Bridging High School, College, and Industry:
A Case Study and Lessons for the Field

CLP | Career Ladders Project   SAP

Acknowledgments

SKYLINE HIGH SCHOOL

BERKELEY CITY COLLEGE
1974

INTRODUCTION

For Makhel and Makhi Burroughs, twins enrolled in the Computer Science & Technology (CS&T) Academy at Oakland's Skyline High School, college was not a distant possibility; it was part of their weekly class schedule. They first set foot on the campus of Berkeley City College (BCC) during an industry sector-based field trip, when they toured the multimedia arts programs and saw students present their projects. "The experience showed us what we could do later on," said Makhel. In their junior year, with a firm grounding in basic computer science principles gained from their first CS&T classes, they enrolled in 3D animation courses both at the high school and—through dual enrollment—at BCC. The college class "was different from high school in the sense that our animation had to meet certain criteria," Makhel explained. "We helped other [high school] students learn, since only a few of us took the BCC class." As high school graduation approached, they got help from their CS&T instructor to enroll as full-time students in BCC and to choose a visual design class, the next in the multimedia arts sequence. Now, Makhi envisions transferring to a four-year university program in animation and game design, while Makhel plans to pursue a four-year business degree.

Behind the scenes of Makhel's and Makhi's successful transitions from high school to college, a team was at work that was building on the strong foundation of Skyline High's CS&T Academy (founded in 1998 by its current lead teacher) and the Oakland Unified School District's (OUSD's) investment in career academies. Individuals from the high school, BCC, and SAP—a leading global software company with a regional presence—came together as a Community of Practice to strengthen a pathway into careers that depend on technology. They identified gaps that cause many young people—particularly youth of color and from low-income families—to lose momentum, and they zeroed in on strategies to help students (1) earn early college credit, (2) explore careers, gain professional experience, and build a network of connections, and (3) receive integrated academic support and navigation assistance related to their degree and career goals. Their hope was to see more students, particularly students historically undersupported in higher education, enroll in and complete college and possibly enter the tech sector.

Partnerships among secondary and postsecondary educational institutions and employers that aim to prepare students of diverse backgrounds for college and careers have proven benefits. Evaluations of the California Partnership Academies conducted between 1984 and 2002 show early college students attended high school more regularly, earned more course credits and higher grades,and graduated at higher rates than students not in academies.[1] About a third of early college students earn a credential before they finish high school.[2] Evaluations of California's Linked Learning initiative demonstrate especially strong outcomes among African American, Latino, and English-language learner students in robust pathway programs.[3]

This case study prepared by the Career Ladders Project (CLP), the partnership's capacity-building intermediary, documents successes achieved by the Community of Practice and lessons of potential value to other education and industry partners working to strengthen K–16 career pathways. It draws upon interviews conducted with the Skyline Academy's founder, current teachers, and pathways coach; BCC faculty and administrators; SAP's head of Corporate Social Responsibility for North America; and students. The partners hope that these lessons may contribute to a growing body of knowledge about how partnerships such as this one can support more equitable student access to and success in college and careers.

SAP Early College Initiatives are unique partnerships in cities across North America among high schools, postsecondary institutions, local SAP offices, community-based organizations, and other key stakeholders who collaborate on education programs to prepare the next generation of Science, Technology, Engineering, and Math (STEM) professionals.

Skyline High School CS&T Pathway | 2017-2018 School Year

278 total students enrolled

77% students classified as low income*

150 students received early college credit

3 teachers involved

21 SAP employee mentors

175 SAP volunteer hours

*Based on student eligibility for the free/reduced price meals program.

Evolution of a Career Academy: Building on Strong Foundations

1998 Mark Frey launches Skyline High School's Computer Academy

2003 Skyline receives California Partnership Academy (CPA) grant for the CS&T Academy

2012 Skyline selected as a California Community Colleges Linked Learning Initiative (CCCLLI) site

2013 Oakland Unified School District (OUSD) adopts Linked Learning universal pathways, building on the success of academies like CS&T

2014 OUSD selected as a California Career Pathways Trust (CCPT) site, building on prior pathway activities

2015 Skyline CS&T Academy selected as an SAP site and community of practice established
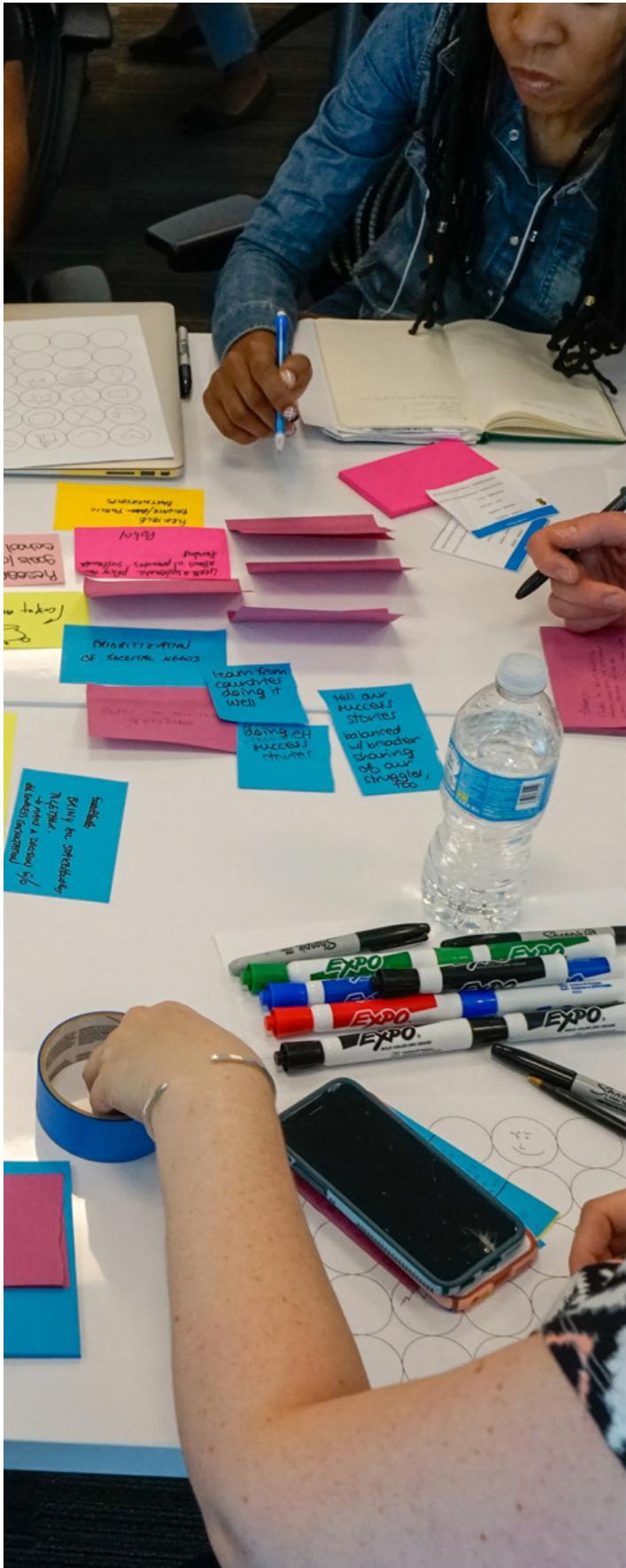
INSTRUCTIONAL PATHWAYS TO EARLY COLLEGE CREDIT

Goal: CS&T Academy students obtain college credit and certificates prior to graduation.

Strategies: When Skyline and BCC set the goal to make early college credit more accessible to CS&T students, they recognized the inherent challenge in the physical distance between their two campuses that separated them by at least an hour on bus, train, and foot. They needed to look not only at course availability and sequencing but also at the very practical realities of scheduling and transportation that students would face. They adopted a three-pronged strategy to create an instructional pathway that included the following components: (1) articulation of high school career education (CE) courses with the option of college credit by exam; (2) identification of afterschool, summer, and online BCC courses that could be taken by high school students (i.e., dual enrollment); and (3) continued offering of Advanced Placement (AP) courses and exams, a high score on which could earn students postsecondary credit.

Accomplishments: Skyline worked closely with BCC to establish high school articulation agreements for its three media arts courses and to design a pathway sequence of six core courses so that students can obtain a college certificate of achievement prior to high school graduation. Skyline CS&T teachers now teach courses that meet the college course outcomes and allow students to earn college credit via exam. Partial SAP grant funds were used to establish a second computer lab at Skyline so that college-level computer classes can use current technology. Students learn from their high school teachers and from BCC faculty and staff about the CS&T classes that are offered on the college campus at convenient times, and BCC staff assist them with online enrollment. Although there is more work to be done to share and analyze longitudinal student data, teachers say that Skyline graduates are continuing their studies at BCC.

> *"Half the time, with the students in high school, it was that 'Nobody looks like me. How do I know I'd be good at it?'"*
>
> *– Mary Clarke-Miller, BCC faculty*

Lessons Learned:

Design pathways to inspire historically underserved students to give college a try. The CS&T Academy offered both computer science and multimedia arts tracks and numerous hands-on experiences so that students could experiment and explore their interests. The courses provided opportunities for every student to experience success and overcome fears of entering a field where they may lack role models.

Help students understand how classes can stack toward degrees and advance them toward career goals. After defining the six-course sequence that Skyline students could use to attain a certificate of achievement, high school and college teachers and counselors realized they needed to communicate the benefits of early college credit and credentials. High school instructors encouraged students to take classes on the college campus, where they could be among older students, and BCC representatives visited the high school to talk about college and help with enrollment. Partners are now considering ways to reach middle school students with career pathway information.

Focus on college classes that can be offered at the high school through articulation agreements, then tackle any barriers one by one. When Skyline and BCC decided on the ideal classes for articulation, they ran up against structural barriers and financial disincentives. Nevertheless, they found teachers who could teach the rigorous courses that meet college course outcomes, and with resources provided by the SAP grant, members of the Community of Practice worked through bureaucratic barriers to achieve articulation and credit by exam.

Don't give up on getting high school students to classes held on the college campus. Skyline teachers learned that their class schedules didn't sync up easily with the college's class schedules, transportation was a challenge, and navigating the college was daunting for the students. But the Skyline and BCC instructors identified courses that met at convenient times, and high school teachers accompanied students to their first classes, received informal progress reports from college instructors about how things were going, and continued to let students know how valuable the college experience would be.

> *"Now we are making sure we're offering other [BCC] courses to complete the ... certificate at times so the students can actually take them."*
>
> *– Francisco Gamez, BCC dean*

CAREER EXPLORATION AND WORK EXPERIENCE

Goal: CS&T Academy students engage in meaningful ways with companies and company employees in careers related to their personal interests and goals.

Strategies: The CS&T Academy had been building employer partnerships since 1998, arranging career exploration visits and providing rising seniors with 6-week summer internships. In partnership with SAP, Skyline expanded these activities and added a research-based model of hybrid mentoring designed by iCouldBe. SAP employee volunteers delivered three in-person iCouldBe modules at the high school over the 10-week program. In addition to articulating a series of CS&T courses, BCC and Skyline articulated a co-operative education course that awards college credit for designated summer internships.

Accomplishments: The SAP partnership helped bring careers in technology alive for Academy students, who visited SAP offices as well as the SAP Super Bowl 50 Fan Energy Zone display of digital technologies. Through the iCouldBe mentoring project, SAP volunteers interacted with students around goal setting, life skills, and current class projects. Skyline and BCC instructors participated in an SAP conference and training opportunities. In the summer of 2018 for the first time up to 10 academy students will be offered paid internships in SAP offices through the SAP Tech Summer Program. SAP's Corporate Social Responsibility division has now partnered with its Early Talent Teams to more formally build bridges from Early College initiatives to real opportunities within the company.

Using a structured curriculum that is embedded in weekly classroom lessons, **iCouldBe** blends classroom instruction and in-person mentoring with a focus on postsecondary education and career exploration and planning. **iCouldBe** has been used by more than 19,000 students since 2000 and was adapted in partnership with SAP to foster the core competencies in demand in the CS&T sector.

"[SAP] put in time and effort and expertise and consulted with [teachers] so that when students went to SAP for a field trip, it really felt like a day working at SAP."

– Flint Christensen, Skyline CS&T teacher

Lessons Learned:

Be thoughtful and intentional about how the company interacts with students. By joining the Community of Practice, SAP representatives developed personal relationships of trust with high school and college partners, which facilitated joint planning for SAP's participation in the Academy. When it came time for worksite visits, the SAP team consulted with teachers so that students' experiences related to classroom instruction and felt like a true "day in the life" of an SAP employee.

Plan a volunteer schedule that is feasible and strategic. SAP employees' time was limited, but careful planning and scheduling made it impactful. The iCouldBe mentoring curriculum balanced virtual and in-person activities, and students looked forward to three employee visits over a 10-week period. Volunteer time in the classroom was structured with care so that mentoring activities were engaging and interactions with the students were focused on their classroom work and future planning.

Learn from each other about career exploration practices that work. SAP had wanted to offer internships to high school students for some time but confronted several legal and logistical questions. With the pilot this summer of the Tech Summer Program with three high schools (including Skyline), SAP expects to learn from the schools' experiences about how to structure effective learning opportunities for young students.

Explore opportunities for industry to partner with the community college as well as the high school. BCC instructors who participated in collaborative meetings with Skyline and SAP recognized ways in which college students, too, could benefit from more career exploration and work experience. A future direction for the partnership could be an extension of the work-based learning continuum beyond high school graduation and into community college.

"We're lucky that all three of [SAP's] U.S. schools already do internships for high school kids, so we lean on them heavily for tactical implementation."

– Katie Morgan, SAP head of Corporate Social Responsibility

INTEGRATED STUDENT SUPPORTS

Goal: CS&T Academy students receive college transition support and career guidance that complements their classroom instruction and work-based learning.

Strategies: Skyline High's CE teachers typically provide students with some career advising and college application assistance, but their teaching commitments make it difficult for them to offer the support needed by students contemplating college and beyond. Skyline, BCC, and SAP prioritized the integration of support services and college enrollment guidance as a strategy to help students see the pathway among their high school CE classes, early college credit opportunities, career exploration, and postsecondary options.

Accomplishments: Skyline High and BCC have improved and coordinated student services as they work toward their goal of creating a dedicated position to support the transition from high school to college. Two BCC staff members and two student ambassadors visited the Skyline campus to help students use the online CCC Apply system to request articulation credit via the Career and Technology Education Management Application (CATEMA), complete forms to ensure eligibility for dual enrollment credits, and apply for college following graduation. Students also participated in field trips to the BCC campus, where they participated in animation and game design workshops, alumni panels, and campus tours to learn about certificate and degree offerings, the enrollment process, and campus services such as financial aid, counseling, and campus life. The pathway coach at the high school helped to facilitate the Skyline-BCC partnership and the coordination of pathway student transitions.

Lessons Learned:

Start by mapping available student services to identify gaps and plan for a smoother transition from high school to community college. With the support of SAP resources for regular partnership meetings, Skyline and BCC began to share their experiences about where there was alignment in student services and where there was potential to do better. SAP maintained a back-seat role as the high school and college identified ways to improve the transition experience.

Establish a point person at the high school for community college faculty. College instructors were willing to keep in touch about the needs of dual enrollment students, attendance patterns, and so on, but they had to know whom to reach out to. Skyline asked each student to sign a Family Education Rights and Privacy Act (FERPA) waiver to allow faculty to talk with high school counselors about students' situations and support needs.

Engage current college students as volunteers in transition assistance at the high school. Given limited staff capacity, and since no one is closer to the transition experience than a student who recently accomplished it, BCC invited college student volunteers to visit the high school and to share their wisdom about choosing the right college, picking classes, and navigating the enrollment process.

Work toward the goal of having a dedicated community college counselor supporting high school students. BCC did not have the resources for a fully dedicated counselor position, but it was able to send a paraprofessional to Skyline to assist with the college application process. BCC created simple checklists and streamlined procedures to smooth the transition for entering high school grads. In the future, the envisioned transition specialist position—housed at the college—will help students understand how their credits and courses accrue toward a credential, and what next steps they should consider following graduation.

> *"I worked with the high school partners, hearing what their experience was, where the ball was dropped, where there were areas [BCC] could align, finding out from their perspective what they're doing on the high school side."*
>
> *– Francisco Gamez, BCC dean*

STRONG, STUDENT-CENTERED PARTNERSHIPS

Goal: Establish a Community of Practice among high school, postsecondary, and industry partners committed to expanding college and career opportunities for Skyline's CS&T Academy students.

Strategies: With SAP's funding support and CLP's capacity-building assistance, leaders from Skyline, BCC, and SAP established regular meetings and communications structures for their common pathway work. They included both teachers and administrators in the Community of Practice—and paid teachers for their time—so that diverse voices and areas of expertise could contribute to concrete problem-solving.

Accomplishments: The Community of Practice built trusting relationships that sustained ties among the partners, even when staff transitions occurred. Working toward common goals of early college credit, professional experience, and integrated support, they let solutions emerge organically over time, all the while keeping their students' needs at the center.

> *"The key is to provide the resources and the structure for the relationships to build."*
>
> *– Mark Frey, Skyline CS&T teacher and founder*

> *"SAP was willing to let it grow organically. If they'd had more strings attached, it might not have really worked."*
>
> *– Mark Frey, Skyline CS&T teacher and founder*

LESSONS FOR EDUCATION PARTNERS

Focus the Community of Practice on a specific pathway and discipline while enabling students to continue exploring a range of possible interests. Skyline and BCC looked hard at computer science and digital media course offerings, "went deep," and found opportunities for alignment and articulation. They designed a sector-specific program that opens doors for students to explore a broad range of pathway options.

Realize that a pathway is more than its course curriculum. Seamless pathways that span two campuses overcome logistical challenges, including scheduling and transportation. Skyline and BCC kept students at the center of their work to troubleshoot and streamline as the pathway evolved.

Use student outcome data to inform the collaboration. Skyline and BCC continue to explore ways that partners can track and share data, including postgraduation outcomes.

LESSONS FOR INDUSTRY PARTNERS

Build on a strong foundation. Skyline's CS&T Academy had a nearly 20-year history, demonstrated strong teacher leadership, and was rooted in evidence-based educational practices.

Connect to schools on many levels. SAP got to know school leadership as well as instructors, counselors, and pathway coordinators, who were key to the project's success.

Let the K–16 pathway grow organically in its uniquely local way. SAP helped to create a common meeting space and participated as an advisor, but ultimately the schools were responsible for their success. Flexibility was key to building what could in the future become a talent pipeline for industry.

Focus on ways the company can affect change. SAP determined that they could make a difference by building their employees' engagement and ownership, so they focused their energies on this.

LESSONS FOR INTERMEDIARY PARTNERS

Deliver capacity-building and policy-related expertise. While Skyline, BCC, and SAP delivered the work on the ground, CLP played a central role in sharing effective practices, identifying issues with broader implications for the field, and supporting the partners' collaboration.

Keep the Community of Practice focused on results. Members of the Community of Practice appreciated CLP's role in keeping them on target and for focusing on metrics and measurable outcomes.

CONCLUSION

This case study documents lessons learned from the partnership between the CS&T Academy, BCC, and SAP about opening doors to early college credit, career exploration, and integrated student supports, especially for students less likely to pursue postsecondary education on their own. It also highlights keys to the success of a Community of Practice among partners with critical and complementary roles.

Many of the lessons learned by the partners in this collaboration have broad relevance to educational reform leaders, particularly those working toward integration and alignment across secondary and postsecondary segments and those engaged in the current statewide movement toward Guided Pathways (see sidebar). The cross-functional Community of Practice unified the efforts of a high school, a community college, and an industry partner around big goals and sparked the group's creativity for the benefit of students like Makhel and Makhi, who now experience high school, college, and career as a more cohesive pathway and in ways that inspire their own creative embrace of future opportunities.

Skyline High, BCC, and SAP continue to identify future directions for their work. They may extend the reach of the CS&T Academy into the middle school grades; expand pathway offerings into pre-transfer English, math, and social studies; or inform expansion of the approach in other disciplines. The robust Community of Practice and relationships of trust that have been established by these three partners pave the way for even deeper alignment and integration and for many more students to realize the benefits of this highly collaborative approach to building coherent, integrated college and career pathways.

Guided Pathways reform is a student-centered, highly-structured approach to increasing the number of students earning community college credentials while closing equity gaps. Guided Pathways entail institution-wide transformation of all aspects of the student experience; rather than work with a subset of students, colleges undertake Guided Pathways to transform the experiences of all. Students are provided clear curricular pathways to reach their educational and career goals, receive proactive and integrated support services to help them choose and stay on their path; and experience engaging, effective instruction as well as applied learning experiences.

ENDNOTES

[1] Stern, D., Dayton, C., and Raby, M. (2010). Career Academies: A Proven Strategy to Prepare High School Students for College and Career. College and Career Academy Support Network. Retrieved from https://casn.berkeley.edu/ccasn-library/research-and-evaluation/

[2] See http://www.jff.org/initiatives/early-college-designs.

[3] See Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Patel, D., … Adelman, N. (2016). Taking Stock of the California Linked Learning District Initiative: Seventh-Year Evaluation Report. Menlo Park, CA; SRI International. Retrieved from https://www.sri.com/work/publications/taking-stock-california-linked-learning-district-initiative-seventh-year

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