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Report to the Field

# Aligning Systems for Equity



**COLLEGE AND CAREER PATHWAY RESEARCH SYMPOSIA SERIES**

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# Aligning Systems for Equity in College and Career Pathways

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April 26, 2019, SRI International Headquarters, Menlo Park, CA

## Introduction

College and career pathways represent a significant national education reform movement supported by federal, state, and philanthropic funding. High school pathways combine career and technical education with rigorous academics, work-based learning, and integrated student supports to provide equitable access to postsecondary opportunities. Strong research evidence supports this specific combination of interventions as a means to address the opportunity gap and the underlying causes of disparate high school outcomes<sup>1</sup>. A consortium of ten research and policy organizations, facilitated by UC Berkeley's College and Career Academy Support Network (CCASN) collaborated from 2016 to 2019 to conduct four symposia, described below. The symposia were intended to examine the available research on college and career pathways in order to identify high leverage gaps and opportunities with the aims of a) prioritizing a research agenda that could impact policy and practice and b) promoting collaboration among researchers.

This report describes the final in a series of four symposia focused on different aspects of college and career pathways research.

- The first was *The Secondary Student Experience*, held October 17, 2017, examining how to measure student success in college and career pathways. Researchers looked at what we know about data use in pathway interventions and design, and measures of student achievement, engagement, and access to opportunities. In identifying gaps and opportunities in research content and methodologies, they concluded that an equity lens is critical to any investigation.
- The second symposium, *Equity Issues in College and Career Pathways Teaching and Learning Practices*, held April 26, 2018, examined pathway instructional practices, the student supports, structures, and cultural factors facilitating successful, equitable implementation of those practices, and the implications for teacher preparation.
- The third symposium, *Leadership and Capacity Building in College and Career Pathways*, held on November 13, 2018, focused on leadership and capacity building and the research questions required to address problems of practice faced by pathway administrators, teachers, counselors, and other student support specialists.
- The fourth and final symposium, *Aligning College and Career Pathway Systems for Equity*, was held on April 26, 2019. Participants identified the high priority problems of system alignment affecting equitable pathway development, and the specific research questions that need to be answered in order to guide policy and practice.

Individual reports from each of the symposia include bibliographic references organized by topic. In addition, a synthesis of the research recommendations, cross-cutting themes, and key lessons learned from the series will be produced.

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<sup>1</sup> We use the term “pathways” throughout the document to refer to “college and career pathways,” defined as including the components described.

## Symposium Goals and Structure

This fourth and final research symposium, *Aligning Systems for Equity in College and Career Pathways*, focused on identifying key systems alignment problems affecting equity in pathway development, and the research questions required to address those problems.

The redesign of high schools into equitable pathways to postsecondary education and careers requires transformative changes in education systems—both K12 and higher education—but also engagement with employers and widespread adoption of work-based learning (WBL) instructional practices, as well as collaboration with community-based organizations which provide a wide range of essential supports to students. Breaking down the boundaries of siloed educational systems can increase coordination and resources for countering systemic societal inequities that have shaped disparities in educational outcomes. Therefore, the fourth symposium convened fifty-two (52) researchers and scholar-practitioners (Appendix IV) to discuss what we need to learn in order to address high priority system alignment problems that impact equitable implementation of college and career pathways.

Prior to the symposium, each participant was asked to identify a key system alignment problem of practice from their own vantage point, research sources that illuminate the problem, and briefly discuss why this issue was critical to study. Three key areas of concern regarding systems alignment organized the participants into three strands according to their expertise:

1. **Vertical alignment of pathways across K12 and postsecondary education** including curriculum content and related structures, processes, and supports; dual enrollment; developmental Program of Study planning; data sharing; and professional development.
2. **Integration of WBL and employer engagement in education systems**, including alignment of industry standards with course content, such as skills transferable to future labor force needs; systems for scaling WBL such as graduate profiles, coordination of employer engagement between schools/districts, use of labor market data in pathway development, and recognition of WBL in state accountability systems; and professional development, such as involving industry in teacher preparation, CTE/dual teacher credentialing, and externships.
3. **Integration and alignment of community social justice organizations and non-profits** with college and career pathways' embedded pathway student support structures, for example, restorative justice, community health, mental health counseling and trauma-informed approaches.

After an opening plenary with overviews of the key equity issues in each of these strands, participants broke into subgroups according to their area of expertise to select the top two priorities among the problems of practice participants presented, using the criteria individualized in the plenary session described previously. The afternoon break-out sessions continued to work on the prioritized research questions, identifying relevant research, refining research questions, and developing approaches and methodologies needed to address those high priority issues. In addition, twelve (12) philanthropic leaders and policy advocates took part in the morning work of prioritizing key problems of practice. In the afternoon, this group reflected on the symposium process, and the relationship of college and career pathway research to their own priorities. A summary of that discussion is included here.

## Keynote Presentation

Dr. Tameka McGlawn, CCASN's Executive Director, opened the plenary with a keynote speech that reviewed the purpose of the symposia series and of this final symposium. She reviewed the theory of action for the symposia (cf. Figure 1): the collaboration between researchers and scholar-practitioners and the participation of policy advocates and philanthropic leaders yields a prioritized research agenda and stakeholder network that can conduct the research to impact college and career pathway practices and the state and local policies that support it.



Dr. McGlawn observed that:

*"Those who are deeply committed to building high quality teaching, learning, and leading experiences in public education are often faced with historical, economic, and political challenges inherent in America's institutions. Structural barriers persist and continuously perpetuate 'opportunity and access gaps' which impact the full realization of advancing institutional equity within the education ecology, especially in urban settings."*



Dr. McGlawn then spoke to the challenge of transforming entrenched systems, which tend to subsume efforts to create change, and the importance of aligning our work across intertwined systems. The vision she asked participants to work toward in this symposium was a conception of educational justice, in which the causes of inequity are addressed and systemic barriers are removed, rather than simply ameliorated. She ended with a quote from Sharon Daloz Parks to start off the day:

***"Those who practice leadership for equity must confront, disappoint, and dismantle and at the same time energize, inspire, and empower."***

## Criteria for Prioritization

Dr. McGlawn introduced an opening activity to review and vet the proposed criteria for prioritizing problems of practice that research could address in order to ensure equitable college and career pathway development and implementation:

1. Severity of the **impact** of the problems in implementation on **students who are traditionally poorly served** by schools.
2. Severity of **gaps in our understanding of the causes or potential solutions** to pervasive and persistent problems of practice.
3. **Feasibility** of research given contextual constraints.
4. Potential of research to **inspire and inform successful practices or policies** that can ameliorate or resolve the problem of practice.
5. **Amount and type of research attention** currently being paid to the problem. (Methodology, specific populations studied)

Each table had a mix of researchers, scholar-practitioners, philanthropic leaders, and policy advocates. In order to ensure that we were defining priorities based first on the equity problems arising for practitioners aligning systems to develop college and career pathways, the scholar-practitioners began the discussion, responding to two questions: What is missing from these criteria? Should some criteria weigh more heavily than others? As table groups reported out, participants personalized their own criteria, which they were then encouraged to use to assess the plenary presentations on each of the three strands, and to take into the morning priority-setting discussion in those strand groupings.

Feedback included:

Criteria should be more asset- than deficit-oriented—they should focus on solutions. Research that identifies assets, ways to work with assets to support change, or the support systems that need to be developed should be prioritized.

The first criterion should include explicit reference to the prioritized underserved students (e.g., by ethnicity, gender, special education, language learner, low-income urban and rural), and to equity as the priority.

The fourth criterion should be extended to read: Potential of research to **inspire and inform successful practices or policies** that can ameliorate or resolve the problem of practice or that clarifies the conditions and motivating incentives needed for transformative change to happen.

Timing and strategy emerged as new criteria: research that focuses on leverage points, both in terms of feasibility and dissemination of research findings, taking into account windows of opportunity for specific types of research, conditions within key systems, access to useful data, and ability to impact leadership at key change points.

Another criterion that emerged was that research should include the lens of the students who are being impacted: it should incorporate student voice, reflective of the wide range of students in college and career pathways, with a particular focus on marginalized students.

Finally, there was also a suggestion to move out of silos, recognizing that silos create barriers and we should prioritize research that works across barriers and silos.

## Highlights from Key Participants

Three renowned scholar-practitioners, each with expertise in one of the strands, were invited to pose an overview of the key system alignment problems of practice from their vantage point:

- Linda Collins, Career Ladders Project, on vertical alignment of pathways across K12 and postsecondary education;
- Dr. Amy Loyd, Jobs For the Future, on the integration of WBL and employer engagement in education systems; and
- Dr. Jorge Ruiz de Velasco, Gardner Center for Youth and Their Communities, Stanford University, on the integration and alignment of community social justice organizations and non-profits.

After each presentation, participants engaged in table talk around what was presented, beginning with scholar-practitioners. They discussed how to apply the research prioritization criteria to the topics, and whether the topic reflected participants' own knowledge and experience.



**Linda Collins** began by reminding the group that alignment is not static—systems are always in transition. California has three separate postsecondary education systems: the community college, the California State University (CSU), and the University of California (UC). Although there is little interaction across systems, common areas of concern include:

1) Designing for Equitable Completion: are these higher education systems ready for the students who are coming to them? It no longer suffices (if it ever did) to locate completion problems in what students did or did not bring with them to higher education, or whether students were “ready” for postsecondary work. Institutions must be “student ready,” and must offer scaffolding options and choice points for all.

2) Issues of Teaching and Learning: The K12 system has been bringing new ideas about teaching to higher education, including prioritizing applied learning. Development along these lines has been uneven, but remediation and assessment are changing. Postsecondary teachers must also learn to be racially literate, and to adopt culturally responsive pedagogies into their classes<sup>2</sup> in order to best serve diverse college student populations.

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<sup>2</sup> This concept, in which teachers reflect on their place in society and how to affirm their students' cultural identity through pedagogy, was also discussed in the third symposium of this series. For more detail, please see [Report to the field: Leadership and capacity building in college and career pathways](#).

3) Integrated Student Supports: Pathways are becoming an organizing principle for the institution of the community college and this is a huge opportunity to connect high school and community college notions of pathways, including guided pathways and the meta-major approach at the community college level. These conversations are separate now, but we need to begin to connect high school pathways to community college approaches. Collins acknowledged that community college faculty do not know much about the work at the high school level. Other knowledge that needs to go lower into K12 is knowledge about financial aid, other college knowledge—we need communities of practice around effective ways to bring this knowledge into middle schools.

When K12 and community college faculties work together, the Career Ladders Project has found that they respect and value each other’s work, which is important in terms of accepting coursework. How can we co-construct high quality dual enrollment for equity? Up to now, dual enrollment has been serving higher-achieving students who need it least—it can and must be made more impactful. Research has shown that dual enrollment can help first-generation, low-income, and minority students prepare for and attend college, but this is not how it is being used in California. The College and Career Pathways Trust sites have been trying to make a difference, but it is not at a large scale. How do we prioritize outreach to low-resource students, and how will that change the support and courses we offer? We must advance student supports if we advance dual enrollment so that students receive college credit on a transcript, not a failure that follows them on that transcript.

We need to find promising practices and emulate them. For example, Collins noted that currently, 10 percent of East LA College’s enrollment is dual enrollment. They prioritized it. At Citrus College, they are calling their dual enrollment program “guided dual enrollment” to reflect the supports offered and the attempt to bridge dual enrollment with their guided pathways—a high-value practice for low-income students. Community colleges struggle with high student-to-counselor ratios, so we must think about student supports more broadly. California could also learn from New York’s Accelerated Study in Associate Programs<sup>3</sup> which offers advising, student success coaches, special schedules, career counseling, transportation assistance, and more to ensure student success.

From those areas of common concern, Collins presented two sets of recommendations:

- Connect “college and career pathways” to “guided pathways”
  - Institutional not programmatic
  - Possibility of reciprocal engagement and co-design
  - Early, scaffolded access to college knowledge, supports, program and career options
  - Redesigned, streamlined pathways (with math appropriate to program/career goals).
- Co-construct high quality dual enrollment for equity
  - Primary focus on students of color, low-resourced students
  - Geared toward certificate, degree and transfer pathways that give early start on choosing and completing program of study
  - Embedded student supports and work-based learning
  - Integrate with larger completion agenda and student success strategies of partners

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<sup>3</sup> ASAP, <http://www1.cuny.edu/sites/asap/>



**Amy Loyd** asked the group to consider, what if all K12 and postsecondary students were expected to participate in WBL? More students would understand what makes for a good job, and the extent of opportunities in careers of interest to them (through labor market information), so they see that they might want to translate their skills and passion to something with more opportunity. More students would come to understand the role of work in adult lives, and the need for purpose, passion, dignity, and connection through work. They would learn to recognize the barriers and sorting systems they need to overcome “in a world where opaque forces are at play that favor the well-connected.” Loyd presented four priority areas of concern in the employer engagement strand:

- 1) The return on investment (ROI) to employers who participate in WBL: Loyd argued that a firm’s WBL efforts need to come out of corporate Human Resources departments, not just corporate Social Responsibility departments. More than just a feel-good effort, WBL is a strategy for talent and pipeline development, and one that enhances their bottom line. The case needs to be made for diverse, equitable, and inclusive workplaces that value youth’s presence: some research has shown that a diverse workforce sharpens creativity and improves outcomes (Saxena, 2014).
- 2) The longitudinal outcomes of WBL—its connection to Grades 6-16+ learning and its alignment with the labor market—must be examined. This includes connecting WBL to the classroom so that it is more than a summer job, but includes self-identity development. It also needs to be aligned to labor markets or at least be clear so that students exercise choice and also see opportunities for advancement. This also includes the impact of WBL on educational and career outcomes such as college entrance and completion, and whether students who participated in WBL have an easier time launching a career with a living wage, with opportunities to return to education for career advancement, and a clear idea of their next steps.
- 3) Effective models and strategies for equitable WBL must be identified and scaled—in urban, suburban, and rural settings. There is much less access to employers in rural areas. WBL needs to be a strategy for all students, differentiated by student interests and needs as well as by industry sector, for example, how to shadow a coder—it is rather repetitive and boring, so how do we make such WBL work? If we truly want WBL experiences for all students, we will need to engage with employers on a whole new level.
- 4) It is crucial to validate and measure career readiness, foundational, and technical skills, to make sure students are ready to go out to workplaces. Employers continually talk about the importance of certain foundational skills but these areas are fraught with implicit biases. Context matters in the ability to demonstrate skills. The social construct of skill must be unpacked, because young people bring many dimensions of diversity with them to the workplace—race, gender, class, disability, and more—that may be poorly understood and validated by employers.





**Dr. Jorge Ruiz de Velasco** began by noting a difference in the type of alignment possible with community-based organizations (CBOs) and non-profits: CBOs were not created to align and collaborate, but rather to create advocacy and to disrupt. Asking them to partner is challenging and requires trust to be built before collaboration and ultimately alignment can take place. While educators and researchers consider themselves to be professionals—part of a profession that bestows some cultural capital (e.g., certification, legitimacy) on them—this is not always the case with CBO personnel, who are not part of a profession as such. They are often underpaid and lack the status of the education sector, so collaborating for them is difficult. In addition, the supply of CBOs differs greatly across urban and rural areas—something to consider when working statewide. Ruiz de Velasco posed the following three domains of inquiry, in order of most to least extant research:

1) Technical issues of collaboration: Trust must be built before collaboration can begin on any initiative. For those working on academic engagement, technical issues include how to use data to achieve a common understanding of standards between education and CBOs, and how to create opportunities for co-design, co-implementation, and co-validation of interventions. Research could be conducted on using continuous improvement data and research-practice partnerships to advance these kinds of cross-boundary collaborations.

2) Cultural and political issues in collective action: the college and career readiness goals that we espouse imply a cultural and political change. For example, the K12 system has been on board with a completion agenda longer than higher education. As CBOs get involved, they must follow that same shift from content-centered to student-centered instruction that K12 went through, and the shift that higher education is going through, from discipline-centered to completion-centered instruction. Teacher identities will also need to shift. Will teachers bring their full selves to this transformation? For example, a math teacher's thoughts of improvement often focus on content or delivery. But CBOs want teachers to think of themselves as success coaches, as youth development professionals: people who help others connect with math and how to feel successful with math. This is an identity issue that is necessary in order to incite change and to scale it.

This is the role of CBOs: not just helping to provide these things, but to help change institutions to be more student- or completion-centered. Political organizations, including community college or K12 districts, are not designed for rapid cycles of change, because they work with people. Change there is gradual and episodic, with systemic continuity. Continuous improvement work will look different in bureaucratic systems like schools than it does in production function systems like factories. Researchers often expect a more rapid cycle of change. Researchers pilot an intervention, and if it goes well, they want to scale it. Other CBOs and teachers that work with those scaling sites might balk. It is important to understand the principle of broad engagement in a democratic organization. Everyone must become engaged, it cannot be ordered. Egalitarian participation is the norm.

3) Whenever a CBO is engaged in an intervention (i.e., One Million Degrees, guided pathways), they are performing a *bridging and bonding* function and enhancing social capital: this is what CBOs do well. They provide opportunities for more caring adults to bond with young people, and to identify with their

success, as well as to build bridges between these families and new organizations. Research can not only use this bridging and bonding function, but also take it on itself. Ironically, small private colleges that enroll wealthy students understand this. For example, at Stanford, six people have the job of connecting to and guiding each new student, while at the average community college, students wait in line for a 20-minute appointment with a counselor, and that is usually the extent of connection and guidance.

## Strand Break-Out Work

After the key participant presentations and table talk, participants dispersed into three subgroups by strand, to identify the top one or two priority problems in systems alignment for equitable college and career pathways. For each problem identified, they were to pose questions for research that could address those problems, and then detail how that research could be used to improve equity in college and career pathways.



The groups came back together for lunch and a welcome address from host SRI International's Director of the Center for Education Research and Innovation, Dr. Deborah Jonas. Then each group shared out the posters they had created of their top prioritized problems. Participants were free to switch groups for the final working session if they felt more affinity with another set of prioritized problems of practice. The output of these three groups is summarized below.

Photo credits: CCASN



## Strand 1: High school – postsecondary alignment

### Prioritization of Areas of Study

Two primary areas prioritized for research were identified by scholar-practitioners, and expanded upon by researchers, foundation leaders, and policy advocates:

1. dual enrollment as a bridge mechanism between high school and postsecondary career pathways; and
2. the cross-system professional development of an educator workforce for college and career pathways.

**1) Dual Enrollment (DE)** has been promoted and incentivized nationally and in California by changes in the Community College system, such as the Guided Pathways reforms, as well as through legislative initiatives, and the 2018 federal Perkins Act. California’s DE initiative aimed at college and career pathways, AB 288, positioned DE as a key college and career pathway alignment strategy. With tremendous variation in approach, the use of DE courses to increase early college credits and align college and career pathways is raising critical equity issues:

Scholar-practitioners asked:

- Who is enrolled in college and career pathway DE courses? What are the equity issues in access, support, and student success?
- Can pathway-defined DE bridges into postsecondary serve all students, including those who need non-college postsecondary options?
- What DE designs and supports facilitate achievement of student-defined career goals?
- How is the emphasis on DE impacting pathways to four-year universities? What are the success rates in four-year colleges – not just in community colleges -- for students receiving DE credits through their high school pathways?

Researchers added:

- What types of DE models are most beneficial to underserved students in pathways, and to which groups of students, with what outcomes / impacts?
- How can best practice research on educating special populations be combined with research on effective DE to design model pathway DE programs?
- What outcomes are most important to achieve with DE in pathways, and how does one design for those outcomes?

Participants urged inclusion of student, instructor, and counselor voices in looking at student success in CTE and DE across high school and community colleges. They noted the importance of the cultural dimension in research on system alignment: “K12 continues to struggle to clarify the meaning of college

and career, and to distinguish between tracking to pre-determined student outcomes, versus pathways.” Systems, they argued, tend to have perceptions about what is important embedded in their culture. They asked:

- How has the expansion of DE impacted the value that K12 staff place on non-four-year college-bound students, and the time and resources devoted to their career success?
- How does DE affect the value/stigma of community college among staff, students and communities?

## 2) **Cross-system professional development of an educator workforce for college and career pathways.**

This priority arose from within the DE discussion. Scholar-practitioners asked, “How can we use shared professional development across systems and sectors to improve early college credit experiences for students?” They identified inadequate human capital as a key problem: “We need more champions across systems, to do warm transfers between the high school and postsecondary systems. The hardest part has been finding the right people, who have this perspective.”

Participants then addressed teacher shortages in fields critical to equitable pathway development – science, special education, math, bilingual education, and STEM CTE fields -- noting serious and timely implications for the success of pathway students in those fields, particularly in low-income, poorly served areas. Practitioners identified two aspects of this urgent problem:

a) PD for current faculty: the need for effective professional development approaches to support and expand the capacity of current college and career teachers, counselors/student service providers, and system leaders; and

b) Educator pathways: the need for expanded, diverse, accelerated pathways into education professions that draw from all other pathways to find, recruit, prepare and support potential educators in high school, through community colleges and accredited educator preparation programs. Educator pathways were judged to be critical to successful and equitable college and career pathway development.

**a) PD for current faculty:** Work to align pathways and expand DE can motivate faculty engagement in collaborative professional development across high schools, community colleges, and four-year institutions. “High school and postsecondary need to collaborate on curriculum, and family/student supports, but we often don’t speak the same language across systems, and lack the tools to support that collaborative work,” one participant noted. The research questions identified included:

- What personnel and expertise do connecting institutions need in order to align in ways that support successful student transitions between systems?
- What models exist for cross-system pathway professional development, such as using DE curricular work across institutions to meet faculty professional development needs? How have those PD models impacted student success?

Participants noted that alignment of pathways across systems, including through DE, has increased demand for career pathway mentoring, counseling, and advising. Student support professionals are in short supply, and their expertise is underutilized, yet scholar-practitioners believe they are critical to successful transitions and student success. Participants asked:

- How do mentoring, counseling, and advising contribute to success in student transitions, in student achievement of career goals, and in time-to-completion or degree?

Scholar-practitioners also experienced challenges in finding system leaders who could build the relationships across systems that are critical to this work. They asked:

- What are the characteristics of leaders that value and support cross-system partnerships and “build this in their entire educational environment; build this passion in their staff?”

**b) Educator pathways:** Severe and growing teacher shortages have critical implications for equity in student access to quality pathway education, particularly in STEM sectors, and for special education students and English learners. The crisis in teacher education appears to be a key leverage point through which college and career pathway approaches, if successfully designed and piloted, could affect the nature of the future teacher workforce. Cross-system educator pathway alignment, with integrated supports, could expand both recruitment and diversity from among students in a wide range of career pathways. Participants asked:

- How should an education pathway development differ from other pathway development?
- How could regionally aligned K12, community college, and four-year institutions recruit, support, and mentor diverse students across pathways, to obtain the content/technical expertise to become future pathway educators?

Because teaching is not an enticing profession, one participant noted, there is a need to develop a cross-pathway faculty network to identify, recruit, and mentor potential educators from across pathway sectors beginning in high school or earlier. They asked:

- What would be effective incentives for diverse students considering teaching in STEM or other high-need education fields?

After reporting these two areas of priority to the plenary, and hearing prioritization reports from the other two strands, the secondary – postsecondary alignment strand reconvened and broke into two sub-groups to review the literature and develop research recommendations.

## Recommendations for Research

### Dual Enrollment

The dual enrollment subgroup focused on *What dual enrollment designs lead to what outcomes? For what groups of students?* They began by planning backwards, to define the intended outcomes of integrating DE in the high school college and career pathway.

*In a well-designed DE program, students in pathway DE courses should benefit from:*

- Improved confidence, self-efficacy, college-going identity
- Early college credits
- Improved high school graduation rates
- Creation of momentum toward postsecondary education
- College and career exploration/awareness of various choices/paths to inform their decision-making
- Potential to accelerate toward career goals, e.g. take/complete gatekeeper courses while still in high school; reduce time to degree; reduce need for remediation
- Increased entry into high-wage/high-demand pathways
- Improved income/earnings

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

### *Educational institutions that include DE courses in pathways should benefit from:*

- Improved rates of college enrollment: two-year versus/and four-year
- Improved persistence and accelerated completion
- Reduction in remediation programming needs
- Closing of equity gaps in college and career student success metrics
- More efficient programs of study, potentially alleviating college impactions, such as in prerequisite courses in high demand fields.

### *Existing Research:*

In reviewing the literature, participants noted that while significant research has been done on secondary / postsecondary alignment and dual enrollment (What Works Clearinghouse 2017; Fink, Jenkins & Yanagiura, 2017), the use of dual enrollment to align college and career pathways across systems is not well understood. The Concurrent Courses Initiative (Hughes, Rodriguez, Edwards, & Belfield, 2012) produced a strong body of research, but it needs to be updated. More research is needed on disaggregated outcomes. Some exemplary research needs to be disseminated more broadly to affect decision-making. For example, experimental research in Tennessee (Hemelt, Schwartz, & Dynarski, 2017) found that a DE math course did not impact AP course-taking patterns except that it increased the likelihood of underrepresented students' participation in AP the year after they took the DE course, highlighting the potential complementary relationship between DE and AP courses.

Substantial research documents best practices and policies (Career Ladders Project & JFF, 2018; Castro & Collins, 2018a, 2018b), such as the summary and analysis of many states' key policy lessons for scaling high-quality dual enrollment (Faukner, Hooker, & Vargas, 2018). Much research also supports aligning Dual Enrollment with Guided Pathways reforms in community colleges (Jenkins et al., 2018; Dadgar, et al., 2017; Dadgar, et al., 2018; Career Ladders Project, 2019), including pioneering work at the City University of New York (CUNY) on the positive impact of accelerated programs of study on low-income students in remedial ("developmental") education (Scrivener et al., 2015).

The political context is also important to consider in determining research directions that can affect policy. For example, in California the Governor's Office of Planning and Research recently reviewed California's Master Plan for Higher Education, noting that institutions need to "craft seams that knit segments and campuses more closely together" (Office of Planning and Research, 2018, p. 2). Nodine's (2019) review of California's current K12 and postsecondary reforms also points out a key gap in connections across systems. And California is considering legislation (AB30) that would improve dual enrollment access and benefits for pathway students who have not traditionally received early college credits.

### *Recommendations:*

- 1) Research should examine what types of DE designs lead to specific outcomes, and the variables that interact with those designs to affect outcomes:
  - Disaggregate outcomes around race, ethnicity, gender, poverty, English Learner status, first-generation college students, students with disabilities, and low-income urban versus rural areas.
  - Examine whether specific designs, practices, or student support services are important for particular subgroups. *Key design elements:*
    - AB 288 DE, versus non-AB 288 DE, versus articulation
    - CTE versus non-CTE DE courses, and whether or not the courses are part of a sequence that leads to a degree/certification

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- Early college/middle college
  - DE built into college and career pathways in high schools
  - DE provided at the college versus high school location
  - DE built into the pathway program of study versus an elective add-on
  - Instructor: high school faculty versus college faculty versus shared faculty
  - Delivery mechanism: online, in person, or hybrid
  - Dosage: number of courses/units
  - Student supports in place: social, emotional, logistical, financial, academic
  - Level of parent engagement
  - Types of partnerships involved
  - Interaction between DE and Advanced Placement courses, students served, and comparative outcomes
- 2) Research is needed on the design process for dual enrollment programs, as this involves the priorities, constraints, language, and structures of two very different systems. To design for Latinas in rural communities, for example, requires understanding how secondary and community college collaborative processes affect program designs and outcomes for specific underrepresented student groups, in specific contexts, such as urban, suburban, and rural. How are decisions about program design made, and how do those decisions impact student outcomes? For example, what factors drive student access to articulation versus DE, and what are the outcomes of each? How do factors related to faculty availability, preparation, and interest affect districts' choice of sectors for alignment through DE, and what relationship do those factors have to industry demand, and student interest?
  - 3) How funding sources affect program design and outcomes also needs to be understood. For instance, why, to what extent, and with what designs and effects, has the ability to access DE apportionment funds by both high school and community college districts been used to increase DE supports for underrepresented students in college and career pathways? For example, in California, a "basic aid district" has more local tax resources available, and therefore receives fewer state resources. What impact does that have on program design and outcomes?
  - 4) We need to better understand the strategies (such as co-requisite and scaffolded courses) that increase student success. Which non-academic supports, when built into DE designs, improve various groups of students' transitions to college?
  - 5) We need to understand how DE interacts with other cultural shifts affecting the community colleges, such as Guided Pathways; and the K12 system, such as college and career readiness indicators in school performance ratings.
  - 6) The lack of quality data on DE participation poses a key research challenge. For example, we do not know the relationship between students who earned between 12 and 18 DE credits and the students who earned CTE certifications. Data on DE in rural communities, particularly high-poverty rural communities, is very limited. We also need data on high-unit and STEM majors, to understand whether DE helps to shorten time to completion, and to look closely at equity issues in who accesses those courses.

*Research Methodology Recommendations:*

- Case studies of designs and/or specific populations
- Pilots differentiated for specific subgroups
  - Design-based research, development, and evaluation studies
- Community action research in which the community defines a need and designs the DE approach to meet that need
- Design development studies that build scholar-practitioners' capacities to design DE
- Comparative studies of different approaches
- Research incorporating student voice
- Research that examines innovative DE designs, such as team teaching and cognitive coaching

## Professional Development

The professional development subgroup discussed the research brought by participants to illuminate the complex professional development problem affecting equity in college and career pathway practice. They defined the overall problem, impacting both pre-service and credentialed college and career pathway educators, as:

- increased demand for new skills and approaches to teaching, advising, supporting, and leading equitable college and career pathways that cross systems,
- in a context of escalating teacher shortages with critical implications for equity: in science, math, special education, bilingual education, and high-demand CTE fields.

### *Existing Research*

While there has been some work done on professional development for new teachers entering pathways (Farnan, Hudis, & LaPlante, 2014; Biagetti et al., 2017), research on how to transform the cultural norms and skills of the teacher workforce to meet the new demands of college and career pathways has been minimal (Little, 1993; Little, Erbsstein & Walker, 1996). Work in related fields can be applied to the professional development challenges faced by K12 pathway leaders, for example, Ball and Cohen's (1999) practice-based theory of professional development, and Kegan's work (Kegan, Laskow Lahey, Miller, Fleming, & Helsing, 2016) on changing mindsets within organizational cultures.

Tremendous work has been done on the teacher shortage by the Learning Policy Institute (Carver-Thomas & Darling-Hammond, 2017; Darling-Hammond & Carver-Thomas, 2017), including identifying the disproportionate impact of these shortages on students in low-income urban and rural areas. The impact of these shortages on college and career pathway development has not been well studied, and data on CTE teacher shortages in high-demand fields such as STEM and health is unreliable and scarce.

Bragg's (2007) research on teacher preparation through aligned K12, community college, and four-year institutions highlights the importance of system alignment to teacher preparation pathways. Some key gaps in the research include how to address the low pay and difficult working conditions that disincentivize teaching as a profession, in order to increase interest in the field, particularly among potential teachers underrepresented in the profession.

Research has documented the positive impact of teacher diversity on learning, particularly for students furthest from opportunity (Carver-Thomas, 2018; Gershenson et al., 2017; Bottia et al., 2015). Teacher diversity could be positively impacted by aligning educator pathways from K12 through the community



colleges, the segment that serves the majority of college-going Black, Latino, and low-income students.<sup>4</sup> Strategies for developing a diverse pathway teacher workforce should address math's gatekeeper role that often blocks low-income, Black, and Latino students' access to postsecondary education (PPIC, 2019).<sup>5</sup> This is particularly concerning given the importance of math in STEM professions, the underrepresentation of Blacks and Latinos in STEM professions, and the severe shortages of STEM teachers. The development of diverse math pathways aligned to students' intended majors (Burdman et al., 2018; Bressoud, 2018) has been shown to significantly accelerate progress toward degree attainment. Some research exists on incorporating instructional practices that improve success for underrepresented students, such as teaching students to use problem-solving strategies and reflect on their thought process and reasoning (Hanover, 2017). Research is lacking, however, on effective professional development strategies for both in-service and new teachers on aligning real world math applications with career pathways, and with career pathway project-based learning instructional practices.

### *Recommendations for Research and Methodology*

- 1) Research should delineate the systemic conditions needed for, and the characteristics of, effective professional development that promotes pathway faculty learning while aligning institutions in ways that support diverse pathway students' success across systems:
  - Field scans to identify models for cross-system pathway professional development that can be adopted systemically, such as using dual enrollment curricular work across institutions to meet faculty professional development needs
  - Case studies or evaluation studies, where those models have impacted student success, that document the systemic conditions that contributed to the success of the model
  - As was explored in the previous symposium, [\*Leadership and Capacity Building\*](#), Research Practice Partnerships should examine how school leaders engage at district, site and pathway levels to create the systemic conditions that promote pathway development, implementation and supports. In particular, this strand prioritized learning about how to prepare and support leaders who value and build cross-system partnerships as an integral component of the educational environment
  - Phenomenological studies that capture "what happens" in effective PD, including the key concepts and specific approaches used to engage faculty in learning that impacts instruction, while aligning pathways across systems
  - Design-based research to explore, develop, test, and scale effective models of professional development for college and career pathway faculty, both in-service and pre-service, that can support pathway faculty across systems to align their programs for equitable outcomes
- 2) Research should identify cross-system Grow Your Own practices for college and career pathways that can increase the number of, diversify, and retain high-quality teachers. Exploratory surveys and

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<sup>4</sup> In California, about half of community college students are Black and Latino, and about half come from families with incomes below \$30,000 a year. Transfers from community colleges earn about half the CSU system's bachelor degrees (PPIC, 2016), and about two thirds of the CSU's teaching credentials (CCC Teacher Preparation Programs, 2018).

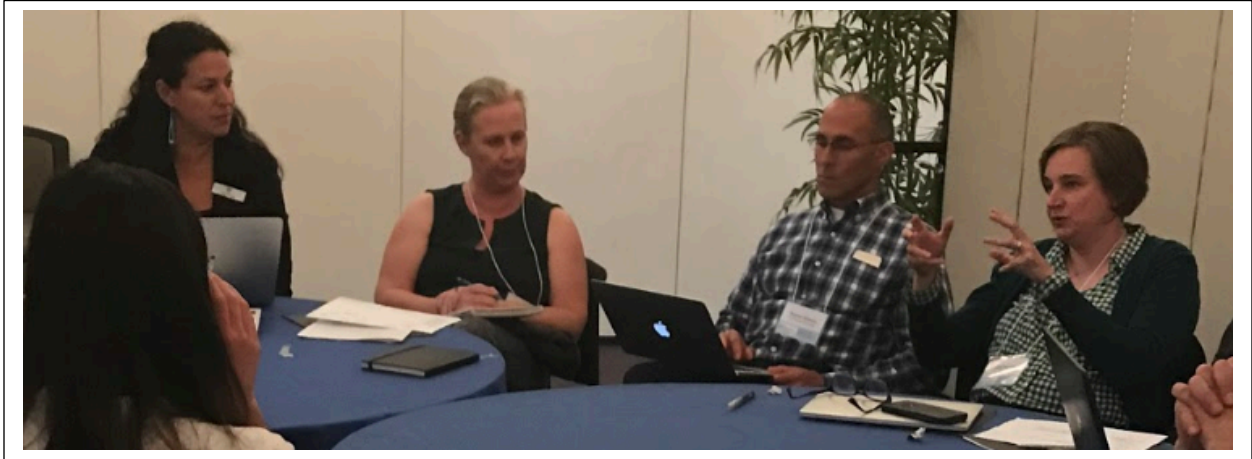
<sup>5</sup> The large achievement gaps separating African American, Latino, and low-income students' math performance from that of white and Asian students increase as students move through the K-12 education system.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

case studies could complement developmental design-based research. Research should focus on classified staff, students whose parents did not attend college, and students of color, in order to support efforts to expand the pool of potential teachers to reflect pathway students' identities.

- Survey research should identify effective incentives for diverse students (first-generation students of color, as well as classified staff) considering teaching in STEM, special education, or other high-need education fields, to inform district work as well as state and local policies.
  - Case studies should identify characteristics and practices of education pathways across systems (K12/CC/university) that are successful in supporting students to consider education careers in high-demand teaching fields (special education, STEM, bilingual education, CTE).
  - Design studies as Research Practice Partnerships to redesign and/or grow new education pathways; and to inform state policy in support of education pathway expansion.
  - Developmental design-based research could focus on systemic structures that connect across systems to support programmatic components needed to expand and diversify education pathways, such as faculty mentors, student clubs, and dual enrollment strategies.
  - Design-based research could develop and pilot a consistent tool for documenting work experience from high school through community college and university, to give students the ability to use that experience in obtaining a CTE credential. This would be a valuable resource for policies that incentivize dual credentialing.
- 3) Research should identify instructional strategies that engage students of color and first-generation college students in successful completion of gatekeeper subjects, such as math, essential to high-demand STEM fields, including STEM teaching. In order to recruit and prepare more diverse teachers, we need teachers who can engage them successfully in learning such key academic content. Professional development in instructional strategies that positively affect diverse students' success in math can improve equitable outcomes for pathway students across a wide range of pathways. If conducted across systems (K12, community college, and university) with pathway math faculty working with teacher preparation programs, such professional development can increase the pool of diverse teacher candidates.
- A review of the literature could identify instructional practices that positively affect diverse students' success in math, and connect those to college and career pathway instructional practices.
  - Design-based research could be used to develop a cross-system model for training pathway math teachers to integrate those instructional strategies, and could address the research question: *What is needed in teacher preparation to improve the ability of first-generation college-going students to do well in math?*
  - Once a promising program has been developed, a quasi-experimental study could compare the effects of those instructional practices on student success in math and interest in teaching careers, disaggregated by teacher ethnicity and first-generation college-graduate status. This could allow assessment of the relative impacts of those instructional strategies and teacher identity on first-generation college-going students' and students of color, to inform policy aimed at diversifying the teaching profession.

- A field scan to identify promising strategies for involving parents and communities in supporting students to learn higher-level mathematics would inform education leaders' efforts to build strong community alliances.



## Strand 2: Integration of Work-Based Learning and Employer Engagement in Education Systems

### Prioritization of Areas of Study

Work-based learning (WBL) — which requires employer engagement to develop opportunities for students — is a key component of college and career pathways. WBL has been defined by some educators as a continuum of career awareness, exploration, preparation, and training experiences, ranging from guest speakers, informational interviews, and workplace tours to special projects and student-run enterprises to internships, co-operative work experience, and apprenticeships (Linked Learning Alliance Work-Based Learning Subcommittee, 2012). Participants in this session focused primarily on experiences that fall into the categories of “career preparation” and “career training” (learning *through* work) in the continuum of work-based learning experiences — extended or “immersive” experiences (Public Consulting Group, 2018) such as internships, service learning, and apprenticeships that offer opportunities for students to engage fully in the tasks of a given profession and work alongside adults. This focus on immersive experiences aligns with the definition of WBL put forward by Jobs for the Future: “...activities that occur in workplaces and that involve an employer assigning a worker or a student meaningful job tasks to develop his or her skills, knowledge, and readiness for work and to support entry or advancement in a particular career field” (Cahill, 2016).

The full WBL continuum exposes students to options, provides connections to employers, and prepares students for subsequent opportunities. More immersive WBL experiences additionally provide opportunities for deep “situated learning” (Lave & Wenger, 1991) and access to social capital and skills that are difficult to attain through classroom learning alone.

Equity in WBL refers to both the provision of opportunities to all students in the first place, and ensuring equitable access to those opportunities — that is, ensuring that all students participate in experiences

that are rigorous and learning-rich, that they have adequate preparation to succeed, and that they have the logistical support needed to participate fully, whether that be transportation, clothing, or tools (Cahill, 2016; Rosen & Molina, 2019).<sup>6</sup>

In examining equitable access to WBL, two primary areas prioritized for research were identified by scholar-practitioners, and expanded upon by researchers, foundation leaders, and policy advocates:

1. defining and implementing a measure of “college and career readiness” based on student outcomes in WBL; and
2. determining the return on investment (ROI) from WBL for industry, postsecondary institutions, school districts, and students.

The two topics emerged as scholar-practitioners spoke about the challenges they face in their practice — both at state and local levels. The core of the discussion focused on a concern for outcomes. For students, “outcomes” were defined by skill attainment as an indicator of “college and career readiness;” for systems, “outcomes” were defined by the ROI for industry and educational institutions, which would guide resource allocation decisions.<sup>7</sup> The discussion necessarily became complex and iterative, as any calculation of ROI is predicated on prior clarity on the return being sought.

1) Defining and implementing a measure of “College and Career Readiness” through satisfactory completion of WBL (demonstrated evidence of skills): Scholar-practitioners launched the topic of measuring “college and career readiness” as one that is of urgent concern in the development of California’s and other states’ accountability systems. States are seeking the means to ascertain whether students are “career ready” in addition to “college ready” (Council of Chief State School Officers, 2017). Until recently, most state accountability systems have measured districts’ success in preparing students for postsecondary education based on standardized test scores that captured results of class work in mathematics and English. These test results do not reflect the additional skills needed for long-term career success, such as collaboration skills and the ability to solve novel problems. Additional means are needed to assess these skills. WBL requires the use and demonstration of these skills and therefore can offer an opportunity for a new kind of assessment. Completion of a high-quality WBL experience, in itself, is a measure of accomplishment, like completing a class. However, both scholar-practitioners and researchers discussed the need for a valid and reliable measure of the student *learning* in the immersive WBL experience — a measure of *outcome*, not only of completion, in the same way that completion of a class is accompanied by a grade in that class.

Scholar-practitioners discussed the following:

- A former California Dept. of Education official raised the issue of how states have integrated college and career readiness (CCR) indicators into their systems of accountability. She noted that they usually talk about “college/career,” not “college and career” or even “college or career.” WBL and certifications need to be a part of this indicator.

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<sup>6</sup> A more detailed discussion of potential equity issues is provided in the cross-strand analysis.

<sup>7</sup> The aspect of “system alignment” participants were referring to in the context of “college and career readiness” was the alignment of skills or standards of performance required by industry to skills and competencies gained by students. When discussing ROI as a system alignment issue, participants were referring to the need for all stakeholders—across education and industry in particular—to see value in the WBL enterprise sufficient to warrant continued investment and joint commitment.

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- One form the indicator could take is documenting participation in high-quality WBL. This raises the question of defining “high quality.” Others in the subgroup noted that Washington, North Carolina, Tennessee, Georgia, and Delaware are ahead of California in this regard.
- Others emphasized the importance of focusing on outcomes that could be reflected in “graduate profiles” developed by community stakeholders, in recognition of the local contexts that shape discussions of access and equity.
- A related topic was the need to determine which skills would be measured. It was argued that content knowledge becomes obsolete over time, so assessments should focus on transferable skills.<sup>8</sup>
- It was noted that even attainment of carefully selected sets of transferable workplace skills would represent proximal outcomes; they are not workforce outcomes that can only be measured through longitudinal research.<sup>9</sup>
- A process question arose: Is the inability to come up with a college and career readiness indicator a research problem or a political will problem? There appears to be institutional willingness to develop an indicator, but there are also obstacles, including, it was argued, the historical stigma placed on career technical education by K12 districts and community colleges.

### Questions included:

- Who should define the skills and how can assessments avoid bias?
- Can we start with existing employer assessments of “soft skills?”
- Should we assess high-level or entry-level skills?
- Can existing, validated measures of a work ethic be used?
- How can we ensure that the assessments will be equitable and reliable?
- How can we encourage the development of “graduate profiles” and then leverage the graduate profiles in each community to stimulate more CTE integration, including integration of WBL as a means for students to attain career readiness skills?
- How can we use this process as a means to inspire the “buy-in” of parents, especially the parents of high-performing students?
- Are there differences in teaching and measuring “soft skills” of adult community college students versus those of K12 students?
- Can a third party conduct these kinds of assessments?
- What kind of professional development is needed for teachers if they will be expected to provide this instruction on industry-specific soft skills?

### Researchers noted the following:

- Researchers described the potential for bias or miscommunication in measuring student performance with an example: Employers are looking for a “willingness to learn,” where they expect questions to be asked. But Stasz and Stern (1998) reported that students would go into work settings believing that asking questions was bad behavior. They chose instead to comply as

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<sup>8</sup> A scholar-practitioner representing the economic development community reported that the head of the Washington state schools (OSPI) approached maritime employers, acknowledging that anything they teach in the schools is likely to be obsolete in a few years. Instead, he asked, what foundational skills are needed—“how can we make liberal arts work for you?”

<sup>9</sup> However, graduates’ eventual success in the workforce takes many years to become evident, so relying on longitudinal research for data that can inform program improvement does not provide answers in the short term. See Darche & Stern, 2013.

they would in school. Participants noted that students may be inequitably placed in low-level routine jobs where compliance is expected instead of learning-rich jobs requiring higher-order thinking and creativity.

- An example of a strategy to combat this kind of inequity was that of Guttman Community College (New York City) which helps students recognize biases through a First-Year Experience course on the ethnographies of work; in this course students learn to think critically about work and work places.<sup>10</sup>

In summary, the group asserted the importance of measuring the outcomes of WBL in a valid and reliable way and developed a set of questions related to how to focus on outcomes in a local control state like California. The ultimate goal would be to contribute a useful measure of career readiness to the state accountability system — one that would not only reflect real career readiness skills, but also serve as an incentive for providing work-based learning experiences to students. The group expressed interest in identifying or creating assessments and making sure they are equitably implemented so that they do not perpetuate biases.

- 2) **Establishing the ROI for work-based learning system development:** In addition to expressing an interest in measuring college and career readiness through WBL, scholar-practitioners also expressed the need to be able to demonstrate a strong return on investment of their WBL efforts — for school districts, postsecondary institutions, and employers. Scholar-practitioners face the very real challenge of needing to make evidence-based resource allocation decisions related to work-based learning.<sup>11</sup> Not only is the employer engagement and placement work costly, but to ensure equitable outcomes, student support services are often needed. The outcomes for school districts — for example, the return on investment in terms of higher graduation rates and other measures of achievement — can help demonstrate the value of the WBL enterprise. Similarly, documenting the ROI for employers is important to support employer engagement efforts and ensure a steady supply of opportunities.

Case studies are needed to describe the benefits of WBL in various industries. A scholar-practitioner from Oakland Unified School District (OUSD) noted that OUSD spends money on WBL and has implemented an increasing number of internships for students, primarily in comprehensive high schools, but now also in continuation schools. The district has established clear standards for quality internships and has begun collecting data with the aim of showing pre- and post- gains. OUSD also pays for National Student Clearinghouse data to learn about its graduates' college attendance. However, it has not yet completed a full assessment of the impact or return on the district's investments.

Challenges to documenting outcomes from K12 include the lack of linkages between K12 and community college data systems, and difficulty in capturing labor market outcomes.<sup>12</sup>

Questions raised included:

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<sup>10</sup> See <https://guttman.cuny.edu/academics/academic-programs/first-year-experience/ethnographies-of-work/>

<sup>11</sup> For a full discussion of ROI in career and technical education, see Kotamraju & Mettelle, 2012.

<sup>12</sup> OUSD does “web scaping” in the health field for job postings, sample resumes, etc. It was mentioned that UW Madison evaluates graduates and earnings, perhaps offering a model that could be emulated.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- How can districts establish a clear definition of WBL and all the experiences in the work-based learning continuum, and then document student participation in those experiences?
- How can districts scale WBL while maintaining differentiated supports essential to equity in outcomes?
- What are the benefits of WBL for students?
- How is WBL facilitating high school achievement and graduation?
- What is the ROI for school districts with regard to increased graduation rates and other outcomes of interest?
- What is the ROI to communities and taxpayers, considering potential savings in policing and other costs (cf. Belfield & Levin, 2007)?
- How much does a student who participated in extended or immersive WBL in high school earn while attending college? It is possible that these students would have a much lighter debt load and may also be more likely to complete.

Calculating the ROI to employers is also critical in order to make a compelling case to industry that their investments in education will benefit them directly, as well as benefiting students, schools, and communities.<sup>13</sup> While employers readily bring on college students as interns, the case needs to be made for also taking high school students.<sup>14</sup> Engagement with education requires employer resources. For ROIs that measure community benefit, employers' contributions can bolster their positive image in the community.

In summary, the second topic of interest to participants was the ROI of WBL from the perspective of multiple stakeholders. Information about ROI is needed to effect change in both policies and practice and to support employer engagement. A critical question is: What is the ROI for school districts, given that students who are facing the greatest challenges and need WBL often need a lot of support? How can returns in the form of greater levels of graduation and reduced costs to communities be accounted for in making decisions about scaling WBL for students who need support? What ROI do employers need to stay engaged and scale WBL offerings?

## Recommendations for Research

### College and Career Readiness Measure Based on WBL Outcomes

The group focusing on measuring college and career readiness based on performance in work-based learning arrived at three research questions:

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<sup>13</sup> Direct benefits include reductions in costs associated with recruiting, training, and turnover; employers also benefit from new ideas brought to the workplace by young creative thinkers and increased morale among incumbent workers — benefits that would need to be quantified for an ROI analysis.

<sup>14</sup> One model is offered by SouthWire, a large wire and cable company located in Georgia. They started 12 For Life, “a cooperative education program supported by Southwire Company helping students gain extra motivation to finish 12 years of school and enjoy better lives. By providing our students with classroom instruction, on-the-job training, key work/life skills, mentoring, and employment opportunities, we’re helping them stay in school, graduate, and go on to become successful, productive members of the workforce — ensuring those real-world skills translate into real-life success” (<http://www.12forlife.com/>). Southwire built a “co-factory” where high school students manufacture, pack, and ship wire and cable products. They have replicated it in another city, and call it a “successful model for other businesses and schools” to consider implementing in their communities.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- a) How are states measuring college and career readiness and what is the role of WBL in defining readiness?
- b) How have states demonstrated the validity and reliability of their WBL indicators, assessment, and overall strategies?
- c) What results are states finding and how are they reporting results? In addition, how do the results impact equity?

The overall research recommendation, therefore, is to do a scan of state policies regarding the use of WBL in College and Career Readiness measures. Research subtopics to consider and examine were discussed, and are organized below in relation to these research questions.

### *Existing Research*

Researchers began with a review of the literature informing the priority research topic, which has been incorporated into the recommendations reported below.

### *Recommendations*

#### **How are states measuring college and career readiness and what is the role of WBL in defining readiness?**

- 1) Researchers should document how states are integrating career readiness into their accountability systems and how, and to what extent, WBL facilitates the assessment of CCR skills. There is a lot of interest, in California and other states, in measuring work-based learning as a part of a college and career readiness (CCR) indicator. This CCR indicator, like all state K12 accountability measures, must be, according to the California State Board of Education, “consistent, valid, and reliable.” While there have been a number of policy papers advocating for the inclusion of WBL as a measure of CCR (Bae & Darling-Hammond, 2014), there have not been many studies examining the technical aspects of such a measure. Researchers should investigate how other states are measuring CCR and how are they overcoming the technical measurement issues (McMurrer, Frizzell, & McIntosh, 2013). Participants recommended starting with a scan of the 50 states, capturing how they have overcome barriers to including WBL as a measure of CCR. The next step would be to identify how they actually measure CCR, given that students are assessed differently across the country.

It was suggested that one sample might be from the New Skills for Youth (NSFY) states because they have had to come up with measures for such activities as career guidance, WBL, and others, under the CCR umbrella. There are 10 NSFY states, including Kentucky and Tennessee. Advance CTE is disseminating this information at <https://careertech.org/new-skills-youth>. Review of this work might contribute to refining the questions that should be asked.

Current examples of state efforts mentioned included the following:

- Under ESSA, many states look at college readiness OR career readiness, and most don’t explore college and career readiness (citation for manuscript/forthcoming publication). Some states, like Iowa, have developed a postsecondary readiness indicator, half of which is CTE-related and half of which is made up of traditional tests. California has yet to come up with a way to measure these elements in a way that meets ESSA requirements. The measures have to apply to different institutions that might currently collect information in different ways; ultimately, a uniform system would be needed so every school can input data in the same way.



## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- Some states (Colorado, Connecticut, Delaware, Kentucky, Maine, Michigan, New Hampshire, Ohio, Oklahoma, Oregon, Rhode Island, and Vermont) are working with Achieve Inc. to develop policy changes around graduation requirements, assessments, and accountability in order to implement competency-based pathways.<sup>15</sup> But none of the session participants had seen such a framework that addresses equity.
- The California Department of Education has done some research on college and career indicators and has established some CCR measures.<sup>16</sup>

A positive outcome for this work for California would be the finding that other states are measuring career readiness through WBL and that there are a number of valid approaches for doing so.

- 2) Researchers need to clarify what is being measured when incorporating WBL into a CCR indicator.<sup>17</sup> One way to do so would be to measure student participation in high-quality experiences. Clarity would be needed on what type of WBL experiences (along the continuum) would qualify, and what features would define “high quality.”

Another approach is to measure the outcomes from the WBL experience, that is, the skills demonstrated in the experience. This requires a process for defining the skills that can be observed in the workplace, the attainment of which would indicate “career readiness.”<sup>18</sup>

Examples were cited of states engaging in collaborative efforts to clarify what should be measured:

- In Illinois, the state board of education, community college board, workforce development agency, and major employers statewide were convened to develop a comprehensive framework, as well as student- and institutional-level indicators of CCR. Some pilot sites are developing competency-based high school graduation requirements and structures for awarding college and career pathway endorsements on high school diplomas that include a requirement for at least 60 hours of internship or similar experiences.<sup>19</sup>

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<sup>15</sup> See <http://www.achieve.org/CBP>

<sup>16</sup> The current approved measures for CCR are at <https://www.cde.ca.gov/ta/ac/cm/ccical.asp>.

<sup>17</sup> There was intensive discussion about whether our focus was CCR writ large, or CCR as demonstrated through WBL. Given the focus of the session and the very purpose of WBL to support career readiness, the discussion was limited to the role of WBL in supporting the measurement of career readiness. That being said, other processes were also discussed.

<sup>18</sup> Discussions have centered on broadly transferable “employability skills” (see <https://ccrcenter.org/technical-assistance-networks/professional-learning-modules/integrating-employability-skills> and <http://cte.ed.gov/initiatives/employability-skills-framework>); however, not all employability skills are always observable in any given WBL experience, so states would have to determine which skills are most critical, and which level of skill would constitute “career readiness.”

<sup>19</sup> Information and mapping of these competencies, specifically for math, can be found at:

<http://www.advanceillinois.org/pwr/> and <https://www2.illinois.gov/sites/p20/documents/postsecondary%20and%20workforce%20readiness/pwr%20policy%20report%20final%20version%20without%20appendices%2007.23.13.pdf>. The basis for much of this work is Illinois’s 2016 passage of the Postsecondary and Workforce Readiness Act, cf. <http://www.advanceillinois.org/wp-content/uploads/2014/11/Facts-about-HB5729-FINAL.pdf>.

- The state of Tennessee has also been active in this area and employers were engaged from the start. Through the Department of Economic and Human Development, industry partners provided input on “talent development needs.” Connecting this to education, now employers who take interns fill out a standard form about what the student did and learned. The question was raised whether the employers who stepped up to do this work had some personal interest and thus were not representative of the willingness of all employers to participate. A JFF participant in this process noted that it was a “coalition of the willing,” although facilitators interviewed human resource officers throughout the state, examined labor market information, and sent surveys to employer associations, then convened state agencies to make sense of the data. In both Illinois and Tennessee, employers were excited to provide input.
- Los Angeles and Bakersfield Chambers of Commerce have each created their own work readiness certificate and are collecting data on implementation.

**How have states demonstrated the validity and reliability of their WBL indicators, assessment, and overall strategies?**

- 3) Validity and reliability of assessments were key concerns that should be examined in a state scan to see how states are addressing these issues, both in local settings and for state accountability purposes. Representatives from California referenced 12 Standards for Career Ready Practice<sup>20</sup> as a starting point for identifying expected competencies and establishing the validity of a measure of readiness (whether the measure captures what it is seeking to measure).

Reliability issues surface when ratings are not consistent. This is an issue for employer ratings that would be used to determine career readiness, making employer ratings, by themselves, difficult to use in high stakes accountability situations.

In developing and validating CCI indicators that include WBL, researchers should examine how the relationship between employers and educators influences the measures, and how to assure the equitable application of these measures. Participants argued that employers are critical to ensuring that defined skills reflect the needs of the workplace, but that educators must ensure that any definition of career readiness is applied equitably.

A question arose about how to engage employers in defining CCR measures and whether states are willing to accept such measures as reliable in an accountability system. Participants asked: “If the state superintendent and the state chamber of commerce worked together, they might come up with something, but would it be accepted by schools and districts?”

- 4) Research is needed to show how WBL supports district and postsecondary achievement outcomes, as well as other educational outcomes in addition to acquisition of skills valued in the workplace. For K12 to stay engaged, participants asserted that there was a need for student level quantitative data that demonstrates that WBL experiences are “moving the needle” within K12 — not just impacting workforce outcomes, but also K12 outcomes like attendance and graduation rates. “We need data so that a new leader can’t come in and get rid of pathways.”

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<sup>20</sup> See <https://www.cde.ca.gov/ci/ct/sf/documents/ctescrpflyer.pdf>

A scholar-practitioner reported that at a troubled high school in her district, the structure of cohorted career pathways with aligned services has increased graduation rates by 30 percent, even before most students have had internship experiences. The district is interested to know what will happen when the students also have access to internships and are now beginning to track WBL data at the student level.

**What results are states finding and how are they reporting results? In addition, how do the results impact equity?**

- 5) It would be important to explore whether any states have results from their efforts to date, even though the inclusion of WBL into state CCR measures is recent. Some states may have descriptive data. A WBL measure is now an optional requirement for Perkins indicators of program quality. The options are: 1) graduates with WBL experience, 2) graduates with postsecondary credits, and 3) graduates with a postsecondary credential (Maag, Cahill, Loyd, & Barrett, 2018). All results need to be disaggregated by student population but also by industry sector to examine how they impact equity.



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Office

### Return on Investment in Work-Based Learning, Building on Implementation of High-Quality Experiences

Participants developed the following research question: What is the ROI for WBL experiences, for employers, postsecondary education, K12 districts, and students themselves? Before examining the steps needed to address this large research question, participants discussed the importance of addressing diversity, equity, and inclusion in any ROI calculation; ROI should not be measured in solely monetary terms, they argued. In addition, what is measured in an ROI and how the results are used can motivate practice.

### *Existing Research*

Researchers began with a review of the literature informing the priority research topic, which has been incorporated into the recommendations reported below.

### *Recommendations for Research and Methodology*

- 1) **Defining WBL:** An initial study is required simply to define WBL and the characteristics that would determine high quality. The findings from this study would also inform the use of WBL in assessment and accountability.
- 2) **Identifying outcomes meaningful to each stakeholder group:** To conduct an ROI, clarity is needed on what constitutes “positive outcomes” for all stakeholder groups.
  - For school districts, this could be increased graduation rates or reduced truancy and disciplinary actions.
  - For postsecondary, this could be higher persistence, completion, and employment rates, including “employment in field of study.” In California, outcomes could include contributing to the colleges’ funding through the new Student Centered Funding Formula.
  - For employers, this would mean reduced hiring, training, and retention costs.
  - For communities, it could mean reductions in policing and crime with associated increases in employment and related tax revenues, attraction of new businesses due to availability of skilled labor, and a positive working environment.
  - For students, it means higher academic achievement and greater labor market outcomes, including job prospects and earnings.

Such a study would include stakeholder interviews and surveys with stakeholders on what would be meaningful outcomes.

- 3) **Conducting descriptive case studies to understand WBL implementation from the perspective of students served:** Case studies would be used to understand a) how WBL is implemented, b) which students participate in each type of WBL, and c) the outcomes for students, based on any available outcome data. Student data would be disaggregated by student subgroup and industry sector in order to understand which students are participating in WBL, and any selection issues (e.g. in some districts, students must have a certain GPA or attendance record to participate). Locations for the case studies proposed would be those with robust programs that are already collecting student-level data, such as Linked Learning sites in Oakland, CA and Porterville, CA. In addition, the case studies would offer rich qualitative data to “tell the story” and help stakeholders understand WBL implementation. It would also provide data to establish a model for WBL that could be tested more rigorously.
- 4) **Establishing results from a “high-fidelity” model of WBL:** Having defined WBL and described the implementation processes, student participation, and available student outcomes, but before conducting a quantitative ROI study, participants argued for the importance of conducting a rigorous experimental or quasi-experimental study that would, to the extent possible, establish the causal link between WBL and the desired student outcomes identified through the stakeholder process discussed above. To do this, a model would have to be clearly articulated based on the case study data, also drawing upon other model programs such as Exploring College and Career Options (ECCO) summer internship program (Visher, Willard, & Safran, 2013). Such a study would mirror the career academy studies conducted by MDRC, which resulted in clarifying outcomes overall and for specific

subpopulations. Just as in the MDRC career academy research, attention would have to be paid to selection issues to avoid selection bias.<sup>21</sup> The study would seek to confirm the value of WBL as implemented in a particular way with high fidelity.

- 5) **Conducting the return on investment analyses:** The more quantitative ROI analyses would involve looking at the investments required to implement the tested model with selected populations and the returns to all the stakeholder groups, including K12, postsecondary institutions, employers, communities, and the students themselves.



### Strand 3: High school – community alignment

#### Prioritization of Areas of Study

Schools are situated in communities, but sometimes the fences around schools keep the community out as much as they keep students in. This strand discussed ways to look outside of school boundaries to the community, often through CBOs delivering student support and other services, as a way to collaborate on goals such as accessing high-quality education and achieving equity across student groups.

Alignment of any kind across institutions is difficult, as has been shown regarding alignment between K12 districts and higher education, and between districts and workplaces. But aligning districts with the community can be especially fraught for the technical, cultural, and political reasons raised by Dr. Ruiz de Velasco in his remarks cited earlier.

In order to prioritize areas to study in this strand, participants had to first discuss what it means to connect research, the community that schools serve, and the CBOs that work there. Who is “the community?” What does it mean to bring the community into research? Participants agreed that collaboration might be a more appropriate term than alignment. In order to get the right people in the room and engage them, research may have to be approached from a co-creation perspective,

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<sup>21</sup> The MDRC study used a randomized control trial methodology, which was possible due to oversubscription of students to academies, thus allowing for comparison between students receiving the academy “treatment” and those not receiving the treatment without motivation biasing selection. Researchers would have to determine how selection bias could be best avoided in a study of WBL if a randomized control trial were not possible.

hearkening back to Ruiz de Velasco’s earlier calls for co-designed, co-implemented, and co-validated research when involving CBOs.

Discussion honed in on the CBO role in delivering support services to pathway students to maintain and increase their engagement and achievement. This role is important, because the National Standards of Practice adopted by the National Career Academy Coalition, an organization that provides collaboration and resources for secondary college and career pathways, includes student supports as a criterion for quality pathways.<sup>22</sup> Members of the Coalition<sup>23</sup> recognize the comprehensive nature of the supports needed—academic, social-emotional, career guidance—and that school staff alone cannot provide them all: teachers, administrators, support staff, employer mentors, and CBO personnel are all support providers within their respective domains of action. Ideally, they work together to provide a coherent and integrated experience for students as they move from the classroom to workplace learning. For example, Linked Learning includes “comprehensive support services” as a central component to ensure equity of access, opportunity, and success, but there are no defined structures to ensure that support. Research is needed to identify successful structures for comprehensive supports for pathway student success.

Participants ultimately prioritized two areas for research: foundational capacity building for collaboration between three separate groups with distinct perspectives and interests, in order to ensure mutual respect and reciprocal learning in work toward common goals; and the substantive issues involved in integrating systems for comprehensive student supports.

1. What structures and processes are needed to build the necessary capacity for researchers, the community, and the school to collaborate on the delivery of support services for students?
2. A) What are the supports that need to be in place for student success?  
B) How do we integrate community assets in the development of those comprehensive student supports in college and career pathways?

### **Identifying structures and processes that will build mutual capacity to collaborate among researchers, the community, and practitioners.**

This first research recommendation is necessarily foundational: much qualitative, preparatory work needs to be done in order to build the mutual trust needed to identify the supports needed and effective ways of integrating them.

Participants agreed that capacity needs to be built in both directions: researchers need to build capacity to be able to work with community partners, and community partners need to know how to speak the language of research. Both groups have their own culture, values, hierarchies, timelines, funders, and accountability systems. Time needs to be spent getting to know each other’s worlds and to collaboratively explore multiple perspectives on common problems in order to define common goals and priorities.

Power dynamics need to be acknowledged and overcome, by validation of both groups by both groups, and by each honoring the practice of the other. Making it a mutual exercise eliminates any blame and the need for any party to feel it must arrive with solutions.

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<sup>22</sup> See <https://www.ncacinc.com/nsop>.

<sup>23</sup> These include Linked Learning, NAF, California Partnership Academies, and more, cf. <https://www.ncacinc.com/nsop/academies>.

This recommendation is a time-consuming one and not immediately directed at a “research question,” so funding this important capacity building is a real challenge. Any funders of this type of work have to realize they are rethinking the rules, not simply playing the same game.

**Identifying the necessary supports for student success and the current state of community asset integration into the delivery of comprehensive student supports.**

From a practitioner perspective, instead of listening first, researchers have too often defined terms like comprehensive student supports and college and career readiness before going out into the field. Yet schools and CBOs likely have much to say about their experience providing these supports and how they seem to be working from their perspective. Research is needed to learn who is providing students with what supports and with what results. How students experience these supports is also a crucial perspective to keep in mind: Are these supports comprehensive, i.e., do they address the whole student? Are these supports aligned to students’ educational and career aspirations?

Based on past experience, some participants expressed doubt that researchers could learn to listen more deeply to practitioners, community organizations, and community voices in general. Practitioners wanted to see research that is actionable at a policy level yet also accountable to students and families. Cultural differences across research and practitioner groups weighed heavily in the conversation: for instance, the cultural dynamics of higher education—where much research begins—rarely consider research coming from community organizations.

Participants wanted to probe how communities define success, and how research could use such definitions as a starting point toward a more community-driven research process. For example, the education system is still learning how to integrate and adapt mental health, crisis management, trauma, and resilience services within traditional education settings. This is a window of opportunity, to study ways for schools to integrate mental health issues into education in a comprehensive way that effectively supports teaching, learning, positive youth development, and transitions to adulthood. CBOs may have a lot to contribute in this area.

In addition, CBOs and researchers can collaborate to activate young people, parents, and teachers as co-researchers, and make evidence more available to them. It is important to include such stakeholder voices so that research becomes part of what they do as opposed to being something done to them. Student voices are particularly important to include, because education research is conducted to impact their lives, and because participation is an authentic practice that prepares them to identify issues of concern in their own lives, study them and reach conclusions, and advocate for change—skills they will need throughout their adult lives.

After reporting these areas of priority to the plenary, and hearing prioritization reports from the other two strands, the high school – community alignment strand reconvened and broke into sub-groups to engage the literature and develop research recommendations. Because of the need to start at a more basic level for this type of alignment between community, secondary education, and researchers, the research recommended for this strand is largely exploratory.

## Recommendations for Research

### Building Mutual Capacity

#### *Existing Research*

The Annenberg Institute for School Reform recently reviewed research on K12 district partnerships with CBOs and postsecondary institutions (Lee, McAlister, Mishook, & Santner, 2013), finding that successful partnerships require shared visions, responsibilities, and cultural norms among involved partners. The most effective partnerships use data to strengthen internal capacity and interrelationships.

#### *Recommendations*

Research funding usually arrives after a partnership has been in existence and agreed upon research goals. The type of collaborative project this subgroup envisions, bridging three distinct communities, would require time and facilitation to form those relational foundations, explore each other's interests, and establish common goals and trust. In order to build mutual capacity among researchers, the community, and practitioners, the funder would need to make certain commitments that are probably uncommon in their portfolios:

- to develop mutual language and understanding
- to invest in a partnership and a culture of learning, not just one-time professional development workshops
- to provide sustainable funding to institutionalize practices
- to allow partners mutual control over resources and money
- to build in substantial time to meet and plan
- to prioritize the above over proximal outcomes measures
- to continue funding beyond the initial partnership process

This subgroup recommended using research-practice partnerships as the tool for developing mutual capacity for collaboration among districts, CBOs, and researchers. This makes the partnership process integral to building trust between community and researchers: the community voice needs to be heard, honored, and valued. Researchers must learn to tap what CBOs already know through their deep rounds of listening to their constituents. Conversely, those involved in the work of CBOs have deep personal knowledge but may not understand the universe in which that knowledge exists. The act of partnering can begin to reduce the silos.

The standard way that research gets funded is through researchers, who develop the research question, find the funding, and collect and analyze the data. Of all partners, researchers are the furthest removed from the classroom, yet because of their expertise in research methodology, they tend to lead these types of efforts and partnerships. A partnership should help empower the CBO to take a larger role in the research. Unfortunately, funding is needed even to initiate a partnership. The group recommended the following process:

- Identify stakeholders (district, CBO, researcher) and begin a conversation
- Start with the big picture (define community, define success)
- Identify funders (a pre-existing partnership is necessary here)

Funding sources that could be tapped to build these partnerships include state, federal (Perkins, Title I), and philanthropic sources. It was noted that state departments of education are not always the most up-to-date on human resource development (cf. the gradual and episodic change of bureaucratic systems referenced above). However, the California Department of Education is considering transferring



## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

professional development capacity to local education agencies, which would make resources more available at the local level. This could be the time to harness resources and more strongly connect pre-service to in-service activities, building a culture of learning together with community partners and research partners in a new way. This is ultimately more sustainable than using grant money.

Some of the structures they recommend in order to build capacity:

- Common planning time
- Leadership to create agency and bring in resources
- Commitment
- Culture of learning

The group discussed how districts could be convinced to use resources to build partnerships with CBOs as opposed to hiring a CBO for one-stop shops, and how all stakeholders could leverage existing funds. Group members recommended considering the barriers to the partnership upfront and thinking through potential solutions:

- Include all stakeholders from the outset
- Interactions need to feel authentic (e.g., genuine sharing, humble interactions)
- Build in some sustainable structures and routines
- This is all part of capacity building



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CCASN

### Identifying and Integrating Comprehensive Student Supports

#### *Existing Research*

There is some literature on the student supports provided by Linked Learning (Saunders, Hamilton, Fanelli, Moya, & Cain, 2013; Ruiz de Velasco, 2019; Ruiz de Velasco, Newman, & Borsato, 2016) and early college high schools (Edmunds, et al., 2017; Parthenon-EY, 2016). Work from the Consortium on Chicago School Research (CCSR) at the University of Chicago (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010) provides foundational analysis of the importance of community social capital in school improvement, particularly in relation to student supports.

#### *Recommendations*

One approach that was discussed was to begin by trying to understand how students actually experience student supports and whether they feel that the supports are integrated. This would be a

student-centered, asset-based research project to capture the student voice after their experiences with CBOs. By hearing how they navigated the system, we would gain a better idea of what it looked like from their perspective. Two reports by America’s Promise Alliance have done something similar with respect to high school dropouts, or push-outs as they call them, which include strategies adults can adopt to help such students.<sup>24</sup>

The group felt the research should answer the following questions:

- How are students experiencing the integration of student supports? Are they effective? For whom and under what conditions?
- How did students learn about the services?
- How do students plan to continue to use what they learned?
- How can the system/research learn from students’ experience?
- What is it like going from one service provider to another?
- How are these supports connected to each other? To the system at large?
- Are there other formal or informal supports (i.e., sports, faith-based organizations)?
- Is the integration of student support services evident to the student? Is it structured based on how they navigate their pathway?

Such a study could help us better understand the bridging and bonding that takes place between students and the adults from CBOs or others providing support services. If such a study were to be conducted after the two listed above, and after trust had been built to some extent, then part of the research-practice partnership would include bridging and bonding between students and all other adults in the context—in the school, at the workplace, and with the researchers. This would make the research truly student centered.

In summary, the group felt that research to identify the necessary supports for student success, or to assess or develop models for community asset integration into the delivery of comprehensive student supports, should proceed through a collaborative process that grows out of work on the first priority: identifying and testing structures and processes to build mutual capacity to collaborate among researchers, the community, and practitioners.

### Priorities Report from Philanthropic Leaders and Policy Advocates



Policy advocates and foundation leaders were invited to the symposium to offer their perspectives on the feasibility and potential impact of proposed research priorities. After the prioritization conversations, they participated in a session facilitated by Anne Stanton. Formerly of the James Irvine Foundation, Stanton is currently serving as the Executive Director of the Linked Learning Alliance. She is a visionary executive leader with a remarkable track record in the non-profit and philanthropic sector who has played a key role in transforming college and career pathways into a systemic redesign movement, institutionalizing equity at the nexus of research, practice, and policy.

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<sup>24</sup> <https://www.americaspromise.org/report/dont-call-them-dropouts> and <https://www.americaspromise.org/report/dont-quit-me>.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

The philanthropic leaders and policy advocates subgroup reported discussing the way in which public and private partnerships have accelerated learning about college and career pathways, and that there are still gaps in our knowledge. They acknowledged the need to look backward and take stock of what has been done in order to move forward.

There were three areas of consensus. First, California’s developing longitudinal data system opens up new opportunities, for which researchers must plan and prepare. The college and career pathways community must determine what it wants the system to be able to say about college and career readiness, because ultimately, this system has to serve students, our economy, and meet our civic responsibilities.

Second, they agreed that a lot of good work has been done in the past 15 years in the college and career space. It is time to take stock and build on it toward educational justice. Researchers should think about synthesizing all that work and ask, what have we learned about practice—what has worked really well—in moving toward equitable outcomes? Where did implementation *not* focus on equity and what did we learn from those sites? We need to incorporate and disseminate what we do know, not just begin new research that might tread over the same ground.

The third area of consensus was the conviction that the work and the practice would be better served if horizontal conversations were convened where K12, postsecondary, policy people, and researchers were in the same room, talking and breaking down the silos.

### Symposium Closing Comments

Keynote speaker and CCASN Executive Director Dr. Tameka McGlawn closed the symposium with reflections on the day’s work. New priorities for inquiry echoed lessons learned in previous symposia, but new lessons were also learned. Participation in this symposium was yet more inclusive, as the organizers intentionally included policy, foundation, and community leaders, as well as researchers and scholar-practitioners. While challenges and gaps were examined, there was shared agreement on the areas for growth, not from a negative disposition, but from an asset-based perspective. And while alignment was a theme for the day, other words were proposed and used: coherence, synergy, rhythm, or harmony. The convening was a powerful experience, due to the connectivity that flowed from inclusion, inquiry, and exploration. The organizers would like to build on this dynamic and are seeking opportunities for the series and the network to grow. In addition to publishing a report on this symposium, the organizers plan to synthesize the information from all of the symposia to produce a culminating report.

Dr. McGlawn acknowledged the support of Dr. Prudence Carter, Dean of the UC Berkeley Graduate School of Education, and thanked Dr. Annie Johnston, steward of the series; the foundation partners: James Irvine Foundation, Stuart Foundation, and Spencer Foundation; the symposium’s hosts, Dr. Jonas and the SRI team; the three key participants for setting the tone for the day in a generative way; and Anne Stanton for facilitating the session with philanthropic leaders and policy advocates. Finally, she thanked the participants for “the happy conversations, the healthy conflict, the new information, and the thought partnership—it was a gift to us all.” She ended with a quote from Parker J. Palmer:

*“New leadership is needed for new times. But it will not come from finding more wily ways to manipulate the external world. It will come as we who serve and teach and lead find the courage to take an inner*

*journey toward both our shadows and our light, a journey that, faithfully pursued, will take us beyond ourselves to become healers of a wounded world.”*

## Cross Strand Analysis

The Planning Committee made several major modifications to the organization of the final symposium in order to incorporate lessons from previous symposia and from the field. We broadened our conception of system alignment, developed criteria for prioritizing research, and invited foundation leaders and policy advocates to weigh in on the priorities and provide feedback. We examined practitioner-identified problems from their work implementing equitable college and career pathways in order to prioritize topics, which supported very successful work in identifying and delineating priority research recommendations. Each strand functioned differently, based on both the challenges faced by the field and the particular perspective of the strand participants.

From the problems practitioners prioritized, we developed specific research recommendations for two priorities in each of the three strands. Some elements of the recommendations were common across strands, pointing to overall lessons for field. Given the limitations of who could participate and the time constraints of a single day’s work, there are certainly gaps remaining in the research priorities identified. We cannot claim a comprehensive review of either the key equity-based problems of practice, or the research needed to address them. Nevertheless, critical research priorities were identified, many of which were also reinforced across the strand discussions.

### **Broadened conception of system alignment**

The first modification to the symposia was to broaden our conception of system alignment, from connecting secondary and postsecondary education systems (vertical alignment) to also aligning pathways horizontally with components crucial to systemic integration in two key areas for equitable implementation – work-based learning (WBL) and comprehensive integrated student supports. We broadened participation in the symposium beyond the research community specifically to engage practitioners in each of the three strands in discussions about the key problems of practice confronting their efforts to build equitable college and career pathways that impact student access to and success in pathways.

We included integration of WBL and employer engagement in order to focus on how to transform education systems to be able to engage employers and integrate WBL into the core curriculum in equitable ways. We focused on aligning curriculum and WBL content with employer expectations for student skills, including measurement issues. System-level practitioners such as state, regional, and district-level CTE directors contributed tremendously to participants’ understanding of their specific problems in influencing policy, as well as to the development of priorities and recommendations.

In addressing the third type of alignment, alignment with the work of community-based organizations (CBOs) in schools, we acknowledged that we cannot transform education systems only from within. We wanted to break out of the education silo, to open up space for dialogue about collaborating with communities engaged in struggle to transform a society permeated by historic and deeply rooted

disparities. The symposium was an opportunity to align college and career pathway research with broader struggles for social justice at the intersection of integrated student supports. A key design feature of college and career pathways, the notion of “comprehensive student supports” has little definition, yet it is critical to the success of marginalized students in pathways, and is often provided by community-based advocates, from restorative justice programs to school-based health centers and after-school programming.

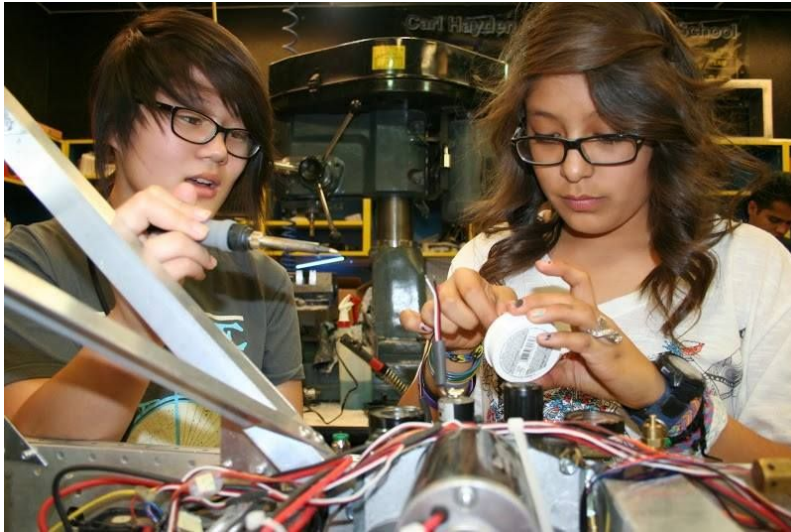


Photo credit: Sacramento City Unified School District College and Career Readiness Division

### **Priority setting**

A second major change in the organization of the symposium was the development of proposed prioritization criteria, that is, explicit language about what constitutes “high-priority” research, such as, what is the impact of the question on underserved students and equity? We proposed a set of criteria and included time to reflect upon, revise, and practice using them. But we also had the expectation that participants would weigh the criteria for determining priorities differently, based on their own experiences and perspectives.

Priority-setting in each of the three strands was framed by the plenary discussion and vetting of proposed criteria. Each strand referenced those criteria, and the additions made to them, during the opening plenary, in making their priority determinations. However, the weight of the criteria emphasized differed significantly by strand. By design, the perspectives of the specific scholar-practitioners in each discussion focused the strand on the problems of their practice, which also determined which priorities weighed most heavily.

The Planning Committee invited scholar-practitioners who had a systems-level perspective, either state or local, to work with researchers on identifying the top system alignment equity-based problems of practice. Later in the process of organizing the symposium, we also invited policy advocates and foundation leaders to participate in the priority-setting discussions. Community-based advocates were among the policy advocates, but were fewer in number. During the prioritization session, most joined the strand addressing the integration of community-based organizations into pathway work on comprehensive student support systems.

Our three strands included representatives from each role: scholar-practitioners; researchers; and policy advocates and foundation leaders. Facilitators ensured that priorities were first framed by scholar-

practitioners, and that researchers were asked to attempt to align their priority issues with those raised by scholar-practitioners. We thought that scholar-practitioners would be most likely to emphasize research criteria related to equity issues in pathway development and how to address those inequities in practice, but that was not always the case.

By design, the researcher voice was quieter than that of the practitioners in the prioritization discussions. The resultant priorities grew out of the specific problems of practice posed by the scholar-practitioners, and differed from those researchers would likely have identified, based on the prework proposals submitted. Researchers are not normally drawn to the more complex and difficult problems. Rather, they tend to be interested in more answerable research questions, which may be less urgent from the practitioner's perspective. Research cannot always provide solutions to complex messy problems of practice. It can, however, tease out research questions that, if examined collaboratively and with a reciprocal learning process, could help practitioners navigate those problems and develop innovative approaches to their resolution.

### **Cross-Cutting Research Priorities**

All three strands highlighted the importance of researcher collaboration, of research-practice partnerships, and of inclusive partnerships that empower students and the communities that schools serve, and that can nurture transformative changes in our relationships, culture, and society.

Several prioritized areas for research were common across strands, or closely related.

- 1) **Student voice in research:** All three of the strands made research recommendations that included student voice and community alliances. For example, the secondary-postsecondary alignment strand urged inclusion of student, instructor, and counselor voices in looking at student success in CTE and dual enrollment across high school and community colleges. The strand working on collaborating with CBOs on comprehensive integrated student supports recommended a student-centered, asset-based research project to capture the student voice after their experiences with CBOs. The strand focused on WBL and employer engagement recommended research to develop descriptive case studies to understand WBL implementation from the perspective of students served.
- 2) **Research on changing institutional norms and culture toward inclusion:** Investigation of the cultural context and conditions for transformational change were raised across all three strands. In the strand on integrating WBL and employer engagement, participants asked: What cultural conditions and changes to the norms of schooling are necessary to support high quality WBL? What supports are needed for equitable WBL programs? As one participant put it, "Teachers and managers need to talk with one another and develop new mindsets about their roles. Business employers, K12 and higher education faculty, parents, CEOs, and superintendents need to collaborate if WBL is to fulfill its purpose of building students' social capital."

In the strand on secondary-postsecondary system alignment, a participant noted the importance of the cultural dimension in research: "K12 continues to struggle to clarify the meaning of college and career and to distinguish between tracking to pre-determined student outcomes versus pathways. Systems," they argued, "tend to have perceptions about what is important embedded in their culture." They identified attitudes, misconceptions, and stigmas related to community colleges as problematic, representing a cultural conception of community colleges as poor options for poor students.

Inclusion of CBOs into research on college and career pathways requires relational development and substantial cultural shifts, argued a participant in the strand on comprehensive integrated student supports. Connecting three world views (i.e., school, academia, and community)—their constituencies, languages, and interests—to work around unified goals and reciprocal learning is a challenging goal. Distrust and caution expressed in that strand reflected many experiences of researchers as dispassionate academics, unaccountable to students, families, and community-based organizations. Community advocates have often been adversaries with both researchers and school institutions, given the role of schools in propagating inequity. School-based practitioners also expressed discomfort with the role of researchers in schools: “It’s not in the culture or the norms of researchers to form reciprocal, egalitarian partnerships with educators,” one participant noted. Because education systems have historically contributed to systemic discrimination, these power and relational trust issues are essential to address as the basis for any reciprocal and respectful partnership.

- 3) **Cross-strand connections:** Some of the recommended research would be valuable in pushing forward work in other areas of college and career pathway development. For example, the secondary-postsecondary strand recommended research on creating a tool to document pathway students’ work experience across systems (K12, community college, university) to facilitate students’ eventual access to CTE credentials. If conducted through a research-practice partnership, development and implementation research on such a tool could support the kind of professional development discussed in both that strand and in the WBL and employer engagement strand: preparing current pathways faculty to incorporate WBL into core curriculum with an equity lens.

A second issue raised in two strands, but prioritized only by philanthropic leaders and policy advocates was the importance of preparing to use California’s new, developing longitudinal data system to address research priorities. The strand on integrating WBL and employer engagement noted that the lack of linkages between K12 and community college data systems creates significant difficulties in capturing labor market outcomes. The strand addressing secondary-postsecondary alignment also acknowledged this issue, but did not prioritize it as one of their top two urgent issues for research attention.

RPPs were raised in two strands as a way to build leaders’ capacity to use research, and to collaborate in the design of research that can help in tackling critical equity issues in college and career pathway implementation. The process of developing an RPP was viewed as a way to challenge traditional power dynamics and build trust while learning together how to more effectively address equity issues in pathways and schools. The community alignment strand argued that “this makes the partnership process integral to building trust between community and researchers.” The secondary-postsecondary alignment strand discussed the value of RPPs in building the capacity of leaders at all levels to align pathways to increase equitable student outcomes, and argued that an RPP approach would be valuable in redesigning and/or growing new education pathways. Finally, policy advocates and foundation leaders noted the value of such horizontal conversations where K12, postsecondary, policy people, and researchers can be in the same room, talking and breaking down the silos.

### **Remaining gaps in identified research priorities**

An example of remaining gaps in identified research priorities can be seen in the strand on integration of WBL and employer engagement in education systems, where scholar-practitioners with positions in state and district systems posed priority problems of practice in systematizing WBL. The strand prioritized research that could inspire and inform leaders to adopt WBL-related policies, whether statewide, as in measures of college and career readiness, or locally, as in funding key aspects of the college and career pathway design. Some equity issues were addressed, for example in concerns about implicit bias in WBL assessments and employers' use of performance reviews. While the value of research on effective models for equitable WBL was noted, the problems of practice that impede equitable student experiences and outcomes from WBL were not explored, although they are critical to both priorities recommended for further research. This section briefly explores one such remaining gap and illustrates how the common themes identified above might be used to explore that gap.

Equitable implementation of WBL includes ensuring that any criteria for students to access opportunities, such as prior GPA or a history of prior experiences, do not adversely affect marginalized students. Who gets access to internships, or to paid internships, and the extent to which such WBL opportunities are even available varies dramatically between and within communities. Low-income students are more likely to need paid employment, but may be less likely to have access to it. Discriminatory societal patterns are more likely to negatively impact students of color in both WBL access and the quality of their WBL experience. For example, employers may be looking for a "cultural fit" for future employees, which could inadvertently bias them against some students. Marginalized students face different opportunity costs in deciding to engage in extracurricular WBL, whether that is homework, an AP class not taken, sports, or additional family responsibilities, like caring for siblings, or working to help cover the rent, which disproportionately impact the return on low-income students' time investment in WBL.

To explore the specific problems of practice that affect equity in students' experiences of WBL, whether to measure the learning with an equity lens, or to assess students' return on investment, including opportunity costs, we need to involve scholar-practitioners who work closely enough to the student experience—not at the district or state level—to be able to represent such equity issues as a high priority. Another avenue for exploring these equity issues in WBL could be in collaboration with community-based organizations, which are heavily involved as intermediaries, providing WBL opportunities for students in college and career pathways. A third and complementary option would be incorporating student voice into research, a priority posed by the strand focused on collaborating with community-based organizations to actualize the promise of comprehensive integrated student supports.

## Conclusions

Expanding our conception of pathways from a K12 approach to college and career preparation to a coherent cross-system educational strategy can break down traditional inequities in student outcomes that track students into college or career. However, the education system's function as a sorting device is supported by deeply rooted conceptions in the culture, and by very concrete structures that create challenging problems for equitable implementation of pathways. In addressing system alignment more broadly, we began to look outside of the boundaries of schools and classrooms to position this school reform movement as part of a larger movement for social justice. For education researchers to play a



## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

valuable role in a that larger movement, an important first step is re-defining relationships between education researchers, scholar-practitioners working across all levels within school systems, and the communities schools serve. Learning to collaborate differently requires time and engagement around commonly-defined goals, to establish mutual, reciprocal learning. As college and career pathway researchers learn to develop effective research-practice partnerships, attention to inclusion in those partnerships -- students, parents, and community advocates -- is a critical next step, which could open new opportunities for research to advance equity in college and career pathways.

Applying a consistent equity lens as we develop and scale education systems gives us a compass by which to measure the outcomes of college and career pathways. However, those pathways are developing within school systems that were created to produce the very outcomes we are seeking to change. Entrenched structures and the cultural supports that have held them up for generations maintain inequitable dynamics that benefit privileged social sectors. Aligning the work of college and career pathway researchers with educators and community advocates seeking to empower students, families, and communities opens up the possibility of transforming those systems. By doing so, we can support communities to identify their own roles in improving student success in school, and empower communities to push on the system for more equitable resources and policies that can better serve their needs.



Photo credit: CCASN; May Day, 2016, Oakland, CA

## References

### Appendix I: Secondary-Postsecondary Alignment Bibliography

*Resources below were provided in prework by participants, or were discussed, as reported in the text. They pertain to both vertical alignment priorities: dual enrollment and professional development.*

Advance CTE (2018). *Making good on the promise: Examining access and achievement gaps*. Silver Spring, MD: Author. Retrieved from: [https://cte.careertech.org/sites/default/files/files/resources/Making\\_Good\\_Promise\\_Examining\\_Gaps\\_Sept2018.pdf](https://cte.careertech.org/sites/default/files/files/resources/Making_Good_Promise_Examining_Gaps_Sept2018.pdf)

Advance CTE (2018). *Making good on the promise: Understanding the equity challenge in CTE*. Silver Spring, MD: Author. Retrieved from: [https://cte.careertech.org/sites/default/files/files/resources/Making\\_Good\\_Promise\\_Understanding\\_Equity\\_Sept2018.pdf](https://cte.careertech.org/sites/default/files/files/resources/Making_Good_Promise_Understanding_Equity_Sept2018.pdf)

Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In G. Sykes and L. Darling-Hammond (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3-32). San Francisco: Jossey Bass.

Barnett, E. A., Corrin, W., Nakanishi, A., Bork, R. H., Mitchell, C., & Sepanik, S. (2012) *Preparing high school students for college: An exploratory study of college readiness partnership programs in Texas*. New York: Community College Research Center, Teachers College, Columbia University. Retrieved from: <https://ccrc.tc.columbia.edu/publications/preparing-high-school-students-college-readiness-partnerships.html>

Biagetti, S., Johnston, A., Martinez, C. & Ney, C. (2018). Preparing teachers for 21st century classrooms. *CCNews: Newsletter of the California Council on Teacher Education*, 29(3), 19-23.

Bottia, M., Stearns, E., Arlin Mickelson, R., Moller S., and Valentino L. (2015). Growing the roots of STEM majors: Female math and science high school faculty and the participation of students in STEM. *Economics of Education Review*, 45(C), 14-27

Bragg, D. D. (2007). Teacher pipelines: Career pathways extending from high school to community college to university. *Community College Review*, 35(1), 10-29.

Bressoud, D. (2018). *The role of calculus in the transition from high school to college mathematics*. Paper presented at the annual meeting of the National Council of Teachers of Mathematics, Washington DC.

Burdman, P., Booth, K., Thorn, C., Bahr, P. R., McNaughtan, J., & Jackson, G. (2018). *Executive summary: Multiple paths forward: Diversifying mathematics as a strategy for college success*. San Francisco, CA: WestEd & Just Equations. Retrieved from: <https://justequations.org/resource/multiple-paths-forward-diversifying-math-pathways-as-a-strategy-for-student-success/>

Byun, S., Irvin, M. J., & Bell, B. A. (2015). Advanced math course taking: Effects on math achievement and college enrollment. *The Journal of Experimental Education*, 83(4), 439-468.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Career Ladders Project & the California Community College Chancellors Office. (2019). *Guided pathways stories*. Oakland, CA. Retrieved from: <https://www.careerladdersproject.org/tools-for-the-field/guided-pathways-stories/>

Career Ladders Project & JFF. (2018). *Unlocking potential: Advancing dual enrollment in California*. Oakland, CA. Retrieved from: <https://www.careerladdersproject.org/wp-content/uploads/2018/10/Unlocking-Potential-Advancing-Dual-Enrollment-in-California.pdf>

Career Ladders Project & The Research and Planning (RP) Group for California Community Colleges. (2016). *Dual enrollment toolkit: Webinar*. Retrieved from: [https://www.careerladdersproject.org/wp-content/uploads/2015/12/Dual-Enrollment-Toolkit-Webinar-Slides-6-7-16-UPDATED\\_10.3.pdf](https://www.careerladdersproject.org/wp-content/uploads/2015/12/Dual-Enrollment-Toolkit-Webinar-Slides-6-7-16-UPDATED_10.3.pdf)

Carver-Thomas, D. (2018). *Diversifying the teaching profession: How to recruit and retain teachers of color*. Palo Alto, CA: Learning Policy Institute. Retrieved from: <https://learningpolicyinstitute.org/product/diversifying-teaching-profession-report>

Carver-Thomas, D. & Darling-Hammond, L. (2017). *Addressing California's growing teacher shortage: 2017 update*. Palo Alto, CA: Learning Policy Institute. Retrieved from: <https://learningpolicyinstitute.org/product/addressing-californias-growing-teacher-shortage-2017-update-report>

Castro, N., & Collins, L. (2018). *The Dual Enrollment Landscape: A CLP Working Paper*. Oakland, CA: Career Ladders Project. [https://www.careerladdersproject.org/wp-content/uploads/2018/10/The-Dual-Enrollment-Landscape-in-California\\_A-CLP-Working-Paper.pdf](https://www.careerladdersproject.org/wp-content/uploads/2018/10/The-Dual-Enrollment-Landscape-in-California_A-CLP-Working-Paper.pdf)

Castro, N., & Collins, L. (2018). *Dual enrollment case studies*. Oakland CA: Career Ladders Project. <https://www.careerladdersproject.org/wp-content/uploads/2018/10/Dual-Enrollment-Case-Studies.pdf>

California Community Colleges (CCC) & California State University (CSU). (2018). *Collaboration in teacher preparation*. Retrieved from: <http://teacherprepprogram.org/whats-new/from-cccco/>

Dadgar, M., Smith-Arillaga, E., Buck, D., Sinclair, B., Fischerhall, C., & Brown, K. (2017). *Bringing student voices to guided pathways inquiry and design*. Oakland, CA: Career Ladders Project. Retrieved from; <https://www.careerladdersproject.org/wp-content/uploads/2017/08/Bringing-Student-Voices-to-Guided-Pathways-Inquiry-and-Design.pdf>

Dadgar, M., Fischerhall, C., Collins, L., Schaefer, K. (2018). *Guided pathways as a framework for integrating student success efforts: A case study of three California community colleges*. Oakland, CA: Career Ladders Project. Retrieved from: <https://www.careerladdersproject.org/wp-content/uploads/2018/09/004-Intergrated-Planning-Brief.pdf>

Darling-Hammond, L. & Carver-Thomas, D. (2017). *Teacher turnover: Why it matters and what we can do about it*. Retrieved from Palo Alto, CA: <https://learningpolicyinstitute.org/product/teacher-turnover>

Dougherty, S. M. (2016). *Career and technical education in high school: Does it improve student outcomes?* Washington, DC: Thomas B. Fordham Institute.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- Equity Institute. (2019). *The anatomy of a transformative course: Critical competencies for student success*. San Bruno CA: Skyline College.
- Farmer-Hinton, R. L. (2008). Social capital and college planning. *Education and Urban Society*, 41(1), 127-157.
- Farnan, N., Hudis, P. M., & LaPlante, A. (2014). Changing teacher preparation for California's changing secondary schools. *Issues in Teacher Education*, 22(2), 155-174.
- Faukner, R., Hooker, S., Vargas, J., (2018). Dual enrollment in California: Applying national lessons to state challenges. Retrieved from: <https://www.jff.org/resources/dual-enrollment-california-applying-national-lessons-state-challenges/>
- Fink, J., Jenkins, D. & Yanagiura, T. (2017). *What happens to students who take community college dual enrollment courses in high school*. New York: Community College Resource Center, Teachers College, Columbia University. Retrieved from: <https://ccrc.tc.columbia.edu/media/k2/attachments/what-happens-community-college-dual-enrollment-students.pdf>
- Geiser, S. (2017). *Norm-referenced tests and race-blind admissions: The case for eliminating the SAT and ACT at the University of California*. Berkeley, CA: UC Berkeley Goldman School of Public Policy, Center for Studies in Higher Education. Retrieved from: <https://cshe.berkeley.edu/publications/norm-referenced-tests-and-race-blind-admissions-case-eliminating-sat-and-act-university>
- Gershenson, S., Hard, C., Lindsay, C. & Papageorge, N. (2017). The long-run impacts of same-race teachers. *Institute of Labor Economics*. <http://ftp.iza.org/dp10630.pdf>
- Golann J. W., & Hughes, K. L. (2008). *Dual enrollment policies and practices earning college credit in California high schools*. INSIGHT: Lessons learned from the Concurrent Courses initiative. San Francisco, CA: James Irvine Foundation. Retrieved from: [https://irvine-dot-org.s3.amazonaws.com/documents/115/attachments/Dual\\_Enrollment.pdf?1416764911](https://irvine-dot-org.s3.amazonaws.com/documents/115/attachments/Dual_Enrollment.pdf?1416764911)
- Gottfried, M. A. & Plasman, J. S. (2018). From secondary to postsecondary: Charting an engineering "career and technical education" pipeline. *Journal of Engineering Education*, 107(4), 531-555. DOI: 10.1002/jee.20236.
- Governor's Office of Planning and Research. (2018). *The master plan for higher education in California and state workforce needs: A review*. Retrieved from: [http://opr.ca.gov/docs/20181226-Master\\_Plan\\_Report.pdf](http://opr.ca.gov/docs/20181226-Master_Plan_Report.pdf)
- Hanover Research (2017). *Instructional strategies to support underrepresented students*. Retrieved from: [https://portal.ct.gov/-/media/SDE/ESSA%20Evidence%20Guides/Instructional\\_Strategies\\_to\\_Support\\_Underrepresented\\_Students](https://portal.ct.gov/-/media/SDE/ESSA%20Evidence%20Guides/Instructional_Strategies_to_Support_Underrepresented_Students)
- Hemelt, S. W., Schwartz, N., & Dynarski, S. (2017). *Dual-credit courses and the road to college: Experimental evidence from Tennessee*. Paper presented at the annual meeting of the Association for Public Policy Analysis and Management, Chicago, IL.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Henson, L., & Hern, K. (2018). *A seat at the table: Supporting student and teacher capacity in co-requisite English remediation and accelerated ESL*. Retrieved from:

<https://accelerationproject.org/Publications/ctl/ArticleView/mid/654/articleId/70/A-Seat-at-the-Table-Supporting-Student-and-Teacher-Capacity-in-Corequisite-English-Remediation-and-Accelerated-ESL>

Hill, L., Gao, N., & Warren, P. (2019). *California's future: K-12 education*. Retrieved from:

<https://www.ppic.org/wp-content/uploads/californias-future-k-12-education-january-2019.pdf>

Hughes, K., Rodriguez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment: Reaching underachieving and underrepresented students with career-focused programs*. San Francisco CA: James Irvine Foundation. Retrieved from:

<https://ccrc.tc.columbia.edu/media/k2/attachments/broadening-benefits-dual-enrollment-rp.pdf>

Jenkins, D., Lahr, H., Fink, J., & Ganga, E. (2018). *What we are learning about guided pathways*. New York: Community College Research Center, Teachers' College, Columbia University. Retrieved from:

<https://ccrc.tc.columbia.edu/publications/what-we-are-learning-guided-pathways.html>

Jobs for the Future (2013). *Rethinking 12th grade: Preparing all students for college before college*.

Boston, MA: Author. Retrieved from: [https://jfforg-prod-prime.s3.amazonaws.com/media/documents/Rethinking12thGrade\\_112213.pdf](https://jfforg-prod-prime.s3.amazonaws.com/media/documents/Rethinking12thGrade_112213.pdf)

Kegan, R., Laskow Lahey, L., Miller, M. L., Fleming, A., & Helsing, D. (2016). *An everyone culture: Becoming a deliberately developmental organization*. Boston, MA: Harvard Business School Publishing.

Knight, M. G. (2003). Through urban youth's eyes: Negotiating K-16 policies, practices, and their futures. *Educational Policy*, 17(5), 531–557. <https://doi.org/10.1177/0895904803256786>

Kurlaender, M., & Larsen, M. (2013). K12 and postsecondary alignment: Racial/ethnic differences in freshmen course-taking and performance at California's community colleges. *Education Policy Analysis Archives*, 21, 1–25. <https://doi.org/10.14507/epaa.v22n55.2014>

Lee, V. & Ekstrom, R. (2011). Student access to guidance counseling in high school. *American Educational Research Journal*, 24(2), 287-310.

Little, J. W. (1993). Professional community in comprehensive high schools: the two worlds of academic and vocational teachers. In J. W. Little & M. W. McLaughlin (Eds.), *Teachers' work: Individuals, colleagues, and contexts* (pp. 137-163). New York: Teachers College Press.

Little, J. W., Erbsstein, N., & Walker, L. (1996). *High school restructuring and vocational reform: The question of "fit" in two schools* (MDS-812). Berkeley: National Center for Research in Vocational Education, University of California.

McLaughlin, M., Groves, B. & Lundy-Wagner, V. (2018). *The California Career Pathways Trust: Sustaining cross-sector partnerships*. Boston, MA: JFF. Retrieved from: [https://jfforg-prod-prime.s3.amazonaws.com/media/documents/JFF\\_CCPT\\_SustainabilityReport\\_111618.pdf](https://jfforg-prod-prime.s3.amazonaws.com/media/documents/JFF_CCPT_SustainabilityReport_111618.pdf)

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Nodine, T. (2019). *California's education systems: A sum of the moving parts*. Sacramento: CA Education Insights Center at California State University, Sacramento.

<http://edinsightscenter.org/Portals/0/ReportPDFs/californias-education-systems-primer1.pdf>

Núñez, A. M., & Oliva, M. (2009). Organizational collaboration to promote college access: A P-20 framework. *Journal of Hispanic Higher Education*, 8(4), 322–339.

<https://doi.org/10.1177/1538192709347844>

Plasman, J. S., Gottfried, M., & Sublett, C. (2017). Are there CTE cluster pipelines? Linking high school CTE coursetaking and postsecondary credentials. *Career and Technical Education Research*, 42(3), 219-242.

Public Policy Institute of California (PPIC) Higher Education Center. (2016). *Higher Education in California*. Retrieved from: [https://www.ppic.org/content/pubs/report/R\\_0416HEBKR.pdf](https://www.ppic.org/content/pubs/report/R_0416HEBKR.pdf)

Purnell, R. (2014). *A guide to launching and expanding dual enrollment programs for historically underserved students in California*. Berkeley, CA: The Research and Planning (RP) Group for California Community Colleges in collaboration with the California Community Colleges Chancellor's Office and the San Joaquin Delta Community College District, Stockton, CA. Retrieved from:

<https://rpgroup.org/Portals/0/Documents/Archive/Dual-Enrollment-Toolkit-Updated-Dec2015.pdf>

Rodriguez, O., Hughes, K. L., & Belfield, C. (2012). *Bridging college and careers: Using dual enrollment to enhance career and technical education pathways*. New York: National Center for Postsecondary Research. Retrieved from: [https://irvine-dot-](https://irvine-dot-org.s3.amazonaws.com/documents/112/attachments/Bridging_College_Careers_fullreportJUL2012.pdf?1416764817)

[org.s3.amazonaws.com/documents/112/attachments/Bridging\\_College\\_Careers\\_fullreportJUL2012.pdf?1416764817](https://irvine-dot-org.s3.amazonaws.com/documents/112/attachments/Bridging_College_Careers_fullreportJUL2012.pdf?1416764817)

Rosen, R., Visher, M., & Beal, K. (2018). *Career and technical education: Current policy, prominent programs, and evidence*. New York: MDRC. Retrieved from: <https://www.mdrc.org/publication/career-and-technical-education>

Scrivener, S., Weiss, M. J., Ratledge, A., Rudd, T. Sommo, C., & Fresques, H. (2015). *Doubling graduation rates: Three-year effects of CUNY's Accelerated Study in Associate Programs (ASAP) for developmental education students*. New York: MDRC. Retrieved from: <https://www.mdrc.org/publication/doubling-graduation-rates>

Starobin, S. S., & Bivens, G. M. (2014). The role of secondary school and community college collaborations to increase Latinas in engineering in a rural community. *New Directions for Community Colleges [H.W.Wilson - EDUC]*, 165, 17-23. <https://doi.org/10.1002/cc>

Theodos, B., Pergamit, M. R., Hanson, D., Edelstein, S., Daniels, R., & Srinii, T. (2017). *Pathways after high school: Evaluation of the Urban Alliance High School Internship Program*. Urban Institute.

Tierney, W. G., & Venegas, K. M. (2009). Finding money on the table: Information, financial aid, and access to college. *The Journal of Higher Education*, 80(4), 363-388, DOI: 10.1080/00221546.2009.11779021

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Vargas, J. (2015). Why 12th grade must be redesigned now, and how. *Ready or not: It's time to rethink the 12th grade*. Boston, MA: Jobs for the Future.

Venezia, A., Kirst, M. W., & Antonio, A. L. (2003). *Betraying the college dream: How disconnected K-12 and postsecondary education systems undermine student aspirations*. Retrieved from: <https://web.stanford.edu/group/bridgeproject/betrayingthecollegedream.pdf>

What Works Clearinghouse, U.S. Department of Education, (2017). *Intervention Report: Dual Enrollment Programs* Retrieved from: . [https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc\\_dual\\_enrollment\\_022817.pdf](https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_dual_enrollment_022817.pdf)

## Appendix II: Integration of Work-Based Learning and Employer Engagement in Education Systems Bibliography

Resources below were provided in prework by participants, or were discussed, as reported in the text. They pertain to both priorities: using WBL to measure career readiness, and determining ROI for WBL.

Advance CTE (2018). *Making good on the promise: Understanding the equity challenge in CTE*. Silver Spring, MD: Author. Retrieved from: [https://cte.careertech.org/sites/default/files/files/resources/Making\\_Good\\_Promise\\_Understanding\\_Equity\\_Sept2018.pdf](https://cte.careertech.org/sites/default/files/files/resources/Making_Good_Promise_Understanding_Equity_Sept2018.pdf)

Alfeld, C., Charner, I., Johnson, L., Watts, E. (2013). *Work-based learning opportunities for high school students*. FHI 360 National Institute for Work and Learning. Louisville, KY: National Research Center for Career and Technical Education. Retrieved from: [http://www.nrccte.org/sites/default/files/publication-files/nrccte\\_work-based\\_learning.pdf](http://www.nrccte.org/sites/default/files/publication-files/nrccte_work-based_learning.pdf)

Bae, S., & Darling-Hammond, L. (2014). *Recognizing college and career readiness in the California school accountability system*. Stanford, CA: Stanford Center for Opportunity Policy in Education. Retrieved from: [https://edpolicy.stanford.edu/sites/default/files/SCOPE-recognizing-college-and-career-readiness-california-school-accountability-system\\_2-brief.pdf](https://edpolicy.stanford.edu/sites/default/files/SCOPE-recognizing-college-and-career-readiness-california-school-accountability-system_2-brief.pdf)

Bartlett, K. (2004). *The signaling power of occupational certification in the automobile service and information technology industries*. St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.

Belfield, C. R., & Levin, H. M. (2007). *The return on investment for improving California's high school graduation rate*. Santa Barbara, CA: California Dropout Research Project, University of California. Retrieved from: <http://cbcse.hostcentric.com/wordpress/wp-content/uploads/2013/03/2007-levin-Report.The-return-on-investment-for-improving-california%C2%B4s-high-school-graduation-rate.pdf>

Bragg, D., & Durham, B. (2012). Perspectives on access and equity in the era of (community) college completion. *Community College Review*, 40(2), 106-125.

Cahill, C. (2016). *Making work-based learning work*. Boston, MA: Jobs for the Future.

Council of Chief State School Officers (CCSSO). (2017). *Destination known: Valuing college AND career readiness in state accountability systems*. Washington, D.C.: Author. Retrieved from: <https://ccsso.org/resource-library/destination-known-valuing-college-and-career-readiness-state-accountability>

Darche, S., Nayar, N., & Reeves Bracco, K. (2009). *Work-based learning in California: Opportunities and models for expansion*. San Francisco, CA: James Irvine Foundation. Retrieved from: <http://www.irvine.org/images/stories/pdf/grantmaking/workbasedlearning.pdf>

Darche, S., & Stern, D. (2013). *Making it real: How high schools can be held accountable for developing students' career readiness*. Policy Analysis for California Education. Policy Brief 13-2. Retrieved from: <https://edpolicyinca.org/publications/policy-briefs>



## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Datnow, A. (2005). Happy marriage or uneasy alliance? The relationship between comprehensive school reform and state accountability systems. *Journal of Education for Students Placed at Risk*, 10(1), 115-138, DOI: 10.1207/s15327671espr1001\_6

DeLuca, C., Godden, L., Hutchinson N. L., & Versnel, J. (2015). Preparing at-risk youth for a changing world: Revisiting a person-in-context model for transition to employment. *Educational Research*, 57(2), 182-200, doi:10.1080/00131881.2015.1030854

Eisenberg, D. & Goldrick-Rab, S. (2016). *Here's another reason why many community college students do not get their degree*. Boston, MA: The Conversation. Retrieved from: <https://theconversation.com/heres-another-reason-why-many-community-college-students-do-not-get-their-degree-56053>

Giani, M. S. (2019). *Who is the modern CTE student? A descriptive portrait of career and technical education students in Texas*. Washington, DC: American Enterprise Institute. Retrieved from: <http://www.aei.org/wp-content/uploads/2019/03/Who-Is-the-Modern-CTE-Student.pdf>

Google Inc. & Gallup. (2016). *Diversity gaps in computer science: Exploring the underrepresentation of girls, blacks, and Hispanics*. Retrieved from <http://goo.gl/Pg34aH>

Hora, M. T., Benbow, R. J., & Smolarek, B. B. (2018). Re-thinking soft skills and student employability: A new paradigm for undergraduate education. *Change: The magazine for higher learning*, 50, 30-37. DOI: 10.1080/00091383.2018.1540819

ICF. (2018). *NAF Future Ready Labs 2018: Innovations and enhancements*. Unpublished manuscript.

Juntunen, C. L., & Wettersten, K. B. (2006). Work hope: Development and initial validation of a measure. *Journal of Counseling Psychology*, 53(1), 94-106. <http://dx.doi.org/10.1037/0022-0167.53.1.94>

Kemple, J. J., & Willner, J. (2008). *Career academies: Long-term impacts on labor market outcomes, educational attainment, and transitions to adulthood*. New York: MDRC.

Klein, R. P. (2018). *Job readiness skills for youth: A clear and actionable definition*. Seattle, WA: Office of Economic Development. Retrieved from: <http://www.seattle.gov/Documents/Departments/economicDevelopment/workforce/JRT-Report-and-Continuum-R4-Web.pdf>

Kotamraju, P., & Mettelle, J. L. III. (2012). *Using Return on Investment (ROI) and other related tools: Guidelines for measuring career and technical education (CTE) internal efficiency and external effectiveness*. National Research Center for Career and Technical Education, University of Louisville. Retrieved from: [http://www.nrccte.org/sites/default/files/publication-files/nrccte\\_roi\\_guidebook\\_web.pdf](http://www.nrccte.org/sites/default/files/publication-files/nrccte_roi_guidebook_web.pdf)

Lanford, M. & Maruco, T. (2019). When job training is not enough: The cultivation of social capital in career academies. *American Educational Research Journal*, 55(3), 617-648.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: University of Cambridge Press.

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Lewis, J., Nodine, T., & Venezia, A. (2016). *Supporting high school teachers' college and career readiness efforts: Bridging California's vision with local implementation needs*. Sacramento, CA: Education Insights Center. Retrieved from: <http://edinsightscenter.org/Portals/0/ReportPDFs/supporting-high-school-teachers-college-career-readiness-efforts.pdf?ver=2016-04-08-164029-527>

Linked Learning Alliance Work-Based Learning Subcommittee (2012). *Work-based learning in Linked Learning: Definitions, outcomes, and quality criteria*. Retrieved from: <https://connectednational.org/?s=Work-Based+Learning+in+Linked+Learning%3A+Definitions%2C+Outcomes%2C+and+Quality+Criteria>

Maag, T., Cahill, C., Loyd, A., & Barrett, L. (2018). *Leveraging Perkins V to support college and career pathways*. Boston MA: Jobs for the Future. Retrieved from: <https://www.jff.org/resources/perkins-v-pathways/>

Malin, J. R., & Hackmann, D. G. (2017) Enhancing students' transitions to college and careers: A case study of distributed leadership practice in supporting a high school career academy model. *Leadership and Policy in Schools*, 16(1), 54-79. DOI:10.1080/15700763.2016.1181191.

McLaughlin, M., Groves, B., Lundy-Wagner, V. (2018). *The California Career Pathways Trust: Sustaining Cross-sector partnerships*. Boston, MA: Jobs For the Future. Retrieved from: [https://jfforg-prod-prime.s3.amazonaws.com/media/documents/JFF\\_CCPT\\_SustainabilityReport\\_111618.pdf](https://jfforg-prod-prime.s3.amazonaws.com/media/documents/JFF_CCPT_SustainabilityReport_111618.pdf)

McMurrer, J., Frizzell, M., & McIntosh, S. (2013). *Career readiness assessments across states: A summary of survey findings*. Washington DC: Center on Education Policy, George Washington University. Retrieved from: <https://www.cep-dc.org//displayDocument.cfm?DocumentID=427>

Mishkind, Anne (2014). *Overview: State definitions of college and career readiness*. Washington, D.C.: College & Career Readiness & Success Center (CCRSC) at American Institutes for Research (AIR). Retrieved from: [https://ccrcenter.org/sites/default/files/CCRS%20Defintions%20Brief\\_REV\\_1.pdf](https://ccrcenter.org/sites/default/files/CCRS%20Defintions%20Brief_REV_1.pdf)

Nguyen-Akbar, M. & Reyes, R. (2018). *Creative strategies for career connected learning: Youth voice in the media classroom*. Seattle, WA: Office of Arts and Culture. Retrieved from: [https://www.creativeadvantageseattle.org/wp-content/uploads/2018/10/2018\\_10\\_26-CreativeStrategies\\_SCREEN.pdf](https://www.creativeadvantageseattle.org/wp-content/uploads/2018/10/2018_10_26-CreativeStrategies_SCREEN.pdf)

Public Consulting Group. (2018). *Massachusetts college and career advising: Participant guide*. Professional Development Series. Sacramento, CA: Author. Retrieved from: <http://www.doe.mass.edu/ccr/initiatives/cca-w1participantguide.pdf>

Quillian, L., & Redd, R. (2006). *Can social capital explain persistent racial poverty gaps?* National Poverty Center Working Paper Series #06-12: University of Wisconsin at Madison. Retrieved from: [http://www.npc.umich.edu/publications/workingpaper06/paper12/working\\_paper06-12.pdf](http://www.npc.umich.edu/publications/workingpaper06/paper12/working_paper06-12.pdf)

Rosen, R., & Molina, F. (2019). *Practitioner perspectives on equity in career and technical education*. NY: MDRC. Retrieved from: <https://www.mdrc.org/publication/practitioner-perspectives-equity-career-and-technical-education>

Saxena, A. (2014). Workforce diversity: A key to improve productivity. *Procedia Economics and Finance*, 11, 76-85. [https://doi.org/10.1016/S2212-5671\(14\)00178-6](https://doi.org/10.1016/S2212-5671(14)00178-6).

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Snyder, C. R. (2000). The past and possible futures of hope. *Journal of Social and Clinical Psychology, 19*(1), 11-28.

<https://doi.org/10.1521/jscp.2000.19.1.11>

Stasz, C., & Stern, D. S. (1998). Work-based learning for students in high schools and community colleges. *Centerpoint*, Berkeley, CA: National Center for Research in Vocational Education. Retrieved from: <https://files.eric.ed.gov/fulltext/ED425352.pdf>

Stem, D. S., Dayton, C., Paik, I., & Weisberg, A. (1989). Benefits and costs of dropout prevention in a high school program combining academic and vocational education: Third-year results from replications of the California Peninsula Academies. *Educational Evaluation and Policy Analysis, 11*(4), 405-416.

Sublett, C. & Griffith, D. (2019). *How aligned is career and technical education to local labor markets?* Washington, DC: Thomas B. Fordham Institute. Retrieved from:

<https://fordhaminstitute.org/national/research/how-aligned-career-and-technical-education-local-labor-markets>

Supovitz, J. A., & Weinbaum, E. H. (Eds.). (2008). *The implementation gap: Understanding reform in high schools*. Teachers College Press.

Swail, W. S., & Kampits, E. (2004). *Work-based learning and higher education: A research perspective*. Washington, DC: Educational Policy Institute, Inc.

Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Cambridge, MA: Harvard Graduate School of Education.

Taylor, C. E., Hutchinson, N. L., Ingersoll, M., Dalton, C., Dods, J., Godden, L., Chin, P., & de Lugt, J. (2015). At-risk youth find work hope in work-based education. *Exceptionality Education International, 25*, 158-174. Retrieved from <http://ir.lib.uwo.ca/eei/vol25/iss1/8>

Taylor, J. L., Kirby, C. L., Bragg, D. D., Oertle, K. M., Jankowski, N. A., & Khan, S. S. (2009). *Illinois programs of study guide*. Champaign, IL: Office of Community College Research and Leadership, University of Illinois. Retrieved from: <https://occl.illinois.edu/docs/librariesprovider4/pos/illinois-programs-of-study-guide.pdf>

Theodos, B., Pergamit, M. R., Hanson, D., Edelstein, S., Daniels, R., & Srin, T. (2017). *Pathways after high school: Evaluation of the Urban Alliance High School Internship Program*. Washington DC: Urban Institute. Retrieved from: <https://www.urban.org/research/publication/pathways-after-high-school-evaluation-urban-alliance-high-school-internship-program>

Visher, M., Willard, J., & Safran, S. (2013). *Making it happen: How career academies can build college and career exploration programs*. NY: MDRC. Retrieved from:

<https://www.mdrc.org/publication/making-it-happen>

Washington STEM (2017). *Career connected learning continuum*. Retrieved from:

<https://www.washingtonstem.org/wp-content/uploads/2018/05/Career-Connected-Learning-Framework-and-Continuum.pdf>

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Weise M. R., Hanson, A. R., Sentz, R., & Saleh, Y. (2019). *Robot-ready: Human+ skills for the future of work*. Washington DC: Strada Institute for the Future of Work, Strada Education Network. Retrieved from: <https://www.economicmodeling.com/robot-ready-reports/>

Zinth, J. (2018). *Work based learning: Model policy components*. Denver, CO: Education Commission of the States. Retrieved from: <https://www.ecs.org/wp-content/uploads/Work-Based-Learning-Model-Policy-Components.pdf>

## Appendix III: High School – Community Alignment

*Resources below were provided in prework by participants, or were discussed, as reported in the text. They pertain to both identified priorities: building mutual capacity and identifying and integrating comprehensive student supports.*

America's Promise Alliance (2014). *Don't call them dropouts: Understanding the experiences of young people who leave high school before graduation*. Medford, MA: Author. Retrieved from: <https://www.americaspromise.org/report/dont-call-them-dropouts>

America's Promise Alliance (2015). *Don't quit on me: What young people who left school say about the power of relationships*. Medford, MA: Author. Retrieved from: <https://www.americaspromise.org/report/dont-quit-me>

Baber, L. (2018). "Living in the along:" Validating experiences among urban community college students in a college transition program. *Community College Review*, 46(3), 316-340.

Bills, A., Cook, J. & Giles, D. (2015). Understanding emancipatory forms of educational leadership through social justice work: An action research study into second chance schooling development. *School Leadership and Management*, 35(5), 502-523.

Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago*. Chicago and London: University of Chicago Press.

Castellano, M., Sundell, K. E., Overman, L. T., Richardson, G. B., & Stone III, J. R. (2014). *Rigorous tests of student outcomes in CTE programs of study: Final report*. Louisville, KY: National Research Center for Career and Technical Education. Retrieved from: [https://www.researchgate.net/publication/275214131\\_Rigorous\\_tests\\_of\\_student\\_outcomes\\_in\\_CTE\\_programs\\_of\\_study\\_Final\\_report](https://www.researchgate.net/publication/275214131_Rigorous_tests_of_student_outcomes_in_CTE_programs_of_study_Final_report)

Cervone, B. & Cushman, K. (2015). *Belonging and becoming: The power of social and emotional learning in high schools*. Cambridge MA: Harvard Education Press.

Coalition for Career Development (2019). *Career readiness for all*. Tempe, AZ: Author. Retrieved from: <https://www.coalitionforcareerdevelopment.org/career-readiness-for-all>

Davis, L. M. Steele, J. L., Bozick, R., Williams, M. V., Turner, S., Miles, J. N. V., Saunders, J. & Steinberg, P. S. (2014). *How effective is correctional education and where do we go from here?* Santa Monica, CA: RAND Corporation.

Dworsky, A., Smithgall, C., & Courtney, M. E. 2014. *Supporting youth transitioning out of foster care*. Issue Brief 1: Education Programs. OPRE Report #2014-66. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from: [https://www.chapinhall.org/wp-content/uploads/chafee\\_education\\_brief\\_final\\_to\\_opre\\_012015.pdf](https://www.chapinhall.org/wp-content/uploads/chafee_education_brief_final_to_opre_012015.pdf)

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

Dymnicki, A., Sambolt, M., & Kidron, Y. (2013). *Improving college and career readiness by incorporating social and emotional learning*. Washington DC: College and Career Readiness and Success Center, AIR. Retrieved from: <https://eric.ed.gov/?id=ED555695>

Edmunds, J. A.; Unlu, F.; Glennie, E.; Bernstein, L.; Fesler, L.; Furey, J.; & Arshavsky, N. (2017). Smoothing the transition to postsecondary education: The impact of the Early College model. *Journal of Research on Educational Effectiveness*, 10(2), 297-325.

Evangelista, N., Mills, C., Chambers, K., Putman, A., Weist, M., & Stephan, S. (2011). *Supporting mental health needs of community college students*. Baltimore, MD: Center for School Mental Health, Department of Psychiatry, University of Maryland School of Medicine.

Fox, H. L. (2015). Six workforce development initiatives that are laying the pathway to success. *Community College Journal of Research and Practice*, 39(8), 727-740.

Gill, P. W. & Harrison, L. M. (2018). The completion agenda impact on student affairs practice in community colleges. *Community College Journal of Research and Practice*, 42(11), 797-811.

Hughes, K. L., Rodriguez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment reaching underachieving and underrepresented students with career-focused programs*. INSIGHT: Lessons learned from the Concurrent Courses initiative. San Francisco, CA: James Irvine Foundation. Retrieved from: [https://irvine-dot-org.s3.amazonaws.com/documents/38/attachments/CCI\\_full\\_report2012JUL16.pdf?1412656250](https://irvine-dot-org.s3.amazonaws.com/documents/38/attachments/CCI_full_report2012JUL16.pdf?1412656250)

Institute for Educational Leadership (n.d.). *Right Turn career focused initiative*. Washington, DC: Author. Retrieved from <http://iel.org/rightturn>.

Lee, J., McAlister, S., Mishook, J., & Santner, G. (2013). *Partnerships for college readiness*. Brown University: Annenberg Institute for School Reform. Providence, RI: Author. Retrieved from: <https://www.annenberginstitute.org/sites/default/files/PartnershipReport.pdf>.

Levkow, C. Z, Andree, P., Bhatt, V., Brynne, A., Davison, K. M., Kneen, C., & Nelson, E. (2016). Collaboration for transformation: Community-campus engagement for just and sustainable food systems. *Journal of Higher Education Outreach and Engagement*, 20(3), 32-61.

McDonnell, R. P., & Soricone, L. (2014). *Promoting persistence through comprehensive student supports*. Boston, MA: Jobs for the Future. Retrieved from: <https://eric.ed.gov/?id=ED561305>

McLaughlin, M. (2018). *You can't be what you can't see*. Cambridge MA: Harvard Education Press.

National Collaborative on Workforce and Disability for Youth (2014). *Use of Individualized Learning Plans: A promising practice for driving college and career readiness*. Washington DC: Institute for Educational Leadership. Retrieved from <http://www.ncwd-youth.info/wp-content/uploads/2018/03/ILPs-A-Promising-Practice-for-Driving-College-and-Career-Efforts.pdf>.

Parthenon-EY. (2016). *Breaking down silos to put students on the path to success: The promise of early college in Massachusetts*. Boston MA: Author. Retrieved from: [http://cdn.ey.com/parthenon/pdf/perspectives/Early-college\\_Report\\_final\\_web.122016.pdf](http://cdn.ey.com/parthenon/pdf/perspectives/Early-college_Report_final_web.122016.pdf)

## College and Career Pathway Research Symposia Series #4: Aligning Systems for Equity

- Penuel, W. R., Fishman, B. J., Cheng, B. H., & Sabelli, N. (2011). Organizing research and development at the intersection of learning, implementation, and design. *Educational Researcher*, 40(7), 331-337.
- Read, J. P., Ouimette, P., White, J., Colder, C., & Farrow, S. (2011). Rates of DSM-IV-TR trauma exposure and post-traumatic stress disorder among newly matriculated college students. *Psychological Trauma* 3(2), 148-56. doi:10.1037/a0021260
- Ruiz de Velasco, J. (2016). *Defining integrated student supports for Linked Learning Pathways*. Stanford, CA: John W. Gardner Center for Youth and their Communities. Retrieved from: <https://gardnercenter.stanford.edu/publications/defining-integrated-student-supports-linked-learning-pathways>
- Ruiz de Velasco, J. (Ed.). (2019). *A guide to integrated student supports for college and career pathways: Lessons from Linked Learning high schools*. Stanford, CA: John W. Gardner Center for Youth and Their Communities. Retrieved from: <https://gardnercenter.stanford.edu/publications/guide-integrated-student-supports-college-and-career-pathways-lessons-linked-learning>
- Ruiz de Velasco, J., Newman, E., & Borsato, G. (2016). *Equitable access by design. A conceptual framework for integrated student supports within Linked Learning Pathways*. Stanford, CA: John W. Gardner Center for Youth and Their Communities. Retrieved from: <https://eric.ed.gov/?id=ED573300>
- Saunders, M., Hamilton, E., Fanelli, S., Moya, J., & Cain, E. (2013). *Linked Learning: A guide to making high school work*. Los Angeles, CA: UCLA's Institute for Democracy, Education, and Access. Retrieved from: [https://casn.berkeley.edu/wp-content/uploads/resource\\_files/Linked\\_Learning--A\\_Guide\\_to\\_Making\\_High\\_School\\_Work.pdf](https://casn.berkeley.edu/wp-content/uploads/resource_files/Linked_Learning--A_Guide_to_Making_High_School_Work.pdf)
- Solberg, V. S. H. (in press 2019). *Making school relevant with individualized learning plans: Helping students create their own career and life goals*. Cambridge, MA: Harvard Education Press. Retrieved from: <https://www.hepg.org/hep-home/books/making-school-relevant-with-individualized-learnin>
- Steinberg Institute. (2016). *Legislation: Public college mental health services*. Retrieved from: <http://steinberginstitute.org/legislation/>
- Trivette, M. J. & English, D. J. (2017). Finding freedom: Facilitating postsecondary pathways for undocumented students. *Educational Policy*, 31(6), 858-894.
- U. S. Chamber of Commerce Foundation (n.d.). *Talent Pipeline Management Initiative*. Washington, DC: Author. Retrieved from <https://www.uschamberfoundation.org/talent-pipeline-management>
- Wahlstrom, K.; Seashore, K.; Leithwood, K.; Anderson, S. (2010). *Investigating the links to improved student learning: Executive summary of research findings*. New York: The Wallace Foundation. Retrieved from: <http://hdl.handle.net/11299/140884>.
- Wurtz, K. A. (2014). *Effects of learning communities on community college students' success: A meta-analysis*. Walden University, doctoral dissertation. Retrieved from: <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi>
- Zamani-Gallaher, E. M., & Fuller, K. (2016). Altering the pipeline to prison and pathways to postsecondary education. *UPDATE on Research and Leadership*, 27(1). Champaign, IL: University of Illinois at Urbana-Champaign, Office of Community College Research and Leadership. Retrieved from: <https://ocrl.illinois.edu/our-products/news>

## Appendix IV: List of Participants and Their Affiliations

### KEY PARTICIPANTS

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>
Linda Collins	Executive Director	Career Ladders Project
Amy Loyd	Associate Vice President, Building Educational Pathways for Youth	Jobs for the Future
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Eliza Fabillar	Senior Project Director	Education Development Center
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Mallory Stevens	Dual Enrollment Consultant	Cabrillo Community College District
Julian West	Director	Career Ladders Project
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Christina (C.J.) Park	Senior Researcher	SRI International
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Sarah Hooker	Associate Director	Jobs for the Future
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Lande Ajose	Senior Policy Advisor for Higher Education	Office of Governor Gavin Newsom
Barbara Baran	Co-Director	California EDGE Coalition
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Alexia Everett	Grant Officer	Stuart Foundation

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The College and Career Pathway Research Symposium series is a joint effort by multiple research-based organizations active in policy development led by UC Berkeley's College and Career Academy Support Network (CCASN). The Planning Committee includes: Career Ladders Project; the California State University (CSU) Collaborative for the Advancement of Linked Learning (CALL); Jobs for the Future; the Learning Policy Institute; the Linked Learning Alliance; PACCCRAS (Promoting Authentic College, Career, and Civic Readiness Assessment Systems) Working Group; MDRC; SRI International; UCLA's Graduate School of Education and Information Science (GSEIS), and WestEd.

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The planning committee for the symposia series includes representatives from the following organizations:



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