BLENDING *rigor and relevance*

A collaborative at several sites across the state will offer evidence of how successful linked learning, which connects academics to real-world work, can be.

In San Bernardino County, a junior high school student foregoes her algebra homework after school to help her mother, who works the evening shift as a nurses' aide at a local convalescent hospital. Like too many of her classmates, she knows she probably will fail algebra, but it doesn't particularly worry her. After all, why would she need algebra? She expects to follow in her mother's footsteps, helping patients in and out of wheelchairs and beds.

Over the course of one summer and one class, that trajectory is irrevocably changed. Her school is part of an initiative in San Bernardino County's Upland Unified School District to offer a summer algebra course connected to an engineering program – specifically recruiting students who have failed algebra the previous year.

The engineering course happens to include a project that requires designing a wheelchair ramp, applying the concept of calculating an appropriate slope. Ratios, proportions, slope – suddenly, these abstract concepts have a new relevance to her. Instead of seeing herself wheeling patients in wheelchairs up the ramp like the one at the hospital where her mother works, she sees that she can design the ramp itself. Before the class, she aspired to be a nurse's aide. Today, she aspires to be an engineer. Most importantly, she has something she didn't realize she had before: a choice.

In Monterey County, a high school chemistry teacher and auto shop teacher attend a training session during their winter break, focused on integrating Career Technical Education and A-G (college prep) courses at Watsonville High School. The two teachers realize that although they don't think the content of their courses overlapped, they both teach the concept of osmosis – and do so during the same month. Why not join forces and reinforce each other's teaching?

In Merced County, an association of city and county governments convenes to identify regional problems that can be solved only by joint city/county efforts. Thanks to connections to a regional P-16 education collaborative, the group lobbies for an unprecedented line item: $425,000 for

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a Science, Technology, Engineering, and Mathematics (STEM) pathway at Buhach Colony High School as part of the 2010 Federal Labor, Health and Human Services and Education Appropriations.

In Orange County, high school students in Santa Ana have an opportunity to experience college life by taking their high school CTE courses on the campus of their local community college, Santa Ana College. The dual enrollment gives them access to state-of-the-art facilities and equipment not available at their high schools, while also making the college environment seem more familiar and attainable for these students. The students aren't the only fans of the program – college deans and faculty are enthusiastic, too.

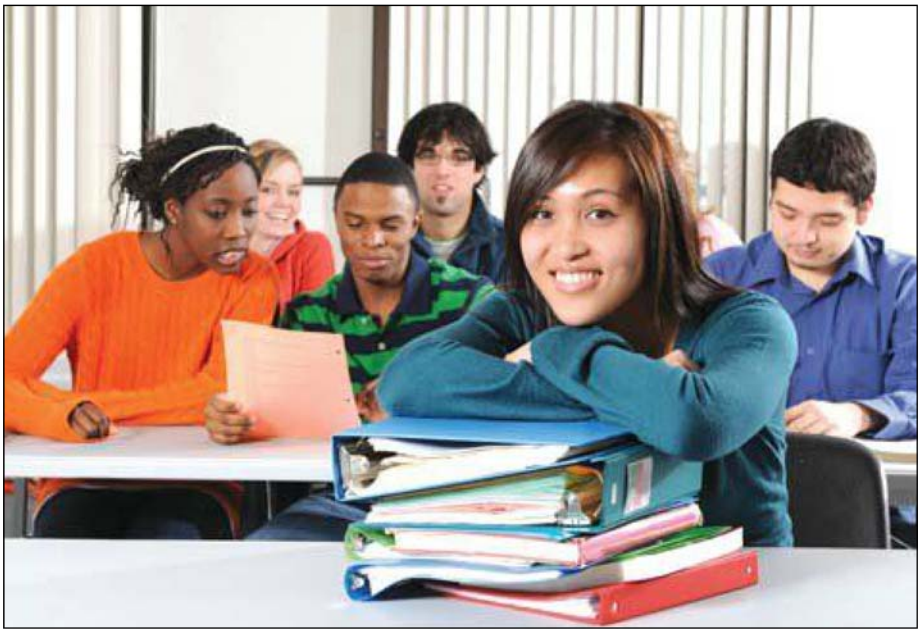
Making the connection

These examples illustrate the powerful connections and linkages that are generated by combining academic rigor with the relevance of applying learning to real-world work and careers. The connection is compelling not only to students, but to teachers, industry and funders as well.

It is also the basis for the key tenets of Linked Learning: Pathways to College and Career Success – a new term for an approach formerly called Multiple Pathways. By either name, the idea is to combine strong academics, demanding technical education, and real-world experience so that students are prepared for high school, postsecondary education, *and* careers (not *or* careers). Industry-themed pathways (such as engineering or health) include the core components: academic, technical, work-based, and support services (counseling, personalization or supplemental instruction).

The highlights presented here – and the longer report from which they are drawn – describe challenges, successes and lessons learned from the work of the Alliance for Regional Collaboration to Heighten Educational Success (a statewide organization) with six regional collaboratives as they plan and implement linked learning approaches in specific school sites, with the support of the Irvine Foundation.

The context for this work is the emerging field represented by the linked learning approach and its predecessor, multiple pathways. Some studies of integrated curriculum and context-based learning offer early evidence that the linked learning approach can yield outcomes such as higher test scores, graduation rates, completion rates for challenging courses required for college, and future earning power. However, the approach is still relatively new and has not been implemented comprehensively enough – or long enough – to offer a robust evidence base.



In the meantime, some of the anecdotal evidence compiled by participating sites and collaboratives in initiatives such as this one can offer preliminary findings and point the way to more extensive research questions in the future. The sites, teachers, administrators and partners who took part in this initial planning and implementation test of linked learning represent the first wave of what may soon become a more far-reaching set of changes in middle schools and high schools, in California and around the country.

Another part of the context for linked learning approaches is the national movement to reform high schools, which by some estimates are failing up to two-thirds of their students across the country. Doing a better job of preparing students for college and careers is a recognized need. Less clear is how to do so.

Early experiences with linked learning, as described here, suggest that realizing the full potential of this approach may require significant changes in how the school day is structured as well as the content of both academic and CTE courses. These changes, in turn, have implications for site and district leadership and school culture.

The Alliance for Regional Collaboration to Heighten Educational Success (ARCHES) was launched in 2005 as an initiative of the California Academic Partnership Program – a collaborative program involving all the state's educational sectors, and the California Education Round Table – a voluntary association of the chief executive officers of all the educational sectors and its programmatic arm, the Intersegmental Coordinating Committee.

Six unique sites and stories

ARCHES focuses on creating regional collaboratives that create synergy across all societal sectors in a region. The goal of ARCHES is to connect every public school in California with higher education institutions, representatives of the private sector, community-based organizations, and family-centered associations to improve student achievement. ARCHES seeks to close the resource and opportunity gaps that are linked to student achievement differentials, especially with respect to African American, Latino and low-income students. There are 27 collaboratives within the regional alliance.

The six regional collaborations and selected school sites that participated in the ARCHES Multiple Pathways Initiative included:

• Merced County P-16 Education and Community Council – Buhach Colony High School, Pacheco High School

• Monterey Bay Educational Consortium – Watsonville High School

• San Bernardino Alliance for Education – Upland High School

• San Luis Obispo County P-16 Council – Atascadero High School

• Santa Ana Partnership – Santa Ana College

• Ventura County P-16 Regional Council – Hueneme High School

Each site devoted a year to planning and a year to implementation, with technical assistance from an ARCHES team and ConnectEd (which developed the linked learning guiding principles and core components). Although each site followed the linked learning framework – specifically, implementing the core components of academic content, technical content, work-based learning and support services – each did so in its own way.

For example, one site used its existing career technical academies to bolster an orientation to regional four-year institutions (augmenting a strong relationship with career certificate programs at a local community college). Another started with a strong pathways course, and tried to build a fuller program around it. A third focused on broadening the theme of an existing academy and bridging its high school program with junior high school students and teachers. Another experienced enough turnovers in the teachers and administrative staff originally involved in the initiative that they essentially had to return to the starting gate.

Shared challenges

Each of these scenarios could describe many school sites and districts across California, and is part of the reason that the lessons learned from these diverse sites and approaches will be useful as the field continues to refine the linked learning model and understand its application in different settings.

Although the settings and approaches were unique, many sites shared challenges. These included:

• The backdrop of shrinking budgets and personnel turnover;

• Aligning school site and district leaders to be "on the same page" about linked learning goals;

• Balancing the need to give students as many opportunities as possible to access A-G courses, while also satisfying the requirements of sustaining a Pathway/Academy model;

• Identifying courses that can be adapted and developing new courses that meet the UC/CSU A-G requirements;

• Finding time in crowded schedules for teachers to plan collaboratively across courses and pathways;

• Recruiting new teachers into pathways and encountering resistance from veteran teachers who were not prepared to change their own approaches; and

• Insufficient levels of support provided to the students.

Teachers and administrators from two sites described a barrier that could have been voiced by others: "Not knowing what's possible." Sharing information across sites through technical assistance and peer-to-peer learning was one way this barrier was overcome.

Expected and unexpected successes

Despite challenges and obstacles, each site was able to point to significant successes – some unanticipated and some not – that support future efforts. Many of the most unanticipated successes involved the role of partners in regional collaboratives and councils, especially connecting sites to additional funding.

For example, in one site, the collaborative organized a dinner to bring faculty from local two- and four-year institutions together with local business and industry partners. A dinner conversation led to the high school academy being included in a successful $7 million National Science Foundation environmental science grant, which will yield

a steady flow of graduate students working with high school students on joint research projects in environmental science.

Several sites saw rapid academic progress among students who had not experienced academic success before. A school that opened its MESA program and annual MESA Day competition to high school Engineering and Design Pathway students – half of whom were designated at-risk students – saw the Pathway students rise to the occasion, winning first place in a balsa wood glider category, first and third places in a mousetrap cars competition, and second and third place in a solo Algebra I competition.

As one teacher commented, "A lot of these kids didn't think they could go to college. Now, they'll tell you which college they're going to!"

While some sites encountered resistance from teachers outside the niche courses or Pathway/Academy programs, others found the opposite: enthusiasm and eagerness to participate. In one district, 22 teachers from outside the Pathway attended an integrated curriculum training held at the local high school.

Lessons learned

What has the ARCHES team learned from working with these sites and regional collaboratives on their linked learning/multiple pathways initiatives?

First, our interaction with teachers, school and district leaders and their partners throughout this process has reinforced the value of the collaboratives themselves. Over and over, these partnerships were cited not only as valued sources of funding and other resources, but as connections to a wider community of business, industry and higher education leaders.

In addition, as the emerging linked learning field continues to evolve, the members of these collaboratives have formed an impromptu but appreciated learning community that is able to share strategies, insights and innovation across sites and regions. Until a stronger evidence base yields the traditional hallmarks of more established fields – such as conferences, websites chockfull of resources and toolkits, and journals dedicated to its key premises – this interim learning community that encompasses P-16 education, academic, CTE, business and industry leaders will help propel the initiative forward.

Another lesson that cannot be reiterated too often speaks to the importance of school site and administrative (school- and district-level) leadership – and of having champions and leaders at each level "on the same page" to move this work forward. So many linked learning implementation barriers collide with scheduling, teacher planning time and other obstacles that must be resolved system-wide. No matter how dedicated and committed an individual teacher or team may be, these often require persistence and intervention from others with the authority to call for such changes.

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The on-site, customized technical assistance and resource-sharing that were at the heart of this project also paid dividends. With little established curriculum available "off-the-shelf," sites found great value in sharing ideas with one another and learning first-hand what other sites had done. In addition to concrete tools and coaching, the outside voice and perspective of consultants sometimes helped overcome resistance, frustration and pessimism that progress might not come as quickly or comprehensively as some had hoped.

The nature of schools and school systems is that no "pause" button is available to halt day-to-day operations while new initiatives are devised and implemented. Cultures and attitudes shift slowly and reluctantly. Without outside resources and pressure, these types of changes are far more difficult to launch and sustain.

As with any ambitious initiative that requires changing mindsets and systems, the timing and duration of change has its own lessons to offer. Many sites found the two-year timeframe – one year for planning and another for implementation – far too short. They noted the delays and lost ground caused by turnover among teachers and administrators.

Others suggested the key factor might not be the months and years involved, but the intensity devoted to the process. In this view, two years may be adequate, but only if the aligned leadership, partnerships and commitment listed here are in place.

In response to this concern, the James Irvine Foundation recently provided supplemental funding through ARCHES to support professional development and expanded implementation of linked learning integrated curriculum and math support for more than 200 teachers in these six regions.

Looking ahead

What's next? ARCHES looks forward to continuing its role in disseminating the exciting innovations described here, not only among the original sites and collaboratives, but across other regions as well. Candor about barriers and obstacles and creativity about how to surmount them are important building blocks in any emerging field.

As the linked learning field evolves, these early adopters will be able to see themselves as the vanguard of those who saw the promise of blending rigor and relevance and, through their trial and error, helped to build the evidence base for P-16 education befitting the 21st century. ■

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