K-12 Work Based Learning in Hawaii

an exploration of challenges and opportunities

I. INTRODUCTION

A central challenge of K-12 education has been answering the persistent student question, "Why do I need to know this?" In recent years, "work-based learning" has gained traction as a valued response. By combining rigorous academic content and classroom instruction with real-world, experiential learning (e.g., work-based projects, work-site internships), work-based learning offers students relevant applications of academic material, and builds skills valuable to employers and society.

The purpose of this study was to identify opportunities for expanding work-based learning to more K-12 students in Hawaii. Specifically, we sought to identify the critical success factors for work-based learning in the islands; how local work-based learning efforts might define desired outcomes and track results; and, ways that work-based learning might expand beyond the pockets of excellence that currently exist. The research was commissioned by the Harold K.L. Castle Foundation to inform its own decisions, but the Foundation also hoped that the information might be useful to others with an interest in K-12 work-based learning.

A. Methods

Following a review of the literature on K-12 work-based learning, we conducted interviews with key informants involved in local work-based learning efforts and national experts familiar with the work in Hawaii. Initially, we focused on 45 key informants who were directly engaged with K-12 work-based learning efforts. During the course of the study, however, it became clear that many involved in the field (including the Foundation itself) saw potential in efforts to align resources in workforce development, economic development, and higher education with work-based learning in K-12 education. In order to explore this potential, the list of interviews was expanded to 70 and included interviewees in each of the following categories:

- Students and alumni with work-based learning experience
- Teachers, counselors, and school administrators
- DOE state and district leaders
- Higher education officials
- Government workforce development agencies
- Employers and industry Groups
- Community-based work-based learning programs

B. Definitions

Hawaii uses a wide variety of approaches to work-based learning for K-12 students. In order to examine the full range of local practices and possibilities, we adopted a somewhat broader definition of "work-based learning" than often found in the literature. For our purposes, the term covers *experiential learning connected to real-world work*, including: internships at work-sites; apprenticeships and pre-apprenticeships, school curriculum developed with industry input and/or delivered with industry involvement; school-based projects with companies as clients or customers; and, entrepreneurial projects that expose students to real customers, investors, or business operations. We include both for-profit and non-profit entities when we refer to "work-sites," "employers," "businesses," and "industry."

C. Caveats

There are three limitations to this research which should inform any reading of this report:

1. The landscape of work-based learning was changing as we studied it. During our research, the Trump Administration announced a new policy on apprenticeships, state and local agencies were developing new plans under the Workforce Innovation & Opportunity Act, and the K-12 system was awaiting a new Superintendent. This report reflects conditions during the period from May 1 to July 15, 2017
2. Exploring potential alignments between the fields of K-12 education, workforce development, economic development, and private industry placed us in a sprawling landscape of inquiry. We are confident we gathered enough perspectives to understand the challenges and opportunities in aligning systems, but we are equally sure we did not capture the full range of views and ideas.
3. Similarly, it was not possible to capture every promising practice in local, K-12 work-based learning. Our examples of success are therefore intended to be illustrative and instructive rather than a definitive inventory or ranking of best practices.

II. THE WBL LANDSCAPE IN BRIEF

In order to understand local opportunities to expand work-based learning, it helps to have a working knowledge of the national context and local landscape.

A. Examples of Work-Based Learning

Across the country, work-based learning is garnering increased attention and investment. Efforts are typically launched at a school or local district level, and often with support of government funding or private grants. Many are launched in response to a crisis of poor graduation rates, dramatic achievement gaps, and other worrisome indicators.

Several examples of success have emerged over the past decade which illustrate some common features of work-based learning and the exciting results to date.

- **California's Linked Learning initiative** integrates rigorous academics with experiential learning opportunities to help California students experience relevant, engaging college and career opportunities. For Linked Learning students, education is organized around "career pathways," industry-sector themes woven into lessons taught by teachers who collaborate across subject areas with input from working professionals, and reinforced by work-based learning with real employers. In 2009, the James Irvine Foundation launched a 6-year initiative, funding 9 districts with high proportions of disadvantaged students and below-average student achievement to develop career pathways. Though each district implemented pathways differently, all adhered to 4 core elements: (1) rigorous academics that prepare students to take credit-bearing college-level courses; (2) technical training through a sequence of classes and integrated with academic content standards, and aligned with career opportunities in high-need, high-skill occupations; (3) a sequence of work-site learning experiences, providing opportunities to apply core academic content and technical training; and, (4) comprehensive support services, personalized for students, including both academic and socio-emotional supports. At the end of the 6-year

initiative, Linked Learning students were 5.3 percent more likely to graduate, 5.3 percent more likely to be college-ready in English Language Arts, and took more course credits than non-Linked Learning peers.[1] Effects were even larger for minority and underprivileged students. [2]

- **Academies of Nashville.** In 2005, the graduation rate in Metro Nashville Public Schools (MNPS) was just 62 percent – a crisis that prompted leaders to redesign high schools. Funded by a federal Small Learning Communities grant, large high schools were divided into smaller career-themed learning communities, or "academies," with each high school hosting multiple academies (e.g., an Automotive Technology & Design Academy, an Academy of Business & Finance, and an Academy of Hospitality & Marketing). Within each academy are career pathways – a more specialized sequence of courses, e.g., students in a Health Academy can choose a pathway in Emergency Services, Healthcare Administration, or Therapeutic Services. Students have the option of choosing a different high school if their zoned school does not have an academy matching their interests. The Nashville Area Chamber of Commerce coordinates industry meetings where employers help shape career pathways and offer complementary work-based learning experiences at each grade level: workplace field trips for every sophomore; full-day job shadowing for Juniors; internships or work-based projects for Seniors; summer externships for Teachers so that they can create classroom learning that mirrors real world experiences. Since the academy model was implemented, graduation rates have increased from 62 to 81.6 percent, and student scores on year-end exams and the ACT have improved as well.

- **Waipahu High School.** More than a decade ago, Waipahu High School was plagued by poor student attendance and high rates of suspensions and other disciplinary actions. It began experimenting with small learning communities and career academies in response. That work took a leap forward when Waipahu formalized a number of career academies – including ones in engineering, health, hospitality, and more – and then sought and obtained certification by the National Career Academy Coalition for its Health & Sciences and Natural Resources Academies. The academy structure ensures that a group of students and faculty stays together through the entire high school experience, forging relationships that are often described as a "second family." Partners ranging from Queens Hospital to Lawrence Livermore Labs help ensure that content is relevant and cutting-edge. Older students take the lead in promoting the academy to incoming students and their families, and inducting new 9th graders who choose their academy. Teachers report that their own level of engagement has soared, driven by new learning opportunities and strong teams that cross school-subject silos. Administrators report that the combination of work-based relevance, sense of community, and rigorous coursework – including early college courses now available for credit in high school – has been a powerful combination. Within the past 5 years, student suspensions have been cut in half, graduation rates increased from to 77 to 81 percent, and almost 1-in-3 Waipahu students now graduate with college credits, more than double the statewide average.[3]

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[1] Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Patel, D., McCracken, M., Harless, E., Park, C., Fahimuddin, L., & Adelman, N. (2016), Taking stock of the California Linked Learning District Initiative. Seventh-year evaluation report. Menlo Park, CA: SRI International.; Hoffman, Nancy (2015), Jobs for the Future, Let's Get Real: Deeper Learning and the Power of the Workplace. Jobs for the Future; National Academy Foundation (2016), Guide to Work-Based Learning: A Continuum of Activities and Experience; See also NCAC Certification Criteria.

[2] SRI International (2016), p.27-29.

[3] Waipahu High School interviews.

- **Kapa`a High School.** In 2010, one-third of Kapa`a High School's 9th graders were getting D's and F's, 12 percent were chronically absent, and 1 in 5 were being held back from the 10th grade. The data galvanized the school's new principal, Danny Hamada, and the entire school community to transform the high school. They began by creating "9th grade Huis," two smaller learning communities for freshmen that provide a foundational "Transition Skills to High School" course, with curriculum and assessments written and implemented by the teachers that focus on life skills. Each Hui of a little more than 100 students has its own instruction and student support team comprised of core subject teachers in English, math, social studies, science, physical education and special education, plus a counselor and a vice principal. In the 10th grade, students transition into one of two academies, with career pathways in Health Service, Arts & Communication, Public & Human Services, Engineering & Tech, and Business. The focus on small learning communities and increased relevance through career pathways has had a dramatic impact. Within one year of setting up the Huis, attendance was already up 4 points, students earning D's and F's dropped by more than half, and the retention rate, where one in five students (20 percent) weren't moving on to 10th grade was slashed to only 4 percent. Within 5 years, Math scores were up 12 points, English scores up 25 points, and graduation rates at 92 percent – one of the highest in the state. The relationships and relevance created by the new academy/pathway system made a big difference. According to Hamada, "Whatever you're trying to do, it has to make sense to the kids, to your customers. They have to understand why they're learning what they're learning, or they won't."[4]

- **Women in Tech** is a statewide Hawaii workforce initiative of the Maui Economic Development Board. It runs a set of programs that take work-based STEM education into schools, working with an impressive array of industry partners. It's STEMworks™ program is a multi-faceted, hands-on program in 27 schools across the state, where students get to use high-end technologies – from CAD and GIS to digital media, 3D printing and robotics – on actual projects for a company or community. STEMWorks also provides student internships to high school 40 students, and tech-related professional development for teachers. An offshoot of STEMWorks – STEMWorks AfterSchool – reaches middle school students through an analogous after school program. A recent evaluation of STEMWorks AfterSchool found that students reported improvements in their Math (72 percent), Science (68 percent), and Language Arts (54 percent) skills. Pre/post surveys also measured student-reported gains on 9 interpersonal skills, with the greatest gains in Listening, Teamwork, and Creativity.

B. Work-Based Learning & Workforce Development

In addition to the positive impacts for students (and underprivileged students in particular), work-based learning holds promise as a way to address economic and workforce challenges – another source of surging interest in the approach. Several state and local governments have established "sector-led" initiatives whereby industry plays the leading role in defining needs and goals, then actively works to align K-12, higher education, job training, and public sector programs to meet these industry objectives. Hawaii launched a sector-led partnership initiative in late 2016, and that work was ongoing as we concluded this study.

Though promising in concept, implementing a sector-led approach in ways that address both K-12

[4] Hawaii DOE Kapaa High School Strive High Report; Danny Hamada interview.

student needs and economic development goals is challenging, particularly in Hawaii. Different goals drive participation: policy makers aim to make an economy competitive and prepare people for living-wage jobs; employers need to address near-term hiring and skill gaps, living-wages or no; K-12 educators are interested in making academic content relevant and using work to help young people mature; higher education seeks to deliver marketable skills to students and boost enrollment.

In successful examples from other states, these different interests often fall into alignment around a large-scale need and opportunity offered by a single employer or industry, e.g., a manufacturer with a need for a large number of skilled workers in well-paying occupations. In Hawaii, with an economy dominated by smaller businesses, and large-scale hiring concentrated in lower-wage service and retail sectors, aligning the varied goals can be more challenging. Finding industry or occupational clusters that are at once attractive to students, offer living-wage jobs, and have employers willing and able to contribute substantially to work-based learning (e.g., shaping curriculum, offering internships) requires more care and effort in the islands than in some other local economies.

Given Hawaii's current economic structure, and its economic development goals (e.g., more living wage jobs; a more robust set of innovative companies) building entrepreneurial skills may be more important to K-12 work-based learning in Hawaii than elsewhere. These skills include: the ability to conceive a new product or service; to take a concept from idea to real-world implementation; and to persuade others to invest time or resources into one's ideas. As one interviewee put it, "In Hawaii, we can't just prepare students for the jobs that exist today. We need to prepare them to create the jobs we want to exist tomorrow."

Some of the local efforts are already working to link entrepreneurship to work-based learning. For example, Oceanit offers an Altino coding program for K-12 students and teachers, then offers internships that expose students to new product development and commercialization within the company. Similarly, Purple Mai`a teaches coding to middle and high school students through applied game development, then encourages students to compete for the Purple Prize, awarded to teams who combine tech skills with indigenous cultural practices to create new games, apps, or other innovations that, "rebuild, heal, or transform our relationships with the land and each other." Finally, some high schools are working to link capstone projects to entrepreneurship. Kaimuki High School, still in the process of developing its career academies, is considering senior capstone projects that challenge student to create a new public service or commercial product, instead of research projects which have been the norm in the past.

III. KEY FINDINGS

Through a review of the literature and interviews with key informants, we sought answers to three questions: How do we define and track success in work-based learning? What factors are critical to success? How can we expand successful work-based learning to more students in Hawaii. This section presents key findings in each area.

A. Defining and Measuring Success

It is tempting to reduce "success" in work-based learning to the cultivation of marketable technical skills and placement into a job aligned with a student's high school career pathway or work-based learning

experience. While this is one valuable outcome of work-based learning, both the literature and our interviews discouraged a narrow focus on job placement as success. Research finds that across the country, less than 40 percent of students in a K-12 career pathway go on to a job in their chosen pathway, and local interviews suggested the number may be 20 percent or less in Hawaii. Indeed, for many interviewees, including recent graduates of high school career academies, the ability to make an informed decision *not* to pursue a given career as a result of a high school work-based learning experience was viewed as a highly valuable outcome.

Instead of measuring proficiency in job-specific or technical content, local experience and the literature point toward using three types of outcomes to define success in K-12 work-based learning:

(1) Engagement with and mastery of core academic content

A recent research report from Jobs for the Future emphasizes that work-based learning is how "many young people become most engaged in learning high-level skills and content, insofar as work gives them opportunities to apply academic subject matter to real-world problems." Local interviews confirmed this, and emphasized that connections to real work, careers, and industries add a relevance to academics that was valuable for teachers and students alike.

Widely used measures of student engagement include attendance, graduation rates, and advanced course-taking, along with proficiency in Math, English, and Science. Since schools already collect data on these measures, it is possible to compare students engaged in work-based learning with those who are not and to make historical comparisons before and after work-based initiatives are launched.

(2) Interpersonal "soft skills," a.k.a. professional skills

In 2017, the Pew Research Center interviewed more than 1,400 technologists, CEOs, scholars, and practitioners, about the future of workplace training. It found that automation and artificial intelligence were making even technical jobs obsolete. Most interviewees, "concentrated on the need for "soft skills"…adaptability, empathy, persistence, problem-solving, conflict resolution, collaboration and people skills, and critical thinking." Pew adds that "[t]ough-to-teach intangibles such as emotional intelligence, curiosity, creativity, adaptability…will be most highly valued" in the workplace.[5] Local interviewees identified the same needs, with communication, professionalism, teamwork, and creative problem-solving mentioned frequently. A representative of Hawaii's private sector commented, "We hire for technical skill, but end up firing for soft skills" and, "soft skills is the biggest, common need identified by employers." Indeed, "soft skills" are so critical to employers that many have urged re-titling them as "professional skills." Alumni, asked about the most valuable aspect of their work-based learning experience, commonly cited "teamwork" and "professionalism." One alumnus of Waianae High School's Searider Productions program, now in college and also employed in the field, said of Searider: "This is where I learned what it means to be a professional. This is a workplace, not a classroom."

Measuring soft skills can be challenging, but there are several tools to build upon. The Forum for Youth Investment examined 10 examples of efforts to measure "soft skills" outcomes.[6] Measures

[5] N: Lee Rainie and Janna Anderson. "The Future of Jobs and Jobs Training." Pew Research Center, May 2017. <http://www.pewinternet.org/2017/05/03/theFutureofJobsandJobs Training/>

[6] Forum for Youth Investment, "From Soft Skills to Hard Data: Measuring Youth Program Outcomes," Jan 2014. <http://forumfyi.org/files/soft_skills_hard_data_0.pdf>

and data are reviewed in four areas: communication, relationships and collaboration, critical thinking and decisions, initiative and self-direction. Another notable example in K-12 education is a rubric developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL) which tracks improvements in self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.[7] Though developed as a way to measure outcomes of social-emotional learning (SEL) in middle and high schools, there is considerable overlap between these skill domains and the "soft skills"/professional skills required by employers. We touch on the potential for alignment between SEL and professional skill development in our recommendations.

(3) Post-secondary satisfaction among alumni with the K-12 preparation they received
It is one thing to assess engagement and competencies upon graduation, but the 'gold standard' of evaluation would be the satisfaction of graduates of work-based learning programs, following some time in the real world. Rather than gauging preparation for a job, though, an alumni survey might focus on whether the soft skills, adaptive learning, and core academic preparation of K-12 education served them well in work and life. Data collection might also ask specifically about whether work-based learning experiences helped them develop the skill of planning ahead and making informed life decisions. Alumni we interviewed were grateful for the opportunity to practice thinking ahead and making a consequential choice – e.g., having to pick an academy or career pathway was viewed as a valuable experience. They also appreciated the guidance of faculty and counselors who stayed with them through the academy experience and could help them explore new options or switch academies if necessary.

It bears repeating that the measure of success in K-12 work-based learning differs from the outcomes important in workforce development, economic policy, and even from work-based learning in higher education. In K-12 education, the benefits of work-based learning lie less in its ability to confer technical skills for immediate job placement, and more in the use of relevant, highly-engaging, work-related experiences to develop maturity and transferrable skills, along with academic competence.

B. Critical Success Factors

We approached the question, "What factors are critical to success?" from three vantage points: the view of students and alumni, from a school perspective, and from the vantage of those looking to spread work-based learning to a region or a school system. In identifying factors, we looked for convergence between interviews and the literature. Of course, inclusion of a success factor under "school success" does not mean that it is unimportant to "students" or "systems." Each of these factors is critical to success as defined in the prior section. We categorize the elements this way only to show who placed notable emphasis upon each element.

1. Student Success Factors

- ***Student choice*** – Many student interviewees pointed to picking an academy in 9th grade (or some as early as 8th grade) as an important learning experience. The decision forced them to look ahead to their future and make a consequential decision, with guidance from older students, teachers and counselors. The choice invested them in their own education, and gave them practice at making weighty decisions in an environment that provided support and flexibility. Faculty and school

[7] 2015 CASEL Guide for Effective Social and Emotional Learning Programs, Middle and High School Edition.

leaders also stated that a well-supported transition into an academy was crucial, such as the 9th grade Huis of Kapaa.

- ***Sense of purposeful community*** – Career-themed, small learning communities, where a group of students and faculty stay together across multiple years was critically valuable. Student interviewees spoke to a sense of pride, identity and "second family" as one of the most valued parts of their experience, and sensed that teachers and counselors were "invested in us as people." Teachers and Counselors echoed this, noting that collaborating with cross-subject teams that stayed with students throughout high school gave them intimate knowledge of students that made them more effective. Small learning communities, by themselves, didn't always produce this outcome – the addition of a career-themed focus made a substantive difference.
- ***Student voice and ownership*** –Closely related to the sense of shared identity, was the importance of mechanisms to give students voice and responsibility. Having a vehicle like the Student Board of Directors (SBOD) for an academy gave students important roles in shaping the academy's offerings, such as marketing the academy to incoming students, inducting freshmen recruits, and celebrating milestones. Students we spoke to felt empowered and encouraged to shape the work-based learning program in their school, through formal means such as the SBOD, or informally in conversation with faculty and administrators.
- ***Real world connections*** – Exposure to exciting applications of academic content – stem cell research, climate science, veterinary medicine, agricultural entrepreneurship – were mentioned with enthusiasm. Visits to NOAA, interactions at career fairs, work in a student-run, on-campus credit union (like the ones sponsored by Hawaii USA and Kauai Credit Unions) – these were the kinds of experiences highlighted by students and faculty. Students also noted that interacting with "passionate" adults from the real-world of work was an essential and eye-opening experience that could catalyze their own career interest.
- ***Soft skills*** – Students pointed to important skills they acquired through work-based learning, including professionalism, teamwork, and communication. Alumni and faculty also identified these "soft skills" as valuable outcomes of work-based learning experience. This extended beyond a work-site experience like an internship, and came from experiences like groups of Searider students collaborating on a video production for a business client; and Waipahu students planning the induction event for new Health & Science academy recruits.

2. School Success Factors

- ***Faculty choice, voice, and ownership*** – Like students and alumni, faculty spoke of having to choose their academy or pathway as a critical moment of personal investment. In that choice, some found opportunities to connect past experiences and interests: one teacher was using her media industry experience and connections in her teaching; another connected her longstanding interest in the environment to the Natural Resources Academy.
- ***School leadership and culture with an entrepreneurial mindset*** – Faculty and staff in schools where work-based learning thrived referred to their school culture with terms like "growth mindset," "continuous learning," and "experimentation." Several interviewees commented that the success of a career academy or pathway would not have been possible without leadership from a principal and others who encouraged student and faculty participation in shaping programs and who created a culture of "If it's good for kids, let's try it."
- ***Professional development connected to industry*** – Externships or other PD that exposed teachers to work-sites and industries was viewed as essential. The opportunity to learn about exciting, relevant, and sometimes cutting-edge topics from industry was a source of additional motivation and

engagement for teachers. One teacher we spoke to was excited about learning stem-cell research with a national lab and then giving her students the same experience. Her students were equally excited about the possibilities.

- ***Solid high school transition followed by a sequence of work-related experiences*** – A solid 9th grade transition must be followed be a structured series of work-based experiences that progress from exposure (career fairs, industry field trips), to exploration (career fairs, job shadowing), to an intensive client-based capstone project or internship. Such a sequence is at the core of the career academy model as defined by National Career Academy Coalition and other quality standards.
- ***An organized menu and sequence for how employers can engage*** – Mirroring the sequence of student learning, business engagement (whether at a school or regional level) requires a simple menu and sequence of how employers can plug in – starting with advisory board participation to provide feedback on curriculum, to deeper investments like guest speaking, and eventually hosting internships or being the client for student projects. At the time of the study Waipahu was developing such a menu at the request of their industry-based advisory board.
- ***Access to equipment and transportation*** – These were mentioned as additional costs that come with work-based learning – costs that schools and students are not always equipped to cover. Particularly exciting fields like product design, biological research, or architecture might require 3D printers, advanced lab equipment, or AutoCAD-equipped computers. All were mentioned as examples of work-based learning that schools were engaged in, but had to raise separate funds for. Paying for student busses or bus passes to get to work-sites for internships was an added expense.

3. Systemic Success Factors

- ***"Pipeline" or "`Auwai" connections before and after high school*** – highly successful work-based learning programs have connections to middle school and to post-secondary opportunities. In Waianae, both MA'O Farms and Searider Productions have links to their "feeder" middle schools. Both also have agreements with Leeward Community College and/or UH West Oahu to ensure that graduates can transition smoothly into higher education, taking course credit with them. Connecting work-based learning experiences and career pathway courses to Early College credit holds powerful promise. Several high schools we interviewed were in the early stages of implementing Early College and finding ways to integrate it with existing or emergent career pathway programs.
- ***Intermediaries that help connect schools to workplaces***. Employer engagement is key to making work-based learning work, but connecting schools to businesses is challenging. Both the literature and local successes point to the importance of "intermediary" organizations. For example, MEDB's Women-In-Tech brings employer expertise and resources to schools via classroom curriculum, after school programs, and teacher PD; Kauai Planning and Action Alliance is a critical liaison between employers on the Kauai Chamber of Commerce and high schools including Kapaa. Strong intermediaries ensure that both employers and schools get what they need out of a work-based learning experience; help avoid competition between schools for the same business contacts; and, know employers and schools well enough to match-make effectively. They can also play important roles in vetting of work-sites or projects, and keeping documentation to address liability concerns. School, Complex, or *Regional* intermediaries have the advantage of identifying employers that are nearby schools.
- ***Leaders who bridge and stretch*** – Success in every case we came across depended upon the involvement of leaders who stretched outside of their institutional box, and extended themselves beyond their own organization or business interest. One national expert noted the importance of

CEOs who were "civic entrepreneurs" – investing in work-based learning for community benefit, rather than for the near-term workforce needs of their company. Local examples are abundant: business leaders like Karl Yoneshige of Hawaii USA Federal Credit Union which has opened student-operated branches on multiple campuses across the State; Ian Kitajima of Oceanit, who takes coding to students and teachers. Civic entrepreneurs in other sectors we met included leaders like Bernadette Howard in higher education, who works to ensure easy articulation between high school, college, and even local job training centers; Steve Auerbach of PCATT, who uses his own industry experience and that of local CIOs to support cyber-security camps for K-12 students; and, folks in K12 like the folks at Waipahu, Kapaa, and Waianae who stretch to learn and connect with businesses to make school more engaging for students.

Although not a requirement for successful work-based learning, Career Academies offer a powerful model that incorporates the school-level success factors and can also catalyze alignment up and down the education chain (to lower school and post-secondary education), as well as engaging regional intermediaries and businesses that spread benefits beyond a particular high school. There are also examples of community-based programs which have some elements of career academies, but outside of a school setting – MA'O Organic Farms (which trains young leaders on a working organic farm then connects them to higher education and careers in agriculture) and Kanehunamoku Voyaging Academy (which aims to give youth navigation experience that can translate to maritime academies of higher education) are two examples.

IV. RECOMMENDATIONS

We hope that the findings shared up to this point create the basis for a shared understanding of the challenge and opportunity in K-12 work-based learning: a shared view of the landscape; a shared definition of success; and, a common understanding of the key elements that lead to success. Building on that foundation, we offer the following recommendations on ways to expand work-based learning to reach more K-12 students in Hawaii.

While the emphasis below is on *new* opportunities that move *beyond* school-based success, it is important to recognize that these opportunities are made possible by work that has preceded them and which is, in many cases, ongoing. This includes: school-based efforts that provide models to learn from; the continuing work to align systems, create articulation agreements that ensure high school credits transfer to higher education; and, the work of employers and community-based nonprofits which that have taken it upon themselves to bring work-relevant learning experiences to students in- and outside the classroom. Our emphasis on new possibilities is not meant to diminish the importance of these efforts, nor to suggest that they are not equally worthy of attention and funding to sustain them.

It is also important to emphasize that the recommendations which follow are not meant for the Castle Foundation alone, nor is funding necessarily the key ingredient for any of these ideas. Rather, each is an area of potential where energy exists and interests might align to enhance and expand the impact of work-based learning for students across the islands. It will take shared initiative and investment to tap the full potential of any of these opportunities.

(1) Convene and support the leaders who "bridge and stretch"

The bridgers and stretchers in work-based learning could use a community of practice – a home for peer

support, inspiration, and lesson sharing. The group would be designed for people passionate about work-based learning for K-12 students, and ideally would include: "civic entrepreneurs" from business, government workforce or economic development agencies; higher education leaders; school-level leaders (teachers, principals, or counselors); and high school seniors or alumni. Discussions would focus on questions of value to members, such as, "What work-based learning problem am I having that the group might help me solve?" "What lessons or assets do I have that might help others in the group?" "How do we extend the reach of what we are doing?" We emphasize the importance of including senior students and alumni – nothing grounds discussion of work-based learning more than the voices and perspectives of students and alumni. A community of practice would help concentrate and sustain the energy of leaders who "bridge and stretch" and who are too often exhausted by the process. At least one employer, who has invested heavily into K-12 work-based learning, expressed frustration that when a key teacher or principal leaves, programs often stall or disappear.

(2) Invest in regional collaborations that have some key success factors in place

We must find ways to support and sustain the local examples of regional work-based learning success and build new regional success based on their example. Some notable regional clusters have already emerged on Kauai, Maui, and in Waianae (described above) – each with some critical success factors like regional intermediaries, leaders who bridge, connections up and down the K-12/higher education pipeline, and/or existing work-based learning successes at the school level. Strengthening and learning from existing pockets of excellence will be key to any future expansion into new regions. And, knowing which factors are important, we can identify new regions with the right building blocks that might benefit from an infusion of resources or expertise. Again, a regional focus (e.g., Complex Area scale) seems to make sense due the business-school relationships required and transportation constraints that effect K-12 work-based learning, but collaborations on a larger scale may also be possible as evidenced by the work of programs like Women In Tech's STEMWorks.[8]

(3) Invest in PD/externships for teachers and school leaders, ideally in cross-subject teams

Teachers, counselors, and school leaders must play new roles in a work-based learning model, and will also be exposed to exciting new opportunities to connect with businesses and industry. To be prepared to make the most of these opportunities, for themselves and for their students, we must invest in professional development that builds skills in project-based learning, and knowledge of businesses and industries that enable them to create relevant classroom learning experiences. Externship programs can be especially valuable, particularly if teams of teachers participate who are integrating subjects into an applied, career-themed curriculum. The duration of an externship must be long enough to expose teachers to real work on a real business project or problem, and ideally allow them to build relationships within a business or industry.

(4) Invest in systems of evaluation that include an alumni relations and data component

As we noted above, data from alumni – focused on some key desired outcomes – will provide the best evidence of success. Currently, very few work-based learning programs have the capacity to track alumni outcomes or gather alumni feedback. Investing in a system and/or building upon existing systems of alumni engagement could benefit all work-based learning programs.

[8] One principal we interviewed suggested that an intermediary person or office could be housed at Complex Area offices.

(5) Leverage existing K-12 assets and emerging alignments

(a) Social-Emotional Learning (SEL). Across the country and here in Hawaii, there is new interest and investment being poured into social and emotional learning (SEL) for K-12 students. Much of this has focused on elementary and middle school students to date. However, the Hawaii DOE's new strategic plan lists SEL as one of a handful of top priorities, and explicitly raises the question of how to integrate SEL into high school. Many of the skills sought in SEL align with the "soft skills" identified by both local employers and national research as urgently needed in the workforce. Yet, to date, there seems to be little connection between the two realms. With some work to translate terms and foster shared understanding of desired outcomes, work-based learning might be framed as an effective SEL strategy, and investments in SEL might be leveraged to support work-based learning expansion.

(b) Project based learning (PBL) and capstone projects. Similar to SEL, there is growing interest and investment in project-based learning and entrepreneurship in schools. Many schools have integrated PBL into their curriculum; many high schools (including Career Academies), require capstone projects as a culminating demonstration of skills and knowledge; and many schools require or offer an entrepreneurial demonstration (e.g., student-run credit union, or product development through a program like Junior Achievement). For reasons described above, the Hawaii economy presents some unique challenges to placing large numbers of K-12 students at work-sites. Having businesses serve as clients for capstone projects, or customers from entrepreneurial projects is another way to get meaningful work-based learning into schools. If a school has made a substantial investment in PBL and capstone projects, those building blocks could be leveraged into work-based learning by connecting them with businesses as "clients" or "customers." Such an approach offers the added opportunity to infuse entrepreneurial skills into a work-based learning project – skills like creativity and adaptability that are increasingly important to employers and society.

(c) Service learning assets and infrastructure**.** Many K-12 schools have built a robust service learning infrastructure, including relationships with community nonprofit organizations, faculty who serve as liaisons and place students, and/or links to 3rd party intermediaries like AVID, who provide learning experiences for faculty and students. At its best, service learning is work-based learning, though it is rarely described in such terms. And, the service learning infrastructure, when linked to post-secondary programming, can function like a public service career pathway. The building blocks for such a pathway already exist – in K-12 schools and post-secondary programs with rigorous service learning programs, but the two are rarely connected, and the entire endeavor is rarely thought of in terms of work-based learnings. For example, Kapiolani Community College has a robust service learning program that places students in dozens of nonprofit work-sites where they apply their knowledge in projects for the community. As with SEL and PBL, service learning may present assets that can be linked and built upon to extend the reach and impact of work-based learning.

CONCLUSION

Of the recommendations above, the most critical in our view is convening the passionate champions of work-based learning, including students and alumni, school staff, K-12 system leaders, higher education, industry, and related government agencies. This group will be the roots that ground work-based learning and the reach that helps it expand. Our research leads us to conclude that the challenge in

expanding work-based learning is not principally a problem of resources, nor of structure and policy. To be sure, high quality work-based learning requires investments in teachers, in equipment, in transportation, and coordination. But these investments must be made in places where some critical success factors already exist; where relationships have been built between schools, intermediaries, and industry; and, where leaders who bridge and stretch are taking initiative.

Hawaii has many assets to build upon, beyond the examples we cite in this report: successful models are there to learn from; progress is being made on aligning standards and articulation; industry has a number of willing "civic entrepreneurs"; new capacity is being built in schools and community organizations. The key catalyst needed to combine and unlock the potential of these assets is strong relationships linking the willing and capable partners in each sector, and leadership willing to bridge, stretch, and extend themselves outside the box of their industry or organization, for the benefit of K-12 students.

Appendix A: List of Interviewees

Alex Harris, Advisor, Harold K.L. Castle Foundation
Allison Ishii Blankenship, Director, Kūkulu Alakaʻi ʻIolani
Allycin Tasaka, Executive Director, Workforce Development Council
Alvan Fukuhara, Teacher, Waipahu High School
Arthur Johnston, Freshman, Iovine and Young Academy at USC
Beau Boice, Project Director, Hawaii Initiatives at Strada Education Network
Bernadette Howard, Director, Office of Career and Community Education at University of
Branden Hazlet, Director of Technology, Maui Preparatory Academy
Brant Chillingworth, Senior Program Office, Hau'oli Mau Loa Foundation
Cameron '17, Student, Saint Andrews Priory Schools
Carol Kanayama, Program Officer, Workforce Development Division, DLIR
Daniel Hamada, Principal, Kapa'a High School
Daniel Kinzer, Co-Director, Luke Center for Public Service at Punahou School
Daniel Miyamoto, Administrator, Hawaii DOE Office of Curriculum, Instruction, and Student Services (OCISS)
David Tanabe, Teacher, James Campbell High School
Denise Pierson, Service Learning Coordinator, KCC
Don Coloma, CTE Coordinator, Waipahu High School
Donavan Kealoha, Co-Founder, Purple Mai'a
Donovan Dela Cruz, Senator, Hawaii State Senate
Dr. Ruth Fletcher, Head of School, Saint Andrews Priory Schools
Dr. Yong Zhao, Author and Foundation Distinguished Professor, School of Education at the University of Kansas.
Edna, Student, Waipahu High School
Elaine Young, Administrator, Workforce Development Division, DLIR
Emily '17, Student, Saint Andrews Priory Schools
Eunice Fukunaga, Teacher, Waipahu High School
Ezra, Student, Waipahu High School
Frances Wella Chel Morana, '14 Alumnus, Waipahu High School
Francie Genz, Principal, Genz Consulting
Gail Izumigawa, Smaller Learning Communities Coordinator, Waipahu High School
Heidi Armstrong, Campbell-Kapolei Complex Area Superintendent
Ian Kitajima, Director of Corporate Development, Oceanit
Isla Young, Program Director, K-12 STEM Educator, Maui Economic Development Board
Jalynn, Student, Waipahu High School
Janelle Cohen, Executive Director, Hawaii Junior Achievement
Janis Reischmann, CEO, Hauoli Mau Loa Foundation
Jay Steele, Executive Director, National Career Academy Coalition
Jayson Muraki, Workforce Development Council Staff
Jazz Kalingasan, '13 Alumnus, Waipahu High School
Jean Miyahira, Board of Directors, National Career Academy Coalition
Jeanne Ohta, Assistant to the Executive Director, Workforce Development Council
Jenal, gr. 8 student, Waianae Middle School

Jennifer Grems, Upper School Principal, Saint Andrews Priory Schools
John Allen lll, Journalism Advisor, Waianae Searider Productions
Jon Henry Lee, Principal, James Campbell High School
Karen Aka, Chief Academic Officer, Academy 21
Karl Yoneshige, Chief Executive Officer and President, HawaiiUSA Federal Credit Union
Katelyn, Student, Waipahu High School
Kathleen, Student Academy Ambassador, Waipahu High School
Kelsey Amos, Co-Founder, Purple Mai'a
Kelsy Kai, Teacher, Waipahu High School
Kenneth Hiraki, Board of Trustees Chair, Public Schools of Hawaii Foundation
Kim Saito, Workforce Development Council
Kimi Maeda, Teacher, Waipahu High School
Linda Chu Takayama, Director, Hawaii Department of Labor and Industrial Relations
Makana '18, Student, Waianae High School
Marion Paul, President, Kauai Planning & Action Alliance
Maya Hiraki, Freshman, Georgetown University
Michael Sana, Teacher, Waipahu High School
Michelle Aquino, Teacher, Waipahu High School
Pono Chong, Vice President of Business Advocacy & Development, Chamber of Commerce
Raychel Bernardo, '14 Alumnus, Waipahu High School
RG, Student, Waipahu High School
RJ Rodriguez, Union Director, Hawaii State Teachers Association
Robert Franco, Director, Office of Sustainability & Service Learning, KCC
Sherry Tenn, Teacher, Waipahu High School
Sophie Halliday, Director of Educational Programs, Saint Andrews Priory Schools
Stacey Takanishi, Administrator of Perkins Funds, Hawaii DOE Office of Curriculum, Instruction and Student Services (OCISS)
Steve Auerbach, Director, Pacific Center for Advanced Technology Training (PCATT)
Suzette Robinson, Director, Academic Programs at University of Hawaii
Thomas Chock, Engagement Coordinator, Waipahu Schools
Wade Araki, Principal, Kaimuki High School