February 2009
- ^{xl} Baldwin, J.; *2001 Carnegie Challenge: Creating a New Vision for the Urban High School*; 2000; <http://www.carnegie.org/pdf/urbschl.pdf>; Retrieved February 2009
- ^{xli} This cogs diagram was excerpted from an American Youth Policy Forum article entitled, *Schools for a New Society Roundtable: Chattanooga and Providence Update*; May 2006; <http://www.aypf.org/forumbriefs/2006/fb051506.htm>; Retrieved February 2009
- ^{xlii} Southern Regional Education Board; "High Schools That Work: An Enhanced Design to Get All Student to Standards;" 2005; http://www.sreb.org/programs/hstw/publications/2005Pubs/05V07_enhanced_design.pdf; Retrieved February 2009
- ^{xliii} For more information about Ohio's implementation of the *HSTW School Improvement Framework*, see <http://www.hstw.org/index.html>.
- ^{xliv} Keefe and Amenta; *Phi Delta Kappan*; "Whatever Happened to the Model Schools Project;" March 2005; http://findarticles.com/p/articles/mi_6952/is_/ai_n28260068; Retrieved February 2009
- ^{xlv} Excerpted from The Council of Chief State School Officers; Vol. 1. Issue2; *High School Redesign Monthly*; "Strategies to Support Student Success;" April 2005; <http://www.ccsso.org/content/pdfs/HSRedesignApril05.pdf>; Retrieved February 2009
- ^{xlvi} Coalition of Essential School; *DRAFT Coalition of Essential Schools Benchmarks: Principles in Practice*; http://www.essentialschools.org/pdfs/CES_School_Benchmarks.pdf; Retrieved February 2009
- ^{xlvii} Quint, Thompson and Bald; *Relationships, Rigour and Readiness: Strategies for Improving High Schools*; October 2008; <http://www.mdrc.org/publications/498/full.pdf>; Retrieved February 2009 Note: This report summarized the lessons learning from a series of three high school reform conferences held in 2007 sponsored by MDRC, the Council of the Great City Schools, and the National High School Alliance, with support from the Bill & Melinda Gates Foundation and the James Irvine Foundation.
- ^{xlviii} See the Alberta Assessment Consortium web site at <http://www.aac.ab.ca> for more information.
- ^{xlix} Clark, I.; *Florida Journal of Educational Administration and Policy*; Vol. 2, Issue 1: "Assessment is for Learning: Formative Assessment and Positive Learning Interactions;" Fall 2008; http://www.coe.ufl.edu/leadership/fjeap/V2/FJEAP_Fall%202008_Clark-3.pdf; Retrieved February 2009
- ^l Black, P. and William, D.; *Phi Delta Kappan*, Vol. 80, No. 2; "Inside the Black Box: Raising Standards Through Classroom Assessment;" 1998; <http://www.pdkintl.org/kappan/kbla9810.htm>; Retrieved February 2009
- ⁱⁱ Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ⁱⁱⁱ Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ⁱⁱⁱⁱ Partnership for 21st Century Skills; *Results that Matter: 21st Century Skills and High School Reform*; March 2006; <http://www.21stcenturyskills.org/documents/RTM2006.pdf>; Retrieved February 2009
- ^{lv} McQuarrie, L., McRae, P., and Stack-Cutler; *Alberta Initiative for School Improvement: Differentiated Instruction – Provincial Research Review (Choice, Complexity and Creativity)*; February 2008; http://education.alberta.ca/media/747920/differentiated_aisi99xx.pdf; Retrieved February 2009
- ^{lv} Worsley, D. et al; The Education Alliance at Brown University; *Changing Systems to Personalize Learning: Teaching to Each Student*; 2003; http://www.alliance.brown.edu/pubs/changing_systems/teach_to_student/TeachingEachStudent.pdf; Retrieved February 2009
- ^{lvi} Lowery, R. et al; *Personalized Schools*; date unknown; http://www.lecforum.org/publications/l_j_t_pers_schools_article_1.htm; Retrieved February 2009
- ^{lvii} Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ^{lviii} McQuarrie, L., McRae, P., and Stack-Cutler; *Alberta Initiative for School Improvement: Differentiated Instruction – Provincial Research Review (Choice, Complexity and Creativity)*; February 2008; http://education.alberta.ca/media/747920/differentiated_aisi99xx.pdf; Retrieved February 2009
-

-
- ^{lix} McQuarrie, L., McRae, P., and Stack-Cutler; *Alberta Initiative for School Improvement: Differentiated Instruction – Provincial Research Review (Choice, Complexity and Creativity)*; February 2008; http://education.alberta.ca/media/747920/differentiated_aisi99xx.pdf; Retrieved February 2009
- ^{lx} Jenkins, Keefe; *Strategies for Personalizing Instruction: A Typology for Improving Teaching and Learning*; Date Unknown; http://www.lecforum.org/publications/personalized_instruction_typology_article_1.htm; Retrieved February 2009
- ^{lxi} Cushman, K.; *Horace*; Vol. 5, No. 4; "Scheduling the Essential School;" May 1989; http://www.essentialschools.org/cs/resources/view/ces_res/14; Retrieved February 2009
- ^{lxii} Smith, Thomas; National High School Center; *Linking Research and Resources for Better High Schools*; "Striking the Balance: Career Academies Combine Academic Rigor and Workplace Relevance;" August 2008; http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-01-08.pdf; Retrieved February 2009
- ^{lxiii} Nair, P.; *30 Strategies for Education Reform*; 2003; <http://fieldingnair.com/30strategies.pdf>; Retrieved February 2009
- ^{lxiv} Clark, Dayton, Tidyman, and Hanna; *Scheduling for Small Learning Communities / Career Academies*; 2006; http://casn.berkeley.edu/resources/scheduling_guide.html; Retrieved February 2009
- ^{lxv} Garrity and Burriss; *School Administrator*; "Personalized learning in de-tracked classrooms: Rockville Centre makes strides in transforming high school instruction for heterogeneous student groupings;" September 2007; http://findarticles.com/p/articles/mi_m0JSD/is_8_64/ai_n27373589/pg_1?tag=content;col1; Retrieved February 2009
- ^{lxvi} The definitions for these SLC structures were excerpted from the glossary found on the Broward County's High School Redesign website (see http://www.jandopresent.com/high_school_redesign/glossary.htm.)
- ^{lxvii} Parsons, J.; University of Alberta; *AIISI Technology Projects Research Review: Summary of Findings from Cycle One (2000-2001 to 2002-2003)*; 2004; <http://education.alberta.ca/media/325809/What10.pdf>; Retrieved February 2009
- ^{lxviii} See more information about Alberta Education's Distributed Learning Strategy at the Distributed Learning Forum Online Community at <http://arpdc.ab.ca/DLForumA/main.html>.
- ^{lxix} Stansbury and Smith; *eSchoolNews*; "Technology Empowers Differentiated Instruction;" February 2, 2009; <http://www.eschoolnews.com/news/top-news/index.cfm?i=57064>; Retrieved February 2009
- ^{lxx} Lachat, Mary Ann; *Data-Driven High School Reform: The Breaking Ranks Model*; Northeast and Islands Regional Educational Laboratory and The Centre for Resources Management, Inc.; 2001; http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf; Retrieved February 2009
- ^{lxxi} Cotton, Kathleen; *New Small Learning Communities: Findings from Recent Literature*; Northwest Regional Educational Laboratory; 2001; http://www3.cascd.org/small_schools/nlsc.pdf; McNeil, Patricia; *Rethinking High School: The New Frontier for Policymakers*; The Aspen Institute: Aspen Program for Education; 2003; <http://www.aspeninstitute.org/atf/cf/%7BDEB6F227-659B-4EC8-8F84-8DF23CA704F5%7D/ECSRethinkingHighSc.pdf>; Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ^{lxxii} Quint, Bloom, Rebeck Black, Stephens and Akey; *The Challenge of Scaling Up Educational Reform: Findings and Lessons from First Things First*; July 2005; <http://www.mdrc.org/publications/412/overview.html>; Retrieved February 2009
- ^{lxxiii} Kemple, Herlihy, and Smith; *Evidence from the Talent Development High School Model*; 2005; <http://www.mdrc.org/publications/408/overview.html>; Retrieved February 2009.
- ^{lxxiv} May, H., Supovitz, J. & Perda, D. (2004). *A longitudinal study of the impact of America's Choice on student performance in Rochester, New York, 1998-2003*. Philadelphia: Center for Policy Research in Education, University of Pennsylvania; http://repository.upenn.edu/cgi/viewcontent.cgi?article=1099&context=gse_pubs
- ^{lxxv} Southern Regional Education Board; *High Schools that Work; An Enhanced Design to Get All Students to Standards*; 2005; http://www.sreb.org/programs/hstw/publications/2005Pubs/05V07_enhanced_design.pdf; Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009; Lieberman, Janet; *The Early College High School Concept: Requisites for Success; Jobs for the Future*; 2004; <http://www.earlycolleges.org/Downloads/ECHSConcept.pdf>
- ^{lxxvi} Kemple, Herlihy, and Smith; *Evidence from the Talent Development High School Model*; 2005; <http://www.mdrc.org/publications/408/overview.html>; Retrieved February 2009
-

-
- ^{lxxvii} Lieberman, Janet; *The Early College High School Concept: Requisites for Success; Jobs for the Future*; 2004; <http://www.earlycolleges.org/Downloads/ECHSConcept.pdf>
- ^{lxxviii} Klem and Connell; *Relationships Matter: Linking Teacher Support to Student Engagement and Achievement*; Tenth Biennial Meeting of the Society for Research on Adolescence; March 2004; Ungerleider, Charles; Evaluation of the Ontario Ministry of Education's Success Strategy/Learning to 18 Strategy: Final Report; 2008; http://www.edu.gov.on.ca/eng/teachers/studentsuccess/CCL_SSE_Report.pdf
- ^{lxxix} Quint, Thompson and Bald; *Relationships, Rigour and Readiness: Strategies for Improving High Schools*; October 2008; <http://www.mdrc.org/publications/498/full.pdf>; Retrieved February 2009 Note: This report summarized the lessons learning from a series of three high school reform conferences held in 2007 sponsored by MDRC, the Council of the Great City Schools, and the National High School Alliance, with support from the Bill & Melinda Gates Foundation and the James Irvine Foundation.
- ^{lxxx} Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009; Smith; *Volusia County Schools Secondary Redesign Plan*; 2007; <http://www.volusia.k12.fl.us/secondaryredesign/> and <http://www.volusia.k12.fl.us/k12redesign/files/powerpoint%20files/FASA%20Summer%20Leadership%202006.ppt>
- ^{lxxxi} May, H., Supovitz, J. & Perda, D. (2004). A longitudinal study of the impact of America's Choice on student performance in Rochester, New York, 1998-2003. Philadelphia: Center for Policy Research in Education, University of Pennsylvania. http://repository.upenn.edu/cgi/viewcontent.cgi?article=1099&context=gse_pubs
- ^{lxxxii} Kemple, Herlihy, and Smith; *Evidence from the Talent Development High School Model*; 2005; <http://www.mdrc.org/publications/408/overview.html>; Retrieved February 2009
- ^{lxxxiii} Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009
- ^{lxxxiv} Martinez and Klopott; *The Link between High School Reform and College Access and Success for Low-Income and Minority Youth*; 2005; http://www.pathwaystocollege.net/pdf/HighSchoolReform_FullReport.pdf; Retrieved February 2009
- ^{lxxxv} Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009
- ^{lxxxvi} Lieberman, Janet; *The Early College High School Concept: Requisites for Success; Jobs for the Future*; 2004; <http://www.earlycolleges.org/Downloads/ECHSConcept.pdf>
- ^{lxxxvii} Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009
- ^{lxxxviii} Kemple and Willner; *Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*; June 2008; <http://www.mdrc.org/publications/482/overview.html>; Retrieved February 2009
- ^{lxxxix} Quint, Thompson and Bald; *Relationships, Rigour and Readiness: Strategies for Improving High Schools*; October 2008; <http://www.mdrc.org/publications/498/full.pdf>; Retrieved February 2009
- ^{xc} Darling-Hammond and National High School Alliance; *10 Features of Good Small Schools: Redesigning High Schools, What Matters and What Works*; 2002; http://www.srnleads.org/data/pdfs/10_features.pdf; Retrieved February 2009
- ^{xci} Pecheone, R.; Tytler, p.; and Ross, P.; "Austin Independent School District and the School Redesign Network at Stanford University: A Partnership for Successful School Redesign"; School Redesign Network (SRN) at Stanford University; 2006; <http://www.srnleads.org/data/pdfs/austin.pdf>; Retrieved March 2009
- ^{xcii} McNeil, Patricia; *Rethinking High Schools: The Next Frontier for State Policymakers*; The Aspen Institute Program On Education in a Changing Society; January 2003; <http://www.aspeninstitute.org/atf/cf/%7BD5E6F227-659B-4EC8-8F84-8DF23CA704F5%7D/ECSRethinkingHighSc.pdf>; Retrieved February 2009
- ^{xciii} Century and Levy; "Sustaining Your Reform: Five Lessons from Research"; *Benchmarks: The Quarterly Newsletter of the National Clearinghouse for Comprehensive School Reform*; Summer 2002; <http://www.centerforcsri.org/pubs/bench/benchsm02.pdf>; Retrieved February 2009
- ^{xciv} Century and Levy; "Sustaining Your Reform: Five Lessons from Research"; *Benchmarks: The Quarterly Newsletter of the National Clearinghouse for Comprehensive School Reform*; Summer 2002; <http://www.centerforcsri.org/pubs/bench/benchsm02.pdf>; Retrieved February 2009
-

-
- ^{xcv} Brand, B.; *Transforming the American High School*; December 2004;
<http://www.aypf.org/publications/Transforming%20the%20American%20High%20School.pdf>; Retrieved February 2009
- ^{xcvi} Sacramento City Unified School District; *e21 Students First: Education for the 21st Century (e21) High School Redesign Initiative: Report to the Community 2002-2007 and Beyond*; Spring 2008;
http://www.scusd.edu/com_office/e21/e21%20report%20pdf.pdf; Retrieved February 2009
- ^{xcvii} American Youth Policy Forum; *Forum Brief*; "States and Districts Can Make Progress and Close the Achievement Gap: Research Reveals Clear Results in School Improvement in Schools Using America's Choice School Design;" July 16, 2004 Forum;
<http://www.aypf.org/forumbriefs/2004/fb071604.htm>; Retrieved February 2009
- ^{xcviii} Kristin, Sunny; *A Picture of High School Redesign: Eight Great Schools*; July 2005;
<http://www.ncsl.org/programs/educ/HSRedesignEightGreatSch.htm>; Retrieved February 2009
- ^{xcix} Kristin, Sunny; *A Picture of High School Redesign: Eight Great Schools*; July 2005;
<http://www.ncsl.org/programs/educ/HSRedesignEightGreatSch.htm>; Retrieved February 2009
- ^c Meier, Deborah; *Educational Leadership*; "The Big Benefits of Smallness;" September 1996, Vol. 54, No. 1;
http://www.ascd.org/publications/educational_leadership/sept96/vol54/num01/The_Big_Benefits_of_Smallness.aspx;
Retrieved February 2009
- ^{ci} Smith, Colwell, and Bruno; *Along the Road to Rigor, Relevance and Relationships: Volusia Plan for Secondary Redesign*;
Summer Conference Presentation;
<http://www.volusia.k12.fl.us/k12redesign/files/powerpoint%20files/FASA%20Summer%20Leadership%202006.ppt>; Retrieved February 2009
- ^{cii} Washor, E.; Mojkowski, C.; *Educational Leadership*; Vol. 64, Issue 4; "What do you mean by rigor?" December 2006 / January 2007; Retrieved February 2009
- ^{ciii} Northrop, D.; *Mosaic: An EDC Report Series*; "Merging Life Skills and Academic Rigor;" Fall 2005;
http://main.edc.org/files/pdfs/Mosaic_High_School.pdf; Retrieved February 2009
- ^{civ} Coalition of Essential School; *DRAFT Coalition of Essential Schools Benchmarks: Principles in Practice*;
http://www.essentialschools.org/pdfs/CES_School_Benchmarks.pdf; Retrieved February 2009
- ^{cv} Jurich, S. and Estes, S.; American Youth Policy Forum; *Raising Academic Achievement: A Study of 20 Successful Programs*;
<http://www.aypf.org/publications/RAA/RAA.pdf>; Retrieved February 2009
- ^{cvi} Nair, P.; *30 Strategies for Education Reform*; 2003; <http://fieldingnair.com/30strategies.pdf>; Retrieved February 2009