

Advancing Equity at Scale-Up

Research Priorities for College and Career Pathways



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Photos of students in internships provided courtesy of Oakland Unified School District, and Sacramento City Unified School District. Photos of students on college visit courtesy of Berkeley Unified School District’s Academy of Medicine and Public Service.

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ABSTRACT

This report summarizes a three-year project designed to stimulate collaboration, build capacity, and prioritize research that can support equity in college and career pathway (CCP) students' success. CCPs combine career technical education (CTE) with rigorous academics, work-based learning, and coordinated, integrated systems of comprehensive student supports that personalize the learning experience to provide equitable access to postsecondary opportunities. Using a grounded theoretical approach, researchers worked iteratively with a collaborative of ten research and policy organizations, to design a series of four symposia. Through review of the literature, and of issues impacting equity as CCPs scale up, research recommendations were prioritized regarding topics, approaches and methodologies to inform policies and practices. Key lessons emerged on the implications of an equity lens in determining research priorities: 1) the importance of scholar-practitioners' role in the co-creation of research priorities through investigation of practical problems affecting equity in CCPs; 2) the value of Research-Practice Partnerships (RPP) for mutual learning and capacity building, and the commitment required for effective RPP collaborations with CCP stakeholders—to address the causes of inequity and remove systemic barriers; and 3) the role of research in identifying best practices that enhance equity in CCP outcomes – to both guide practice and inform local and state policymakers responsible for the systemic supports needed to scale CCPs. The symposia also produced criteria for prioritization of research, topical bibliographies, reports on the process and priorities determined at each symposium, and a network of college and career pathway researchers interested in pursuing the identified priorities.



INTRODUCTION

College and Career Pathways (CCP) represent a significant national education reform movement supported by federal, state, and philanthropic funding (McLaughlin et al., 2018). These high school programs combine career technical education (CTE) with rigorous academics, work-based learning, and coordinated, integrated systems of student supports that personalize the learning experience to provide equitable access to postsecondary opportunities (Stern & Hoachlander, 2011). CCP programs and approaches designed with these characteristics, like the California Partnership Academies and Linked Learning, evidence promising impacts on equity in student outcomes, from credits earned to degree completion and long term income (Kemple & Willner, 2008, Lafors & McGlawn, 2013). CCP school redesign efforts have been gaining momentum nationally as research continues to demonstrate the model’s impact on equitable student outcomes (Castellano et al., 2017; Visher & Stern, 2015; Warner et al., 2016, Warner & Caspary, 2017).

Much is yet to be understood about implementing CCPs at scale, as the main components of these programs require foundational shifts in institutional culture and structures (Little, 1996). Small learning communities with interdisciplinary teacher-led teams planning integrated instruction run counter to the traditional departmental organization of comprehensive high schools, as well as to individualized, subject-specific teaching practices (Little, 1990; Siskin & Little, 1995). Contextualizing curriculum with real world career-based applications is difficult for teachers who often have little real-world experience to call upon.

Scaling-up CCPs brings many challenges affecting equity in student outcomes. While the approach has proven effective, how the components are defined and interact, and how to scale up equitably are far less understood. Equity issues are necessarily highlighted as CCPs move from the margins to the mainstream, where the systems in place were not created to support this comprehensive redesign of schooling. Educators and policy makers seeking guidance from research find significant gaps.

“The systems in place were not created to support this comprehensive redesign of schooling.”

The specific combination of reforms embodied in CCPs bring new opportunities and resources to students, positively impacting student learning and engagement (Stone, et al., 2008; Castellano, et al., 2017). At scale up, some components are more difficult to orchestrate than others, and who gets access to the enhanced opportunities varies by context (Lafors & McGlawn, 2014). Disparities in implementation are inevitable, as our education systems were designed to produce inequities (Bowles & Gintis, 1976, Portes, 2005).

The plethora of research questions related to scaling CCPs is overwhelming, from how to measure work-based learning outcomes to indicate career readiness on statewide assessments, to how to ensure equitable access to CCPs’ expanded learning opportunities.

Key components of the model, such as embedded student supports, are both ill-defined and central to ensuring that those opportunities are equitably distributed and accessible to all students (Ruiz de Velasco et al., 2016). To scale such a comprehensive reform design, the research base is in significant need of development and prioritization.

To address this predicament, a design team formed to convene researchers involved in scaling up the essential elements of the CCP program design. Their goal: to prioritize research that could support equitable CCP implementation, using a participatory collaborative process that could stimulate collaboration and build capacity to conduct that research. Convened in 2016 by the College and Career Academy Support Network (CCASN) at UC Berkeley’s Graduate School of Education, a Planning Committee¹ grew from the original design team, to create a “focused series of small sessions, each of which should produce a succinct summary about a particular (CCP) topic that will be of high value to the field,” (David Stern, Planning Committee Meeting 7/7/2016).

Through an iterative, reflective process, a series of critical events – four symposia – were organized to identify recommendations that highlighted the research needed for CCPs to serve as an avenue toward a more just society. Valuable lessons emerged:

1. the importance of scholar-practitioners’ role in the co-creation of research priorities through investigation of practical problems affecting equity in CCPs;
2. the value of inclusive Research-Practice Partnerships (RPP) for mutual learning and capacity building, and the commitment required for effective RPP collaborations with CCP stakeholders—to address the causes of inequity and remove systemic barriers;
3. the role of research on best practices that enhance equity in CCP outcomes – to both guide practice and inform local and state policymakers responsible for the systemic supports needed to scale CCP programs.



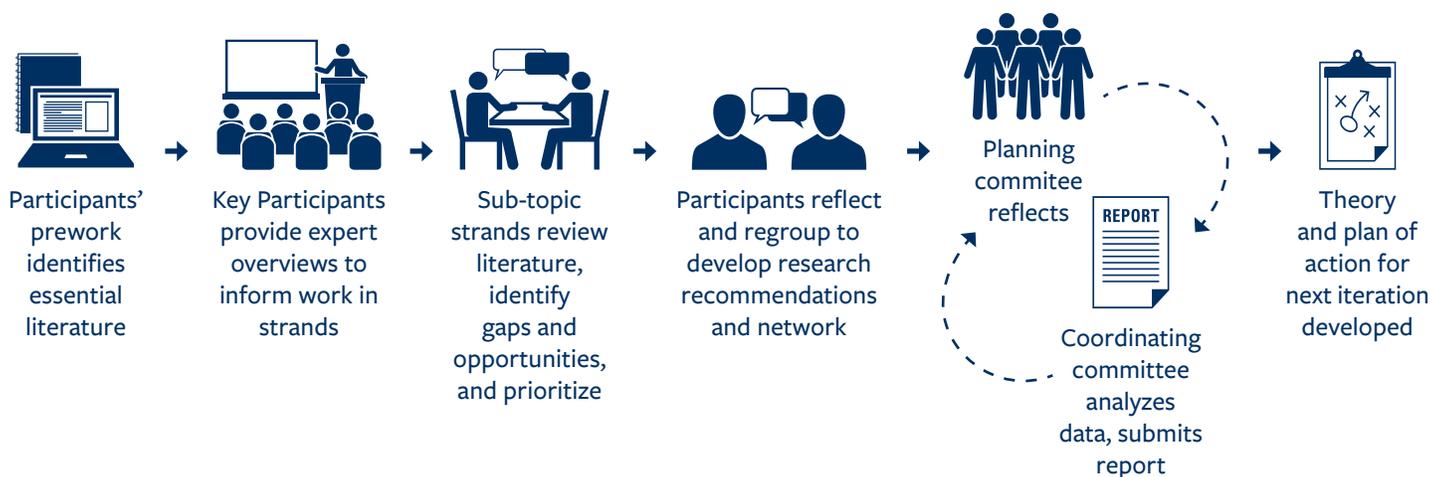
Literature was reviewed and compiled in support of priority recommendations, and incorporated into reports on each of the symposia. Research questions and approaches were elaborated, and priorities weighed using criteria vetted collaboratively. This paper reports on our methods, summarizes findings from each of the four symposia, discusses the lessons that emerged from the process, analyzes the research priorities identified, and addresses the implications of these findings.

¹The Planning Committee consisted initially of five organizations with extensive experience in CCP research: CCASN, Jobs for the Future (JFF), SRI International, WestEd, and the California State University Collaborative for the Advancement of Linked Learning (CSU CALL). As the work developed, it expanded to also include: Career Ladders Project; Learning Policy Institute; Linked Learning Alliance; MDRC; and Promoting Authentic College, Career, and Civic Readiness Assessment Systems (PACCCRAS).

METHODOLOGY

Each symposium convened nationally distinguished CCP researchers to a day-long working session analyzing different topics in CCP research: Measuring Success in the Student Experience; Equity Issues in Teaching and Learning; Leadership and Capacity Building; and Aligning Systems for Equity. Approximately 40-50 scholars from across the nation attended each symposium, many more than once, for a total of 144 participants. With facilitation from Key Participants and the Planning Committee, researchers and “scholar-practitioners” assigned to sub-topic strands reviewed literature, prioritized topics, and drafted outlines for high priority research projects or research recommendations. Reports from each of the symposia presented the priorities discussed, the literature reviewed in that process, and an analysis of lessons learned.² Scholar-practitioners, philanthropic advocates, and policy actors were included in increasingly essential roles, such as grounding research priorities in Problems of Practice (PoP)³ and examining feasibility.

The four symposia were designed using a grounded theoretical approach (Strauss & Corbin, 1994), and design-based research methods (Mintrop, 2016). Researchers worked with the Planning Committee to co-construct each symposium through an iterative, reflective process: identifying objectives, nominating participants and speakers, determining prework, designing activities, facilitating and documenting sessions, and reflecting upon lessons learned and their implications. CCASN researchers coordinated planning, analyzed data, distilled new theoretical constructs and presented them to the Planning Committee and Key Participants for discussion and feedback. Each iteration brought new lessons and revisions to the framework for the next symposium, although a basic structure was maintained throughout all four symposia. Researchers’ interest in collaboration around prioritized topics was captured to establish a virtual network.

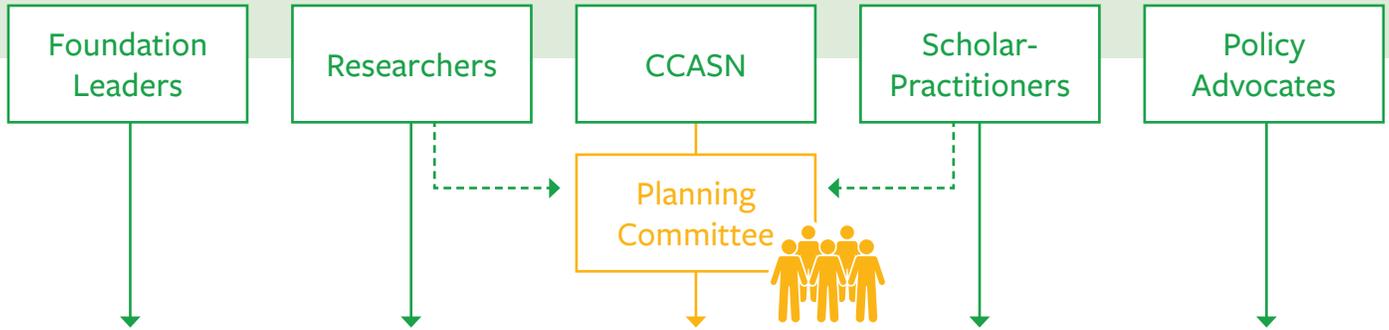


² All reports are available through the CCASN website, in the library under Reports Research & Policy Briefs: <https://casn.berkeley.edu/ccasn-library/research-and-evaluation>

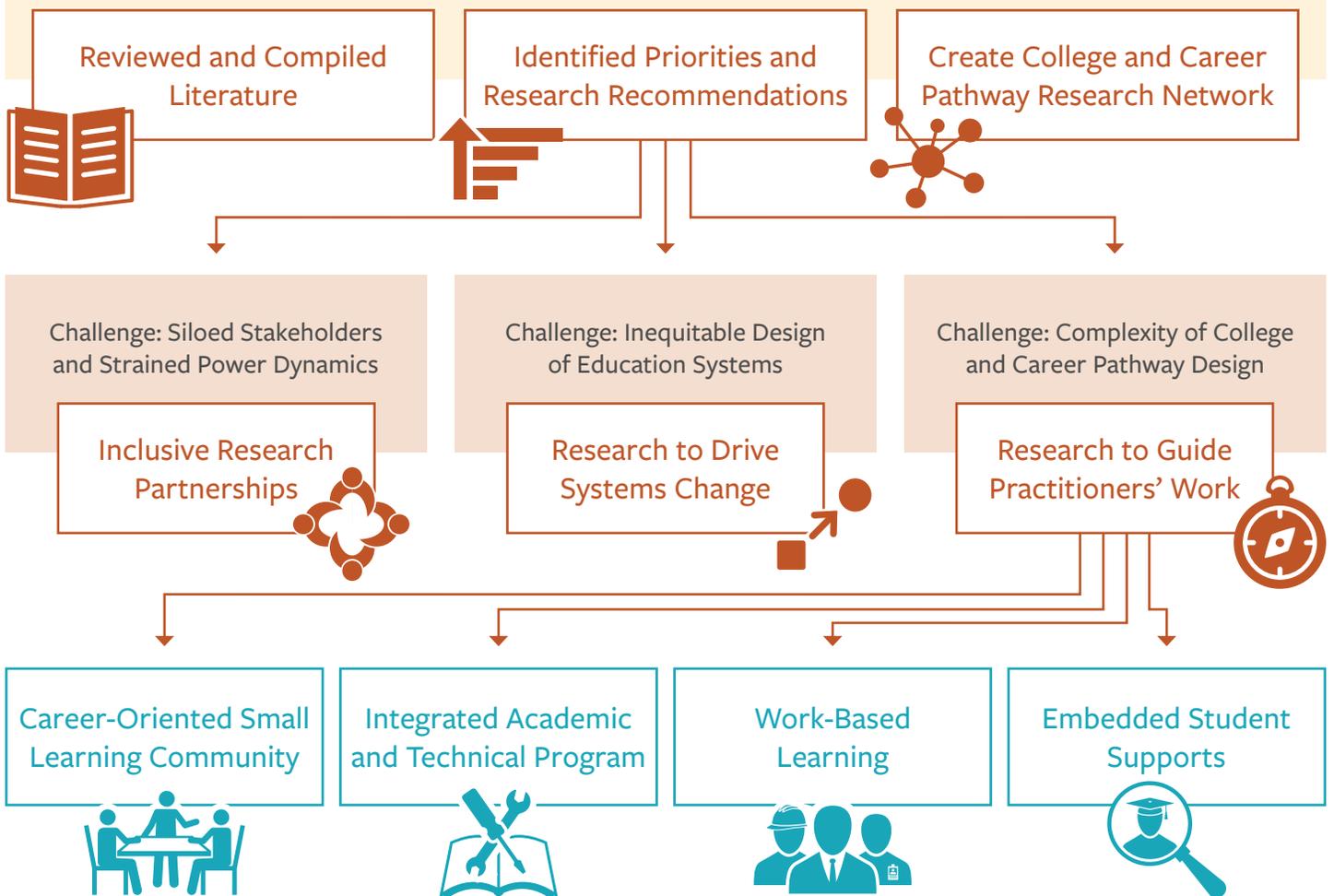
³ University of California, Davis School of Education (2019) defines a problem of practice as “an area that a school or school district identifies that focuses on the instructional core, is directly observable, is actionable, and connects to a broader strategy of improvement.”

College and Career Pathway Research Symposia Series

Challenge: Need to Identify Research Priorities in order to Scale-Up College and Career Pathways Equitably



Four inclusive participatory working symposia: Measuring Success in the Student Experience; Equity Issues in Teaching and Learning; Leadership and Capacity Building; and Aligning Systems for Equity



SYMPOSIA FINDINGS

I. Measuring Success in the Student Experience

Throughout the opening presentations by Key Participants, the work in strands analyzing the literature base, and a Technology of Participation (TOP) process used to identify focal themes for research – equity as a lens emerged as a central, overarching theme. Whether the educational quality and improvement promised by pathways was being fulfilled equitably across population groups was incorporated in some way into each of the prioritized research themes:

- Can inquiry by students, parents, educators, community members, and other stakeholders promote more equitable access and outcomes in high school pathways?
- What is the impact of high quality CCPs, for whom and under what conditions?
- What are the measures of engagement and short-term outcomes associated with pathways students' long-term success?
- What does equitable access to CCPs look like and how does it work?
- How are school districts leveraging local, state, and federal policy to develop, implement, and sustain high quality CCPs that serve students to and through postsecondary education?



Assemblywoman Dr. Shirley Weber voiced an oft repeated theme when she argued that the success of CCPs should be measured by asking how well they serve those who would not otherwise be successful. Using equity as a lens for determining research priorities was reiterated throughout the series and eventually led to the development of prioritization criteria.

A second theme that surfaced was the value of researcher collaboration beyond specific research projects, for which a network was initiated to share data, create common metrics and definitions, and leverage each other's work. Several groups that formed in the first symposium continued to meet, a few participant organizations collaborated on submitting research proposals, and four organizations joined the Planning Committee.

“College and career pathways’ success should be measured by asking how well they serve those who would not otherwise be successful.”

II. Equity Issues in Teaching and Learning

The second symposium sought to highlight equity issues in pathway instructional practices (such as interdisciplinary project-based learning), as well as in the contextual factors affecting equity in implementation of those practices: pathway structures, student access and supports, and teacher preparation. “Equity scholars,” with expertise in examining equity issues in relation to each of those four focal strands, were invited as Key Participants, to apply scholarship on high priority equity issues to the specific CCP teaching and learning context.

Equity scholars raised the importance of grounding research prioritization in the PoP impeding equitable CCP implementation. For example, one Key Participant noted that CCP teachers do not even share a common definition of CCP instructional practices, such as project-based learning, which impedes efforts to ensure equitable student access to CCP instructional practices. Another Key Participant argued that preparing teachers to implement CCPs equitably would be greatly enhanced were teacher preparation programs to collaborate with the communities their schools serve. This could transform where, when and with whom teachers are prepared, and affect teachers’ relationships with those communities. Including practitioners and other stakeholder in research on problems of equity in pathway implementation emerged as a theme, and informed our analysis of how to use the third symposium to build mutual collaborative capacity. Priority research recommendations centered on the overarching research questions raised in strand working groups:



- How can an equity-based framework of pathway instructional practices support teacher growth, equity across pathways, and monitoring of student progress?
- What supports do students in pathways need to be successful, what structures pose barriers to providing them, and how can effective supports be built into school systems?
- What are effective community-informed, evidence-based models for preparing teachers to integrate instructional practices that promote equitable access to college and career readiness?
- What is the range of industry engagement in CCPs, and to what extent does the level of industry engagement correlate with diverse students’ outcomes?

Participants were added to the developing researcher network, grouped around their research interests and the draft research proposals they developed. However, the goal of defining specific research proposals around priority topics was reconsidered after this symposium, as no funding existed to facilitate follow-through on those proposals. Funders’ relationship to the research prioritization process emerged in an internal Planning Committee PoP.

III. Leadership and Capacity Building

The substantive changes in school structures, work roles, skills and beliefs that CCP leaders facilitate to scale up CCPs raise critical problems of capacity building at all levels. While research on leadership and capacity building in education has much to contribute conceptually to the PoP confronting this school redesign movement, little of this research has focused specifically on CCPs. Researchers, scholar-practitioners, and college of education faculty were therefore invited to engage in an exploratory research exercise.

All previously prioritized research questions were compiled for use in the prework (see Appendix 2 in Johnston, et al., 2019). Participants examined how the identified priority topics might be tackled through RPPs, and what leadership and capacity building would be required to do so. RPPs were emphasized to connect CCP researchers and education faculty with the equity-based PoP facing leaders working to implement the CCP model (Penuel, et al., 2011). Based on research on the critical importance of shared leadership in school reform (Bryk, et al., 2010), and in the development of career pathways (Hendrick, et al., 2017), participants explored the potential of RPPs to build leadership and capacity at all levels in the strand working groups.

The elements of leadership deemed essential to the process of leading school reforms that disrupt inequities and redesign education systems through CCPs were compiled (see Johnston, et al., 2019, pg. 8). A panel presentation of current research findings, and Dr. Linda Darling Hammond’s webcast keynote presentation highlighted the leadership and capacity required to fulfill CCPs potential to provide deeper learning experiences for all students. Scholar-practitioners and researchers examined the potential of RPPs to address complex priority PoP in three strands: administrator, teacher, and counselor/student support specialists. Through structured dialogue, specific leadership and capacity-building challenges emerged, around which research recommendations were developed:



- How to develop leaders’ capacity to use data and research on CCPs in decision making; and how to translate findings into substantive changes in district and site priorities, routines and practices?
- How to involve districts in regional collaboration to build professional development models that can be scaled?
- How to engage education faculty, district leaders and other researchers in RPPs to design model programs preparing teachers to collaborate, lead, acquire pathway-specific content, and develop new “deeper learning” pedagogical approaches?
- How to expand the definition of the CCP teacher to include elementary, middle school, community college and University faculty?
- How to work with school administrators to restructure counselors’ and student support specialists’ duties to align with pathway themes and standards; and provide them with CCP-specific training to enhance their skills in college and career guidance?

IV. Aligning Systems for Equity

The final symposium invited systems level scholar-practitioners (state and local) to work with researchers, and to lead in identifying high priority system alignment PoP affecting equity in CCPs. Through structured promotion of scholar-practitioner voices, and the development of research prioritization criteria (see *Criteria for Prioritizing CCP Research* on page 14), topic prioritization was grounded in system alignment PoP for which research could be helpful. Stakeholder involvement in prioritizing CCP research topics included policy advocates and foundation leaders, who also met separately to develop recommendations. Priority selection was also impacted by the proximity of scholar-practitioners to state versus local policies and practices.

The recommended high priority research would support practitioners' and policy advocates' systemic efforts to counter disparities in educational outcomes shaped by the larger context of societal inequities. While the identified priorities cannot be considered comprehensive, the analysis supporting the chosen priorities is solidly grounded in research as participants' prework reviewed key literature supporting their top priority issue. Priority topics were identified in each of three strands, for which detailed research recommendations were developed:



Secondary-postsecondary alignment

- Design dual enrollment programs to serve as a bridge mechanism between high school and postsecondary career pathways. Begin by using an equity lens to analyze: what dual enrollment designs lead to what outcomes, for what groups of students.
- Delineate the systemic conditions needed for, and characteristics of, professional development that promotes pathway faculty learning while aligning institutions in ways that support diverse pathway students' success across systems.
- Prioritize development of educator career pathways by developing and documenting cross-system Grow Your Own Educator Workforce practices that increase recruitment, diversify, and retain high-quality pathway teachers.



Employer engagement and integration of work based learning

- Define and implement a measure of “college and career readiness” based on student outcomes in work-based learning (WBL), beginning with a scan of state policies on the use of WBL in College and Career Readiness measures.
- Determine the return on investment (ROI) for WBL experiences for employers, postsecondary institutions, K12 districts, and students themselves.

Integration of community-based organizations into comprehensive student support systems

- Use research-practice partnerships as a tool for developing effective collaboration and mutual learning processes among educators, community stakeholders and researchers working on comprehensive integrated student supports.
- Define and identify effective models for comprehensive integrated student supports, highlighting the student perspective. For example: How are students experiencing the integration of student supports? Are they effective? For whom and under what conditions?

In an effort to break out of the education silo, the fourth symposium broadened the definition of system alignment beyond the traditional K12—postsecondary framework, allowing participants to connect across systemic contexts to address the larger social and economic systems in which education is embedded. Elevating the perspectives of practitioners and other key stakeholders grounded the prioritization of PoP, and opened the possibility of establishing trusting, effective, cross-system relationships and collaboration. A common commitment to breaking down historically structured and reinforced educational inequities laid the groundwork for collaborative research approaches that were also reflected in the research recommendations developed in all three strands, from inclusion of RPP approaches to a common call for research involving student advocates, voices and perspectives (Johnston, Castellano & Darche, 2019).

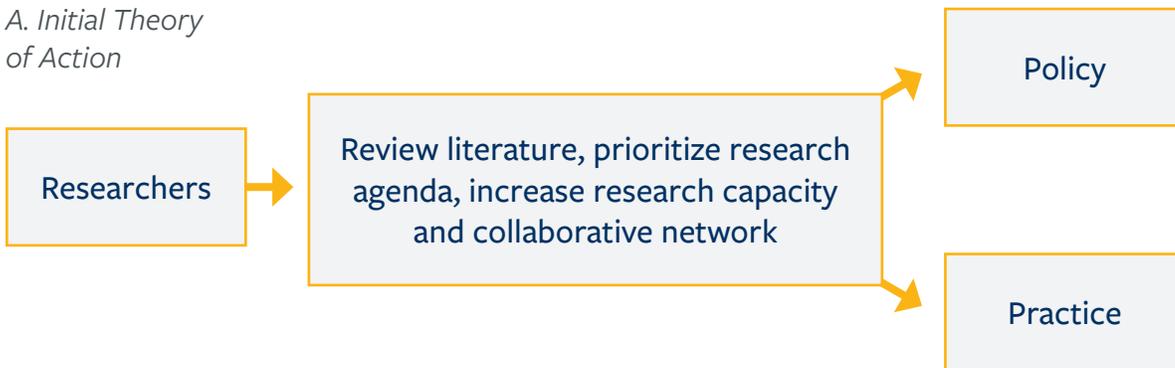
RESULTS

Process Outcomes

Evolution of Theory of Action

Our initial theory of action — using a grounded-theoretical approach (Strauss & Corbin, 1994) to tap the expertise of CCP researchers to review the literature, identify and prioritize research gaps and opportunities while developing a CCP researcher network— changed over the course of the symposia. We clarified the importance of scholar-practitioner involvement in the co-creation of research priorities through investigation of practical problems affecting equity in implementation. We valued key CCP stakeholder involvement in RPPs for mutual learning and capacity building. We acknowledged the commitments required for RPP collaborations with key CCP stakeholders—to address the causes of inequity and remove systemic barriers. We recognized that local and state policymakers need research on best practices that enhance equity in CCP outcomes, in order to identify systemic supports necessary for scaling the model.

A. Initial Theory of Action



B. Revised Theory of Action



Criteria for prioritizing research

As participants wrestled with the challenges of prioritizing research where so many gaps exist, a set of criteria developed. The initial call to use equity as a lens in prioritizing research led to defining “strategic research” for the second symposium as:

Research that can increase capacity of key actors to strengthen practices, and/or inform policies essential to ameliorating disparities and improving equitable outcomes of college and career pathways. (Facilitator’s Guide, Symposium 2: Equity Issues in CCP Teaching and Learning Practices)

Key Participants in the second symposium argued for practitioner and community-involved research approaches, leading to the third symposium’s emphasis on RPPs. The fourth symposium highlighted PoP related to equity in pathway implementation as a starting point for prioritization, and included community based organizations supporting student success as well as other stakeholders. Prioritization criteria (see below) were developed, refined, and used to determine the top priorities in each of three strands.

Criteria for Prioritizing CCP Research

- Potential of the research to **inform the work of leaders addressing problems of equity that severely impact traditionally underserved and marginalized students:** Latinx, Black, immigrant, English learners, special education, and low income urban or rural students, as well as gender non-conforming and female students
- Severity of **gaps in our understanding of the causes or potential solutions** to pervasive and persistent problems of practice
- Potential of research to **inspire and inform successful practices or policies** that can ameliorate or resolve the problem of practice or to **clarify the conditions and motivating incentives needed for transformative change**
- **Amount and type of research attention** currently being paid to the problem
- Extent to which research 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
- **The incorporation of student voice**, reflective of the wide range of students in pathways, with a particular focus on marginalized students
- The extent to which research is useful to pathway **stakeholders collaborating across systems and sectors to remove barriers and move out of silos**



Inclusive Research Partnerships

Practitioner participation expanded and changed with each research symposium, as did the role of policy advocates and foundation leaders. We experienced the power of focusing research on “relevance to practice” (Gutiérrez & Penuel, 2014) as prioritization increasingly focused on practitioners’ persistent PoP in implementing CCPs. Researchers were then able to define questions and projects that could support practitioners to navigate those problems. The resultant recommendations highlighted inclusive research approaches with educators, community organizations, students and other stakeholders as partners in the research. Such collaboration is expected to build participants’ capacity to apply research to improving practice, create a research base for policy development, and empower educators and communities seeking equity in education outcomes.

RPP approaches were prioritized as they elevate equity issues and promote mutual learning among researchers, educators, and other key stakeholders. However, RPPs require a significant shift in the norms and expectations of traditional research (Coburn, et al., 2013). The third symposium exercise in envisioning RPPs that address high priority research topics challenged researchers who had not experienced RPPs, nor used PoP as a starting point, nor worked in mutualistic partnerships. Consistent with design-based research approaches (Anderson & Shattuck, 2012), a key outcome of this symposium was increased capacity to engage in RPPs in order to address equity-based PoP in scaling the CCP model. Practitioners voices were elevated in identifying avenues for investigation and those with RPP experience advocated eloquently for the mutual benefits of breaking down silos between researchers, educators and other stakeholders.

In the fourth symposium, the strand on integrating community based organizations (CBOs) with school systems for CCP student supports also highlighted RPPs as an approach that can affect trust between researchers, educators and CBOs. Integrated, comprehensive student supports are critical to equity in CCP student outcomes, in which CBOs are often involved, from school-based health centers to restorative justice programs. Yet CBOs are rarely integrated into school systems. As advocates for the students and communities schools serve, CBOs may experience adversarial relationships to school systems that have historically reproduced societal inequities and posed barriers to student success. These community partnerships have largely been ignored in the CCP research. Where researchers engage CBOs’ work with CCP students, mutualism is often lacking, as the agenda, process, and use of the research products are normally defined by the researchers.

Equity in education cannot be accomplished solely within the context of education. The fourth symposium’s call to “break down the silos” was accompanied by recognition of the power dynamics and conflicting interests that must be navigated to incubate inclusive CCP RPPs with a commitment to mutual learning. CBOs, public health departments, city governments, unions, hospitals, tech firms and business councils each have specific priorities -- as do researchers, educators and funders. Keynote speaker Dr. Tameka McGlawn noted that where partners share a mutual commitment to educational justice, trust can grow. Research can then be a tool to press for resources and changes in policies to address the causes of inequity, dismantle barriers and build bridges to student success.

Research Priority Outcomes

Over the course of the four symposia, two key areas of research work were prioritized: Research to understand how to change systems to support equity in college and career pathways, and research to guide practice.



Research to Drive Systems Change

Research should inform systems leaders at district, regional and state levels to assess, identify appropriate interventions and supports, and drive the systems changes needed to scale the CCPs equitably. Policy makers and education leaders working at a systems level need to know what systemic inputs are most critical to build and assess CCPs that improve equity in student outcomes. They need actionable definitions of quality in specific components, such as “embedded student supports;” and scalable measures of student learning, such as from work-based learning. They want to know who benefits from high quality CCPs, and under what conditions in order to assess programs and direct further support and resources.

Research on systemic supports that can impact equity in outcomes, such as on student transitions and alignment of pathways across education segments, is a priority. As teacher quality is a primary factor affecting equity in student learning outcomes, teacher shortages seriously impact districts’ ability to build and staff quality pathways, especially in low-income schools and high demand sectors. Research is essential to develop new ways to recruit for and organize 21st century educator pathways, and to integrate CCP instructional practices into educator preparation programs.

Research on the structures and processes that support teachers, students, advocates and other stakeholders’ capacity to collaborate and influence CCP development was prioritized, for example, identifying stakeholder’s interests in CCPs, and exploring how to build and sustain regional networks to better implement CCPs. Participants prioritized creating bridges across K12 and postsecondary systems, as well as with community-based organizations and other stakeholders to strengthen pathway student supports, develop programs of study, and promote student success in pathways.



Research to Guide Practitioners’ Work

Education leaders implementing college and career pathways need research to support them in improving equity in their program designs. Most recommendations fall into this category – basically how can the design be fleshed out, and how can people and institutions be prepared to implement it with fidelity? Those recommendations, therefore, have been aligned with four components of the CCP design (Stern & Hoachlander, 2011).

A small learning community with a teacher team that collaborates regularly, and shares responsibility for a cohort of students interested in a specific career field



CCP leaders establish the requisite structures, identify needed resources, directly support team leadership development, and integrate the pathway into the school vision for

college and career readiness. Site and district administrators set up the conditions for CCP teachers teams to collaborate on interdisciplinary projects around a career theme within a small learning community context. They need guidance on how to create those conditions, from common planning time and student cohorts, to shared leadership structures and teacher leadership development. Research should support faculty working with both current and new teachers, preparing them to collaborate, acquire pathway-specific content, and apply “deeper learning” pedagogical approaches to a specific career field. Research should document models for scalable, effective CCP professional development and identify changes needed in leadership and educator preparation, such as preparing counselors to lead in integrating career education and embedding student supports. Collaborative, inclusive research on CCPs can help build leadership capacity, and is more likely to translate into making necessary and substantive changes in district and site priorities, routines and practices.



A rigorous college preparatory program of study with hands-on career-themed integrated project and problem-based learning curriculum, including a strong technical core and postsecondary linkages

Research to define, explore, and describe pathway instructional practices that support diverse students’ success and promote equitable student outcomes in CCPs would be essential for teachers and teacher candidates’ professional development. A research-based framework of those instructional practices could be built upon to develop other tools, such as to measure quality in CCP instructional programs, support teacher growth, and weigh equity in access to quality instruction across pathways. Research should guide efforts to build teacher capacity to contextualize their subject matter to an industry field. Research on how CCP programs of study link students to postsecondary pathways, in particular through CCP Dual Enrollment courses, should prioritize identifying and addressing equity issues in access, support, and student success (e.g. Barnett et al., 2015; Bergman et al., 2018.)



Work-based learning, including internships and other activities designed to introduce students to career options and real world applications of academic content

Learning science advances have promoted instruction using real world applications of academic content, for which WBL related to a CCP career field is an ideal catalyst. Yet scaling up those opportunities systematically and equitably poses particular problems. Research is needed to define which WBL experiences are critical to career readiness, and to develop valid measures of career readiness based on students’ WBL experiences. District leaders need to know what program structures promote equity in access to WBL experiences as they are scaled up, and how to align educator and industry goals in creating WBL programs. To allocate resources for such programs, districts and employers need research on their respective returns on investment (ROI). Inclusive research approaches, involving student voice and community-based organizations that provide work-based learning opportunities, as well as educators and employers, would support efforts to align systems around common goals for equity in student outcomes.



Comprehensive integrated student supports

Comprehensive and Integrated student supports were identified as a critical CCP design component for which foundational research is lacking. For example, little work has been done on what constitutes a quality program of embedded student supports, how they should be integrated into the instructional program, who currently delivers which types of student supports, how they are differentiated for specific sub-groups, and what impact they have on students. Research should document where supports for struggling students are in place, and how effectively they serve students. Counselors were identified as a grossly underutilized resource with potential to lead in this area, often playing key roles in career development and student transitions to postsecondary education.

Comprehensive and integrated student supports, which are critical to achieving equity in student outcomes, require community-based partnerships. Historically, community- and school-based student support providers have not often been afforded the opportunity to contribute to systematically ensuring student success. Participants recommended that community-based organizations that work with and advocate for youth in schools be considered essential partners in investigating student supports. They raised a caveat, however, that in order to establish such partnerships, trusting relationships must be built upon a clear common commitment to equity and educational justice.

Seminal research led by Stanford's Gardner Center could inform work in this essential area, particularly *Equitable Access by Design* (Ruiz de Velasco et al., 2016) and *A Guide to Student Supports for College and Career Pathways* (Ruiz de Velasco, 2019).



CONCLUSION

This project initially planned to invite researchers (and a few practitioners) to review the literature in order to identify research priorities that could advance CCP policy and practice. Through a grounded, iterative process and increasing involvement of scholar practitioners and other stakeholders, that goal was amended. Prioritization came to focus, not only on gaps in the literature, but also on problems practitioners face in ensuring equity in CCP access, experiences, and outcomes as CCP are scaled up. Researchers worked with practitioners to identify critical problems affecting equity in CCPs, and came to value inclusive approaches that could highlight equity problems in scaling CCPs, support mutual learning, build capacity to negotiate those complex problems, and be more likely to influence local and state-level policies.

The symposia produced resources to support the development of prioritized research. Each of the four symposia reports identifies key research questions related to critical PoP affecting equity in CCP implementation, compiles related literature and arguments for research priorities, and makes recommendations for research approaches. These materials have been made available to the field on [the CCASN website](#).

The research priorities identified in these symposia are critical to the development of quality pathways that can serve as an avenue to a more just society. Investigation of these priorities will inform policies that support equity in college and career pathway development. With inclusive partnerships and a collective commitment to mutual learning, collaboration, and educational justice, the CCP research network we initiated through this work is poised to promote research, practice and policies that can significantly impact equity in students' pathway outcomes.



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