



LINKING LEARNING TO THE 21ST CENTURY

PREPARING ALL STUDENTS FOR COLLEGE,
CAREER, AND CIVIC PARTICIPATION

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April 2011

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This is one of a series of briefs made possible in part by funding from
The Great Lakes Center for Education Research and Practice.

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Suggested Citation:

Saunders, M. & Chrisman, C. (2011). *Linking Learning to the 21st Century: Preparing All Students for College, Career, And Civic Participation*. Boulder, CO: National Education Policy Center. Retrieved [date] from <http://nepc.colorado.edu/publication/linking-learning>.

LINKING LEARNING TO THE 21ST CENTURY: PREPARING ALL STUDENTS FOR COLLEGE, CAREER, AND CIVIC PARTICIPATION*

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Executive Summary

The Stanley E. Foster Construction Tech Academy is one of four small, diverse magnet schools housed in San Diego's Kearny High Educational Complex. Before 2004, the building housed an unsuccessful, urban high school. Each of the new four schools now offers a "Linked Learning" curriculum, providing all students with a rigorous college preparatory curriculum in a career-themed environment.[†]

Students enrolled in the Construction Technology Academy (CTA) attend classes in the former shop buildings, but the level of expectations and the nature of the teaching and learning are very different from that seen in old vocational education tracks. CTA's mission emphasizes college preparation integrated with the hands-on study of architecture, engineering and construction. The school uses a project-based learning environment focused on neighborhood concerns and needs. Each project is designed to prepare graduates for further education or for a professional path.

Instead of the old six-period day, courses are now combined into 75 to 90 minute blocks—each meeting a few times each week—that permit the flexible use of time for mastering academic subjects and exploring the world of construction, engineering, and architecture. The school's academic and vocational teachers share common planning time, during which they discuss their students' needs and adjust interdisciplinary assignments and learning supports. The principal makes home visits when students are struggling. The students are engaged by the thematic

^{*}This policy brief presents an update of a policy brief titled "Multiple Pathways" that was originally released in late-2008. The new title reflects a broad change in the terminology used in the field: "Linked Learning" is the new name for the approach formerly referred to as "Multiple Pathways" in California and elsewhere. The core components and guiding principles discussed in this brief remain the same. Beyond the Foreword, the policy brief and model code sections presented below are largely unchanged from the earlier brief.

[†] This description is a shortened and modified version of a vignette presented in Oakes, J. & Saunders, M. (2008). "Multiple Pathways: Promising to Prepare All High School Students for College, Career, and Civic Participation" in Oakes, J. and Saunders, M. (Eds.), *Beyond Tracking: Multiple Pathways to College, Career, and Civic Participation*. Cambridge, MA: Harvard Education Press.

learning and their success is greatly facilitated by these supports and teaching approaches.

Students work in teams, using the latest industry design software and sophisticated computer equipment to complete pre-engineering courses as well as construction, engineering and architecture projects. The projects are supported by a host of mentors from the construction industry and require academic and technical skills and abilities.

CTA is not, however, primarily an occupational training program; Linked Learning is not vocational tracking. CTA students have access to Advanced Placement classes in 15 subjects and to other college-level courses. The school's contextual, hands-on pedagogy and rigorous curriculum prepare students for direct entry into college, apprenticeship programs, a job, or a career—whichever they choose. In fact, 81 percent of the members of CTA's 2007 graduating class were accepted to college; 36 percent were accepted to four-year universities. And these results are not due to selective attrition: the graduating class included 99 percent of the students who were enrolled as ninth graders four years earlier (a small number transferred to other high schools). The students who did not go to college entered apprenticeship programs or joined the military.

Many states are currently developing high school reforms labeled “Linked Learning” (formerly known as Multiple Pathways) built on the fundamental insight that career and technical education can be academically rigorous. Linked Learning policies also allow students to gravitate to schooling themes that are personally relevant, and they hold the potential to substantially improve secondary schooling. The reform, as described in the attached brief and draft legislation, rests on three research-based propositions:

- **Learning both academic and technical knowledge is enhanced when the two are combined and contextualized in real-world situations;**
- **Connecting academics to such real-world contexts promotes student interest and engagement; and**
- **Students provided with both academic and career education are more likely to be able to later choose from the full range of postsecondary options.**

But if poorly designed or enacted, the reform will only maintain the same old vocational education programs or “alternative” schools, continuing discredited practices of ability tracking rather than transforming the comprehensive high school. A well-designed Linked Learning reform must include the following four essential components within each and every pathway:

- **A college-preparatory academic core that satisfies the course requirements for entry into a state's flagship public university, using project-based learning and other engaging classroom strategies;**
- **A professional/technical core well-grounded in academic and real-world standards;**

- **Field-based learning and realistic workplace simulations that deepen students' understanding of academic and technical knowledge through application in real-world situations; and**
- **Additional support services to meet the particular needs of students and communities, which can include supplemental instruction, counseling, and transportation.**

This new brief, including proposed statutory language, meets these criteria for designing and implementing effective pathways. Such a genuine approach to Linked Learning will help to meet the learning needs of a diverse student population and respond to society's need for a productive workforce and engaged citizenry.

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Foreword

Revisiting 21st Century High Schools that Prepare All Students for College, Career, and Civic Participation

In 2008, the authors of this brief introduced an approach to high school reform many were calling “Multiple Pathways.” The reform, now referred to as “Linked Learning,” aims to connect rigorous academic preparation, career and technical education, and opportunities to learn from real-world settings. Since 2008, a growing number of schools throughout the country have committed to providing their students with the academic and technical knowledge, skills, and abilities required to succeed in college and career. In California, for example, this approach has emerged as the primary high school transformation strategy for a number of districts.

In addition, the reform momentum has benefitted from new studies and a growing body of evidence that demonstrates the effectiveness of an integrated approach to transforming high school learning.¹ Key national and regional organizations have come together to establish criteria for identifying quality pathway programs.² **This work has yielded a number of “certified”** pathway programs, with more schools scheduled to undergo the review process in the coming year.³

The shift from “Multiple Pathways” to “Linked Learning” underscores the key principles and values of the approach—every Linked Learning program or pathway leads to the same destination: preparation to succeed in both college *and* career, not one or the other.⁴ Such pathways are not set aside for only high- or low-achieving students; they serve all students within the school. Linked Learning is designed to capitalize on the relevance and engaging elements found in many career-and-technical education programs and also build on the academic challenges and supports found in many academic, college-preparatory programs.

The approach also seeks to disrupt the long-standing hierarchy that privileges college preparation and makes “work” preparation the default for those viewed as less able to succeed in college preparation. Rather, by contextualizing academic learning through real-world applications and opportunities, Linked Learning pathways expose students to the full range of postsecondary opportunities, including two- and four-year colleges, certification programs, apprenticeships, and immediate entry into the workplace. These key principles and values distinguish Linked Learning from other reform strategies that continue to fuel the fire in the long-standing debate presenting a false choice between “college-prep-for-all” and career and technical education.

This false-choice approach can be seen, for instance, in a recent report by Harvard's Pathways to Prosperity Project that critiques the push for college preparation for all. The report includes some useful insights and adds to the ongoing discussion. It explains, for instance, that too many young people continue to leave high school unprepared for success in college, careers, and civic life. Students, the report notes, are doomed to failure as long as we continue to believe that a classroom-based, one-size-fits-all approach can prepare young people for success in the 21st century: "it is time to widen our lens and to build a more finely articulated pathways system—one that is richly diversified to align with the needs and interests of today's young people and better designed to meet the needs of the 21st century economy."⁵

But the new Harvard report falls short in its failure to consider the importance of comparable academic rigor in all pathways. That is, notwithstanding the helpful intent of the report's authors, the pathways described in the report could easily devolve into something very closely resembling the tracking systems that are near-universally denounced as harmful and

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discriminatory. To avoid this, we must be guided by history and efforts to mitigate the inequities of the past. And, we must be cautious not to create a system of vocationally identified themed schools or "pathways" with a narrow, industry-driven, economic focus. No pathways should ever come to resemble the old non-college bound tracks that have disproportionately housed students from racial, ethnic, or linguistic minority groups, those less affluent, and those whose parents did not attend college.⁶

To safeguard against this, and as described in the following brief, Linked Learning pathways maintain a college-as-an-option-for-all strategy.⁷ These pathways require students to complete a state's flagship college preparation sequence of courses, although recognizing that there are many reasons why high school students will not go on to pursue or achieve college degrees immediately after high school graduation. Linked Learning pathways contextualize this learning, providing relevance by relating academic coursework to particular themes that connect to students' diverse interests, including those focused on a particular industry or career.⁸ Importantly, this strategy addresses the issue of within-school and between-school tracking, and it reduces the risk of reproducing inequitable patterns of stratification within the workforce. Providing students who might otherwise enter the workforce directly out of high school with the opportunity to attend a postsecondary institution can disrupt existing workforce hierarchies. A college-as-an-option-for-all strategy also provides young people, including those who choose to enter the workforce directly after high school, with the knowledge, skills, and abilities to move adeptly between the workplace and postsecondary institutions (two-year or four-year colleges) as shifts in the economy, the future job market, and job requirements dictate.⁹

Notwithstanding the progress that has been made since the initial release of this brief, there is still more work to be done. Many of the potential obstacles we identified persist and the policies

proposed remain critical to enhancing the capacity of states to create, strengthen, and sustain Linked Learning.

Introduction

Today’s high schools are not working. Dropout rates are high, and many students who graduate lack the academic and/or technical knowledge and skills required to succeed in college and careers. Reformers debate whether high school students need more rigorous academics (i.e., a universal college preparatory curriculum) *or* a more relevant career-related curriculum. These arguments often center on what is best for the economy, future workforce needs, an increasingly diverse population, alarming graduation rates, and best practice.

This brief builds upon the concept of *Linked Learning* (formerly known as *Multiple Pathways*), an approach to high school reform that takes advantage of the synergistic benefits of *both* college and career preparation. We also identify potential obstacles to Linked Learning reform and propose policies through which states could enhance their capacity to create and strengthen Linked Learning programs.

What is Linked Learning?

Linked Learning programs connect rigorous academic preparation, technical knowledge, and opportunities to learn from adult, real-world settings, including the workplace. The approach rests on three research-based propositions:

1. Learning both academic and technical knowledge is enhanced when the two are integrated and contextualized in authentic situations;
2. Connecting academics to real-world contexts promotes student interest and engagement; and
3. Students who gain both academic and career education stand the best chance of accessing the full range of postsecondary options and a solid start toward a personally and socially productive middle-class life.
4. That being said, Linked Learning **is not a “one-size-fits-all” approach to high school education**. Rather, students and their families choose among a variety of high school programs that provide the academic and real-world foundations that students need for advanced learning, training, and responsible public participation. While each pathway is **academically challenging, the various “pathways” differ in their curricular emphasis** (e.g., the thematic or career focus), in how courses are organized, in the extent to which students spend time on and off campus, in their relationship with colleges, and in their partnerships with business and industry. Linked Learning pathways can be offered through a variety of school structures, including career academies, industry/career majors in large high schools, magnet schools, small learning communities, and Regional Occupational Programs/Centers.

Despite their thematic and structural differences, each pathway consists of four essential components to ensure high standards, program coherence, and personalized learning:

1. A college-preparatory academic knowledge core (satisfying the course requirements for **entry into a state’s flagship public university**), delivered through project-based learning and other engaging instructional strategies that bring real-world context and relevance to the curriculum where broad themes, interest areas, and/or career and technical education (CTE) are emphasized;
2. A professional/technical knowledge core, well-grounded in academic and real-world standards;
3. Demanding opportunities for field-based learning that deepen students' understanding of academic and technical knowledge through application in authentic situations; and
4. Support services to meet the particular needs of students and communities, which can include such elements as supplemental instruction, counseling, and transportation.

Most important, every pathway leads to the same destination: preparation to succeed in both college **and** career, not one or the other. It assumes that almost all students will eventually end up in the workplace and that most workers will need to learn advanced knowledge and skills to sustain or advance their careers. Although any given student may decide to bypass college in favor of directly entering the workforce, a pathways approach offers all students the preparation to seek the college option and/or do well whenever the need for additional learning arises.

Notably, the “single destination” approach of Linked Learning—preparing all students for both college and career—defies and seeks to change a long-standing social hierarchy that makes college “better than” work, and makes “work” preparation the default for those who cannot succeed in college preparation.¹⁰ It firmly rejects a tracking system that provides different curriculum for students perceived to be headed for very different post-high school opportunities.

Who Supports Linked Learning?

Nationally, much of the current impetus and support for Linked Learning has come from philanthropy, through its financial support for policy development, analyses, and local high school reform projects. In the policy realm, for example, the Gates Foundation funded the **National Governors Association’s (NGA) 2003 report, *Ready for Tomorrow: Helping All Students Achieve Secondary and Postsecondary Success: A Guide for Governors***, which advises policymakers to consider Linked Learning high school reform as the way to prepare all students for both college and career.¹¹ It argues that all high school graduates must meet standards “calibrated” to the academic requirements for college, but that these standards should also incorporate the “new basic skills”—such as applied problem-solving and communications skills. At the same time, it emphasizes that consistent standards for all also permit “wide variations . . . in the structure, pedagogy, and institutional characteristics of learning environments that help students meet the standards.”¹²

According to this NGA report, communities and states need “more, and more varied” learning options for older adolescents. Further, the nation’s large, one-size-fits-all high schools are themselves often an obstacle to success (particularly for low-income and low-achieving youth). “They are too impersonal, inflexible, and alienating for young people, especially those who need extra academic and social supports to catch up and succeed.”¹³ The report also concludes that

alternatives to the comprehensive high school are lacking. Second-chance systems are most often ineffective, lack capacity, and fail to meet the standards for academic rigor that young people need. As such, a different way of thinking about high school options is needed.

Similarly, the Carnegie Corporation of New York and the Wallace Reader's **Digest Fund** supported policy discussions on Career and Technical Education. Convened by the American Youth Policy Forum (AYPF), these discussions culminated in a 2003 report, ***Rigor and Relevance: A New Vision for Career and Technical Education***.¹⁴ That report argues as well for **multiple programs of study that provide “students with a pathway to postsecondary education and a career by detailing academic and occupational competencies needed for advancement”** and for housing these programs in a variety of settings, including “**small career-themed schools, career academies located in comprehensive high schools, technical high schools with various career clusters, or early or middle college high schools with a career theme.**”¹⁵

In California, the James Irvine Foundation has played the leading philanthropic role in advancing Linked Learning. For Irvine, **the diversity of California's population of young people** makes building Linked Learning pathways a particularly attractive strategy for increasing the number of low-income youth in California who complete high school on time and attain a

Policies seeking to promote and support Linked Learning must ensure that such programs don't create a new form of tracking.

postsecondary credential by age 25. Notably, however, Irvine sees this approach as appropriate for all students and as bringing considerable advantages even to those who succeed in the current college preparatory curriculum. Accordingly, Irvine has supported several projects seeking to improve instruction and student support services in the state's high schools and community colleges, including a number focused on blending academics with career and technical education, small school development, and college access interventions for low-income youth.

In addition to providing financial support to Linked Learning projects, both the Gates and Irvine Foundations are playing an increasingly direct role in policy advocacy. In its own publications, **Gates actively promotes “a portfolio of great high schools”** that provide college and career preparation for all, across diverse educational settings:

... After all, students learn in different ways; their schools should teach in different ways. In this new landscape, schools may have different emphases, teaching approaches, or philosophies, but they will all prepare every student for college. In a system with a diverse portfolio of schools, no single school will fit every student. But every student will fit at least one school.¹⁶

In 2006, the Irvine Foundation provided seed money for ***ConnectEd: The California Center for College and Career***, an organization focused on Linked Learning. ***ConnectEd*** seeks to develop curriculum, identify promising practices and programs, promote supportive policy, and conduct research on the impact of programs that prepare students for both college and career. ***ConnectEd*** has established a network of model programs that connect academics with

professional and technical education in biomedical and health sciences, building and environmental design, engineering, law and government, transportation, arts and entertainment, and education and social services.

However, Linked Learning has detractors as well, including those who argue that a common academic curriculum for all students is most relevant to the demands of 21st century jobs. In **California, for example, EdTrust West’s campaign to make the state university entrance requirements the default high school curriculum for all students is based on the argument that these more challenging courses provide the competencies that employers want.**¹⁷ Reformers taking this approach are not convinced that a Linked Learning approach is capable of tearing down high school tracking patterns that inevitably disadvantage groups that are already underserved by our schools.

Such concerns are triggered, in part, by the fact that some well-established institutions, including the New York Board of Education and the U.S. Department of Labor have appropriated the former **term “Multiple Pathways” to identify alternative programs meant to support “at-risk” students who are failing in the standards-based high school curriculum.** Although these programs are meant to prepare for both college and career, their position as **“alternative” programs for students not succeeding in comprehensive high schools brings them close to being a separate “track.”** The name change to “Linked Learning” may assuage some of these concerns.

Opposition also comes from individuals and organizations that see Linked Learning as weakening the prospects for enhanced, if more traditional, vocational education. Generally, they envision preserving, perhaps extending, the current separations between educating for jobs and educating for college.

As we suggest below, policies seeking to promote and support Linked Learning must ensure that **such programs don’t create a new form of tracking.** The challenge of educating diverse groups of students cannot **be met with solutions that prejudice students’ interests, aptitudes, or intellectual capacities.** Similarly, a Linked Learning system must be designed to mitigate the potential of stratification resulting from a system based on choice.

Why Support Linked Learning?

Benefits for Learning and Student Achievement

For almost 100 years, high schools have offered different college and workforce preparation; and to do that they provided separate courses for college-bound and non-college bound students. These so-called **‘tracking’ practices have relegated hands-on, real-world education as a terminal experience for students who were not believed to have the capacity for symbolic thought.** In turn, educators reserved text-based, literacy-based education for students perceived to be heading to college. These practices have carried a racial, ethnic, gender, and social class bias from their inception.¹⁸ And, in spite of decades-long attempts to shed practices based on beliefs

about intellectual and racial differences, fundamental structural constraints on equity and achievement remain.¹⁹

Research demonstrates that Linked Learning, as proposed in this brief, can meet the educational needs of a diverse student population by bridging the divide between education for work and education for college.

- ***Increase students' academic engagement.*** A Linked Learning curriculum that integrates **academic and “real-world” learning can increase student engagement by demonstrating** to students applications of academic subject matter outside of school; by organizing knowledge around a common focus; and by fostering relationships in small, personalized learning communities and through work-based learning and internships.²⁰ This curricular mix can make the core elements of traditional academic courses less abstract and more likely to connect with the real-world orientation of most students, including many college-bound students.²¹ As important, the integration of CTE and college-prep academics can reduce the likelihood that students will take an unproductive pattern of courses closely associated with dropping out of high school.²²
- ***Increase students' learning.*** When students apply academic subject matter in out-of-school contexts, they deepen their understanding and retention of academic concepts and thereby increase their academic achievement.²³ In a Linked Learning approach the substantive content of work and the pedagogy of high-quality CTE classes can foster important cognitive abilities, such as acuity in perception and observation; knowledge of tools, their capabilities and limitations; skills in planning and prioritizing tasks; increased ability to solve both routine and non-routine problems; the development of analytical reasoning skills; increased skills in applying mathematics to support planning, trouble-shooting, and problem-solving; use of writing to aid learning and task completion; enhanced communication and interaction skills; and competence in **reflecting on one's own actions and modifying them to improve task performance.**²⁴ These competencies are highly prized in those pursuing a college education, and many are also the broad skills that experts predict will be essential to obtaining secure jobs in the future.²⁵ Learning within a CTE context should help improve student achievement on state assessments systems that emphasize the value of applying facts and knowledge.
- ***Increase rates of high school graduation and college preparation.*** A curriculum that shows how academic knowledge and skills are used in the world of work may motivate more students to persevere in the academic courses that prepare them for college.²⁶ **Moreover, the experience of the “small schools movement” shows that when schools connect adults and students in relationships that support learning, provide program flexibility to meet students' needs, and organize around a thematic focus that makes academic learning meaningful, schools increase students' chances of completing high school and gaining access to a range of postsecondary options.**²⁷ Because a Linked Learning approach can be conceptually aligned with college preparation, as well as workforce readiness,²⁸ it keeps college as an option for more students without sacrificing their workforce preparation.²⁹ As such, students are not forced to choose between college

and work at a time in their lives when they are not well prepared to make irrevocable decisions.³⁰

- **Promote civic learning.** Youth need to understand the purpose and function of government and to develop the skills and commitments to participate and exercise leadership in electoral politics, public institutions, and civic organizations. Linked Learning is especially well suited to prepare young people for adult life by engaging them directly in the adult world as they are learning the facts, skills, and values required for community participation and leadership. This approach can also create contexts for students to study the relationship between democracy and the economy and to extend civic lessons into the workplace.³¹
- **Address the needs of special education children.** One of the goals of Linked Learning is to ensure that all students have access to a diverse and broad curriculum that provides a full range of opportunities after graduation. The opportunity to learn by different methods, including hands-on, project and portfolio-based activities, is beneficial for many different types of students with special needs.
- **Address the unique needs of English learners.** Linked Learning could provide English Learners and immigrant students multiple modes and opportunities to achieve academic and career success. The integration of real-world contexts and tasks with academic skills can provide English Learners and immigrant students the opportunity to learn and demonstrate learning by doing. Moreover, cooperative learning strategies and project-based curricula are exemplary classroom approaches for all students and are particularly useful to scaffold instruction for students who have not yet fully mastered English. Additionally, Linked Learning' off-site learning experiences could make available strong English-use models and opportunities to use emerging English language skills in contextually meaningful ways, as well as exposing students to settings where their bilingual skills are valued. English learners benefit from learning in the community where they have purposeful work and education contacts with persons who have **knowledge of students' language and culture. Such knowledgeable others can increase students' exposure to career opportunities, encourage students to take advantage of flexible educational timelines, and more.**³²

Benefits for the Economy and Future Workforce

Research examining the intersection between the United States' changing economy, its population diversity, its widening social and economic inequality (caused by huge wage gaps), and its patterns of school failure across racial and ethnic communities all points to the need for action. Underlying these deep cleavages are the increasing returns to education in today's economy and the disparities (or gaps) in educational attainment among racial groups.³³ That is, **earned credentials and acquired skills “pay off” for students who continue in their educations and the labor market “cost” of leaving school before completing a high-school degree** has increased over the past 20 years for all groups. At the same time, the negative impact of this shift has been greatest on minority populations.³⁴ This is a result, in part, from the differences

among children as they enter the educational pipeline.³⁵ Children from minority groups are more likely to be more recent immigrants, have higher levels of poverty, and lower levels of parental education—characteristics that are strong and consistent predictors of lower levels of education success.

Research suggests that Linked Learning has the potential to address many of these concerns:

- ***Promote a healthy economy in the context of changing demographics.*** Because of its failure to educate the fastest growing groups, such as Latinos and immigrants, the current educational system cannot ensure a thriving economy built on meaningful, well-paying jobs for its workforce. Accordingly, the continuation of current practices is likely to lead to declines in per capita income that, in turn, would increase the average tax burden to fund the rising demand for government services. To the extent that Linked Learning **can improve minority students' educational success at a number of points—public K-12, transitions to postsecondary, and “life-long” education—it will have a significant, positive economic impact.**³⁶
- ***Prepare the skilled and nimble workforce that the future requires.*** Linked Learning's integration of academic and technical curricula and its use of multiple modes and settings for learning can accomplish three important goals: (1) prepare more students for **college; (2) teach the “soft skills”** — problem solving, the ability to work in groups and communicate with others, etc. — that jobs at all levels increasingly require; and (3) prepare young people to move nimbly among work, on-the-job training, and higher education (community college or four-year) as the changing economy and shifts in job requirements make retooling necessary.³⁷
- ***Link young people with meaningful, well-paying jobs.*** Students who take a coherent sequence of CTE along with college preparatory academics fare better in the labor market than students who do not, particularly young people from working-class or minority backgrounds.³⁸ Linked Learning programs also help students prepare for the **increasingly common “learn while you earn” combination of employment and further education.**³⁹ Moreover, the work- and community-based learning features of Linked Learning can help provide young people with access to sites of meaningful work and social networks that link the students to career knowledge.⁴⁰ Students learn about the existence of certain jobs (and varied career opportunities within industry sectors), they learn where jobs are located, they meet people who can refer and recommend them, and they can imagine themselves at the workplace. Overall, Linked Learning can provide more informed and unrestricted career choices, greater college opportunity, and help students be successful in the 21st century labor market than traditional high school education.

These findings illustrate the potential economic benefits of Linked Learning high school education reform for individual students and for society at large.

However, we must also warn that no single educational policy can fully address the enormous **risks faced by a state's most vulnerable residents. Also needed are** strong economic and

employment conditions as well as public policies that focus on the unique labor force problems associated with low-income communities of color, such as spatial and skill barriers to employment, discrimination by employers, and access to good jobs. Ultimately, a Linked Learning approach to high school education will work best in the context of a social safety net that includes elements such as labor standards, health, and housing that address the negative effects of residential segregation, income inequality, and concentrated poverty.

Enhancing the Capacity and Success of Linked Learning: Six Strategies

Creating and supporting Linked Learning pathways that prepare high school students for college, career, and civic participation requires fundamental changes in high schools and in the relationship between high schools and postsecondary institutions. New policies must support educators to reorganize the curriculum, permit students to learn in multiple settings (on and off campus), and provide flexible time and supports that accommodate variations in student learning.

Other necessary changes go well beyond adding on or making adjustments to current high school and postsecondary structures. Indeed, Linked Learning requires fundamentally new ways of thinking about how education is delivered: from classroom instruction, to how and what courses get approved at the university level, to the mode in which educators, policymakers, and the public perceive the sharp distinctions that currently divide college preparation and career preparation.⁴¹

Below, we offer six policy strategies that, together, can trigger the fundamental transformations needed for the establishment and support of Linked Learning programs and ensure their capacity and success.

1. Support the Development of New Structures

Inherent in the concept of Linked Learning are fundamental changes in the settings in which students learn, in the organization of coursework, and in the time and learning supports available to students. Accordingly, educators and policymakers must support the reconceptualization and reorganization of learning sites, coursework, school schedules, and student assignments. A caution is warranted: the structural changes—how schools organize classes and curriculum—will mean little if not accompanied by the reconceptualizing we **describe. Many past reforms have had disappointing results when they have tried to “lead with”** one or more of these structures (such as new schedules and courses) because they have reorganized without reconceptualizing.

Recommendation 1.1

Learning in multiple settings. Linked Learning programs encompass a range of learning sites beyond the comprehensive high school, including small schools in non-traditional facilities,

large schools broken up into smaller learning communities on the same campus; community and four-year colleges; and “off campus” learning settings (apprenticeships and other work-based learning experiences) located in business enterprises, government offices, community organizations, and other field settings.

Recommendation 1.2

Restructured coursework. Many new pathways will reject the traditional organization of the curriculum into six or seven instructional periods, each lasting about an hour, and with each class providing a different subject taught by a different teacher. Instead, students will likely be taught by teams of teachers in blocks of time that allow teachers to infuse academic competencies in vocational courses and make the academic curriculum more vocationally relevant. One strategy is to organize the curriculum into ‘majors’ where students choose a program of study in which they take specific coursework including academic, professional, and applied coursework; complete internships and other adult-world experiences; produce term or senior interdisciplinary projects; and collaborate with others regarding his/her major.⁴² Majors do not need be only related to career-technical fields, but could include the performing arts, liberal arts, technology, math, science, civic education, or service learning.⁴³

Recommendation 1.3

Flexible time and support. Unlike traditional high schools, Linked Learning assumes that variations in learning are normal, and it requires flexibility in time and learning supports. A lock-step 6-hour day, 5-day week, and 180-day school year **can’t be expected to work for all** students. Many students will likely need additional time and support to meet challenging standards without falling behind their peers. To provide such support, resources currently devoted to compensatory, remedial, and retention strategies could be shifted into flexible systems of time and supports that focus on having all students “keep up” rather than having to “catch up.” Time flexibility could include extended day programs, summer bridge activities, “dual enrollment” in high school and college courses, and four- or five-year “early college high school” arrangements that culminate in a combined high school diploma and a two-year college degree.⁴⁴ Flexibility in time and supports can also accommodate immigrant students who require more of both to learn English and achieve high standards simultaneously.

There are many types of flexible schedules, and we would not presume to recommend one best schedule for all. However, **a state’s policy must identify and remove obstacles that currently** make it difficult for schools to increase instructional time and create a more flexible learning schedule.

Recommendation 1.4

Controlled student assignment and choice. In a Linked Learning system, students must choose their pathways based on their interests, rather than be selected or directed based on their past achievement or likely postsecondary destination. Moreover, for students of early high school

age, it would be a fundamental error to conflate choosing a pathway (a choice made out of a spirit of experimentation and discovery) with a permanent career choice. Neither can choices of pathways be construed as more global educational decisions, such as asking students whether they aspire to attend a university, pursue technical training, or plan to work following high school.

Practitioners and researchers have confirmed time and again that students of diverse cultural, skill, and academic backgrounds can learn together. Students of all sorts can be engaged in the **same activity and the same concepts together without hindering those who can go “deeper”** or leaving behind those who are newly introduced to the topic.⁴⁵ In addition to keeping open the **students’ postsecondary options, this diversity** has other beneficial effects, include circumventing the institutionalized labeling and stigma that vocational-education students tend to suffer; permitting all students access to learning-oriented and achievement-valuing peers; ensuring that all students receive the instructional benefits that accrue when teachers perceive that able students are present in the classroom; and enhancing the learning of all students with rigorous curriculum.⁴⁶ Moreover, applying basic, funded knowledge and well-developed **“habits of the mind” to the unpredictable and non-routine** problems and circumstances of the adult world requires working productively with diverse groups of people.

Strong protections must be in place to prevent the stratification that often comes with choice and, in this case, is likely to degrade pathways **into traditional “tracks.”**⁴⁷ For example, student choices are often powerfully informed by such factors as family, peers, and role models; by subtle and explicit biases within and outside schools; and by prior school success or failure to which students give too little or too much influence. The choice process and the pathways themselves must be iteratively developed -- with actions and decisions being revisited as new information and understanding is gained -- and must be controlled so that each pathway enrolls diverse groups of students and so that diverse students seek enrollment in all pathways. Such protections could include a system of local inspectors or auditors who make sure that each pathway is academically challenging and enrolls diverse groups of students.

Recommendation 1.5

Blend funding sources, facilities, standards, and teacher credentialing requirements. To meet success, Linked Learning must overcome both systemic and programmatic challenges that **include addressing a state’s existing education code, which generally divides academic from CTE.** Similar issues arise regarding funding for k-12 versus community colleges. Merging separate funding sources, distinct facilities, different sets of curricular standards, and different kinds of credentialing procedures for academic and CTE teachers, and the long-standing tradition of departmentalization would remove these structural impediments.⁴⁸

2. Strengthen K-12 and Postsecondary Partnerships

Linked Learning will require new and different relationships with postsecondary institutions that enable universities to consider alternatives to the traditional course requirements for admission. However, state public universities may lag in recognizing high school curriculum

changes as pre-requisite credit. To increase the capacity and success of Linked Learning we must also explore opportunities to establish new programs through these partnerships and to tap into already existing programs such as those offered at many two-year institutions.

Recommendation 2.1

Establish a joint planning committee of K-12 and higher education to develop Linked Learning partnerships implementation plan and timetable. New relationships among high schools, community colleges, and four-year institutions will require give-and-take at each institutional level and a willingness to collaborate across levels. To foster a constructive approach to designing, adopting, funding, and implementing strategies that link high schools, community colleges, and four-year institutions, a body of representatives from all sectors of education should be formed to outline a plan and timetable for integrating elements of the college preparation and CTE policy infrastructure (as recommended below).

Recommendation 2.2

Establish a clear role for community colleges in Linked Learning. Community colleges should play an important role in the construction and delivery of Linked Learning, given their existing experience and relationships with high schools, with **workforce development, and as a “transfer route” into four-year institutions.** In most states, community colleges are currently the primary providers of advanced-level CTE. They can broaden these opportunities to include high school **students through “dual enrollment” or “early enrollment” programs. These and other** kinds of delivery systems can be designed that provide students comprehensive, flexible multi-year programs that blur the boundaries between high school and community college and that prepare students for further postsecondary education and careers.⁴⁹ Through the joint planning committee, postsecondary and secondary education faculty and administrators could work together to develop, and embed in curricula and pedagogy, the expectations postsecondary faculty have of their incoming students, both in the traditional academic arena and in terms of CTE.

Recommendation 2.3

Construct postsecondary eligibility and admissions policies that accommodate integrated and applied high-school curricula. Unless universities alter their eligibility and admissions policies to accommodate and encourage Linked Learning’s innovative and deep structural changes in high schools, it is unlikely that Linked Learning will be anything more than a new form of vocational education intended for those who do not seek to attend four-year colleges. One goal should be to develop better mechanisms for certifying as meeting the pre-requisite requirements those courses that integrate CTE with the knowledge and skills required for admission to state public universities.

Also needed is an open discussion **of the relevance of CTE for a state’s colleges and universities,** as well as the equity implications if it is determined that some CTE courses are not equally

relevant for different segments (i.e., relevant for university but not community college, or visa versa).⁵⁰

Recommendation 2.4

Create and send clear signals to students and families that Linked Learning is a legitimate route to college as well as to work. Few current public signals include information about CTE in college eligibility and admission. That means that students and families must be informed that they have realistic opportunities to gain college admissions if they follow a Linked Learning trajectory.⁵¹ To accomplish this, it is necessary to improve advising and counseling practices in secondary and postsecondary institutions. University applications could directly inquire about CTE courses and work-based learning experiences. Finally, a widespread Linked Learning reform would require a considerable cultural shift. Each school and jurisdiction has its role, but an overarching public communications effort would need to coordinate communication strategies, high-profile advocates, and more, in order not just to have schools do education differently, but to have the public think about it differently as well.

3. Invest in Curriculum Development that Maximizes the Overlap between the Academic and CTE Coursework

Structural changes will be insufficient to enact the principles underlying Linked Learning absent equally radical changes in curriculum and teaching. Linked Learning curricula must embed academic concepts in real world contexts and help students find relationships between academic knowledge and the skills and knowledge required in the workplace and in public life. This **demand a curriculum that integrates “information-rich subject matter content with an experience-rich context of application.”**⁵² Such curriculum defies easy categorization as either academic or vocational. For example, a pathway organized around such industry sectors as agriculture, energy and utilities, engineering and design, health science and medical technology, and transportation can engage students in sophisticated scientific ideas. Fundamental concepts from physics, chemistry, geology, biology, and mathematics underlie all of these career sectors.⁵³ As such, educators and policymakers must seek opportunities to develop and strengthen both CTE and the core curriculum.

Recommendation 3.1

Assess the curricular tools currently at the state’s disposal. A Linked Learning integrated curriculum places knowledge in the context of application, enabling students to expand the “ability of the thinking brain to solve problems, and to assimilate that knowledge in a way that can be useful in new situations.”⁵⁴ The goal here is to identify and/or create model curricula that combine real-world competency with academic standards, deeper cognitive levels of understanding, student and workmate cooperation, civic awareness, and supports for students in their attempts to learn how to learn.⁵⁵

Rather than starting from scratch, however, in the development of a new curriculum that integrates a core academic and career-based aspects, it would be wise for educators and policymakers to assess and review existing examples of integrated curricular materials developed by national and statewide organizations such as *ConnectEd: California's Center for College and Career*, The *Big Picture* Schools, and the network of *High Tech High Schools*.

Recommendation 3.2

Increase the capacity of existing programs and support new Linked Learning pathways.

States should determine how best to supplement existing curricula such as the core academic curriculum frameworks and CTE frameworks. Supplemental materials should provide teachers with the information they need to design curriculum that applies academic content to real-world applications and real-world applications to academic content.

4. Teacher Professional Development to Maximize the Overlap between the Academic and CTE Coursework

When they enter teaching, few teachers expect to work in the innovative structures that characterize Linked Learning. Neither traditional academic nor CTE pedagogies are up to that challenge, and teachers must learn new ways of integrating academic and vocational knowledge. Below, we recommend policies that could draw upon the essential motivations and dispositions teachers have when they enter the profession, and thereby increase their capacity and success when teaching with a Linked Learning approach.

Recommendation 4.1

Prepare teachers to develop and deliver both academic and technical curricula. Consider alternative forms of training and learning opportunities to offer through pre-service teacher education programs, new teacher induction, on-going professional development, and externships—including the following.

- **Pre-Service Training**

Teachers who complete conventional pre-service program are unlikely to have the expanded competencies needed in Linked Learning schools. Conversely, CTE teachers taking a traditional pre-service route into teaching are more likely to learn about the importance of integrating academic and vocational education. However, this integration is typically presented as infusing greater academic rigor into CTE courses rather than an alternative approach to college preparatory academics. Rarely are CTE teachers provided the relevant theoretical and research underpinnings of integration or with opportunities to observe integration in practice.

Higher education or district intern “dual certification” programs could enable CTE teachers to acquire the expertise they need in academic content areas and enable

academic teachers to earn CTE certification (secondary credentials designed for CTE teachers). Such programs would require a dramatic shift in pre-service teacher preparation. Assuming that it is the school rather than each individual teacher that needs the full range of competencies recommended, new state policies should seek to provide the full range of these competencies at the school level. Further, many of the competencies that Linked Learning teachers need are best developed within the context of Linked Learning schools. Rather than focusing on training individual teachers at the various sites that teachers now receive in-service and pre-service training, policies should encourage entire schools to become the sites and subjects for expanding competencies needed for a Linked Learning approach.

- **New Teacher Induction**

Novice teachers need multiple opportunities and spaces to interact with one another **across subject areas and with “experts” as they reflect on new and traditional practice. The idea of “expert” needs to be broadly construed to include not only “master” teachers, but also industry partners. The range of understandings, skills, and dispositions that Linked Learning teachers require cannot be fully developed, even in intensive, contextualized teacher pre-service programs. Continuous development of these competencies is a vital part of high-quality professional practice. Yet, the typical conditions in schools provide few opportunities for new teachers to continue to learn and develop. This lack of opportunity contributes to the high rates of attrition of teachers early in their careers, as well as to the limited capacities of many teachers that remain.**⁵⁶

Teacher induction programs can provide context-specific support to teachers in Linked Learning schools. They can provide learning opportunities within **communities of practice that include teachers’ peers and their partners outside of school.** Essentially, however, when school faculties function as learning communities, teacher induction—which is extraordinarily important—need not be a special or separate program. Rather, with the scaffolding of more expert and experienced mentors, novice teachers can move gradually and competently into the core work of the school, as their expertise develops.

- **Ongoing Professional Development**

Ongoing professional development for Linked Learning schools should take the form of a community of practice in which teachers have ongoing opportunities to learn from more expert teachers and from those with expertise in the industry sector relevant to their school. Some evidence suggests that teachers create new, productive educational strategies when academic teachers partner with CTE teachers to identify the academic content in industry practices and to develop learning activities that embed academic learning in that context.⁵⁷

Curriculum development also provides rich opportunities for teacher learning, particularly when diverse groups of teachers work together to develop curriculum for integrated academic and CTE courses. Such activities enable academic teachers to

deepen their own content knowledge—much as students do in problem-based learning activities—and learn more about the world of work. They also provide academic and CTE teachers with opportunities to discover shared interests, penetrate old stereotypes, and forge new social ties. Such professional development activities also support teachers’ development of their capacity to work in teaching teams and with partners outside of schools.

Policymakers can provide important structures that support such ongoing professional development. For instance, common planning times are important for interdisciplinary teams comprised of academic and CTE teachers. Also, these schools need resources for professional development activities that enable teachers to consult with experts on approaches to integrated curriculum and to engage with industry professionals.

- **Externships⁵⁸**

Linked Learning teachers also need opportunities for learning and support outside of school-based professional development activities. Alternative learning sites allow teachers to understand the application of academic knowledge in workplaces and other settings, as well as to understand the full range of career possibilities in various industries and institutions. This understanding occurs both in the context of their out-of-school learning experiences and as teachers engage one another in making meaning out of their experiences in these alternative sites of learning.

By participating as members of communities of professional practice outside of school, Linked Learning teachers take on new roles, hear diverse voices, develop their own identity as educators, and engage in productive dialogue and experimentation with the integration of academic and technical skills, the relationship between abstract and contextualized knowledge, and the interaction of school and work.

Recommendation 4.2

Staffing Linked Learning Schools. The most obvious challenge to staffing Linked Learning schools is the overall shortage of fully prepared teachers in key subject areas, including mathematics, science, and CTE. As a result, schools reduce class offerings (often the case in **CTE**), **assign “out of field” teachers to courses, or hire under-**prepared teachers, including interns with marginal pre-service training. One significant problem in recruiting CTE teachers is the substantial salary difference between teaching and other high-skilled jobs and professions.

A second challenge is that CTE teachers are credentialed primarily on the basis of their years of work experience; the completion of a college degree or pre-service teacher education is often not required. These differing requirements tend to produce teachers who have expertise to teach either the theoretical underpinnings of a core academic subject or the practical applications of it, but rarely both.⁵⁹

However, a guiding principle of Linked Learning schools might be that of distributed expertise. Although all of the teaching competencies must be available to all students, individual teachers need not be expected to have the full range. Accordingly, staffing a fully qualified Linked Learning program with appropriately qualified teachers does not require that all teachers have

To maximize the benefits of linking programs to employment opportunities, schools must avoid using work experience as an alternative to college preparatory coursework.

the same education, experience and credentials. Rather, as in most complex settings—hospitals, for example—expertise is distributed across a range of professionals who work together to provide the comprehensive array of services that participants or consumers require.

Recommendation 4.3

Recruiting Linked Learning Teachers. All students must have access to qualified teachers in both college preparatory courses and technical courses. Yet most states have great difficulty satisfying this need, particularly for schools serving large populations of African American and/or Hispanic students.⁶⁰ Particularly relevant for Linked Learning schools might be to attract and train mid-career or retired industry professionals into academic and CTE teaching. Another strategy is to recruit practicing professionals from industry into part-time teaching. Teaching in partnerships with fully credentialed teachers, these professionals spend only a few hours each day on campus, allowing them to retain their much better paying jobs in private industry.

Recommendation 4.4

Differentiated Staffing, Credentialing. Differentiated staffing can be used creatively to ensure that all students have access to the full range of teaching competencies described above. Just as Linked Learning break down the traditional structural barriers of schedules, subject matter, and classroom-based instruction, they can also generate innovative staffing patterns that allow adults with different competencies and experiences to teach together. The following are just a few of the staffing arrangements schools could devise:

- Part-time positions for highly qualified members of the industry sector who oversee the technical aspects of laboratory or project work and serve as bridges between the school and work-based learning arrangements.
- Part-time positions for highly qualified faculty of community colleges and four-year universities, in either academic or CTE fields.
- Team teaching of highly qualified high-school teachers and part-time teachers from the industry sector or from postsecondary institutions.

Such arrangements should make less problematic the fact that teacher credentialing requirements for teachers of core academic subjects differ significantly from those for the majority of career-technical teachers.

Recommendation 4.5

Supporting Teacher Effectiveness and Retention. Often overlooked by initiatives aimed at recruiting new teachers is that the shortage of qualified teachers is fueled at least as much by high rates of teacher turnover and attrition as it is by insufficient numbers of qualified people being attracted to teaching. Therefore, in addition to increasing the supply of new teachers for Linked Learning schools, we must learn what makes teaching in these schools a fulfilling career and advance policies that reflect that knowledge. Key to policies that promote career satisfaction and longevity will be to create cadres of Linked Learning teachers who have the technical, collegial, and political support (from their schools, districts, and state) required to affect the **quality of students' lives in classrooms and communities.**

5. Fund Additional Studies to Analyze Key Cost and Feasibility Issues

Recommendation 5.1

Determine the costs of high-quality Linked Learning. Many states are currently suffering from relatively low levels of educational funding. Depending on the specific design of a given Linked Learning policy, as well as associated costs, current educational funding can be reconfigured to cover some costs but new funding might also be required. One-time costs, such as facility redesign, are generally joined by front-loaded costs associated with professional development and the building connections between school and out-of school learning sites. Future funding should be spent in ways that do not inhibit Linked Learning's integration of academic and technical instruction, the connections to learning sites, and more flexible arrangements between K-12 and postsecondary institutions. Moreover, staffing needs must be considered, particularly given widespread teacher shortages and the disparities among communities in access to qualified teachers. Funding sources must be sustainable.⁶¹

Recommendation 5.2

Identify and evaluate successful "Linked Learning" schools. Despite the clear promise of Linked Learning, we lack a research base that is sufficient to fully understand its effects and the conditions under which those effects are obtained. Careful evaluation of new Linked Learning projects will provide much-needed knowledge about these processes. Moreover, likely implementation problems can be prevented by providing opportunities to learn from examples of successful schools that have made the transition to small, theme-based learning communities or career academies. Such models can help schools address several key issues related to launching theme-based small learning communities, including the selection of themes, instructional design, unleashing the power of student choice, employing advisories effectively,

transportation to off-campus learning sites, facilities and equipment issues, as well as various other lessons learned from actual school teams who have undertaken this work.⁶²

Recommendation 5.3

Find ways to link Linked Learning education reform to other social policy changes. To succeed, Linked Learning reform must be implemented along with policies that address other major challenges wrought by residential segregation, income inequality, and concentrated

Policymakers, educators, and students must believe that given the right environment, all students can master complex academic and technical concepts.

poverty. The risks of a Linked Learning strategy—tracking, limited opportunities for some, and further divisions—can be obviated only with a comprehensive policy approach, including adequate social safety nets that include labor standards, health, and housing.⁶³

6. Support of Work-Based Learning Opportunities

Work-based learning opportunities have been commonplace for decades. Working a moderate number of hours during high school can have positive effects on long-term educational and occupational attainment. However, to maximize the benefits of linking programs to employment opportunities, schools must avoid using work experience as an alternative to college preparatory coursework.

Linked Learning reform should include policies to facilitate implementation of effective and accessible work-based learning opportunities for all young people.

School-based vocational and employment programs have not necessarily provided positive education or career outcomes for young people from working-class or minority backgrounds, despite indications that such programs can improve school retention and labor market outcomes. High school employment rates vary significantly by race, socioeconomic status, spatial-economic inequalities, and access to transportation, and students from disadvantaged backgrounds are less likely than others to benefit from them.⁶⁴

Recommendation 6.1

Define Work-Based Learning Experiences. To ensure that work-based learning is a meaningful component of a Linked Learning program, it is critical to define and demarcate effective work-based learning experiences and expectations by grade level. For example, work-based learning experiences for 9th and 10th graders may consist of both on-and off-campus training with a focus on soft skills. By 11th and 12th grade, these experiences should consist of more challenging off-campus experiences that include paid internships and/or other on-the-job training. Work-based learning experiences should evolve by grade level, providing students with opportunities to observe, learn from, and eventually participate in a given workplace, career or enterprise. At all

grade levels, work-based learning experiences must support both academic and career-based content. This requires coordination and interaction between classroom teachers and the workplace.

Recommendation 6.2

Identify and Remove Barriers. Policymakers must identify and remove barriers such as lack of access to nearby jobs and transportation. Young people in low-income communities of color typically lack access to productive work-based opportunities.

Recommendation 6.3

Increase Funding for Work-Based Learning Opportunities. State-level policymakers should explore options to provide and/or expand the funding of work-based learning opportunities. Current sources of funding, such as federal funding available under the Carl Perkins Act, could be targeted towards expanding work-based learning opportunities for greater numbers of students.

A Final Word

Finally, and perhaps most critically, policymakers, educators, and students must believe that given the right environment, all students can master complex academic and technical concepts. Individual differences can not translate into differentiated school practices that imply “headedness” for some, “handedness” for others. **This does as great a disservice to the “heads” as it does to the “hands.”** The fundamental premise of Linked Learning is that all students can benefit from a balanced, integrated curriculum. The learning of both the “brightest” students and those who struggle most will be enhanced by the multi-dimensional learning experiences, problem-solving focus, and learning academics in the context of real world experience.

Notes and References

¹ See, for example, *A Model for Success: CART's Linked Learning Program Increases College Enrollment* (2011). Available at <http://irvine.org/images/stories/pdf/grantmaking/cart%20findings%20report%20final.pdf>.

Also, for a review of research that examines the effectiveness of career academies (one strategy for integrating an academic and technical curriculum), see D. Stern, C. Dayton, and M. Raby, (2010), *Career Academies: A Proven Strategy to Prepare High School Students for College and Careers*. Berkeley, CA: Career Academy Support Network, University of California, 2010. Available at: http://casn.berkeley.edu/resource_files/Proven_Strategy_2-25-1010-03-12-04-27-01.pdf

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³ A total of twenty-five schools are due to undergo the certification process by June 2011.

⁴ Several key factors were considered in the name change. As indicated, many in the field felt that Linked Learning better communicated the values and objectives of the approach. In addition, the name change alleviated confusion with multiple pathways programs being implemented elsewhere. Indeed, **some programs now called “multiple pathways”** run counter to the vision of integrating college and career preparation. In New York, for example, multiple pathways are aimed at out-of-school youth and alternative education. This understanding dominates perceptions of multiple pathways in Washington, DC, and within the national philanthropic community. (For additional information regarding the name change go to <http://www.connectedcalifornia.org/pathways/linked.php>)

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⁶ See Oakes, J., *Keeping Track: How Schools Structure Inequality* (1985/2005). New Haven: Yale University Press.

⁷ Stern, D., and Stearns, R., (2008). “Evidence and Challenges: Will Multiple Pathways Improve Student Outcomes?” in Oakes, J., and Saunders, M., (Eds.), *Beyond Tracking: Multiple Pathways to College, Career and Civic Participation*. Cambridge, MA: Harvard Education Press.

⁸ Further, Linked Learning advocates recognize the intellectual rigor of career and technical studies and have identified the need to work with postsecondary institutions to develop better mechanisms for certifying career-based courses that satisfy college preparatory requirements. See Recommendation Two.

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10 Blending high school academic and career-technical coursework in a coherent curriculum that prepares students for both college *and* careers has been tried before. Career Academies, for example, were established in California over twenty years ago (Grubb, W.N. (1995) (ed.), *Education through occupations in American high schools*. Vol. I: *Approaches to Integrating Academic and Vocational Education*. Teachers College Press). Today there are approximately 500 state-funded, California Partnership Academies that bring together an academic and career-technical education.

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16 "Creating a Portfolio of Great High Schools." Bill and Melinda Gates Foundation, 2006.

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requiring skill with the hands would simultaneously present problems for the mind. In the 20th century, John Dewey and other progressive reformers made a similar claim: if students worked with wood, metal, paper, and soil they could **achieve alternate and important “ways of knowing.”** These arguments hold today. Specific job skills that vocational students learn can become obsolete with a changing economy, but understandings based on physics, mathematics, or technological processes cannot. Students who understand these concepts have constructed a conceptual framework on which to erect new skills to assist them in an evolving workplace.

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Proposed “Linked Learning” Legislation

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xxxx Regular Session

xxxx General Assembly

STATE OF XXXX

LLS NO. XX-XXXX

HOUSE BILL 0X-XXXX

HOUSE SPONSORSHIP

xxxx

SENATE SPONSORSHIP

xxxx

House Committees

Senate Committees

A BILL FOR AN ACT

Concerning the creation of a five-year education pilot program to adopt Linked Learning in secondary schools.

Bill Summary

Note: This summary applies to this bill as introduced and does not necessarily reflect any amendments that may be subsequently adopted.

Creates a five-year pilot program for implementing a new “Linked Learning” or “multiple pathways” curriculum in fifty high schools statewide that integrates college preparatory coursework with career and technical education. Charges the State Board of Education and the governing body responsible for post-secondary

1 **education** with developing the Linked Learning curriculum and selecting schools
2 for the pilot program. Provides that schools selected for pilot program will have
3 flexibility in implementing the Linked Learning curriculum. Offers grant money
4 to schools selected for the pilot program to use to implement the curriculum.
5 Requires the State Board to monitor the pilot program and ensure that the
6 benchmarks established by this bill are satisfied. Specifies that the State Board
7 must prepare a report to the General Assembly in five years that evaluates the
8 program and offers a recommendation of whether to continue or expand it.

9

10 *Be it enacted by the General Assembly of the State of XXXX that Title ABC is*
11 *amended to include a new Article 123, which reads:*

12

ARTICLE 123

13

MP 2010 PILOT PROGRAM

14

Section 101. Short Title.

15

This article shall be known and may be cited as the MP 2010 Pilot Program.

16

Section 102. Legislative declaration.

17

(1) The general assembly hereby finds, determines, and declares that:

18

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20

(a) The state is committed to providing all high school students with a quality education that will prepare them for college, careers, and to be productive, successful and engaged citizens.

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(b) The State must reform its high school curriculum in order to prepare our children for a 21st Century college education and a 21st Century workforce.

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(c) Research demonstrates that integrating the content of an academic curriculum with career and technical education holds promise to reducing high school dropout rates, increasing academic achievement and learning, **and enhancing students' earning power when they graduate.** An integrated curriculum also provides Linked Learning for graduating students to pursue post-secondary education opportunities and/or to directly enter the workforce.

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(d) A Linked Learning curriculum firmly rejects a tracking system that provides different curriculum for students depending on whether they are perceived as college- or work-bound. The goal of Linked Learning is to ensure that all students have equal and equitable access to a college preparatory curriculum that provides each student with a full range of opportunities after graduation.

1 (e) The MP 2010 Pilot Program provides an opportunity to determine the best
2 structure for implementing a Linked Learning curriculum by setting
3 standards for integrating college preparatory and career and technical
4 education, and at the same time, providing high schools that participate in
5 the program with the maximum flexibility to achieve those standards.

6 **Section 103. Definitions.**

7 (1) “MP 2010” means the five-year pilot program for preparing, adopting and
8 implementing Linked Learning learning created by this Article.

9 (2) “MP Curriculum” means the integrated college preparatory and career and
10 technical education program of study developed by the State Board of Education
11 as required by Section 104 of this Article. The MP Curriculum must include, at a
12 minimum, programs of study for the following pathways: agricultural,
13 engineering & mechanical, medicine, liberal arts, and professional services. Pilot
14 Schools would choose among these various integrated academic and career-based
15 MP Curricula.

16 (3) “MP Implementation Model” means the recommended structure or structures
17 for Pilot Schools to implement the MP Curriculum.

18 (4) “Pilot School” means a public secondary school including grades 9-12 selected
19 for participation in MP 2010. Each application for a pilot school shall be made
20 through the school’s district office or state authority authorizing entity, with the
21 district or entity having approved the application.

22 (5) “State Board” means the State Board of Education for K-12.

23 (6) “Higher Education Board” means the governing body responsible for post-
24 secondary education.

25 (7) “Commissioner” means the Commissioner of Higher Education or Director in
26 charge of higher education administration in the state.

27 (8) “Director of K-12 Education” means the administrator in charge of statewide
28 K-12 education.

29 **Section 104. Development and Implementation of MP** 30 **Curriculum.**

31 (1) By August 1, 2009, the State Board in conjunction with the higher Education
32 board must develop the MP Curriculum. The MP Curriculum must be developed
33 for grades 9 through 12 and must include the following:

34 (a) A proposed program of study for all students that satisfies the
35 requirements for entry into all state universities;

36

1 (b) An integrated technical core of a sequence of at least two courses that
2 delivers concrete knowledge and skills to give young people a head start on a
3 successful career. The technical component must be aligned to and
4 underscore academic principles, and fulfill the academic requirements
5 defined above through an emphasis on real-world applications that show the
6 **relevance of academic and technical learning to students' everyday lives;**

7 (c) The creation of an evolving series of field-based learning opportunities
8 that provide students with academic and technical knowledge in authentic,
9 real-world situations; and

10 (d) The restructuring and/or enhancement of support services that help
11 students master the advanced academic and technical content that is
12 necessary for success in college and career, and that provide counseling and
13 transportation that enables field-based learning opportunities.

14 (2) By August 1, 2009, the State Board and Higher Education Board must develop
15 the MP Implementation Model. The MP Implementation Model must provide
16 two or more proposed structures for Pilot Schools to follow to adopt the MP
17 Curriculum. The MP Implementation Model developed by the State Board and
18 Higher Education Board must provide the following:

19 (a) Proposed structures for Pilot Schools to modify existing courses or add
20 new courses and to otherwise begin implementing the MP Curriculum such
21 that, by the 2013-2014 academic year, each Pilot School will offer a series of
22 integrated courses that follow the MP Curriculum. Proposed structures may
23 include theme-based small learning communities, career academies, majors
24 within comprehensive high schools, occupational training centers, magnet
25 programs, dual enrollment programs, distance learning, community colleges,
26 and other project-based and/or work-based programs;

27 (b) A proposed structure for conducting a needs assessment of educators at
28 each school to ensure mp teachers gain and maintain the necessary
29 competencies to teach within a Pilot School through practices such as new
30 teacher induction, ongoing professional development, and externships; these
31 competencies must include knowledge of academic and technical subjects
32 related to the career theme or field, pedagogical skills, professional expertise,
33 and foundational understanding that makes clear the rationale for a Linked
34 Learning curriculum and model;

35 (c) Recommended modifications to existing school counseling structures in
36 order to conform to the MP Curriculum, including the designation of school
37 counselors as mentors for each pathway within the MP Course Structure, to
38 enhance and integrate college and career preparation, increase coordination
39 between the pilot school and post-secondary institutions and to increase
40 access through college and career awareness, career interest surveys, and
41 visits to post-secondary institutions and relevant industries;

1 (d) Detailed proposals for restructuring and/or augmenting science labs and
2 other technical facilities to accommodate the MP Curriculum;

3 (e) Proposed reconfigurations of school schedules to increase flexibility and
4 course offerings, innovative teaching practices, student placement strategies,
5 and increasing the time available to students to complete the MP Curriculum.
6 proposed reconfigurations might include block scheduling, seven- and eight-
7 period days, and other configurations;

8 (f) Guidelines for implementing a series of work-based learning experiences
9 that facilitate the MP Curriculum, beginning with experiences such as field
10 trips, speakers, mentoring and job shadowing and evolving into intensive
11 internships or school-based enterprises;

12 **(g) Proposed structures for including students' parents in the education**
13 process and providing information about college and career preparation; and

14 (h) Recommended approaches for schools to identify and assist at-risk and
15 struggling students, such as by providing supplemental instruction,
16 counseling, and other services required to help lower achieving students
17 succeed in demanding programs of academic and technical study.

18 (3) The MP Curriculum and MP Implementation Model must be made
19 available to all secondary schools that include grades 9-12 by September 1,
20 2009 as described in Section 105 of this Article.

21 **Section 105. Selection of Pilot Schools.**

22 (1) By September 1, 2009, the State Board must invite all public school districts
23 and secondary schools that include grades 9-12 to participate in MP 2010. The
24 invitation required by this section must be sent to all school principals and
25 district superintendents by United States Mail, and also shall be made available
26 **on the State Board's website. The invitation must provide all schools and**
27 districts with copies of the MP Curriculum and MP Implementation Model, and
28 request that schools interested in applying for participation in MP 2010 as a Pilot
29 School submit within four months a budget and detailed plan for implementing
30 the MP Curriculum.

31 (2) The budget and detailed plan required by subsection (1) of this section must
32 provide:

33 (a) An assessment of the financial requirements for implementing the MP
34 **Curriculum, based on the school's current budget and assessment of current**
35 personnel and facilities. This assessment should take into account the
36 additional funding to be provided to Pilot Schools as set forth in Section 106
37 of this article;

1 (b) A proposed structure for adopting and following the MP Implementation
2 Model as applied to the particular school, or in the alternative, a proposed
3 modified model for implementing the MP Curriculum and achieving the
4 requirement of subsection 104(2)(a) of this Article that, by the 2013 academic
5 year, each Pilot School will offer an integrated course curriculum that follows
6 the MP Curriculum in each MP Course Structure;

7 (c) Any request from the pilot school for additional financial assistance under
8 subsection 106(3) of this Article in order to address any understaffing that
9 would prevent the school from implementing the MP Curriculum; and

10 (d) Any other information that the State Board considers relevant.

11 (3) In order to be eligible to participate in MP 2010, a school must submit the
12 materials required by this section to the State Board by no later than January 4,
13 2010.

14 (4) By February 4, 2010, the State Board must select 50 Pilot Schools from
15 among those who have submitted the materials required by this section. The
16 State Board must select the Pilot Schools based on:

17 (a) **The details of the school's proposed plan for implementing the MP**
18 Curriculum, and in particular, whether it appears feasible for the school to
19 implement the MP Curriculum and achieve the requirements of subsection
20 104(2) of this Article based on its proposed plan;

21 (b) The relevancy of and interest in the proposed theme and/or industry
22 sector that will ensure students are prepared for high-skill, high-wage
23 employment by emphasizing industry-related knowledge and skills, as well as
24 academic principles and authentic applications; and

25 (c) Any other consideration that the State Board finds relevant.

26 **Section 106. Funding.**

27 (1) From funds made available by the general assembly for purposes of MP 2010,
28 the State Board will annually distribute to each Pilot School an amount equal to
29 [amount specific to each state] per student attending each Pilot School, but not to
30 exceed a combined total of \$[amount specific to each state] for all schools. The
31 first allocation will be made by August 1, 2010, for the 2010-2011 academic year.
32 The final allocation will be made by August 1, 2015, for the 2015-2016 academic
33 year.

34 (2) Funds received by the Pilot Schools under subsection (1) of this Section may
35 be used for the following purposes:

36 (a) adding new courses or modifying existing courses in order to adopt the
37 MP Course Structure and implement the MP Curriculum;

- 1 (b) hiring additional teaching staff in order to implement the MP Curriculum;
- 2 (c) providing training to existing teachers responsible for teaching courses
3 that are part of the MP Course Structure adopted by the Pilot Schools;
- 4 (d) offering counseling to students regarding career guidance, post-secondary
5 education opportunities, and recommended coursework within the MP
6 Curriculum and MP Course Structure;
- 7 (e) purchasing technology and other infrastructure for use in implementing
8 the MP Curriculum; and
- 9 (f) updating, remodeling and/or constructing technical facilities for use in
10 implementing the MP Curriculum.

11 (3) In addition to funds made available pursuant to subsection (1) of this Section,
12 the State Board also may allocate to Pilot Schools, from funds made available by
13 the general assembly, such funds necessary to address any understaffing issue
14 identified by the Pilot School under subsection 105(2)(c) of this Article, but not to
15 exceed a combined total of \$[amount specific to each state] for all schools.

16 **Section 107. Implementation of MP Curriculum by Pilot**
17 **Schools—Monitoring of Pilot Schools.**

18 (1) Pilot Schools must begin implementing the MP Curriculum in the 2010-2011
19 academic year, with the goal of achieving the benchmarks set forth in section
20 104(1) of this Article by no later than the 2013-2014 academic year.

21 (2) The State Board must monitor the Pilot Schools to ensure that each school
22 follows the detailed plans for implementing the MP Curriculum submitted
23 pursuant to section 105(2)(b) of this Article, or any modified version of those
24 plans approved by the State Board, and to ensure that each Pilot School meets the
25 benchmarks set forth in section 104(1) of this Article by no later than the 2013-
26 2014 academic year. Such monitoring shall include, but not be limited to,
27 ensuring that each pathway is academically challenging and enrolls diverse
28 groups of students, as well as routine inspections and audits of each Pilot School
29 to evaluate compliance with the requirements of this Article. The state board
30 shall have the authority to withhold funding under this article if a Pilot School is
31 substantially out of compliance.

32 (3) The State Board shall be responsible for overseeing the preparation of a
33 report to the General Assembly evaluating MP 2010. Such report shall be
34 submitted by September 1, 2015 and shall evaluate the strengths and weaknesses
35 of the MP Curriculum and implementation of the MP Curriculum by the Pilot
36 Schools after the completion of the 2014-2015 academic year. The evaluation
37 shall address Pilot Schools' success in all of the following: implementing the MP
38 Curriculum, graduation rates, increased proficiency in core academic areas,

1 increased grade level proficiency, grade to grade completion, scope and quality of
2 career exploration opportunities, skill-based course completion, college
3 preparatory course completion, meeting special education needs, and the
4 assistance and reclassification of English language learners. Such evaluation
5 report shall include a recommendation of whether to continue, expand, or
6 eliminate MP 2010 and the use of the MP Curriculum.

7 **Section 108. Special Task Force on MP 2010 and Post-**
8 **Secondary Education.**

9 (1) Within one month of the effective date of this Act, the State Board and
10 Commissioner shall convene a Special Task Force on MP 2010 and Post-
11 Secondary Education, consisting of the following:

12 (a) **The State’s Director of K-12** education;

13 (b) a school board member designated by the state organization of school
14 board members;

15 (c) A high-school level curriculum administrator designation by the state
16 organization of school administrators;

17 (d) The high-school level teacher designated by the state teacher
18 organization;

19 (e) The President of each State four-year college and/or university system (or
20 his or her designee);

21 (f) The commissioner (or his or her designee);

22 (g) The President of the State community or other two-yea college system (or
23 his or her designee);

24 (h) The Administrator of the State vocational and technical training system
25 (or his or her designee); and

26 (i) **Any other person(s) deemed appropriate by the State’s Director of K-12**
27 **Education or Commissioner.**

28 (2) The Special Task Force shall be responsible for consulting on and developing
29 the MP Curriculum in a way that is consistent with the requirements of section
30 104(1) of this Article.