

Redesigning High Schools to Prepare Students for the Future: 2006 UPDATE

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VOLUME 4, NUMBER 6, SPRING 2006

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In December 2004, the Center for Evaluation and Education Policy (CEEP) examined the issue of high school reform in its Education Policy Brief, *Redesigning High Schools to Prepare Students for the Future*. That Policy Brief highlighted many initiatives undertaken in high schools across the United States to help improve the academic preparation students receive for entering college or the workforce (see Box 1 for a summary of these initiatives). Additionally, the Policy Brief identified high school reform efforts that have been implemented at the state and local levels in Indiana.

Since the publication of that report, many new policies and programs have been established across the country at the local, state, and national levels to further restructure secondary education with the goal of improving student preparation for success in their future endeavors. As a result of these efforts, CEEP presents this update to its initial report.

THE URGENCY OF HIGH SCHOOL REFORM

High school reform has become a high priority among educators and policymakers in recent years as illustrated by the National Governors Association's (NGA) Redesigning the American High School initiative which was established in 2004-05 (see page 4 for more information on this initiative). In general, reform initiatives have resulted in a variety of changes to secondary education including more rigorous curricula, movement toward curricular alignment with post-secondary institutions, and alternative school structures. Yet, despite these advancements, commonly referenced indicators of student preparedness, including students' perceptions of preparedness and the need for remedial coursework in col-

lege, indicate that many students still need better preparation for success in college and the workforce. For example, CEEP reported in its Education Policy Brief, *Examining College Remediation Trends in Indiana*, that in the fall of 2000, 28 percent of U.S. college freshmen required remedial courses (Parsad & Lewis, 2003 cited in Plucker, Wongsarnpigoon, & Houser, 2006). Similarly, in 2003-04, 23 percent of college freshmen in Indiana required remedial coursework (Plucker, Wongsarnpigoon, & Houser, 2006). Furthermore, less frequently examined indicators, including students' level of engagement in high school and preparedness for careers in science, technology, engineering, and mathematics (STEM), also indicate that high school reform is necessary and urgent for the United States to remain competitive in the global economy.

High School Student Engagement

Student engagement in academic activities is certainly a crucial aspect of the learning process and is necessary to obtain the requisite knowledge, skills, and abilities to be successful in subsequent educational and work-related endeavors. While the importance of student engagement is well-known, recent research indicates that many high school students are not engaged in academically related behaviors. Since these behaviors and activities are important for preparation and achievement, this finding requires significant attention.

The High School Survey of Student Engagement (HSSSE) is a project of CEEP that studies the engagement of high school students in academic activities and provides information to help guide school improvement. In 2005, HSSSE was administered to 80,904 students from 87 schools

Box 1 Modifications to the Traditional High School Structure	
<i>Curricular Alignment</i>	Alignment between secondary schools and postsecondary institutions can help define what students need to know to be successful. This curricular alignment can help prepare students for success in college or the workplace by ensuring they have attained the necessary skills.
<i>Smaller Learning Communities</i>	Smaller learning communities (SLC) in high schools, such as career academies or freshman centers, break students up into subgroups to provide an environment where students are able to develop closer relationships with teachers and peers. SLCs such as career academies emphasize the relationship between academics and the workplace and have been shown to decrease drop-out rates and improve work attendance and job performance (Maxwell & Rubin, 2002).
<i>Alternative Schools</i>	Alternative schools provide an option for students who do not function well in traditional schools. Alternative schools use different curricular and structural methods to help students complete their high school education in an environment that is more suited to their academic and social needs (Raywid, 1994).
<i>Middle College High Schools</i>	Middle college high schools provide at-risk students with the opportunity to attend high school on a college campus. In addition to being able to complete high school and prepare for college, students also have the opportunity to earn college credit during high school. These high school structures have shown to decrease drop-out rates, increase college attendance, and improve students' writing proficiency (Conley, 2002).
<i>Competency-based Promotion</i>	Competency-based promotion allows for grade promotion based on students' demonstrated competency. It allows those students who demonstrate a need for additional instruction to receive it, and students who demonstrate mastery in certain areas to progress to the next educational level (Webb & Bunten, 1988).

Source: Plucker, Zapf, & Spradlin (2004, p.5)

located in 19 states (HSSSE, 2005). The most recent HSSSE results provide some telling indicators of high school students' lack of academic engagement. For example, 50 percent of responding high school students indicated they spent four hours or less each week preparing for class. Only four percent reported spending 20 or more hours per week preparing for class. Students enrolled in honors or college-prep courses reported spending twice as much time per week preparing for class than stu-

dents in special education or career and vocational courses. Despite the relatively little time students spend preparing for class, 81 percent of respondents indicated that they completed course readings and assignments prior to class meetings (HSSSE, 2005). These findings suggest that the expectations and demands of homework assignments are not challenging enough to adequately engage high school students.

A second indicator of academic engagement is student participation in class assignments and discussions. Forty-two percent of students reported that they had sometimes or never integrated information from a number of sources (e.g., books, interviews, Internet resources) for a paper or project. Similarly, only 32 percent of general education students indicated that they regularly synthesized information from a variety of subjects. Comparatively, 46 percent of students in honors or college-prep programs reported doing so. Furthermore, only 57 percent of respondents indicated they participated regularly in class discussions (HSSSE, 2005).

Information gathered from the HSSSE survey has been used effectively by a number of schools as a guide for the development and implementation of reform efforts aimed at increasing student engagement. A number of examples demonstrate the effective use of HSSSE results, including the recruitment of parents and community volunteers to assist teachers with administrative duties, allowing teachers to focus on providing prompt and meaningful feedback on writing assignments (HSSSE, 2005). Furthermore, educators at another school used its results to address the concern that a majority of their students were spending three hours or less each week preparing for classes. Strategies employed to increase the amount of time students spent preparing for their classes included the implementation of a peer tutoring program and a homework helpline, and giving random quizzes on homework assignments (HSSSE, 2005).

Graduates' Preparation and Need for Remediation in College

According to a recent study of high school graduates' preparedness, a significant number of public high school graduates indicate that a gap exists between the knowledge, skills, and abilities they learned in high school and what is expected of them in college or the workforce. Approximately 40 percent of public high school graduates who were surveyed indicated a gap between their high school preparation and what was expected of them in college. Similarly, workforce-bound students indicated gaps in high school preparation and workplace expectations. Nearly 50 percent of workforce-bound students acknowledged gaps in the preparation they received from

high school and the skills they believe are necessary for jobs they hope to obtain in the future. Likewise, a high percentage (46 percent) of college-bound high school graduates indicated gaps in their preparation and an expectation of enrollment in at least one remedial course in college. Moreover, of the college-bound high school graduates who indicated that they were extremely or well prepared for college, 31 percent required at least one remedial college course (Peter D. Hart Research Associates, 2005).

In order to graduate from high school, as of 2004, 21 states require three years and 6 states require four years of mathematics in high school; in addition, 20 states require three years and 3 require four years of high school science. (Blank & Langesen, 2005) Despite increasing state requirements for mathematics and science in high school, gaps in the knowledge, skills, and abilities of high school graduates in these areas are demonstrated by entering college students' need for remedial instruction, especially in the area of mathematics. In the fall of 2000, 22 percent of entering college students in the U.S. were enrolled in remedial mathematics courses; similarly, 14 percent were enrolled in remedial writing courses and 11 percent in remedial reading courses (Parsad & Lewis, 2003).

Preparation for STEM Careers

The percentage of students enrolling in mathematics and science courses across the nation has increased since 1996. According to Blank and Langesen (2005), between 1996 and 2004 the percentage of high school students enrolling in Algebra II/Integrated Math III increased by 10 percentage points to 72 percent. Similarly, approximately 50 percent of high school students took Trigonometry/Pre-Calculus in 2004, a 13 percentage point increase from 1996. Increases in science course enrollment were more modest with a 5 percentage point increase (to a total of 60 percent) in chemistry enrollment and a 1 percentage point increase in the percentage of students taking physics (to 18 percent of high school students) (Blank & Langesen, 2005).

Yet, despite increases in the percentage of high school students enrolling in advanced mathematics and science courses in the

United States, the percentage of students pursuing college degrees in science and mathematics disciplines has not increased. Between 1983 and 2002, approximately 16 percent of initial college degrees earned in the United States were in a science or engineering related field.¹ During this same timeframe the United States consistently had the lowest percentage of science and engineering college graduates when compared with China, Japan, South Korea, Germany, and the United Kingdom (see Figure 1) (National Science Board, 2006).

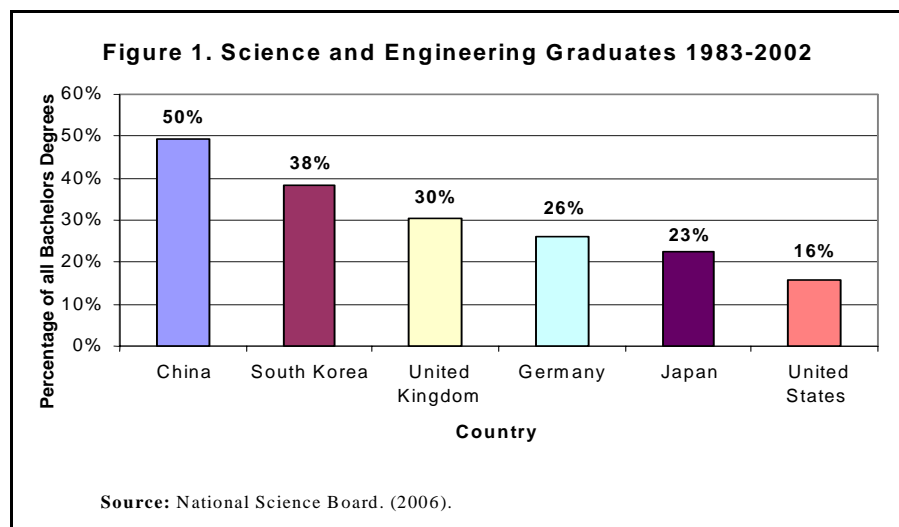
Additionally, despite producing nearly twice as many college graduates as the other five countries, between 1983 and 2002 the United States graduated nearly 123,000 fewer students in science and engineering disciplines than did China. Furthermore, during that same time, the number of science and engineering graduates in China and South Korea increased by 233 percent and 262 percent, respectively; at the same time, the number of science and engineering graduates in the United States increased by only 16 percent (National Science Board, 2006).

The U.S. Bureau of Labor Statistics projects that science and engineering occupations will grow by 26 percent from 2002 to 2012 (Bureau of Labor Statistics, 2004). Since 73 percent of workers with science and engineering occupations possess a bachelor's degree or higher (National Science Board, 2006), it is likely that these jobs will also require education beyond high school. National and international

trends in STEM occupational growth and educational preparation are important drivers for education reform, especially at the high school level.

WHAT ARE THE NEWEST HIGH SCHOOL REFORM EFFORTS UNDERWAY NATIONALLY?

Since 2004, considerable efforts have been made in a number of areas to improve high school student preparation for postsecondary education or the workforce, to decrease the dropout rates of high school students, and to improve the knowledge and skills of high school graduates. These efforts have included initiatives from national organizations, state legislatures, and Congress, and include addressing the calculation of high school graduation rates, making a connection between secondary and postsecondary curricula, increasing the rigor of high school curricula and graduation requirements, and implementing alternative high school structures such as smaller learning communities, career academies, and talent development models. These reform efforts are occurring across the nation, with initiatives being implemented in nearly every state.



National Governors Association Initiatives

The NGA has taken a national leadership role in high school reform. Established in 2004 by former Virginia Governor Mark Warner, the NGA's Redesigning the American High School initiative focused on issues including promoting rigorous curricula, expanding college-level learning opportunities in high school, improving school performance, and examining high school graduation and dropout rates (National Governors Association [NGA], 2005a).

The NGA has noted the challenge of obtaining valid high school graduation and dropout information, especially for individual students (Swanson, 2004, cited in National Governors Association [NGA], 2005b). The NGA also recognized the impact these data have on the accuracy of states' dropout and graduation calculations. As a result, the NGA Task Force on State High School Graduation Data published "Graduation Counts" which outlines recommendations for improving the quality of high school dropout and graduation data and developing a more accurate formula for calculating high school graduation rates. Additionally, the NGA task force proposed the utilization of complementary indicators such as five- and six-year cohort graduation rates, a college-readiness calculation, completion rates for alternative high school credentials (e.g., a GED), and percentages of students who have completed all course requirements for a high school diploma, but have not passed a state exam (NGA, 2005b).

In 2005, Achieve, Inc. and the NGA released an Action Agenda for Improving America's High Schools in response to the low high school graduation rates of the states and the less than adequate preparation of high school graduates for higher education or the workforce. The reform agenda outlined by Achieve, Inc. and the NGA recommended a number of strategies to improve secondary education in the United States. The primary components of the Action Agenda include (Achieve, Inc. & NGA, 2005, *passim*):

- Restoring value to the high school diploma by revising standards, improving curricula, and aligning high school

assessments with the expectations of college and the workforce;

- Redesigning the high school to provide all students with the knowledge, skills, options, and support they require to be successful;
- Ensuring that high school teachers and principals have appropriate knowledge and skills, and offering incentives to attract and retain quality teachers and principals to the schools that need them most;
- Increasing the accountability of high schools and colleges for student success through the setting of meaningful benchmarks, intervening in low-performing schools, and demanding accountability in postsecondary institutions; and
- Streamlining educational governance in order for K-12 and postsecondary educational systems to work closely together.

Furthermore, the NGA established the High School Honor States Grant Program with \$23.6 million in funding to support the improvement of high school graduation and college readiness in 26 states across the nation (National Governors Association, 2006). High School Honor State grants are awarded in two phases. Ten Phase One grant recipients, including Arkansas, Delaware, Indiana, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Rhode Island, and Virginia, have committed to work toward five common objectives including (NGA, 2006, *passim*):

- Setting 10-year goals for the improvement of high school graduation and college readiness rates and publicly reporting these goals as well as baseline and improvement data;
- Committing to the adoption of a four-year longitudinal cohort high school graduation measure that tracks individual students and allows comparisons between states;
- Demonstrating an ongoing commitment to an aligned P-16 education governance structure;
- Committing to active participation in the National Education Data Partnership initiative; and
- Creating and executing a communications plan to build and sustain public support for high school redesign.

Phase Two grants are designed to assist states in the implementation of specific

high school reform initiatives that will quickly improve high school graduation and college readiness rates. Currently, 17 states have received 27 grants of between \$50,000 and \$500,000 each (Maine has received both a Phase One and a Phase Two grant). States receiving Phase Two grants have made commitments similar to Phase One grant recipients. These states will also focus on more specific issues including improving rigor, streamlining governance, improving teacher quality, and expanding AP participation (NGA, 2006).

Statewide Curricular Changes to Increase Rigor and Relevance

Several states across the nation have begun to introduce high school curricula which work to improve the preparation of students for success in either college or the workforce. Eight states, including Arkansas, Indiana, Kentucky, Michigan, New York, Oklahoma, South Dakota, and Texas have developed more rigorous high school core curricula that will be implemented between 2008 and 2011 (Taft, 2006). Twelve other states including Alabama, Arizona, Delaware, Georgia, Idaho, Louisiana, Maine, Maryland, Mississippi, New Jersey, North Carolina, and Ohio are in the process of developing more rigorous high school core curricula (Taft, 2006).

One example of recently enacted high school curriculum reform is the Michigan Merit Curriculum. Enacted in April 2006. This rigorous curriculum requires students to complete four years each of math and English/language arts, three years each of science and social studies, two years of a foreign language, one year each of physical education and health, one year of visual, performing, or applied arts, and one online learning experience. This is a significant change in state graduation requirements for Michigan. Prior to the passage of the Michigan Merit Curriculum, the only statewide curriculum requirement for high school graduation was the completion of one semester of civics (Michigan Department of Education, 2006).

Another example of high school curriculum reform is Ohio Governor Robert Taft's Ohio Core plan. Proposed in January of 2006, this plan calls for all students to complete the Ohio Core high school curriculum which includes four years each in math and

English, three years each of lab-based science and social studies, two years of a foreign language, one year of health and physical education, and three years of electives including at least one year (or two semesters) in business, technology, and fine arts. Additionally, completion of the Ohio Core curriculum would become a requirement for admission to public four-year colleges and universities in this state (Taft, 2006).

Recent State-level Initiatives

State legislatures across the nation have worked to strengthen the connection between K-12 and higher education institutions, and decrease the high school dropout rate. Enacted and pending legislation in Oregon, Oklahoma, Texas, and Missouri in 2005 will enable high school students to enroll in college-level courses for high school and college credit, and provide at least partial subsidies for tuition and fees associated with the college-level courses; subsidies range from tuition waivers to loans for tuition and expenses (Walton, 2005).

In addition, state legislatures have implemented initiatives which range from the creation of commissions to recommend policies in order to improve P-16 transitions in Arkansas, to aligning high school curricula and end-of-course assessments with college and university placement tests in New Mexico. These initiatives work to foster collaboration between several stakeholders including state departments of education, state commissions of higher education, higher education institutions, public schools, education associations, and economic development agencies, with the goal of creating a P-16 education pipeline (Walton, 2005).

Policies implemented by states to decrease the high school dropout rate range from creating strategies and guidelines for improving achievement and reducing retention, to establishing programs for students at-risk of dropping out of high school. These programs include the At-Risk Student Achievement Program and Fund in Virginia and the Middle College Education Pilot Program in Texas (Walton, 2005). These legislative initiatives work to address the high school dropout rate through strategies such as implementing flexible scheduling,

establishing mentoring programs for at-risk students, and providing grants for the implementation of other programs to reduce the dropout rate and help a greater number of students achieve advanced studies diplomas (Walton, 2005).

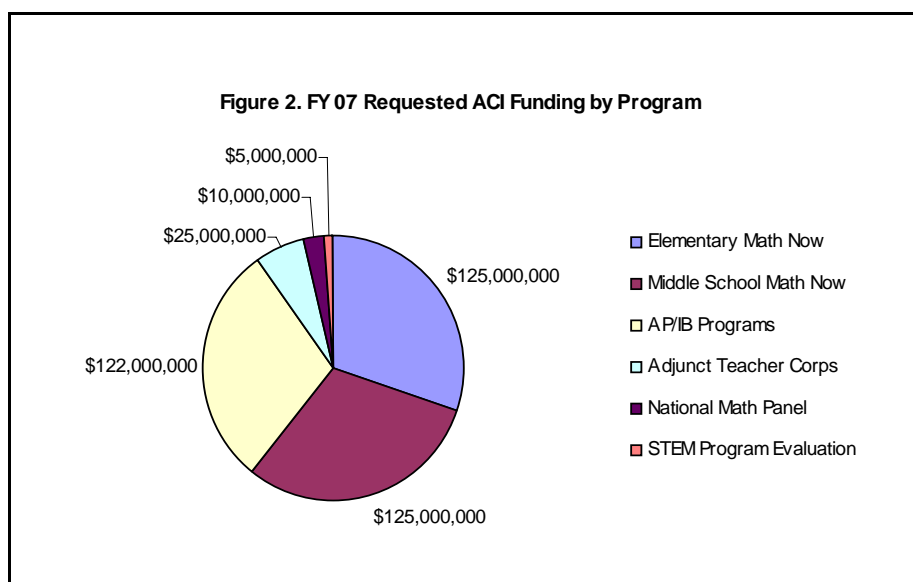
Federal Initiatives

High school reform initiatives have also originated at the federal level. In 2005, the U.S. Department of Education (USDOE) began a five-year program offering competitive grants to local education agencies for the creation or expansion of smaller learning communities in high schools. The objective of this grant program is to ensure that all high school graduates are equipped with the knowledge and skills necessary to be successful in postsecondary education, apprenticeships, or advanced training. This program supports smaller learning communities as they implement interventions which focus on assisting students who are achieving below grade level in reading/language arts or mathematics to perform at grade level by Grade 10 (U.S. Department of Education, Office of Elementary and Secondary Education, 2006). The approximately \$87 million USDOE grant program will fund an estimated 72 awards for up to five years each. The awards range in size from \$650,000 to \$1,175,000, based on student enrollment (U.S. Department of Education, Office of Elementary and Secondary Education, 2006).

Most recently, the American Competitiveness Initiative (ACI) announced by President Bush in February, 2006, calls for the United States to maintain and gain on its competitive edge through scientific advancement and innovation. One component of this initiative is a strong secondary education system which prepares Americans for additional education in scientific and technical areas, an objective to be aided by a proposed \$380 million in new federal monetary support to help strengthen the quality of science, technological, and mathematics education in K-12 schools (Domestic Policy Council [DPC], 2006).

In order to improve science and mathematics educational programs in high schools, the ACI calls for significant funding (see Figure 2) to establish new programs and expand existing programs. The ACI recommends the following:

- Expanding the Advanced Placement and International Baccalaureate programs;
- Encouraging mathematics and science professionals to become adjunct high school teachers;
- Appointing a National Math Panel to evaluate and improve mathematics and science instruction;
- Establishing a Math Now for Elementary School Students and Math Now for Middle School Students to promote promising and proven methods of mathematics instruction;



Source: Domestic Policy Council, Office of Science and Technology Policy (2006).

- Addressing deficiencies of students in the area of mathematics, the evaluation of federal science, technology, engineering, and mathematics (STEM) education programs, and determining their effectiveness; and
- Including science assessments into NCLB accountability measures.

Furthermore, the ACI will augment the High School Reform Initiative, originally proposed in 2005, which, if fully funded by Congress, would dedicate nearly \$1.5 billion for programs and interventions aimed at increasing high school student achievement, eliminating the achievement gap, preparing high school students for success in college and the workforce, and expanding NCLB assessments into high school to increase school accountability (DPC, 2006; U.S. Department of Education Budget Service, 2006).

Recent High School Restructuring Research

As new high school redesign initiatives continue to surface across the country, the body of research evaluating the outcomes of reform programs is growing. Numerous high school reform models have been introduced to improve students' experiences and academic performance. Most notably, the Bill and Melinda Gates Foundation has given nearly \$932 million in education grants to high schools since 1994 (Bill & Melinda Gates Foundation, 2006a). In particular, the foundation has focused high school reform initiatives supporting rigor, relevance, and relationships. Programs including the Knowledge Is Power Program (KIPP) Schools and High Tech High Schools, both funded with grants from the foundation, have incorporated these principles (Bill & Melinda Gates Foundation, 2006b). Furthermore, the Bill and Melinda Gates Foundation has provided grant funding to increase the academic achievement of students in large high schools through the creation of smaller, more personalized learning communities. The Bill and Melinda Gates Foundation awarded a five-year \$11.3 million grant to the Center of Excellence in Leadership of Learning (CELL) to facilitate the creation of small high schools in Marion County, Indiana, through 2008 (Center of Excellence in Leadership of Learning, 2006).

REFORM MODEL EXHIBIT 1

High Schools That Work

Background and Program Objectives:

The High Schools that Work (HSTW) initiative developed by the Southern Regional Education Board (SREB) was established in 1987 by the SREB-State Vocational Education Consortium and has grown into the nation's largest effort to combine academic and vocational courses to raise the achievement of high school students. The HSTW initiative has 1,200 sites in 32 states across the nation (Bottoms, n.d.). The HSTW model promotes a number of objectives for student experiences in high school including increasing the percentages of:

- 1) seniors completing a rigorous academic core and a career or academic focus;
- 2) seniors meeting the goals of preparedness for postsecondary study;
- 3) students receiving guidance for goal setting, taking rigorous courses, and meeting challenging standards;
- 4) students experiencing relevant and engaging learning experiences in courses with academic and career/technical foci (Bottoms et al., 2005).

What the Research Indicates:

- Schools fully implementing HSTW experienced higher standardized test scores in reading, mathematics, and science than schools not fully implementing HSTW (Bottoms et al., 2005).
- Graduates from HSTW schools indicated high postsecondary participation. Seventy-eight percent of 2002 HSTW graduates enrolled in postsecondary institutions (Bottoms & Young, 2005).
- Graduates of HSTW completing the recommended core required less remediation than students not completing the HSTW-recommended core (24 percent vs. 34 percent) (Bottoms & Young, 2005).
- Graduates indicated that the schools should have placed greater emphasis in a number of academic areas including: mathematics, verbal communication skills, and career/technical programs. Additionally, respondents indicated that they should have been provided with more information and counseling with regard to continuing their education, and been provided with more assistance in meeting high academic standards (Bottoms & Young, 2005).

Link to the High Schools That Work website: <http://www.sreb.org/Programs/hstw/hstwindex.asp>

REFORM MODEL EXHIBIT 2

Talent Development High Schools

Background and Objectives:

Initiated in 1994 by the Johns Hopkins University Center for Research on the Education of Students Placed At Risk (CRESPAR), Howard University, and Patterson High School in Baltimore, MD, the Talent Development High School model seeks to "establish a strong, positive school climate for learning, promote high standards for English and mathematics coursework for all students, and provide professional development systems to support implementation of the recommended reforms" (Kemple et al., 2005, p. 1). Evaluation of the Talent Development High School model has indicated several positive outcomes for students.

What the Research Indicates:

- Positive impacts have been seen in attendance, number of course credits earned, and promotion rates among first-time Grade 9 students (Kemple et al., 2005).
- This model yielded modest improvements in scores on standardized mathematics tests for early cohorts of Grade 11 students. Later cohorts of students who had completed a more intensive version of the Talent Development model showed greater improvement (Kemple et al., 2005).
- Mixed results were found for students required to repeat Grade 9. These students had higher attendance rates and earned more credits than peers in non-Talent Development schools, but had higher attrition rates before completing their fourth year of high school (Kemple et al., 2005).

Link to the Talent Development High Schools website: <http://www.csos.jhu.edu/tdhs/>

REFORM MODEL EXHIBIT 3

Career Academies

Background and Program Objectives:

An initiative supported by organizations such as the National High School Alliance, the Career Academy high school reform model has been around for over 30 years and features a “school-within-a-school” structure. That is, groups of students in a grade or a range of grades share several classes per day and have the same group of teachers for a number of years. Additionally, the focus of curricula in Career Academies is on the preparation of students for both college and the workforce. Students enroll in both academic courses and career-oriented courses related to the theme of the Academy (Quint, 2006). One additional partnership key to the Career Academy is between the school and local employers. These partnerships provide students with activities and internships to aid in providing career-awareness and the development of curricula for career-oriented classes (Quint, 2006).

What the Research Indicates:

- A 2006 MDRC analysis of nine Career Academies located in California, the District of Columbia, Florida, Maryland, Pennsylvania, and Texas found that this model positively impacted student outcomes including attendance, number of credits earned, and students' earnings after high school (Quint, 2006).
- The Career Academy model did not produce any effect on standardized test scores in reading or mathematics, or high school graduation rates or college enrollment rates (Quint, 2006).
- In a four-year period following graduation, Career Academy students earned \$10,000 (18 percent) more than students not enrolled in Career Academies (Quint, 2006). These positive impacts were among students who were at risk of dropping out of high school when they entered the Career Academies program (Quint, 2006).
- While the evaluation of the Career Academies program did not indicate significant gains in more traditional student outcomes such as graduation rates and standardized test scores, it did find increased student engagement and opportunity for greater earnings among students at risk of dropping out of high school.

REFORM MODEL EXHIBIT 4

First Things First

Background and Program Objectives:

First Things First (FTF), another comprehensive school reform initiative, seeks to strengthen the relationships between teachers and students, and increase the rigor and relevance of classes in order to improve low-performing schools. Begun in Kansas City, KS, FTF currently operates in 70 schools in nine districts across the nation. The FTF model is comprised of three components:

- 1) small learning communities of up to 350 students;
- 2) a family advocate system in which each student is paired with a staff member who works with the student and his or her parents to promote academic success, and;
- 3) instructional improvement efforts to align curricula with state and local standards, and engage in professional development to increase the rigor and relevance of class instruction (Quint et al., 2005).

What the Research Indicates:

- FTF schools in Kansas City, KS, experienced substantial improvements in attendance rates, graduation rates, dropout rates, and performance on state reading and mathematics tests (Quint et al., 2005).
- In 2004, Kansas City FTF schools experienced an 11 percentage point greater increase in students scoring at or above proficiency on state tests of reading and mathematics than non-FTF schools (Quint et al., 2005).
- When compared with non-FTF schools, Kansas City FTF schools also demonstrated a 15 percentage point greater decrease in Grade 11 students scoring below proficiency on state exams (Quint et al., 2005).
- Not all FTF schools have experienced the same level of improvement at Kansas City schools. While there is evidence of positive results, the lack of consistently positive findings raises questions regarding how much improvement is due to the FTF model (Quint et al., 2005).

Link to the First Things First reform model: <http://www.aypf.org/forumbriefs/2005/fb092305.htm>

Several additional high school reform models that have received attention recently are the High Schools that Work model, the Talent Development High School model, the Career Academies model, and the First Things First model.

The initial research addressing these high school reform models has yielded positive results in the areas of student attendance, the number of course credits earned, preparedness for postsecondary education, and students' earnings after high school. However, the research indicates mixed results regarding student outcomes in the areas of standardized test performance, dropout rates, and graduation rates (see Exhibits 1-4 for more information on research on restructuring models).

WHAT STEPS HAS INDIANA TAKEN TO IMPROVE STUDENT PREPARATION?

Since the release of CEEP's high school restructuring policy brief in 2004, the state of Indiana has been involved in a number of initiatives to improve secondary education. A number of state leaders and entities including the Indiana General Assembly, Governor Mitch Daniels, Indiana Superintendent of Public Instruction Dr. Suellen Reed, the Indiana Department of Education, and colleges and universities throughout the state have initiated efforts to inform and influence high school reform in a number of areas.

Legislative Initiatives

The 2005 and 2006 sessions of the Indiana General Assembly produced a number of laws focused on improving secondary education in Indiana. Specifically, new laws increased the rigor of the high school curriculum, increased postsecondary access for high school students through early college, dual credit, and dual enrollment programs, amended the graduation rate formula to ensure the calculation of accurate high school graduation rates, and worked to reduce the high school dropout rate (see Box 2 for more details of high school reform legislation passed in 2005 and 2006).

Box 2 Recently Enacted Education Laws in Indiana Relevant to High School Reform	
PL 105-2005	<ul style="list-style-type: none"> Beginning with the 2010-2011 school year, the state requires, with certain exceptions, that students complete the Core 40 curriculum in order to graduate from high school. Beginning with the 2011-2012 academic year, requires, with certain exceptions, that students must have completed the Core 40 curriculum in order to be admitted to a four-year degree program in a state educational institution.
PL 218-2005	<ul style="list-style-type: none"> Requires a school corporation and a postsecondary institution to enter into a contract concerning credits for students attending the postsecondary institution while they are also attending secondary school.
PL 242-2005	<ul style="list-style-type: none"> Permits public school students who are at least 16 years of age and less than 18 years of age to withdraw from school by: (1) attending an exit interview; (2) obtaining the consent of the student's parent; and (3) obtaining the consent of the school principal. Requires that the school principal provide students and parents with information concerning the consequences of dropping out of school during the exit interview, and to provide the Department of Education with the number of students who withdraw from school. Includes certain additional groups of students in the determination of a school's graduation rate. Establishes certain procedures concerning a student who has left school and whose location is unknown to the school.
PL 185-2006	<ul style="list-style-type: none"> Allows Ivy Tech Community College of Indiana and Vincennes University to offer fast track to college programs in which a qualified student may earn a high school diploma while also earning credits for a certificate program, an associate's or a baccalaureate degree. Allows other state educational institutions to establish a fast track to college program. Requires a school corporation to pay the tuition for high school diploma courses taken by certain students who are less than 19 years of age. Establishes the Double Up for College dual high school-college credit program. Requires high schools to offer at least two dual credit and advanced placement courses each year to high school students who qualify to enroll in the courses.

Source: Indiana Department of Education (2006) and Indiana General Assembly (2006).

Statewide High School Reform Plans

Indiana, along with 21 other states, has joined the American Diploma Project (ADP) initiated by Achieve, Inc., the Education Trust, and the Thomas B. Fordham Foundation. These states have committed to achieving a number of objectives to improve secondary education and improve the preparation students receive to ensure that they are successful in college or the workforce. Of the four overarching goals outlined by the ADP, Indiana has achieved the goals of aligning academic standards in high school with college and workforce expectations, and improving high school course requirements so students must complete either a college- or work-ready curriculum in order to earn a high school diploma (ADP Indiana Action Plan, 2006).

These goals have been addressed by increasing the rigor of high school curricula, requiring completion of the Core 40 curriculum in order to earn a high school diploma, beginning with the graduating class of 2011, and requiring completion of the Core 40 curriculum as a minimum requirement for admission to a public four-year university in Indiana (ADP Indiana Action Plan, 2006). The three-year Indiana Action Plan to implement the ADP objec-

tives also delineates additional strategies to improve student success. The proposed initiatives include developing institutional policies to improve students' experiences once they enroll in college, implementing a college report card to emphasize the importance of student persistence through the completion of a college degree, and exploring institutional rewards and penalties based on improvements in degree completion rates (ADP Indiana Action Plan, 2006).

Governor Mitch Daniels and State Superintendent of Public Instruction Dr. Suellen Reed will collaborate with other state agencies and leaders to achieve two additional goals set by ADP. These goals include the further development and implementation of the Core 40 assessment system, allowing these assessments to serve as readiness tests for college and work, and the development of a comprehensive accountability system for high schools and colleges (ADP Indiana Action Plan, 2006).

Statewide Forums for Discussing School Reform

In addition to legislative activities, opportunities for bringing together educators, policymakers, and stakeholders from across the state to discuss school reform and share

best practices occurred in 2005. Notably, the Indiana High School Summit, sponsored by the Indiana Department of Education, and the Indiana's Future Conference, hosted by the Center for Excellence in Leadership of Learning at the University of Indianapolis, have both addressed school reform. They have provided a forum for the sharing of ideas and the presentation of innovative strategies for improving secondary education by local, state, and nationally known speakers including Indiana Superintendent of Public Instruction Dr. Suellen Reed, former Governor of North Carolina Jim Hunt, U.S. Secretary of Education Margaret Spellings, and International Center for Leadership in Education President Dr. Willard Daggett.

These conferences will occur again in 2006 and address educational issues relevant to the state of Indiana. Specifically, the focus of the 2006 Indiana High School Summit is high school redesign and will address a number of ways to improve performance and close achievement gaps. Each of these conferences will again feature local, state, and national education scholars and practitioners sharing best practices and effective methods to improve education.

MOVING FORWARD WITH REFORM

The Partnership for 21st Century Skills, a consortium of 26 organizations including the American Federation of Teachers, Microsoft Corporation, the Ford Motor Company Fund, and Educational Testing Service, asserts that the focus of high school reform efforts must be on providing students with the skills required for success in the 21st century. The group also posits that traditional measures of success (e.g., attendance, high school graduation rates, and college matriculation rates) do not measure the skills students will need to be prosperous in the 21st century (Partnership for 21st Century Skills, 2006). In their recent report “Results that Matter: 21st Century Skills and High School Reform,” the Partnership for 21st Century Skills (2006) outlines three ideas regarding high schools that have not yet been broadly perceived:

- Results that matter for 21st century high school graduates differ from, and go beyond, traditional metrics;
- Rigor must be redefined to encompass mastery of core academic subjects and 21st century skills and content in order to improve high schools; and
- 21st century skills integrated with core academic subjects should be the “design specs” for creating effective high schools

These ideas serve as foundations for high school reform efforts geared toward providing high school students with learning experiences that allow them to gain the knowledge and skills required in the 21st century. The following five recommendations for connecting 21st century learning and high school reform are also outlined (Partnership for 21st Century Skills, 2006, p. 12-15):

1. Design high schools to prepare all students with 21st century knowledge and skills, including mastery of core subjects by using learning and thinking skills, which will make high school truly rigorous;
2. Fully and strategically integrate 21st century knowledge, skills, and assessments into high schools, including raising academic standards, integrating learning and thinking skills, information and communication technology

(ICT) literacy, and life skills into the curriculum. Additionally, the Carnegie unit of accreditation should be revisited, and perhaps replaced with an accreditation measure which reflects proficiency, not seat time;

3. Require high school students to demonstrate achievement of 21st century knowledge and skills, such as those focusing on critical-thinking, problem-solving, and communication skills. Additionally, assessment of ICT literacy and students’ ability to “define, access, evaluate, integrate, manage, create, and communicate” using ICT should be implemented (p. 14);
4. Improve professional development in 21st century skills, including pre-service and in-service training for educators focusing on the teaching and measuring of 21st century skills; and
5. Partner with the business community and community-based organizations, thus allowing high schools and community organizations to “jointly implement a strategy to help high school students acquire 21st century skills” (p. 15). These skills could then be learned both in the classroom and outside of the school in workplace experiences and after-school activities.

CONCLUSIONS AND RECOMMENDATIONS

In 2006, CEEP has released a number of Education Policy Briefs addressing areas related to improving the preparation of students for college and workforce success. These areas include credit-based transition programs, educational technology, and college remediation. A number of policy recommendations outlined in these reports are particularly important to consider in the context of high school reform, and are summarized in Box 3 on page 10.

In addition to the summarized recommendations from prior policy briefs, the authors offer the following policy recommendations for high school reform to improve the preparation of Indiana high school graduates:

- *Fulfill the ADP Indiana Action Plan.* Indiana has successfully aligned high school academic standards with college

and workforce expectations, and improved requirements so high school graduates must complete a college- or workforce-ready curriculum. The state should certainly be recognized for completing these tasks, but it is critical that it stays focused on the remaining ADP Action Plan items including the further development and implementation of the Core 40 assessment system, and the development of a comprehensive accountability system for high schools and colleges. While a 36-month work plan has been developed to ensure that the remaining items are completed in a timely fashion, this work plan must be adhered to and accountability measures must be developed and enacted to further improve the education and preparation Hoosier students receive to help ensure successful futures.

- *Focus on improving the relationship and interaction between high school students and teachers.* As outlined by the Bill & Melinda Gates Foundation, rigor, relevance, and relationships are extremely important when considering high school reform (Weeks, 2003). A number of high school reform structures, including smaller learning communities and career academies, work to not only provide increased rigor and relevance, but also to provide the opportunity for students and instructors to establish and develop relationships over the course of students’ high school careers. High school reform efforts in Indiana must be careful not to strive for rigor and relevance at the expense of relationships, but must develop and implement reform efforts which work to accomplish all three.
- *Consider student engagement in the selection and development of reform initiatives.* Throughout the process of high school reform, the impact of these efforts on student engagement should be examined. A number of research studies indicate the importance of student engagement (Fredericks, Blumenfeld & Paris, 2004; Norris, Pignal & Lipps, 2003). Additionally, as demonstrated by HSSSE (2005), knowledge of high school student engagement can provide useful information to inform and shape the strategies employed to improve student engagement in academic behaviors and academic performance in high school.

- *Continue to increase participation in STEM coursework.* Between 1996 and 2004, Indiana has seen an increase in the percentage of high school students enrolling in mathematics and science courses such as Algebra I/Integrated Mathematics III and Chemistry prior to graduation. However, the percentage of Indiana high school students enrolling in these courses is still below the national average (Blank & Langesen, 2005). The Core 40 curriculum requirements should help increase high school student participation in STEM courses, but alternative methods to increase participation in these courses should be examined. As the Bureau of Labor Statistics indicates, there is an expectation for significant growth in science and engineering careers and today's high school graduates must be prepared for further study in STEM disciplines in order to help fill the demand for work-

ers with expertise in science, mathematics, and engineering.

- *Ensure accountability for Indiana's world-class academic standards.* Recently, Indiana was one of only eight states to be given an "A" rating by the Thomas B. Fordham Institute for its world history standards. In fact, Indiana's rating placed it fourth out of the 50 states and the District of Columbia, behind only California, Massachusetts, and Virginia (Mead, 2006). Indiana has long been recognized for having world-class academic standards in core academic areas, and for being a national leader in standards development. However, as noted in the Fordham Institute report, "Even good standards amount to little if schools aren't obligated to teach what's in them and students aren't required to learn the material" (Finn & Davis, in Mead, 2006, p. 10). Accountability measures, such as end-of-course

assessments aligned with state academic standards that are outlined in Indiana's ADP Action Plan, will help ensure that Hoosier students receive the best preparation possible for future success.

- *Evaluate the effectiveness of current high school reform efforts statewide.* Numerous high school reform initiatives have been undertaken in Indiana, yet there has been little evaluation of these efforts. Evaluation of these programs is imperative in determining the effectiveness of reform initiatives and informing the development and implementation of future high school reform efforts. The systematic and systemic evaluation of high school reform efforts in Indiana can help provide the necessary information to make informed decisions to provide maximum impact and return on investment.

Box 3. Summary Recommendations from Education Policy Briefs, Volume 4, Number 2, 4, and 5

Several policy recommendations offered by Plucker, Chien, and Zaman (2006, p. 9) in *Enriching the High School Curriculum Through Credit-Based Transition Programs* have relevance for high school re-design:

- *Increase high school student participation in postsecondary credit-based transition programs.*
- *Increase access to AP and dual-credit courses for minority groups and students from lower socioeconomic backgrounds.*
- *Increase the level of IB participation in high schools across Indiana.*

Additionally, three policy recommendations outlined by Palozzi and Spradlin (2006, p. 10) in *Educational Technology in Indiana: Is it Worth the Investment?* are also important to consider when developing high school reform initiatives:

- *Allow schools the flexibility to purchase laptop computers with Technology Plan Grant Program funds to augment one-to-one computing in schools.*
- *Implement the Indiana Virtual Education System to increase the availability of technology-based learning opportunities statewide, such as online AP courses.*
- *Require Indiana high school graduates to complete an online learning experience.*

Furthermore, three recommendations stated by Plucker, Wongsarnpigoon, and Houser (2006, p. 9) in *Examining College Remediation Trends in Indiana* have particular importance for high school reform in the state of Indiana:

- *All high school students should have the option to take – and should be encouraged to take through their senior year – high-level mathematics, English, and science courses to prepare them for the rigors of college or the workforce.*
- *Use statewide tests given to students in high school for college admissions or placement purposes.*
- *Hold high schools accountable in preparing high school graduates to be "work-ready" or "college-ready."*

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¹ Science and engineering disciplines referenced here include physical sciences, biological sciences, mathematics, computer sciences, and engineering.

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WEB RESOURCES

High School Survey of Student Engagement

<http://www.indiana.edu/~ceep/hssse>

National Governors Association

<http://www.nga.org>

Education Commission of the States: High School Issues

<https://www.ecs.org/html/issue.asp?IssueID=108>

American Diploma Project

<http://www.achieve.org/achieve.nsf/AmericanDiplomaProject?openform>

National High School Alliance

<http://www.hsalliance.org>

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