Developing Effective P-20 Partnerships to Benefit Chicano/Latino Students and Families

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Abstract

To consider how interdisciplinary P-20 partnerships increase college-going rates among Chicano/Latino youth, the authors highlight evidence from the Educational Partnership Center (EPC) at the University of California, Santa Cruz, a P-20 partnership that builds academic achievement and college and career pathways. Three elements advance EPC effectiveness: collaborative governance structures sustaining shared vision, mission, and goals; innovating with data-driven decision-making; and complementary theories aligning goals from childhood through college to careers. Three studies, guided by these theories, illuminate such effectiveness.

Keywords

P-20; K-16; Latino students; college access; data-driven reform; university partnerships

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Like other states across the nation, California shows great disparities in student achievement and college-going rates between its general population and Latino students. On the California Standards Test, 2007, 62% of White students compared to 29% of Hispanic/Latino students tested at the "proficient" level (the goal for all students) in language arts, and 53% of White students compared to 30% of Hispanic/Latino students tested as proficient in mathematics (O'Connell, 2007). This statewide achievement gap is mirrored among the largely student Latino population of California's central coast. This paper considers how the Educational Partnership Center at the University of California, Santa Cruz, a P-20 collaboration that brings together universities, community colleges, and schools with youth and families to improve alignment to increase college-going rates, has made progress increasing achievement and college-going rates among Latino students. For example, in one district in which EPC has collaborated over the past 5 years, Latino students increased 20% compared with a 6% increase for White students on state Academic Performance Indicator scores (O'Connell, 2007).

Emerging Research, Policy and Practice on P-20 Partnerships

Nationally, 38 states have P-16 state councils that focus on student achievement through a range of activities that include early learning programs, alignment of standards, P-20 data systems, dual high school and college enrollment, building academic rigor and teacher quality, college placement, and workforce development (Cech, 2008). The growing research literature on school-university P-20 partnerships includes states such as California (Cohn, et al., 2004; Gomez, Bissell, Danziger, & Casselman, 1990) and Texas (Navarro & Natalicio, 1999; Oliva & Nora, 2004), as well as nationwide analyses (Conley, 2006; Stonecipher, 2001). Thus states look to P-20 partnerships to connect their goals of closing the achievement gap in P-12 with access to higher education, often by linking systemic and whole-school reform (Navarro & Natalicio, 1999) with student-centered programs (Weiss, 2001).

P-20 partnerships have emerged in California at state and regional levels but have not addressed comprehensive reforms like Oregon's Educational Act or Georgia's HOPE scholarships (Kirst & Venezia, 2004). Due to the size and complexity of California's P-20 educational systems, which includes three systems of public higher education--the University of California, California State University, and California Community Colleges--as well as private colleges, K-12 and preschool programs, the potential for P-20 policy alignment in California still exceeds reality. The California Education Roundtable, which brings together CEO's of the public education systems and independent colleges with the State Superintendent of Education for policy alignment, works to increase student achievement and college preparation to address the access and equity issues. The Intersegmental Coordinating Committee became the operational arm of the Roundtable and continued the work to encourage greater access to college for under-represented students. The State Superintendent of Public Instruction created a statewide P-16 council that sets goals for closing the achievement gap, as in other states (O'Connell, 2007).

In addition to these statewide efforts, deeper P-20 collaborations work at local and regional levels, such as the Monterey Bay Educational Consortium, Santa Ana Partnership (Gomez, et al., 1990), and Long Beach Partnerships (Houck, Cohn & Cohn, 2004). Each has worked regionally for over 10 years in sustainable efforts that have increased student achievement and college–going rates among under-represented minority students (called *URM* in California educational policy; they include African American, Chicano/Latino, and Native American/ Alaskan Native students).

All 10 campuses of the University of California system conduct P-20 activities, including student college preparation, family involvement, and teacher professional development and its 10-campus P-20 leaders group is developing a statewide agenda to coordinate their efforts (Cooper & Mehan, 2006). When Proposition 209 passed in California in 1996, it disallowed race or ethnicity as considerations in university admission and moved issues of access and equity to the top of the educational policy agenda. The state legislature then encouraged UC (albeit with short-term funding) to improve access for traditionally under-represented students. The UC system has continued to increase its work with Student Academic Preparation and Educational Partnerships at all 10 campuses (SAPEP, 2007). As in other states, P-20 partnerships in California must continuously adapt to the shifting sands of funding and policies.

The Current Study

This paper looks at issues of actualizing school-university collaborations by examining the work of the Educational Partnership Center (EPC) at the University of California, Santa Cruz, one of the 10 UC campuses. The EPC collaborates with public educational services, acting as a catalyst between preschool-12th grade and higher education institutions to build college-bound communities. EPC services now span 36 partnership schools and 13 community colleges, with a current student population of 34,988 students from pre-kindergarten through community college; 73.0% of these are Latino students. With funding from state and federal sources as well as private foundations and industry, the EPC has worked for 10 years in low-income and largely Latino communities in urban and rural areas.

Compared to statewide patterns, EPC has demonstrated positive student outcomes related to its interventions that can be seen across the P-20 spectrum, from key college-going indicators to admission to the University of California, the most competitive public university in the state. Looking at one EPC partner district over seven years on passage rates in 10th grade algebra, a leading indicator of college going, passage rates increased from 35.3% in 2002 to 77.9% in 2007 (SAPEP, 2007), despite statewide CST Algebra passage rates staying flat at 21% in 2002 and 23% in 2007 (CDE, 2007). In EPC's initial 13 partner high schools, graduates who completed the 15 required college-prep courses increased from 29.8% in 2001 to 37.7% in

2006. High schools that EPC serves in East San Jose, one of the lowest income areas in Santa Clara County, currently have 51% enrollment in community college compared to 21% in the county as a whole. In the 13 partnership high schools served by the EPC, Monterey, Santa Cruz, and Santa Clara Counties, the average UC-going rates in 1997 were 5.2% compared to a statewide average of 7.2%. After nine years, those partnership high schools exceeded the statewide of 7.7% with 8.6% average of UC going rates (California Postsecondary Education Commission [CPEC], 2006). Despite statewide declines in community college enrollments in recent years, the transfer rate from EPC's 13 community college partners to the UC increased 20% from 1997–2007. Finally many of the 20 graduate students who have contributed to EPC research over the years, 37% of whom are Latino/a, are now educational researchers in higher education and other settings. These outcome data point to an effective P-20 approach to increasing student achievement and college going. How has this been accomplished?

To answer this question, this paper opens by describing the structure and process of the P-20 work of EPC. We describe EPC as a flexible web of collaborative governance structures based on shared mission and measurable goals and define the process EPC uses to refine innovations with cycles of data-driven decision-making. We present three studies, each focused on one of the theories that grounds EPC work and helps align and connect its goals from childhood through college to careers. Finally, we relate this work to other interdisciplinary research on P-20 partnerships that benefits Chicano/Latino youth and families.

EPC's mission is to create college-bound communities that improve student learning and increase college-going rates among students from low-income and traditionally non-college-going families, in collaboration with school, college, business, and community partners. The EPC seeks to be *inclusive,* like the federal GEAR UP model of school–wide services, and also to help students be *competitive* for admission to selective colleges and universities. The EPC focuses on increasing academic achievement, particularly in mathematics and sciences, and educational access for English learners in the region, who are primarily Latino. Details of EPC's mission, design, and strategies, grounded in research on P-20 "pathways to college" partnerships, appear in earlier writings (Moran, Roa, Goza, & Cooper, 2005).

The Organizational Structure of P-20 Work: A Flexible Web of Collaborative Governance Structures with Shared Mission and Measurable Goals—P-20 research has typically examined outcomes of P-20 collaborations rather than their organizational structures. However, scholars have begun to define features of successful collaborative structures. Features that Gajda and Koliba (2007) propose for effective intra-agency collaboration for school reform, including a shared purpose and cycles of inquiry, decision-making, dialogue, and evaluation, also apply in inter-agency collaborations. Similarly, the Illinois Board of Higher Education (2007) describes the key role of *boundary spanners* who communicate across institutions.

EPC adds to this discussion the contribution of flexible, often overlapping, collaborative structures that meet local needs. The complex organizational contexts in which the EPC works require a flexible web of partnerships that spring from different sources and serve different needs. Partnerships in this web vary in geographic reach, locus of leadership and coordination, number of educational segments spanned, and source of funding.

The broadest of EPC partnerships is the Monterey Bay Educational Consortium (MBEC), whose goal is to increase college-going rates on the central coast of California. Co-chaired by the CEOs of two universities in the University of California and California State University systems, MBEC includes the top administrative officers of all public education segments in three California counties. MBEC serves as the regional policy oversight group for the EPC, setting its vision and goals, while the EPC is the operational group that implements day-to-day

activities. MBEC initiatives to address its regional priorities include aligning coursework across P-20 institutions, disseminating college knowledge among teachers and school administrators, and forging a common P-20 longitudinal database of student pathways.

One of the most locally targeted of EPC partnerships, working within UC Santa Cruz, is the Chancellor's Educational Partnership Advisory Council, which reports directly to the UC Santa Cruz Chancellor. Members include 20 faculty and lead administrators from academic and student support departments with outreach-related responsibilities, expertise, and interests. They provide valuable advice on how to navigate campus structures and engage faculty in P-20 work. The EPC participates in several other P-20 collaborations focused by mutually shared issues, locale, or funding source. EPC also hosts collaborations across community colleges, collaborations within each of five regional areas, and collaborations on specific issues.

Thus, like other long-term P-20 alliances (e.g., Gomez, et al., 1990; Houck, et al., 2004), the EPC is not just one partnership but rather an evolving set of interwoven partnerships, in part because funding and other policies shift over time. What drives and integrates these partnerships are their shared vision, mission, and goals. Each has developed its own mission statement, but their overarching common mission, fostered by the EPC, focuses them all on equity and access to college preparation and higher education. Defining inclusive goals such as increasing college-going rates guides EPC work and helps determine annual measurable objectives.

The Process of P-20 Work: Innovating with Cycles of Data-Driven Decision-Making—P-20 university-school collaborations span from preschool through graduate school. EPC's P-20 services to schools include professional development for teachers in reading beginning at pre-school and continue through high school, professional development in math in middle and high school, school reform consultation, academic counseling and test preparation, as well as research and evaluation. Student and family services begin in middle school with GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs), MESA (Mathematics Engineering Science Achievement), and EAOP (Early Academic Outreach Program (EAOP); their activities include a college awareness curriculum, math and science advancement activities, tutoring and counseling, and college visits and these continue on through community college.

Every partnership at the EPC starts with data to define the problem and data to measure progress (See Figure 1). EPC partners have developed *vertical teams* across the region's P-20 system that bring together leaders across institutions as well as teams of teachers of English or mathematics at elementary, middle school, high school, community college, and university levels. Vertical team meetings begin by reviewing data within feeder school patterns from specific elementary, middle, and high schools to the community college. Vertical teams have then developed better course alignment. Eventually, vertical teams review data and performance samples of individual students. Continually focusing finer lenses on data has become a way of working across EPC partnerships and one of the features of EPC work most appreciated by its partners. Whether the goal is to increase family college knowledge or skills in algebra, data help gauge if strategies are on track to meet objectives. Traditionally, frontline staff members have been responsible only for collecting and reporting program data but have not been expected to use or learn from their data. At the EPC, all staff members reflect on data to plan and improve programs.

Successful collaborations use cycles of inquiry (Gajda & Koliba, 2007) to coordinate and define goals and outcome measures. In EPC's experience, data-driven decision-making works best when it draws both on summative data to gauge progress toward target goals and measurable objectives and on formative data to test and refine innovative models. In addition to outcome

data, however, grounding P-20 work in theories helps EPC explain why one approach may be more effective than another and sets the EPC apart from some of its P-20 peers.

Complementary Theories Connect Levers of Change and Goals from Childhood Through College to Careers—Grounding EPC programs in an interdisciplinary theoretical research framework provides scientific rigor, guides practice, and builds knowledge. To increase college-going rates, goals and intervention planning must be aligned through the P-20 pipeline from early childhood through college to careers (Cooper, 2003; Gullatt & Jan, 2002; Harvey, 2002; Venezia, Kirst, & Antonio, 2004). EPC draws on three complementary theories to align its goals and drive interventions through these developmental periods: Sociocultural, Self-Efficacy, and Bridging Multiple Worlds. EPC research with these theories follows a mixed-methods quantitative and qualitative approach, with demographic data, longitudinal case studies, narratives, and surveys.

Many state-level partnerships develop data systems (L'Orange & Vorhees, 2003), and research-based work is common. But P-20 work that tests and builds causal models to understand what factors enhance or impede students' successful pathways to college is rare. Research scholars often develop or choose one or more theoretical frameworks and then design methods to test and compare their models. In the practical world of P-20 partnerships, this sequence may be reversed. Programs often start with activities that P-20 leaders or staff members believe will work. Later, when consulting with evaluators, leaders may reflect on their implicit theories behind these activities as they seek tools to measure inputs and outcomes. When staff members see the theoretical rationale of their interventions, they become more reflective about these theories, and opportunities emerge to refine interventions, theories, and policy investments.

Sociocultural theory—Sociocultural Theory considers learning as interactions between novices and experts as they work together on culturally relevant tasks, with novices gradually entering expert communities through growing levels of participation in family, school, and community settings (Rogoff, 2003; Vygotsky, 1978). Consistent with this research, novices enter college-bound communities through *peripheral participation*, such as when high school students first visit college campuses, hosted by UCSC undergraduates (often graduates of targeted high schools) and EPC staff, and later return for longer summer residential programs. Research shows novices often learn more from apprentices just a step ahead of them, such as college-age tutors, than older experts (Lave & Wenger, 1991). For this reason, EPC places college-age tutors in school classrooms and summer and after-school activities, where student apprentices internalize dialogues used in college-bound communities and develop skills relevant to them. More than 200 UCSC undergraduates work in local schools and colleges to provide tutoring and mentoring.

EPC's family involvement programs also draw on Sociocultural theory. Families' involvement is key to children's school success, including their pathways to college (Chrispeels & Gonzalez, 2006; Eccles & Harold, 1996; Henderson & Mapp, 2002; Park & Palardy, 2004). Latino families' actions and beliefs about involvement, like all families, are supported if partners respect assets families bring and bridge across cultural values between home and school (Cheng Gorman & Balter, 1997; Trumbull, Rothstein-Fisch, Greenfield, & Quiroz, 2001; Zarate & Mayer, 2007). It is important to create and evaluate family involvement activities that link assets of Latino families with their children's schools. Study 1 examines how EPC develops leadership among Latino parents to provide home visits and build networks of college-aware and college-knowledgeable parents.

Self-Efficacy theory—Self-Efficacy Theory (Bandura, 1997) is a psychological theory that has been useful in many settings. Applied to education, self-efficacy is defined as "personal

judgments of one's abilities to organize and execute courses of action to attain designated types of educational performances" (Zimmerman, 1995, p. 203). A meta-analysis of research found self-efficacy was related both to academic performance and persistence in school (Multon, Brown, & Lent, 1991). Many EPC programs are designed to increase self-efficacy. For example, math tutoring is designed in part to increase students' self-efficacy in math, and teachers' professional development to increase beliefs in their abilities in content and pedagogy.

Self-Efficacy Theory plays a central role in EPC research conducted by Chemers and his colleagues (2006). Study 2 describes a long-term EPC study that examines how activities in science support programs across the education pipeline encourage students to enter biomedical research careers. Prior research shows both students and faculty mentors value programs that involve students in research and mentoring (Gándara & Maxwell-Jolly, 1999; Seymour, Hunter, Lauresen, & Deantoni, 2004).

Bridging Multiple Worlds Theory—Bridging Multiple Worlds Theory is an interdisciplinary theory that examines how low-income, immigrant, and ethnic minority youth build their identity pathways to college and careers without giving up their ties to their families and cultural communities (Cooper, 2003). It traces five dimensions over time: students' *demographics* as cohorts move along the academic pipeline---in families' national origin, ethnicity, languages, education, and occupations; youth *identity pathways* to college, careers, and family roles; their *math and language academic pathways* through school; *challenges and resources across worlds* of families, peers, schools, and communities; and P-20 *cultural research partnerships*—like EPC—that boost resources youth draw from each world. Such partnerships advance research, practice, and policy as collaborations rather than by one-way "giving science away" to practitioners (Cooper, 2003; Cooper, Dominguez, & Rosas, 2005).

Research with this model has shown how families, peers, schools, and communities are both resources and challenges to Latino youth on their pathways to college. Researchers have also mapped a set of five *math pathways* based on graphing individual students' grades over time: *high*, when the student's grades stay relatively high; *declining; back on track*--when grades decline but then increase; *increasing;* and *persisting with low grades* (Cooper, et al., 2005; Cooper, Cooper, Azmitia, Chavira, & Gullatt, 2002). The EPC builds on this theory's multilevel, longitudinal approach to connect goals and measures of academic skills by using students' transcripts to guide them in getting "back on track" towards completing the required college-prep classes. Study 3 looks at one of EPC's long-term partnerships to examine how Latino students' resources across their cultural worlds matter for their math pathways from childhood to college.

EPC uses these three theories as complementary resources. All trace how aspirations, goals, identities, and self-efficacy of students, families, teachers, counselors, and EPC staff build college-bound communities. They also help connect goals over time across diverse cultural communities so EPC activities boost the same goal at multiple points along P-20 systems. Finally, they address EPC's institutional and cultural focus on Latino students' and families' building college knowledge from childhood through college to careers. *College knowledge* refers to the ever-changing body of information students and families need to navigate through P-20 systems, including college eligibility, college-prep classes, applications, entrance exams, and financial aid, as well as graduation, careers, and knowledge for undocumented families.

The work of EPC complements partnerships based on social and cultural capital theories (e.g., Gonzalez, Stoner, & Jovel, 2003; Oliva & Nora, 2004) to develop college knowledge and college-going cultures for school reform. By engaging Latino youth and families as assets and partners, EPC also addresses concerns that some applications of social capital theory emphasize

what Latino families lack more than what they offer for their children's success (e.g., Yosso, 2005). We now illustrate EPC's work with these three theories.

Study 1: Latino Family Involvement: Families Teaching Families

The EPC developed two related family involvement activities to build capacity among Latino families and their communities. Parent Academies engage a broad cross-section of parents and introduce them to college pathways, and Parent Leaders in Action trains parent leaders who took part in Parent Academies to make home visits that inform other parents about resources in their child's school and access to higher education. These activities build on Sociocultural and Bridging Multiple Worlds theories that view Latino families as resources to their children while they benefit from information and support in learning about the P-20 system.

Method

Participants—Seven Latino parent leaders from three middle schools served by EPC were selected to conduct two home visits (in Spanish or English) with other Latino families from the same school their own children attended. Each parent leader had a caseload of 10 families to visit; 65 families completed the visits. Parent leaders conducted the visits as peers to inform families. The first focused on resources available in their children's middle school and how to support their children's education at home and school, and the second on providing early college knowledge about pathways to higher education, financial aid, and admissions requirements.

Measures—This study used a mixed-method approach with both qualitative and quantitative measures. First, debriefing sessions with the seven parent leaders, tape recorded and transcribed, gave them opportunities to give personal *testimonios* about four questions: what they liked most about the program, what they disliked most, what they learned, and what they would like to see in the future. Grounded theory content analysis (Strauss & Corbin, 1990) was used to identify themes in parent leaders' responses. Second, bilingual surveys were obtained from 23 of the 65 families who received home visits (the survey was given at an end-of-year celebration that 23 families attended). Questions included Likert-scale items to measure parents' expectations for their children and their perceptions of the usefulness of the home visits.

Results and Discussion

Analyses of parent leaders' testimonies revealed common themes. Parent leaders learned these home visits were necessary because many parents were not aware of what was happening in their child's school. Parent leaders appreciated that most families were interested and asked a lot of questions. Although parent leaders felt they needed more time to carry out their roles, they wanted to see this program continue and asked to learn additional information and strategies. Their suggestions included recruiting other schools to strengthen the program, scheduling visits in coordination with the agricultural calendar to enhance access for parents picking crops in the fields, and using radio and television to promote the program and college awareness.

On surveys given to parents participating in the home visits, 91% held expectations for their children to attend college, ranging from "some college" to a "4-year degree or higher". When asked whether they thought their child would be able to afford to attend a 4-year institution, parents' responses ranged from "definitely" to "probably no," with most (57%) answering "probably." Almost all (96%) felt the home visits had been "definitely helpful" or "probably helpful."

This study points to the key role of families teaching other families, which builds on long-standing cultural practices of immigrant adaptation that appear equally relevant for contemporary families. As one parent leader commented:

> [*Los padres] se sintieron importantes, que sus hijos si valían la pena, valían una visita, valían que alguien pensara en ellos y yo tuve buenas experiencias con todos mis padres*, [The parents] felt important, that their kids were worth it, that they were worth a visit, that they were worth somebody thinking of them, and I had good experiences with all my parents.

Parents' suggestions are being used to refine future program activities. These two parent programs are making strides toward actualizing the mission of EPC to build college-going communities among families, students, schools, and other community members.

Study 2: The Effect of Research Involvement on Students' Science Self-Efficacy

Self-Efficacy Theory plays a central role in EPC research on the effects of activities in the California Summer School for Mathematics and Science (COSMOS). This university-school partnership is designed to strengthen high school students' interests and motivation in science and mathematics. COSMOS is a four-week residential program for talented math and science high school students from across California. Students participate in activities led by UC faculty, post-doctoral fellows, and graduate students, as well as high school science teachers. University students support students' experiences as residential advisors.

Chemers's (2006) research is funded by an initiative of the National Institutes of Health to examine how elements of science support programs across the P-20 education pipeline encourage students to enter biomedical research fields. It tested the prediction that science support programs build research skills and continuing commitment to science in part by increasing students' research self-efficacy.

Method

Participants—Of 300 COSMOS participants in 2006 and 2007, 292 parents gave permission for their student to participate in the study. Students' ages averaged 15.8 years, with most entering either 11th (40.6%) or 12th grade (33.8%) the following fall; 164 of the students (56.2%) were female. Students came from diverse ethnic backgrounds, including Asian American (38.0%), White (34.2%), and under-represented minority groups (27.0%), including 49 Latino, 9 Black, 2 Native American, and 19 who identified with more than one URM group.

Measures—Students completed surveys at the beginning and end of their four-week residential experience. These included Likert-type items about program activities such as research and mentoring, commitment to a science career, and two factors predicted to mediate program effects on such commitment: science self-efficacy and identity as a science student. Measures had high internal consistency, with alpha coefficients averaging .88.

Results and Discussion

Post-program scores on research self-efficacy were significantly higher than pre-program scores, with URM students showing the largest gains (interaction $F(2,272) = 4.00$, $p = .02$). At pre-test, URM students reported research self-efficacy of 3.15 on a 5-point scale, rising to 3.64 after the four-week program. White students' scores were 3.58 at pre-test and 3.83 at post-test. Asian students' scores resembled those of White students at 3.45 and 3.78 at pre- and post-test.

Thus the COSMOS experience appeared to contribute to closing initial gaps in these students' research self-efficacy. Self-efficacy has been shown in this and other research to be related to enhanced commitment to a science career. An important next step in this research will be to assess effects of the program on high school teachers. Their involvement in COSMOS is predicted to increase their self-efficacy in science and mathematics teaching as well as their classroom teaching.

Study 3: Resources along Math Pathways to College of Latino Youth

Studies in central California of Mexican immigrant parents' aspirations for their child's future show that most work in modest occupations like picking strawberries and cleaning hotels, but they hold aspirations for their children to have careers as doctors, lawyers, and other professionals (Cooper, et al., 2005). The EPC has a long-term partnership with the Cabrillo Advancement Program (CAP), which serves low-income, primarily Mexican immigrant youth and families. This partnership examines how the multiple worlds of these youth can be both challenges and resources on their math pathways to college and careers (Cooper, et al., 2005).

Methods

Participants—The CAP program awards scholarships and supports youth from low-income families to stay on track to their aspirations for college and careers. The partnership collected long-term data from over 150 students, primarily children of Mexican immigrants, from their entering the program at age 11 through age 18 years.

Measures—Surveys given at the CAP program's annual Summer Institute, written in English and Spanish, tapped demographics, educational and career identities, and resources and challenges across worlds by asking "who helps you" and "who causes you difficulties" in schoolwork, math, staying on track to college, and other topics. Question formats were both closed- and open-ended. Students' school transcripts were coded for their math pathways

Results and Discussion

On average, CAP students reported that their parents (especially mothers) remained their most important resources to staying on track to college, not in spite of their parents' modest education but because of it. One student wrote, "My mom loved to go to school, but had to quit school to start working at the age of 12 … She tells me I need to seize the time that I have to go to college and not drop out of school." Peers were increasingly named as resources (one program goal is building peer college-going networks); peers and siblings caused the most difficulties.

Math pathways analyzed for 106 students revealed that passing Algebra by 9th grade--attained by 38% of the CAP students compared to 30.4% of 9th grade students from the local high school--predicted attending four-year universities. These findings suggest early help in math is crucial for pathways to college. A follow-up study of young adult program alumni is underway to probe early findings that they maintain idealistic career dreams, such as becoming a doctor, while working with their current skills and credentials, such as in a job as a medical assistant.

General Discussion

This paper has described P-20 work focused primarily in the Latino community of central California to illuminate the nature and potential of P-20 collaboration for Latino/a student achievement and college pathways. The evidence presented indicates effectiveness of a P-20 approach that develops a flexible web of governance structures focused on common goals,

innovates with cycles of data-driven decision-making, and uses complementary social science theories to design, evaluate, and improve partnerships' interventions along the P-20 pipeline.

This approach complements other perspectives on P-20 collaboration. For example, P-20 leaders across the 10 campuses of the University of California are aligning their work to build synergy across the state while addressing regional goals. Drawing from Oakes' (2003) proposed seven conditions that support equity and diversity in college-going, a survey of these P-20 leaders found that all targeted more than one of these conditions and more than one segment of the P-20 system (Cooper & Mehan, 2006). As shown in Table 1, almost all campuses offered students academic and social support to stay in middle and high school, and many offered activities to support multicultural college-going identities as students navigate through school. Most provided professional development among middle and high school teachers, and two targeted family-neighborhood-school connections of preschoolers moving to elementary school.

These multi-site collaborations now bridge across the social sciences as well as regions, evolving from accountability to connecting levers of change with outcomes. They are showing potential for coordinated scaling up across regional, state, and national settings and turning visions of equal educational access into reality. Moving beyond reporting demographics and outcomes, the next generation of research is aligning and comparing levers of change within and across programs, partnerships, and regions. Of course, such work needs greater public and private investments of time and resources. State and national adoption of P-20 longitudinal student database systems and growing commitment to mapping success factors of P-20 work are advancing research, practice, and policies to benefit Chicano/Latino youth and families.

Acknowledgments

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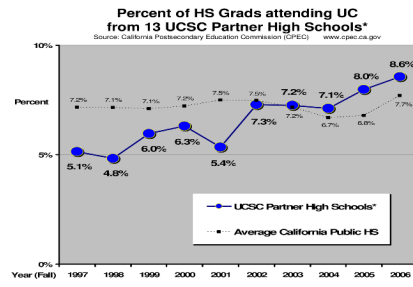
Figure 1.
UC attendance rates: UCSC partner schools compared to California public schools.

Table 1

Number of University of California Campuses (of 10) Reporting Activity

Seven Conditions for Equity and Diversity in College Access (Oakes, 2003)	Pre-K	K-5	6–8	High School	Community College and University	Graduate/Professional Schools
Safe and adequate school facilities	1	1	3	3	1	1
College-going school culture	3	4	8	9	6	3
Rigorous academic curriculum	3	5	9	8	4	2
Qualified teachers	3	7	9	8	5	4
Intensive academic and social supports	1	3	9	8	5	
Opportunities for multicultural college-going identity	1	4	9	8	4	3
Family-neighborhood-school connections	3	6	9	9	5	

NOTE: P-20 leaders at the 10 University of California campuses aligned their activities across the P-20 continuum in terms of seven conditions that facilitate equity in access to college (Oakes, 2003).