Recognizing College and Career Readiness in the California School Accountability System

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Executive Summary

California's major transformation of its education system has begun with a new Local Control Funding Formula (LCFF), which allocates money more equitably to school districts and changes the way the state will evaluate school and district performance. Recognizing that these changes provide new opportunities to encourage important education goals, this paper proposes a set of strategies for identifying and supporting career as well as college readiness within the Local Control and Accountability Plans (LCAPs) that will shape accountability reporting for schools and districts. In addition, the paper proposes ways that student accomplishments illustrating career readiness can be included in graduation standards and conveyed to postsecondary audiences.

Thoughtful choices of indicators for the new accountability system could end the false dichotomy of preparation for college *or* career. Instead, high schools can be encouraged to prepare all secondary students for both college *and* careers and be recognized for making high-quality learning opportunities available to them.

After an extensive review of existing indicators and measures available within California and nationally, the paper proposes that the LCAP incorporate three types of performance indicators aligned with career and college readiness:

1. The proportion of students who complete comprehensive courses of study in career technical education, such as those that meet Linked Learning criteria (see Appendix A for these criteria);

2. The proportion of students who have satisfactorily completed work-based learning experiences that meet specific criteria (see Appendix B); and

3. The proportion of students who have met a defined level of achievement on assessments of technical knowledge and skills, including well-defined graduation portfolios documenting specific abilities (see Appendix C), as well as industry-approved certificates, licenses, and badges that are portable and valued by the student, postsecondary institutions, and businesses and industry.

To implement these recommendations, it will be important to begin to build these measures into existing data systems, such as CALPADS, district data systems, and voluntary data networks (e.g., CalPASS+, IEBC). Meanwhile, the state should encourage districts to move voluntarily to richer measures, indicators, and data that can be reflected in local reporting.

Because the accountability system for students is organized through high school graduation requirements and the reporting of student accomplishments to colleges and employers, we recommend that California take this opportunity to rethink how graduation expectations and transcripts are structured and reported so that student accomplishments—including those noted above—can be part of the official record. This can take the form of

- *a student profile* that systematically communicates more complete information about students to colleges and employers;

- a *graduation portfolio* that systematically assembles evidence of students' attainment of academic, technical, and dispositional competencies (approved portfolios could be used in lieu of the exit exam, as they are in some other states);

- *recognition on the diploma* of particularly rigorous accomplishments, such as credentials, certifications, or cumulative badges.

If we are thoughtful about how to include meaningful career-ready indicators in the LCAP and in the high school graduation and transition systems, coupled with college indicators, we will be able to encourage the provision of higher quality learning opportunities to students. Such advances will also signal to students, parents, educators, and business and industry leaders that there are multiple pathways to postsecondary success and the ultimate goal of secondary education is to prepare all students equally for college and careers.

Introduction

California has just launched a major transformation in its education system. In 2013–2014, the California legislature enacted a new funding system, the Local Control Funding Formula (LCFF), which changes the way the state allocates money to school districts and the way the state supports underperforming districts (Taylor, 2013). Funding is now based primarily on student needs (with weights attached to funding allocations for poverty, English learner status, and foster child status). The new funding formula eliminated approximately three quarters of categorical programs, and the law gave responsibility to districts to make decisions about how to best use their resources to achieve desired results.

At the same time, California is redesigning its educational standards and accountability systems. The state is changing its student learning standards, curriculum guidance, student testing system, and Academic Performance Index, while introducing a new local control and accountability program. Within this evolving context, there are new opportunities to encourage and support important education goals.

This paper addresses strategies for recognizing and supporting career and college readiness within the new accountability system. We explore how this might be done both within the Local and Control Accountability Plan, which shapes accountability reporting for local schools and districts, and within the context of graduation standards and individual student reporting to potential colleges and employers regarding high school accomplishments.

The Local Control and Accountability Program

A new accountability program, designed to establish greater transparency and accountability for school districts, accompanies the new LCFF. School districts are required to develop and adopt Local Control and Accountability Plans (LCAPs) that outline their annual goals and their progress toward those goals based on multiple measures, including college and career readiness.

School districts have often employed measures for college readiness to describe students' accomplishments, and those measures for college readiness are familiar and well known (e.g., completion of the a-g curriculum for admission to the University of California and California State University system, scoring at a college-ready level on the AP or IB exams).

The measures for career readiness, however, are less well established in traditional reporting and accountability systems. This lack of formal attention to career readiness

can create a false dichotomy between college-bound and career-focused students and may discourage systematic attention to the educational programs needed to fully prepare students for a variety of postsecondary options. Although this paper discusses the issue in a K–12 context, it is important to acknowledge that, ultimately, career readiness must be accomplished by whenever the student finishes formal education, whether that is at the end of 12th grade or after community college, at 14 years, or after a certificate, bachelor's, master's, or other higher degree.

Unless they fail to enter the labor market, all students will ultimately enter a career regardless of whether the timing of their careers begins after postsecondary education or directly after graduation from high school. Similarly, many students will enter college later in life, after they have spent some time in the workforce. Therefore, it is imperative that career readiness, operationalized as technical and 21st century skills and dispositions, along with college readiness, be supported and developed in all students. Developing strong, supportive pathways that incorporate both college- and career-ready skills is our best bet for ensuring students will find their way to a productive future.

It is also important that, as we define, develop, and evaluate the abilities that prepare students for college and careers, we include the deeper learning skills that society increasingly demands: the abilities to collaborate successfully, communicate clearly in many forms, think critically and creatively, and, especially, to learn and apply new knowledge to new problems effectively. Learning dispositions and skills are, in fact, the top quality that today's employers seek, and they must be reflected in new measures that accountability systems rely upon.

The LCAP intends to incentivize schools to pay attention to important outcomes that are aligned to the state's eight priority areas, which help define, in operational terms, what the state considers the key components of a high-quality education system. Thus, the effort to develop performance indicators, tied to college and career readiness and to the process of linking learning to the world beyond high school, creates an opportunity to signal to educators, community members, business and workforce leaders, parents, and students that preparing all students for a full range of postsecondary outcomes is critically important. The LCAP can serve as a powerful lever to encourage schools to prepare all students for both college and careers so that they experience a full range of postsecondary options.

Student Accomplishment in the Graduation and Transition Systems

Another way to recognize aspects of career readiness in the state accountability system would be to recognize certain student accomplishments as "badges" or acknowledgements on the diploma, or to include them in a state graduation portfolio. For example,

New York State has historically recognized students' passage of specific Regents examinations on the diploma. In California, students who demonstrate fluency in more than one language are recognized with the state Seal of Biliteracy on their diploma. In addition, some schools in New York have a waiver from the Regents examination requirements and use a graduation portfolio in which they embed performance assessments scored against standards in specific subject fields (English language arts, mathematics, science, social studies) as well as for a work-based learning experience. Many California schools also use such portfolios, which can measure learning dispositions and 21st century competencies, as well as academic and technical knowledge and skills.

As Conley and Darling-Hammond (2013) describe, new accountability systems can support students' preparation for their futures by acknowledging student goals and accomplishments in more comprehensive ways as information is assembled and used for graduation and postsecondary transitions. Currently grades and test scores dominate this process, leaving little room for the student, the school, or the potential college or employer to grasp what the student cares about, has attempted, or has accomplished beyond these shorthand metrics.

This is because our traditional vehicles for ascertaining readiness for graduation and for communicating with postsecondary clients (employers and colleges) have provided little opportunity for identifying and communicating student knowledge, skills, and dispositions. Individual employers and colleges may ask, one by one, for this kind of information, but the process is not efficient or particularly well designed for optimal communication.

One way to motivate students to create and pursue important goals for themselves, to encourage schools to support this process, and to give a more complete picture of student accomplishments would be to incorporate *student profiles* that describe their accomplishments as part the information system that accompanies them when they leave high school. Some of these accomplishments might warrant a formal *recognition on the diploma* (like the State Seal of Biliteracy established in 2012) or might be components in a *graduation portfolio*.

As Conley (2014) describes, a *student profile*, which may be part of or independent from a graduation portfolio, provides data such as grades and routine test scores, but it also can provide data from performance-based assessments, teacher observations and ratings of students, student self-reports, and other measures, such as internships and public service experiences. The profile is different from a transcript in part because it contains a wider range of information and because, where possible, it presents the information in relation to student aspirations and interests. In other words, students who wish to pursue health occupations would have evidence in their profile of the degree to which they are developing the knowledge and skills needed to enter this general field of study and pursue a career in it. Knowing something about student interests and aspirations provides a lens through

which profile data can be interpreted and readiness determinations made more precisely. Furthermore, a profile approach—particularly when it is connected to a portfolio that represents a collection of rigorous and meaningful work samples that have been completed to a standard—is important because students can only be expected to perform as highly as their aspirations dictate. Engaging students in challenging learning tasks requires that they have some motivation or reason for doing so. Connecting evidence of student accomplishments to their interests and aspirations helps show students why it is important to strive to achieve academically and to develop the learning skills and techniques they will need throughout their educational and occupational careers.

An example profile could have the following types of measures in it:

- Common Core State Standards consortia exams

- Grade point average (cumulative and disaggregated by subject)

- Completion of specialized coursework (e.g., CTE course sequences, dual enrollment resulting in postsecondary credit, articulated career pathways spanning secondary and postsecondary learning, IB, or AP classes), service learning or work-based learning experiences

- Honors or prizes earned

- Acquisition of specific credentials, certificates, licenses, or badges

- Supervisor's assessment of student's performance in a high-quality work-based learning experience

- Performance on assessment(s) of industry-specific technical skills

- Admissions tests (e.g., SAT, ACT, EAP)

- Evaluations of performance tasks—research papers, investigations, products, projects—for which the work may also be included in an associated portfolio

- Oral presentation and/or scored discussion (for which a video clip may be included in the portfolio)

- Teacher rating and commentary regarding student note-taking skills, ability to follow directions, persistence with challenging tasks, resilience, and other evidence of learning skills and ownership of learning

- Student self-report on the learning process used to complete an activity (which could include collaborative activities)

- Student self-report of aspirations and goals and of actions taken to achieve goals

- Student postsecondary plans, including artifacts associated with student applications for college or technical programs, and for financial support

As is already done in a number of schools and districts around the country, a small number of key projects, papers, and other evidence of meeting specific career- and college-ready skills can be refined to meet a "portfolio standard," defended before a committee of internal and external judges, and assembled in one place. Work samples complementing student profiles collected into a digital portfolio can be used by employers and postsecondary institutions for admissions, advisement, and placement. To be easily used, the portfolio can include a summary that makes key evidence easily understood by a user within 10–15 minutes—providing summary data, a short writing sample, a short videotape of the student presenting a learning demonstration, and a table of contents that can direct those who want more information to a link (see Figure 1, below).

Some users will look only at the summary data. But a college considering a student for an art major could look more deeply at the art portfolio, while an employer wondering about a student's oral skills and engineering knowledge could click on the link to the work-based learning presentation about a design solution that the student developed. Students carry their portfolio with them after high school to support their strategies for postsecondary success.

Selective colleges already review a wider array of data that looks in many ways like a portfolio. The admissions process seeks to learn more about student interests and aspirations and how these align with their preparation. This process is often called "portfolio review." Why only the highest achieving students should be encouraged to form and pursue goals and develop profiles and portfolios is not at all clear, especially at a time when all students are being urged to raise their expectations and to engage more deeply in cognitively challenging learning.

FIGURE 1: DIGITAL PORTFOLIO AT GRADUATION

Summary: Transcript, GPA, CCR test scores, statement of goals, distinctive accomplishments or "badges," short essay, 2-minute video clip from portfolio presentation, table of contents

Science & Math Inquiry	Investigation of water quality in a local community (science and mathematics), includes paper, data set, and PowerPoint
Social Science Inquiry	What social and political forces influenced the passage of the 14th Amendment to the Constitution? (historical inquiry)
Literary Analysis	Immigration and the American Dream in 20th century literature (literary analysis), includes videotaped presentation to panel
Work-Based Learning	Building Green: What my team learned from designing an environmentally friendly town hall annex (with engineering plans and specifications)

Transforming the ways in which the state and local districts record and recognize students' accomplishments in the 21st century so as to focus on a broader set of skills and abilities is also an aspect of a new accountability system. Such a system might move us beyond seat time, Carnegie units, and passive recall on multiple-choice tests to a more proficiency-based approach that empowers students to take charge of and demonstrate their learning and abilities.

Goals of this Paper

All of these are aspects of career and college readiness that might be incorporated into California's newly emerging accountability system. The LCAP legislation stipulates that pupil achievement may be measured as the "percentage of pupils who have successfully met requirements for admission to the University of California and California State University or Career Technical Education (CTE) sequences or courses of study that align with state board-approved career technical educational standards and frameworks" (California Education Code Section 52060). This includes, but is not limited to, California Partnership Academies, Linked Learning Pathways, and Regional Occupational Centers/Programs (ROCPs) that meet those standards.

Defining how eligible CTE sequences will be identified is one important task. Students would also benefit if work-based learning experiences that meet certain standards were provided to a wide range of students, not only those who complete an entire CTE sequence or course of study. In addition, just as California's college-readiness indicators include performance standards on assessments such as the EAP, AP, and IB examinations, performance measures should also be considered for career readiness. Finally, as we have noted, there are means to acknowledge students' accomplishments through programs that result in badges, licenses, certificates, or supervisors' assessments of work-based learning.

This paper proposes three types of career readiness measures that will work in concert with college readiness measures. In different ways, these might be systematically acknowledged both in the LCAP system and in the individual student's record of school accomplishment:

1. completion of high-quality, integrated courses of study that support career readiness, analogous to the completion of a-g courses;

2. satisfactory performance in a work-based learning experience that meets specific standards; and

3. achievement on career-readiness assessments, including those that are performance-based demonstrations of competence and those that result in industry-approved certificates, credentials, licenses, and badges that are valued by postsecondary institutions and businesses.

This paper describes the state of the field in California and outlines the criteria that could be used for measures in each of these areas. It concludes with policy recommendations for the inclusion of career-ready accountability indicators for California's secondary schools and districts.

The Integration of Career Technical and Academic Education in California

It is clear that the needs of the 21st century workforce are rapidly changing amidst demographic shifts, technological advances, and economic globalization. Related improvements in what is traditionally called Career Technical Education (CTE) are important to prepare individuals for postsecondary education and careers in today's global, knowledge-based economy.

The California Department of Education (CDE) defines CTE as "a program of study that involves a multiyear sequence of courses that integrates core academic knowledge with technical and occupational knowledge to provide students with a pathway to post-secondary education and careers" ("Career Technical Education," n.d.).

The state of California has identified 15 industry sectors that are framed around the National Career Clusters Framework[1] but specifically reflect the state's economy. Each industry sector contains a number of more specific career pathways; fifty-eight have been identified and are aligned to current and future employment opportunities within California. These pathways—and occupations within them—require varying amounts and kinds of postsecondary education and call for a range of academic and career-specific knowledge, skills, and dispositions.

The CTE delivery system is vast. In California, 82 vocational high schools,[2] 74 Regional Occupational Centers and Programs,[3] and 112 community colleges[4] offer CTE programs. In addition, 1,070 public high schools throughout the state offer CTE stand alone courses or programs of study that integrate career readiness with academic preparation (L. McCabe, personal communication, November 6, 2014).

The CTE delivery system varies significantly throughout the state due to the availability of local resources, student needs, and the demands of the local economy. The LCAP recognizes three types of CTE program structures: ROCPs that meet statutory expectations,[5] California Partnership Academies, and Linked Learning programs.

Regional Occupational Centers and Programs

The Regional Occupational Centers and Programs[6] (ROCPs) constitute the state's largest workforce preparation system, serving almost 500,000 high school and adult students (CDE, 2007). The ROCPs (defined by the California Education Code Sections 52300–52334.5) were established to provide higher level CTE building on introductory courses through concentration and capstone courses and comprehensive career educa-

tion. Recently, ROCPs have increased the number of courses that meet the a-g admission requirements of the University of California and California State University. The ROCPs collaborate with local businesses and industry organizations to offer employment training and services responding to labor needs.

California Partnership Academies

The California Partnership Academies (CPAs) are state-funded career academies defined by California Education Code Sections 54690–54697. CPAs are three- or four-year programs situated in large comprehensive high schools; the law requires that at least 50% of students entering Grade 10 must be at-risk.[7] While some schools have extended academies to students in Grade 9, this is not state-funded in the CPA model. Each CPA has a career theme and students are enrolled in three core academic courses and one career technical course in Grades 10 and 11 (and sometimes Grade 9), and at least one core academic and career technical course in Grade 12. The three CTE courses are logically sequenced so that they lead to industry certification and/or articulation to a postsecondary institution. During the 2009–2010 school year,[8] an estimated 467 CPAs were in operation and enrolled 48,436 students in Grades 10–12 (Dayton, Hester, & Stern, 2011).

Linked Learning Pathways

Linked Learning is a high school improvement approach focused on creating multiple pathways for success in college and career, as defined by California Education Code Sections 52370–52377. It should be noted that the work of the California Partnership Academies and academies sponsored by the National Academy Foundation, as well as ROCPs aligned with Section 52302(a) of the Education Code, generally reflect the Linked Learning approach.

In addition, there are specific Linked Learning programs that take on a particular form: A Linked Learning pathway incorporates challenging and student-centered academic instruction integrated with a demanding technical curriculum and work-based learning organized around a broad theme, interest area, or one of California's 15 industry sectors. All Linked Learning pathways provide a four-year program of study that include four critical elements: 1) rigorous academics that include college preparatory English, mathematics, science, history, and foreign language courses for all students; 2) real-world technical skills acquired through three or more courses in a particular industry; 3) work-based learning that provides opportunities to explore, learn through, and learn from participation in occupations; and 4) personalized support such as counseling and supplemental instruction to help all students master academic and technical knowledge

and skills ("Linked Learning," n.d.). Linked Learning pathways are 250–500 students in size and several can exist within large comprehensive high schools.

These relatively well-defined program types illustrate many of the learning opportunities available to California students that integrate academic and technical skills so that secondary students are afforded a fuller range of postsecondary options after graduation. As we suggest below, they provide an initial basis for developing accountability indicators. How these are developed will structure the incentives for access to and quality of educational opportunities needed to attain 21st century skills.

Recognizing Career- and College-Ready Courses of Study

Califorria already has established some foundations on which to build recognition of high-quality career-ready courses of study, alongside and integrated with college preparatory courses. These include curriculum standards and state approval processes for coursework. Beyond these, two rigorous certification processes are available for career academies associated with Linked Learning and the National Academy Foundation.

The Career Technical Education Model Curriculum Standards (CDE, 2013a) were initially established in 2005 to guide the development of high-quality curricula and instruction emphasizing both academic and technical skills. The CTE standards were revised and adopted in 2013 in order to align the CTE programs to the Common Core State Standards and evolving economic conditions. These standards represent the state's commitment to providing students with rigorous courses of study that integrate both academic and career skills with a focus on applied learning. As the title of one recent article suggests, "Today's CTE is not your father's vocational education" (Education Commission of the States, 2013).

Ultimately, the integration of CTE pathways with college preparatory academic curricula is essential. Given the unique process of certifying college-ready coursework in California through the a-g system, there is not typically enough room in a student's course schedule to complete both a high-quality CTE sequence and an a-g curriculum unless they are fully integrated so that high-quality CTE courses that integrate academic skills receive a-g credit.

This integration of academic and CTE programs is evident in all three of the state's CTE delivery structures identified in the LCAP. For example, *ROCPs* have integrated core academics into their CTE courses resulting in an increased number of CTE courses that meet the admission requirements of the University of California and the California State University (CDE, 2007). The University of California Office of the President, which evaluates all high school courses intended to meet the a-g requirements, estimates that in 2013 over 9,954 CTE courses (or 23% of CTE courses offered in CA public schools) were approved to meet a-g admission requirements (CDE, 2013b).

However, the vast majority of these courses (79%) were approved for "f" (visual and performing arts—45% of the total) or "g" (elective—34% of the total) credit (P. Sherfey, personal communication, November 5, 2014). This means that it is still difficult for students to find time in their schedules to take the full suite of approved academic courses plus courses that integrate academic material into integrated career-themed

courses, such as engineering, design, technology, journalism, health sciences. Courses that contextualize and apply academic knowledge and skills in forms by which they are used in the world beyond school can both engage students and advance their learning. Offering more of these opportunities will require the close engagement of the University of California and California State University (UC/CSU) system and ongoing reforms to the a-g approval process.

The *California Partnership Academies* implement the state's academic and career standards and strive to provide CTE courses that meet the eligibility requirements for admission to the state institutions of higher education as required by the California Education Code Section 54692 (Winthrop, personal communication, June 9, 2014). The *Linked Learning* pathways integrate academic and technical skills by implementing a standards-based curriculum (ConnectEd, 2012a). They ensure that the academic curriculum is aligned to the CCSS and state standards and that the sequence of technical courses is aligned to state/national CTE standards or industry standards. In addition, the pathways provide all students with access to courses that meet the UC/CSU a-g admission requirements.[9]

A *certification process* can also ensure that CTE courses of study are rigorous and provide students with academically challenging coursework while building technical skills. Certification processes often go beyond assurance of coursework quality to apply more comprehensive standards for high-quality programs. These include such factors as individualized support for students, ongoing professional development for educators, authentic assessments of student learning. Just as the National Board certification attests that teachers earning the certification have met specific performance standards, academy or pathway certification connotes an assurance of quality and accomplishment.

Two well-defined certification processes for CTE programs are the Linked Learning Pathway Certification and the National Academy Foundation Certification, described below. There is not a formal certification process for ROCPs or CPAs at this time.[10]

Linked Learning Pathway Certification

The Linked Learning initiative is managed by ConnectEd, an independent nonprofit organization that supports the development and implementation of educational pathways that prepare students for both college and career. ConnectEd has worked in collaboration with the National Career Academy Coalition, College & Career Academy Support Network, National Academy Foundation, and the Southern Regional Educational Board to develop the Linked Learning Pathway Quality Review process that certifies college and career pathways.

To become a certified Linked Learning Pathway, a district or school must demonstrate that the career pathway has met or exceeded the seven essential elements of a high-quality pathway (see Appendix A). Those elements are:

- Evidence of student outcomes-driven practice
- Culture of high expectations, equity, and inclusion
- Industry-themed program of study
- Inquiry and project-based learning and teaching
- Work-based learning
- Personalized student support
- Distributed leadership and engaged partners
  ("Pathway Quality Review," n.d.)

A digital tool called the Online Pathway Tool for Improvement and Certification (OPTIC) has been developed for the Linked Learning pathway certification process. The pathway staff complete a self-assessment based on the seven essential elements and the criteria for pathway certification using OPTIC (R. Stearns, personal communication, May 19, 2014; D. Yanofsky, personal communication, June 4, 2014). The self-assessment data are used to develop an action plan for certification. Their progress is monitored, and documentation and evidence are uploaded to show how criteria are being met. Local industry leaders participate in this process by assessing the accumulated evidence and providing feedback to the pathway staff. Next, district administrators validate the pathway assessment and evidence and provide feedback to the pathway developers. The final step in the certification process involves an external site visit from a group of well-trained and calibrated "lead reviewers," who are representatives from various sectors in the state (e.g., university administrators, CDE, PD trainers and support providers, educational research and evaluation agencies, policy advocates, community-based organizations). Upon meeting the certification criteria, the pathway becomes certified for three years, after which it goes through a process of recertification. Pathways are encouraged to use the self-assessment process to formatively assess the pathway's functioning and its impact on student performance, and to support ongoing improvement efforts.

Certification of Linked Learning pathways ensures that the instruction that students receive is of high quality, is geared towards specific learning outcomes, engages learners through project-based learning and real-world relevance, integrates rigorous academic and technical curricula, uses authentic assessments, incorporates work-based learning experiences, provides personalized support, outlines a coherent program of study, and develops partnerships with local employers and community groups. Currently, there are 37 certified Linked Learning pathways ("Certified Linked Learning Pathways," n.d.) throughout the state and many more pursuing the certification process. Examples of certified Linked Learning pathways include Life Academy of Health and Bioscience, the California Academy of Mathematics and Science, and the School of Digital Media and Design. A number of CPAs in Linked Learning districts have been certified as Linked Learning Pathways.

National Academy Foundation Academy Certification

The National Academy Foundation (NAF) is a non-profit organization that provides technical and curricular support to 565 academies across the country ("NAF Statistics," n.d.). NAF academies are focused on five industry themes: Finance, Hospitality and Tourism, Information Technology, Engineering, and Health Sciences. Fourteen percent (81) of the NAF academies are located in California ("NAF Statistics," n.d.). A number of CPAs are also affiliated with NAF. For example, of the 74 CPAs in Engineering, 22 are NAF affiliates. Not all NAF academies in California are CPAs, however.

All NAF academies engage in a certification process in order to maintain membership in the network. When beginning the process, the potential academy engages in a year of planning and it is provided with technical assistance and coaching through the NAF regional network team. Similar to the Linked Learning pathway certification process, the NAF academy certification process is centered on engaging in a continuous improvement cycle, which consists of four steps: assessing (student progress as well as academy functioning), analyzing, planning, and taking action ("NAF Academy Assessment," 2012).

The process begins with a self-assessment whereby the academy ranks its program against the 15 Academy Standards that are rooted in four essential elements of practice: academy development and structure, advisory board, curriculum and instruction, and work-based learning (NAF, 2013). The academies complete an online assessment and must provide substantiating evidence to support the assessment rankings. For instance, under the academy development and structure element is the standard of creating a personalized environment for students. Within this standard, specific strategic actions are explicated, such as the practice of scheduling academy students as a group in NAF theme courses as well as core academic courses. If the academy assesses this practice standard as being fully implemented, class rosters may be submitted as evidence to show that students take classes together as a cohort.

The academy's rankings and supporting documents result in a score which equates to the academy's implementation level of the NAF model and its membership status. The NAF membership levels are as follows: under review, member, certified, model, and distinguished ("NAF Membership Status," 2012). Depending on the academy's assessment score, the academy is provided with detailed strategic action questions and further support to improve the academy's functioning. Academies that score at the certified status or above are NAF academy certified for three years, although they update evidence of meeting the standards and strategic practices yearly. Others go through a more thorough annual assessment process.

NAF and ConnectEd have brokered a joint agreement for dual certification whereby a career academy that becomes a certified Linked Learning pathway may also be consid-

ered a certified NAF academy and vice versa, with the completion of a small number of augmentations for dual certification (M. Pulleyblank, personal communication, July 23, 2014).

Local Education Agency Pathway Certification

Long Beach Unified School District (LBUSD) has developed its own pathway certification process modeled closely on the Linked Learning and NAF certification processes (C. Steinhauser, personal communication, September 5, 2014). To begin, the career pathway staff engages in a self-study process. The staff employs a pathway certification rubric, adapted from the rubrics used by Linked Learning and NAF, to identify strengths and opportunities for improvement. Once the self-assessment is completed and accompanying evidence is gathered, the district conducts a site visit to examine the pathway's functioning and evidence of sound practices. The site visits are conducted by teachers from other certified pathways within the district as well as educators from neighboring school districts who have gone through the Linked Learning or NAF certification processes. The results of the site visit are communicated to the pathway staff and used as formative feedback for ongoing improvement. Pathways that meet or exceed certification criteria receive the Local Education Agency (LEA) certification. Similar to the Linked Learning pathway certification process, the LBUSD certified pathways will engage in a recertification process every three years. Although more than half of LBUSD's career pathways will go through the Linked Learning or NAF certification processes, the LEA certification process offers LBUSD flexibility in designing career pathway programs that meet the district's local needs and context.

Recommendation #1

Completing a high-quality CTE pathway is commonly recommended as an indicator of career readiness (see, for example, Achieve & NASDCTEc, 2014). With respect to the LCAP, this could be recorded as the percentage of students who successfully complete an approved CTE pathway, as an analog to the percentage who have completed the a-g curriculum as a college-ready metric.

To the extent possible, the system should incentivize career readiness indicators that are co-requisite with college readiness indicators for students, rather than as alternative areas of focus. This might mean, for example, that the percentage of students who completed both a college- and career-ready course of study would be receive an additional weight (counted as 1.2, for example, rather than 1.0) when the percentages of college and career-ready students are calculated.

To support a meaningful indicator, standards will be needed to distinguish eligible pathways. A first step is to assure alignment of courses to the state's CTE Model Curriculum Standards, industry standards, and the CCSS, and their integration with academic con-

tent, as required in approval processes by CDE. In addition, certification processes can be acknowledged as a measure of program quality. Certification processes like those offered by Linked Learning and the National Academy Foundation offer a close examination of whether a program, as implemented, is aligned to standards, offers high-quality courses, supports students well, and focuses on improvement.

Students completing a three- or four-year CPA sequence could also, arguably, be counted as part of this indicator, since each CPA must submit an annual report on how many students have met statutory performance goals (districts receive funding only for students who have achieved these goals), as well as an account of the year's activities, budgets, course offerings, how the technical and academic courses are aligned and integrated, provision of mentors and work-based learning, as well as other statutory requirements. Any CPA in operation can be presumed to meet the requirements since CDE can close down CPAs that are out of compliance, and has done so in numerous instances. At the same time, the CPA report is a self-report; there is not a standing review process based on a set of criteria for CPA quality. The state might decide that a more robust periodic review process is warranted to certify that the program meets expectations.

In addition, as an indicator of curriculum opportunities, districts might report the number of certified pathways available to students. Increasing and tracking the number of certified pathways and approved career academies, while also tracking the numbers of students who complete such opportunities, would augment the coherence and rigor of CTE programs and expand the range of high-quality opportunities afforded to students. Finally, completing an approved career-ready pathway could be recorded on a student's diploma and as part of the student's profile.

Recognizing Work-Based Learning Experiences

Many reform advocates assert that measures of career readiness must assess students' academic, technical, and employability skills, with all three sets of skills being critical to success beyond high school (Achieve & NASDCTEc, 2014). As such, work-based learning experiences (e.g., service learning, internships, school-based enterprises, and preapprenticeships) may be viewed as both an essential component of the curriculum and the ultimate authentic assessment in CTE, because they provide students with the opportunity to contextualize their learning and apply their job-related academic, technical, and employability skills in real-world settings.

Work-based learning experiences also render more meaningful much of the otherwise abstract content in the secondary education curriculum, making it clearer how school learning is relevant to out-of-school concerns. Such opportunities, many argue, should be available to and encouraged for all secondary students, whatever their immediate postsecondary plans may be.

Therefore, a useful potential indicator in the accountability system could be the percentage of students who successfully complete a sufficiently intense service learning or work-based learning experience that meets certain standards that are associated with the nature of the placement, the structuring of the learning experience, and the outcomes for students' knowledge, skills, and dispositions. A number of organizations and researchers echo this recommendation (Achieve & NASDCTEc, 2014; Darche & Stern, 2013). Thus far, one state—South Carolina—publicly reports the percentage of students who participate in approved work-based learning experiences on its school report cards (Achieve & NASDCTEc, 2014).[11] Georgia, too, has developed well-defined standards for its work-based learning experiences.[12]

In California, AB2211 was signed into law in 2010, which authorized school districts to establish and provide quality work-based learning programs for high school students. However, at present the completion of programs that meet the quality criteria are not part of the school reporting or accountability system.

Work-based learning experiences range significantly in their depth, focus, and utility for acquiring the technical skills and dispositions sought. Many programs offer a continuum of work-based learning experiences that range from career awareness and career exploration (learning about work) to career preparation (learning through work) to career training (learning for work). Low intensity work-based learning experiences include work site visits, career speakers, job shadows, and career fairs. High intensity experiences can include internships, student-run enterprises (both social and commercial ventures), school-based clinics (e.g., law clinic), virtual apprenticeships, and e-mentoring, if done regularly (ConnectEd, 2012b).

ConnectEd leaders describe two types of high-intensity work-based learning experiences: 1) internships, job shadowing, mentoring that send students "out" for work-based learning; and 2) project-embedded work-based learning experiences that bring industry professionals in as consultants, advisors, or evaluators on projects or student work products (R. Stearns, personal communication, May 19, 2014; D. Yanofsky, personal communication, June 4, 2014).

Standards that might be used to define what constitutes an adequate work-based learning experience for the purpose of recognition in the LCAP, or as part of a student's profile information, could focus on completion of a high-intensity, high-quality learning experience, such as an internship, apprenticeship, or student-run enterprise, as well as on demonstrated competencies that have emerged from such experiences. These standards might draw on those already in operation in some career academies.

For example, California Education Code (54692) stipulates that the California Partnership Academies must provide Academy students with a work-based learning experience or internship (CDE, n.d.).[13] The main features of a work-based learning experience in CPAs involve:

1. development of a student worksite *learning plan*, which is contractually agreed upon by the teaching staff, administrators, student, parents, and the internship provider that outlines the purpose of the internship, the number of hours per week, whether the internship is paid or unpaid, details of the tasks the student will perform, the skills required, the rotation through the major departments within the work environment, dress code, and expected behaviors;

2. the development of a student *portfolio* of the internship experience such as a resume, cover letter, journal entries about the work-based learning experience, student evaluation of the internship, a reflective essay, documentation of the internship work; and

3. an internship supervisor's *evaluation* of the student's workplace performance, specific job assignment performance, growth on the job, and areas of strengths and need for improvement (Winthrop, 2001).

The National Academy Foundation internship model, like that used by many Linked Learning sites, similarly requires:

- an internship (usually of several months' duration) with clearly *identified learning outcomes*;

- explicit *connections to academic and technical instruction*; and

- means for *assessing* the learning, including self-assessments and student reflection, as well as a formal evaluation by the work-site super-

visor assessing the student's college and career readiness in the areas of foundational skills, applied workplace skills, self-management and personal responsibility, knowledge of the field and organizational context, and position-specific technical skills (NAF, 2012).[14]

NAF has entered into a pilot project with the Foundation for California Community Colleges to employ the NAF internship assessment as an evaluation of college- and career-ready skills that can serve as a certificate for college entrance; the credential can facilitate articulation of college credit for workplace learning from high school to college.

Properly structuring the assessment aspect of a work-based learning experience is critical in the eyes of many experts. For example, Darche & Stern (2013) recommend that, rather than assessing students' abilities through more tests, schools should evaluate "students' actual performance in demanding work roles" (p. 6). They argue that gauging students' work-based learning experiences are "a direct and authentic measure of career readiness where the demands of real work are the standards for judging students' performance and the work itself becomes the measured 'performance task'" (p. 6). Determining successful completions of work-based learning experiences would require the inclusion of critical components such as the identification of standards-based learning goals and a supervisor's evaluation of the student's on-the-job performance.

Recommendation #2

The LCAP could include an indicator of the proportion of students who have performed successfully in approved work-based learning experience that meets the standards of high-quality experiences, such as those outlined above from CPA and NAF (see also, Darche, Nayar, & Bracco, 2009). Such standards would likely include:

1. Performance in an extended work experience during which the student must provide valued services or products to clients or customers, and where the student's performance is judged by the standards of adult professional work;

2. Development of learning plans in alignment with academic and technical standards and in connection with academic and technical instruction;

3. Ongoing guided communication and supervision;

4. Means for student reflection on the learning process and documentation of related products or artifacts;

5. Assessment of learning and performance, tied to academic and technical standards.

Similar to the California Seal of Biliteracy system, schools can document the students who have participated in work-based learning experiences that have met these standards, reporting the percentage of such students as an aggregate measure while also enabling students to report their experience in the context of their individual student profiles.

Achievement on Assessments of Career-Related Knowledge and Skill

A third possible indicator of career readiness would be based on tests of career-related knowledge and skill. Just as the LCAP includes indicators of college readiness such as scores on Advanced Placement or International Baccalaureate examinations, so career-readiness measures should include evidence derived from demonstrated knowledge and skills.

Conceptualizing Career and College Readiness

Postsecondary readiness is a complex construct. The model developed by Conley (2014) organizes the knowledge, skills, and dispositions needed for postsecondary success into four "keys": Key Cognitive Strategies, Key Content Knowledge, Key Learning Skills and Techniques, and Key Transition Knowledge and Skills (see Figure 2, below).

These keys include academic and technical knowledge along with skills such as communication in many forms; planning, evaluating, and refining solution strategies; interpersonal skills such as collaboration; and intrapersonal traits, such as perseverance, resilience, and growth mindset that have been found to be as important as academic skills.

FIGURE 2: THE FOUR KEYS TO COLLEGE AND CAREER READINESS

Key Cognitive Strategies	Key Content Knowledge	Key Learning Skills & Techniques	Key Transition Knowledge & Skills
Think	**Know**	**Act**	**Go**
Problem Formulation Hypothesize Strategize **Research** Identify Collect **Interpretation** Analyze Evaluate **Communication** Organize Construct **Precision & Accuracy** Monitor Confirm	**Structure of Knowledge** Key Terms & Terminology Factual Information Linking Ideas Organizing Concepts **Attitudes Toward Learning** Content Challenge Level Value Attribution Effort **Technical Knowledge & Skills** Specific College & Career Readiness Standards	**Ownership of Learning** Goal Setting Persistence Self-Awareness Motivation Help-Seeking Progress Monitoring Self-Efficacy **Learning Techniques** Time management Test-Taking Skills Note-Taking Skills Memorization/Recall Strategic Reading Collaborative Learning Technology	**Contextual** Aspirations Norms/culture **Procedural** Institution Choice Admission Process **Financial** Tuition Financial Aid **Cultural** Postsecondary Norms **Personal** Self Advocacy in an Institutional Context

Ideally, indicators of postsecondary readiness will rely on a wider range of assessment techniques than those offered through traditional tests, which are typically limited to multiple-choice and short-answer formats. This is at least as true in the realm of career technical education as it has been true in the academic realm. Authentic assessments typically engage students in tasks that cross disciplinary lines and feature complex problems that simulate or are set in real-world contexts. Below we describe the current landscape for both more limited tests of knowledge and for performance assessments that require applications of knowledge and skill.

CTE Assessments

A range of assessments is used in the CTE field to assess student learning, from skill-based technical assessments to performance-based assessments involving project-based learning, portfolio assessments, and work-based learning experiences. These latter are particularly important for the development and application of skills and dispositions that enable effective use of knowledge and creative problem-solving.

Skill-based technical assessments measure the extent to which students have mastered the industry-based skills that are needed to pursue a specific career pathway such as accounting or web design. These technical assessments serve as validation measures for the acquisition of specific occupational skills. A recent report by the Center on Education Policy (McMurrer, Frizzell, & McIntosh, 2013) surveyed state CTE directors on how states are defining and measuring career readiness. The findings showed that the majority of states (38 out of the 46 states that responded to the survey) employed technical skills assessments in order to evaluate students' career readiness.[16]

The authors also found that ten states reported using *performance-based assessments* to measure technical skills. The report cites the example of the state of Missouri using Career and Technical Student Organization competitions to assess high school students' technical skills (p. 6). Performance-based assessments and portfolios of student work provide an important option for authentically measuring occupation-specific knowledge and skills because they are able to assess deeper levels of students' skills and knowledge than are selected response items (Darling-Hammond & Adamson, 2010; Lane, 2010). Performance-based assessments require students to demonstrate skills and apply knowledge to novel tasks. This type of assessment emulates the contextualized learning and hands-on experiences that are cornerstones of CTE.

Finally, *work-based learning experiences* such as internships or pre-apprenticeships may be viewed as the ultimate performance assessment since students are required to practice applying skills in a real-world setting. And the importance of providing students with relevant work experiences cannot be overstated. For instance, a study that investigated how employers discerned readiness for employment when reviewing resumes showed that previous work experience was the primary determinant in signaling suitability for employment, more so than educational qualifications (Bartlett, 2004).

States are beginning to incorporate CTE assessments in their accountability systems. For example, Georgia's high school accountability system, the College and Career Ready Performance Index, defines post high school readiness as the share of students who complete a Career Technical and Agricultural Education pathway and earn an industry-recognized credential or pass an end-of-pathway assessment test (CDE, 2013c). Kentucky's accountability system measures career readiness by students' meeting a benchmark on the ACT WorkKeys exams or the Armed Services Vocational Aptitude Battery as evidence of career-ready academic skills and meeting benchmark on the Kentucky Occupational Skills Standards Assessment as evidence of career-ready technical skills (CDE, 2013c).

Below we describe both traditional technical assessments in current use and performance-based assessments, outlining the kinds of skills and abilities they measure, as well as how and where they are typically employed.

Technical Assessments

ACT WorkKeys, developed by ACT, measures employability skills based on industry-identified needs and standards. It consists of three tests based on math and literacy (i.e., applied math, locating information, and reading for information) assessed through a paper-and-pencil or online test, using a mainly multiple-choice format ("ACT Work-Keys Overview," 2014). This assessment can lead to earning ACT's National Career Readiness Certificate. WorkKeys is used by high schools, colleges, professional organizations, businesses, and government agencies and is the most widely used technical skills assessment (McMurrer, Frizzell, & McIntosh, 2013; Rey-Alicea & Scott, 2007). Content validation studies for specific jobs have been conducted via ACT's job profiling analysis used to establish work readiness standards (ACT, 2013).[17] ACT has a database (ACT JobPro) of cognitive skills and skill levels required for more than 19,000 jobs established through 20 years of local content validation studies for specific jobs. The ACT JobPro database is the source of evidence for work readiness standards for ACT Work-Keys cognitive assessments (p. 31).

NOCTI Job-Ready and Pathway Assessments were developed by the National Occupational Competency Testing Institute (NOCTI). NOCTI is a provider of technical competency assessment products and services for the secondary and postsecondary educational institutions in the United States and around the world ("NOCTI Assessments," n.d.). Job ready assessments measure the skills of those who complete a secondary or postsecondary technical program such as computer programming under the Information Technology career cluster, or plumbing under the Architecture & Construction career cluster. They are designed to assess technical skills at the occupation level. Job ready assessments consist of both written and performance components. For example, the plumbing job ready assessment consists of 173 questions on a written test that measures students' knowledge about safety, plumbing math, water supply, and distribution

to name a few. The performance component consists of two jobs where students must install and prepare to leak test a drain-waste-vent (DWV) system as well as install and prepare to leak test a water supply system (NOCTI, n.d., p. 15).

The pathway assessments are broader in scope than the job ready assessments. Pathway assessments measure the technical skills within a pathway or cluster as well as soft skills and academic skills contextualized to the occupation. As an example, pathway assessments under the Information Technology career cluster include information support and services, interactive media, and network systems. The network systems pathway assessment requires the student to answer 113 questions pertaining to categories such as information technology applications, network systems, ethics and legal responsibilities, leadership and teamwork, and employability and career development (NOCTI, n.d., p. 44). Pathway assessments do not include a performance component.

NOCTI is also the assessment provider for many certificate programs (e.g., NOCTI partners with A*S*K Business Institute and offers their Assessment of Skills and Knowledge for Business certificates). NOCTI assessments are used by secondary and postsecondary educational institutions. The following states have NOCTI statewide assessment programs in place: Connecticut (secondary schools), Georgia, Indiana, Michigan, Missouri, New York, Oregon, Pennsylvania, and Virginia ("NOCTI State Programs," n.d.). The statewide assessments are used primarily in secondary CTE programs. NOCTI is not used in California as a statewide assessment and is not listed by the Center on Education Policy as used by California schools or districts (McMurrer, Frizzell, & McIntosh, 2013).

Assessment of Skills and Knowledge for Business were developed by the A*S*K Business Institute, which provides objective, third-party documentation of learning achievement through A*S*K Business Certificates ("A*S*K Business Institute Certification," 2014). Based on industry-validated skills and requisite knowledge, the certifications offer added value to completion of course work and other learning experiences. A*S*K Business Institute presently offers four certification exams: Fundamental Business Concepts, Fundamental Marketing Concepts, Concepts of Finance, and Concepts of Entrepreneurship and Management. Key elements are online exams addressing specific elements of the nationally validated curriculum standards for finance, marketing, and management/administration. A*S*K exams and certificates are based on performance indicators derived from MBA Research's continuing research of the business community. The Institute is administered by MBA Research with guidance from a variety of public and private organizations nationwide. The exam questions have been reviewed and edited for validity by professional writers and curriculum researchers. The items themselves have not been reviewed by industry, although an industry review process is underway. Exams feature 100–150 multiple-choice questions. It is estimated that an average of 30% of all high school students who take the exams earn certification ("A*S*K Business Institute FAQs," 2014).

Skill Connect Assessments, developed by Skills USA, are online assessments that evaluate technical and employability skills and knowledge through drag-and-drop, simulations, and other question forms ("Skill Connect Assessments," 2014). The Skill Connect Assessments are designed for career and technical education programs at the secondary and postsecondary levels, in addition to entities conducting workforce development and training efforts to meet assessment and development needs for technical and employability skill attainment.

Performance-Based Assessments

College Work Readiness Assessment Plus (CWRA+) was developed by the Council for Aid to Education (CAE). Since 2002, CAE has pioneered the use of performance-based simulations for determining whether students can think critically, evaluate evidence, synthesize information, solve problems, and communicate effectively ("CAE Performance Assessment," 2014). These assessments are constructed response instruments that require students to demonstrate their knowledge and skills, directly aligned to the CCSS and the development of 21st century skills. Specifically, CWRA+ measures critical thinking, problem solving, scientific and quantitative reasoning, writing, and the ability to critique and make arguments. Over 200 middle and secondary schools, both in the US and internationally, have used CAE's performance assessments.

Workforce Skills Certification System, developed by CASAS (Comprehensive Adult Student Assessment Systems) and LRI (Learning Resources, Inc.), documents and certifies employer-validated academic and soft skills and facilitates transition to the workforce ("CASAS Workforce Skills Certification," 2014). CASAS measures the academic skills (reading and math) via a multiple-choice test and assesses critical thinking and problem solving skills with multiple-choice and short essay formats. Examinees respond to industry-based scenarios that assess their ability to process data and money transactions, help people and maintain safety, analyze production and promote teamwork, provide customer service and solutions, and work with materials and measurement. The LRI portion of the assessment measures soft skills (personal qualities and customer care) via a video simulation assessment.

The Workforce Skills Certification System is used by youth and adults entering the workforce, transitioning to work, incumbent workers, and dislocated workers. Rey-Alicea and Scott (2007) report that Workforce Skills Certificates are awarded to individuals who perform satisfactorily on two assessments: the standardized literacy tests for the Workforce Skills Certification Assessment and the work-based, portfolio project soft skills assessment, known as the Workforce Skills Project-Based Portfolio. The Workforce Skills Project-Based Portfolio "combines project-based learning and worksite performance ratings to measure a student's ability to integrate work readiness skills—team skills, customer service, project development and presentation—while developing and completing a work-based portfolio project" (Rey-Alicea & Scott, 2007, p. 10).

Student Certification Assessment System (SCAS), developed by NAF, is a credential system that measures career and college readiness ("NAF Assessments and Certification," 2012). Students who complete the following components are awarded a SCAS certificate upon graduation: They must meet or exceed expectations for four culminating projects (performance assessments), four end-of-course exams (after completing four course curricula), and one internship assessment in one of the five academy pathways: finance, hospitality and tourism, informational technology, engineering (developed by Project Lead the Way) and health sciences (currently under development and will be operational by 2015).

The end-of-course exams employ a multiple-choice format and include five constructed response items. The constructed response items are scored by teachers (with a scoring rubric). The culminating projects are performance-based and are completed in class and uploaded into a digital portfolio, which houses the student's body of work across multiple skill sets (K. McCormick-Lee, personal communication, May 12, 2014). This includes a student reflection, and teachers use the scoring rubrics to guide and judge the culminating projects.

There is also an internship assessment that is a required component of SCAS. Students' work-based learning experiences culminate with an internship. The internship supervisor evaluates the student across a wide range of skill sets—21st century skills as well as academy specific skills. The supervisor evaluation is accompanied by a detailed scoring rubric. To earn a SCAS certificate, students must also fulfill high school graduation requirements; thus, the SCAS certification goes above and beyond basic graduation requirements for secondary students. SCAS was released 1.5 years ago and is used by about 40 districts (K. McCormick-Lee, personal communication, May 12, 2014).

Moreover, NAF has formed a partnership with International Baccalaureate to begin offering the IB Career-related Certificate (IBCC) in many of the NAF academies (J. D. Hoye, personal communication, August 22, 2014). The partnership combines NAF's SCAS certificate with the IBCC. The IBCC is designed for students who want to specialize in a career-related pathway. The certificate incorporates IB Diploma Programme courses (at least two) with the IBCC core[18] and career-related studies ("IB Career-related Certificate," n.d.).

Recently, NAF revealed the development of the NAFTrack Certified Hiring initiative (NAF, 2014). This initiative centers on a partnership between NAF and 10 top corporations (AT&T, Cisco, EMC, HP, JPMorgan Chase, Juniper Networks, KPMG LLP, RBC Capital Markets US, Verizon, and Xerox) where the companies have promised to give special consideration to job applicants who have graduated high school with a NAF certification. Special considerations may include guaranteed interviews among equally qualified applicant pools, priority hiring among equally qualified applicant pools, or feedback and coaching post interview.

Performance-Based Assessments Used in Linked Learning Career Pathways were developed by ConnectEd and Linked Learning Career Pathway teachers. The key features of a good performance-based assessment include the following: a mapping of student learning outcomes across grade levels and across subject areas so that they represent the vision for a college and career-ready graduate, while also offering multiple ways for all teachers and educators in the system to teach and support students in reaching the learning objectives, and the use of common rubrics that align to the student learning outcomes (T. Skjervheim, personal communication, June 3, 2014).

Linked Learning Districts have collaborated with Envision Learning Partners, the Asia Society, the New Tech Network, ConnectEd, and the Stanford Center for Assessment Learning and Equity (SCALE) to develop a rubric for assessing the quality of students' performance on tasks including presentations and exhibitions. The rubric serves as a roadmap to help teachers self-assess and improve the performance-based assessments.

Graduation Portfolios

A growing number of schools both within and beyond the Linked Learning network require all students to complete a structured graduation portfolio, which includes performance assessments that are samples of work reflecting key college and career readiness skills. The portfolios typically include a major piece of work in each of the major academic areas (e.g., ELA, mathematics, science, history/social science), plus a work-based learning experience, and often the arts or world language as well. They can also include products from significant interdisciplinary projects that integrate the academic and CTE subjects. Often the portfolio also includes a statement of life aspirations as those relate to college and career goals, similar to a college application that includes a statement of aspirations as well as evidence of accomplishments.

The portfolio work is assembled over the four years of high school and is typically revised by the student until it reaches a high level of proficiency and is scored using rubrics that reflect a set of cross-cutting competencies. The competencies are academic, technical, and dispositional in nature, examining, for example, students' abilities to communicate, collaborate, plan, organize, reflect, learn independently, and persevere, as well as to demonstrate knowledge of content. Many schools also require that components of the portfolio be defended in a presentation to external as well as internal reviewers.

These kinds of portfolios are used for graduation for all schools in Rhode Island and for approved schools that are part of the New York Performance Standards Consortium in New York State. In California, they are also used in many Linked Learning pathways and National Academy Foundation academies, and in networks of schools sponsored by Envision Education, the Asia Society, High Tech High School, New Tech High, and others. Research has shown that these students experience greater success in college

because they have to plan and organize major investigations and projects, acquire and analyze information, present and defend their ideas, revise their work to meet a standard, surmount obstacles, and use feedback productively (Foote, 2007; Friedlander, Burns, Lewis-Charp, Cook-Harvey, & Darling-Hammond, 2014; Zeiser, Taylor, Rickles, Garet, & Segeritz, 2014).

The Envision Schools portfolio, for example, was designed and validated in collaboration with SCALE. Each portfolio includes five pieces of work that have reached a "proficient" level on the scoring rubric, a student reflection on each, and a cover letter (Envision Learning Partners, 2012a) (see Appendix C). The five pieces of work, each representing a different subject area, must include a research paper, an inquiry project, an example of creative expression, an analysis paper, and an exhibit from a workplace learning experience. These must represent the major academic areas. Teachers design tasks for the portfolio that are aligned to content standards and reveal students' mastery of a set of leadership skills, which include abilities to communicate, collaborate, thinking critically and creatively, and to complete projects effectively.

For the workplace learning experience portfolio assessment, students must complete a project in one of their two 12-week work-based internships that benefits their workplace and demonstrates their ability to use leadership skills as well as inquire, analyze, research, or express themselves creatively in the workplace.

The portfolio defense is the capstone activity for students to demonstrate their learning and college readiness. Students select and defend three certified artifacts from completed artifacts in each course, demonstrating their mastery of the Envision Schools 21st Century Leadership Skills and connecting them to their personal and professional goals (Envision Learning Partners, 2012b). The schools believe that, "through project-based learning, students practice showing what they know and can do, and continually reflect on their growth in the leadership skills they use" (Envision Learning Partners, 2012a, p. 2). The expectation is that practice and reflection result in proficiency in both applying content and demonstrating these deeper learning skills.

Credentials and Badges

A more elaborated form of skills assessment is represented by the attainment of credentials and badges as concrete representations of the knowledge, skills, and abilities acquired through sustained study within a career path. They communicate to business and industry personnel that the student has mastered occupation-relevant skills and knowledge and that they are career-ready. In addition, the attainment of badges and credentials are evidence of the student's ability to persist and complete a rigorous course of study while also attaining a level of knowledge and skill in that area. Industry-recognized credentials and certificates are attained through high levels of achievement on technical and authentic assessments discussed in detail in the previous section. The concept of badges is described below.

A central idea behind badges is that students own them. Digital badges offer students self-determination in terms of what they want to accomplish and how they will be able to demonstrate this accomplishment. Some advocates describe individual badges as stepping stones, leading toward more comprehensive, "gold standard" credentials, certificates, and licenses. This might be an accumulation of a certain set of badges that together denote a broader accomplishment reflected in a credential, or it might be earning a badge for demonstration of a particular skill or accomplishment, alongside other different accomplishments, such as completion of coursework or work-place learning experiences.

NOCTI is launching a badging initiative called SkillBadge. Beginning in the 2014–15 school year, students achieving 70% on a NOCTI multiple-choice assessment will be eligible to earn a college credit recommendation report as well as have access to a badge recognizing their achievement. Participating colleges and universities (of which there are 1500+) will consider giving the student college credit based on the college credit recommendation report (NOCTI, 2014).

ConnectEd has been exploring digital badges for several years (D. Yanofsky, personal communication, June 4, 2014). Developers at ConnectEd envision two types of badges. One type will be a validated badge through ConnectEd Studios, the digital platform that supports Linked Learning pathways. The validated badge will have digital links embedded in it that shows the student work as well as the validated scoring rubric that was used to evaluate the work. The other type of badge may be issued by Linked Learning career pathway teachers and directors to reinforce and reward student motivation, interests, and initiative. However, in order for the badges to be meaningful and valued, valid assessments must be used to measure student learning and progress, and external validation from industry leaders and representatives is key.

The Mozilla Foundation in collaboration with the MacArthur Foundation is leading the charge for the development and implementation of a digital badge system for connected learning. A badge is an indicator or symbol of an accomplishment, like badges earned in the Boy or Girl Scouts. "A digital badge is an online record of achievements, tracking the recipient's communities of interaction that issued the badge and the work completed to get it" (Mozilla Foundation & Peer 2 Peer University, 2012, p. 3).

It is argued that digital badges bridge the multiple contexts in which learning takes place, encourage participation and motivation in learning, build communities of practice among peers with similar interests, and provide portable and sustainable value to the learner. Badges may be used to represent various skills, competencies, qualities, interests, and achievements earned across many contexts over time. For example, a learner may earn a badge for hard skills such as completing a course, demonstrating mastery of academic or technical skills, or for softer skills such as critical thinking, collaboration, or problem solving. In addition, smaller badges may be used for motivational or formative feedback purposes to document learner progression, and larger badges may be

used for certification purposes and signify more complex skills or competencies. Badges may also be leveled, as in some videogames where higher levels are attained based on progress through the game. As an example, the attainment of lower level badges may serve as a prerequisite for higher level badges.

In order for badges to accumulate value and credibility, the use of valid and reliable assessments tied to specific learning outcomes is critical. The badge must include information about when and how it was earned (criteria and evidence) and who issued it. Finally, in order to capture the multiple learning contexts, Mozilla is building an open and decentralized digital badge infrastructure to support learning and recognize important skills and outcomes.

Digital badges are intended to afford students who attain them portable and meaningful representations of their skills and abilities because digital badges embed rich information about when and how the badge was earned (criteria and evidence) and who issued it. In this manner, they would go beyond static representations of skills endorsements and seals of accomplishment currently used by educational institutions. This effectively expands the earned credential's portability since the evidentiary warrant for attainment would be transparent to potential employers and postsecondary institutions, especially for those outside regional or state boundaries.

The recognition of industry-approved credentials, certificates, and badges can serve as a powerful incentive to schools and districts to offer students a wide range of opportunities to build career readiness. In addition, industry certificates and credentials represent value to a variety of stakeholders. Employers value them since they signal that the student has mastered work-related skills that are in demand; members of postsecondary institutions value them as they indicate the student's academic and technical skills, grit, and interest in a career pathway; and students value them because they symbolize hard work, an accomplishment, and portable skills.

Recommendation #3

The new accountability system should include measures of student readiness based on demonstrations of accomplishment on assessments of technical skills and workplace learning. At least four strategies could be considered for such incorporation:

- Including in the LCAP the percentage of students who take and demonstrate a high level of performance on *robust assessments of technical skills and workplace learning*. This recommendation corresponds with one made by Achieve and NASDCTEc (2014) and is already in practice in some states across the nation, as described earlier. In addition to industry-authorized assessments of knowledge and skill that meet a defined set of standards, it is important to include assessments that

provide a fuller, more accurate picture of what students are able to do with their knowledge. Like the systems developed for Linked Learning and NAF academies, approved assessments should: require students to use higher level thinking to perform, create, or apply knowledge and skills to novel situations; have validated instrumentation and scoring rubrics that facilitate the use of high-quality tasks supported by reliable scoring; and provide teachers with training that supports well-calibrated scoring (Darling-Hammond & Adamson, 2010; Jonsson & Svingby, 2007; Wei, Cor, Arshan & Pecheone, 2012).

- Including in the LCAP the percentage of students who attain *industry certifications, credentials, licenses, or badges*. Other reform organizations and researchers have proposed a similar recommendation (Achieve & NASDCTEc, 2014; Darche & Stern, 2013). Moreover, this recommendation is aligned with the reporting requirements of the Carl D. Perkins Act of 2006, which stipulates that CTE programs of study should lead to an industry-recognized credential or certificate at the postsecondary level or a postsecondary degree. Currently, two states, Virginia and Kentucky, measure and include the number of students who earn industry-recognized credentials on the state report cards. Starting in 2015–2016, Alabama will incorporate into its new accountability system career readiness indicators such as students earning an approved industry credential (Achieve & NASDCTEc, 2014). The very comprehensive NAF Student Certification Assessment System—which certifies rigorous coursework and satisfactory performance on end-of-course exams, culminating projects, a work-based learning internship, and high graduation requirements—also performs this function and could be similarly recognized.

- Allowing schools that have well-designed *graduation portfolio systems* for assessing students' academic and work-based knowledge and skills to use them, with state approval, in lieu of the current exit exam that measures and encourages few of the 21st century skills students need to succeed beyond high school. A small but growing number of states (including New York, for approved schools, and Rhode Island for all schools) have encouraged the use of performance-based evidence for graduation, often assembled in portfolios of work, in lieu of traditional exit exams.

- Including evidence from *assessments of technical and 21st century skills*—especially credentials, certifications, licenses, and badges that represent a sustained course of study and rigorous level of accomplishment—as a recognition on the diploma and in student profiles that are made available to colleges and employers.

Conclusion

With the recent LCFF and LCAP legislation, California is primed to change how postsecondary success is defined. Thoughtful choices of indicators for the new accountability system could end the false dichotomy of preparation for college *or* career. Instead, high schools can be encouraged to prepare all secondary students for both college *and* careers and to be recognized for making high-quality learning opportunities available to them.

The LCAP intends to incentivize schools and districts to offer and support the development of student outcomes that grow both academic and career skills. This paper proposes that the LCAP incorporate three types of performance indicators aligned with career and college readiness:

1. The proportion of students who complete rigorous and integrated courses of study in career technical education as well as college preparation, such as those that meet Linked Learning criteria (see Appendix A for those criteria);

2. The proportion of students who have satisfactorily completed work-based learning experiences that meet specific criteria (see Appendix B); and

3. The proportion of students who have met a defined level of achievement on assessments of technical knowledge and skills, such as the NAF portfolio or similar, well-defined portfolios documenting specific knowledge and skills (see Appendix C for an example), as well as the proportion who have attained industry-approved certificates, licenses, and badges that are portable and valued by the student, postsecondary institutions, and businesses and industry.

To implement these recommendations, it will be important to begin to build these measures into existing data systems, such as CALPADS, district data systems, and voluntary data networks (e.g., CalPASS+, IEBC, the Gardner Center's CORE database). Meanwhile, the state should encourage districts to move voluntarily to richer measures, indicators, and data that can be reflected in local reporting for the LCAPs.

In addition, we recognize that the accountability system for students is organized through high school graduation requirements and how individual student accomplishments are reported to potential colleges and employers. We recommend that California take this opportunity to rethink how graduation expectations are structured and reported so that student accomplishments—including those noted above—can be part of the official record. This can take the form of:

- a student profile that systematically communicates more complete information about students to colleges and employers;

- a graduation portfolio that systematically assembles evidence of students' attainment of academic, technical, and dispositional competencies; and

- recognition on the diploma of particularly rigorous accomplishments, such as credentials, certifications, or cumulative badges.

Ultimately, as we learn to describe what students have accomplished in more meaningful ways, it will be important to align and articulate our educational systems at all levels: from ages 0 to 5 to the TK–12 system; within and across Grades K–12; between K–12 and postsecondary, including K–12 to community college and community college to 4-year university. It will be especially important for secondary educators and those in postsecondary systems to sit down together in regions across the state to develop authentic, aligned, and interpretable ways of developing and measuring career and college readiness, including continual updating of the a-g system, so that California's system can become more integrated and more responsive to 21st century expectations and applications of knowledge and skills.

If we are thoughtful about how to include meaningful career-ready indicators in the LCAP and in the high school graduation and transition systems, coupled with college indicators, we will be able to encourage the provision of higher quality learning opportunities to students. Such advances will also signal to students, parents, educators, and business and industry leaders that there are multiple pathways to postsecondary success and the ultimate goal of secondary education is to prepare all students equally for college and careers.

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End Notes

1. There are 16 career clusters in the National Career Clusters Framework. CA's 15 industry sectors represent organizational variations (e.g., combining business, management and administration with finance career clusters) as well as career clusters unique to CA (e.g., fashion and interior design).

2. Retrieved on November 5, 2014, from http://www.careertech.org/California

3. Retrieved on November 5, 2014, from http://www.cde.ca.gov/ci/ct/rp/

4. Retrieved on November 5, 2014, from http://californiacommunitycolleges.cccco.edu/Portals/0/Reports/2014_CTE_ Report.pdf

5. These expectations are outlined in Section 52302(a) of the California Education Code.

6. The LCFF legislation imposes a maintenance-of-effort requirement on ROCPs, which stipulates that until the 2014–15 fiscal year, school districts and county offices of education must expend for ROCPs no less than the level of funds expended in the 2012–13 fiscal year (EC Sections 2575(k)(2) and 42238.03(a)(7)). However, the future of ROCPs is unknown beyond the 2014–15 fiscal year in this dynamic funding context.

7. CEC 54690(d)

8. The 2009–2010 school year is the most current year of data on the California Partnership Academies available on the California Department of Education website.

9. Linked Learning pathways seek a-g approval when the CTE courses are deemed to have strong academic and theoretical foci; it is believed that it is not appropriate for all CTE courses to strive for a-g certification. However, all CTE courses in Linked Learning pathways are grounded in state approved academic/technical standards as well as industry standards ("Linked Learning FAQs," n.d.).

10. CPAs complete an extensive application to the California Department of Education (CDE) to establish a Partnership Academy. Then each CPA submits comprehensive reports on the year's activities, budgets, course offerings, and how the technical and academic courses are aligned and integrated. CPAs that fail to meet statutory requirements can be, and have been, defunded. However, there is no certification or certification process for CPAs either provided or endorsed by the CDE (J. Winthrop, personal communication, June 9, 2014).

11. The South Carolina Department of Education description of work-based learning components can be found at: https://ed.sc.gov/agency/ac/Career-and-Technology-Education/Program-Support/Work-BasedLearningActivities. cfm

12. The Georgia Department of Education has established 24 work-based learning standards. Standards 1-5 pertain to integrating career related education into the classroom component of the curriculum; standards 6-24 guide teachers in placing and supervising students on job sites; and standard 24 specifies that a comprehensive evaluation of the program be conducted annually (using a rubric). See http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Work-Based-Learning-.aspx.

13. In 2009–2010, 52% of CPA seniors were reported to have completed an internship (Dayton, Hester, & Stern, 2011).

14. See http://linkedlearning.org/wp-content/uploads/2013/09/Guide-to-the-NAF-Supervisor-Assessment-of-College-and-Career-Readiness.pdf for an example of the NAF supervisor evaluation form for work-based learning internships, as well as the scoring rubric.

15. California was not one of the 38 states that reported using technical assessments to assess career readiness.

16. Content validity differs from predictive validity. More studies are needed to examine the predictive validity of these types of assessments on student's occupational success, while controlling for factors such as educational attainment. In contrast, work-based learning experiences have been found to correlate with subsequent career success (Darche & Stern, 2013).

17. The IBCC core includes an Approaches to Learning course that introduces students to life skills, principles of community and service learning, language development, and a reflective project where students identify, analyze, critically discuss, and evaluate an ethical issue related to their career-related studies.

Appendix A: Essential Elements for Pathway Quality

LINKED LEARNING®

Essential Elements for Pathway Quality

Student Outcomes-Driven Practice

The progress of every student toward achieving measurable and consequential learning outcomes is the driving purpose for the pathway community of practice. The pathway team regularly reviews several kinds of evidence including (1) performance-based measures of pathway-specific student learning outcomes; (2) information on students' level of performance, available from student information systems; (3) individual student growth in performance, both on pathway-specific learning outcomes and on transcript-based measures; (4) students' success after high school in postsecondary education and employment, if available; and (5) trends over time in all these measures for the pathway students as a group. The team uses data on a monthly basis to inform and improve professional practice, and on an annual basis to revise the pathway improvement plan.

Equity, Access and Achievement

A Linked Learning pathway pursues both excellence and equity as mutual goals. A pathway establishes high achievement expectations for all students and practices non-discriminatory and inclusive policies, practices, and pedagogy. The pathway is equitably accessible to and serves well any interested student, regardless of race, ethnicity, gender, sexual orientation, socioeconomic status, special needs, or prior academic achievement. An equity-focused pathway intentionally reflects the diversity and strengths of its school, community, and district, and the grouping of its students is heterogeneous, flexible, and equitable.

Program of Study

An industry-themed pathway program of study brings coherence to the four core components of Linked Learning: rigorous academics, real-world technical skills, work-based learning, and personalized supports. It intentionally coordinates and sequences student learning experiences in a way that integrates rigorous academic and technical core curricula. The pathway theme is broad enough to appeal to and engage all students. The program of study maximizes cohort scheduling to ensure that all pathway students are offered the opportunity to earn postsecondary credit and are prepared for success in the full range of postsecondary options.

Learning and Teaching

Pathway students engage in inquiry- and project-based learning that is outcome-focused, rigorous, relevant, and collaborative. Members of the pathway community of practice plan such learning experiences for students: they regularly collaborate to develop and articulate standards-aligned grade-level, course, and project outcomes to organize the pathway's program of study and guide assessment, curricular, and instructional planning. They also use performance assessment tasks with common rubrics to assess, monitor, and support every student's progress toward mastery of college and career ready pathway learning outcomes. The community of practice regularly engages in professional learning, evidence-based inquiry, and reflection to continuously improve their practice.

Work-Based Learning

All students participate in a personalized and coordinated continuum of work-based-learning (WBL) experiences designed to help them master and demonstrate academic, technical, and 21st Century skills, as identified in the pathway student learning outcomes. WBL builds on and extends every pathway's program of study. WBL occurs in-person and online: in the work place, the community, and at school. Students acquire academic, technical, and 21st Century knowledge and skills through WBL, all of which enhance their preparedness for the demands of college and careers.

Personalized Student Support

Every pathway student is supported by pathway staff, partners, and families. The pathway community of practice tailors learning experiences to students' individual developmental needs, skills, strengths, interests, and aspirations. Pathway staff, in consultation with families and service providers, identify and address the academic, personal, and social-emotional needs of every student so that she or he makes progress toward achieving personalized college and career goals and pathway student learning outcomes.

Pathway Leadership and Partnerships

The pathway staff, school and district leaders, and partners share responsibility for program effectiveness and accountability for student outcomes. These stakeholders assure that conditions are in place to establish and sustain pathway quality. The pathway engages a formal advisory board that serves as an organizing structure to effectively engage a core of stakeholders, including business, postsecondary, and community partners.

Appendix B: Criteria for High-Quality Work-Based Learning Experiences

1. *Engagement in the workplace:* Students are actively engaged in learning work-related knowledge and skills in authentic settings.
2. *Youth involvement:* Youth are involved in choosing and structuring the experience.
3. *Community of practice:* Students participate in a community of practice that exposes them to industry or professional standards.
4. *Connection of the workplace to instruction:* Workplace learning opportunities aredesigned to systematically reinforce technical / academic instruction in school.
5. *Learning plans:* Learning plans specify the skills and knowledge areas that students will focus on in the workplace.
6. *Supervision:* Careful supervision from a trained mentor ensures that students' learning goals are being met.
7. *Coordination:* Regular communication and coordination between the school and workplace supervisor / mentor support a well-designed and implemented experience.
8. *Reflection:* Systematic opportunities for students to reflect critically on their experiences and connect workplace learning with their academic learning.
9. *Assessment of learning:* Students receive ongoing feedback about their performance; assessment of defined learning objectives is tied to academic standards, career technical education standards, and classroom requirements.

These standards are adapted from Darche, Nayar, & Bracco (2009) and the criteria for high-quality work-based learning outlined in CA Education Code 51760.1

Appendix C: Envisions Schools Portfolio

Profile of an Envision Schools Graduate

Envision Schools graduates are ready for success in college and future careers because they know, do, and reflect.

Envision graduates KNOW. They:
- Master academic subjects which makes it possible to:
  - o meet the University of California's a-g requirements
  - o pass the California High School Exit Exam
  - o show proficiency on the California Standards Tests
  - o perform successfully on college entrance exams

Envision graduates DO. They:
- Use core competencies such as inquiry, analysis, research, and creative expression
- Use 21st Century Leadership Skills such as communicate powerfully, think critically, collaborate productively, and complete projects effectively
- Participate in at least one Workplace Learning Experience in which they do real work and complete a project that not only benefits their workplace, but demonstrates their ability to use leadership skills as well as core competencies

Envision graduates REFLECT. They:
- Recognize and acknowledge growth, accomplishments, and successes as well as areas of future growth and development
- Revise work to proficiency based on feedback from teachers and peers

How do students get there?

At its core, the Envision approach to teaching *knowing, doing*, and *reflecting* is projects. Project Based Learning is a teaching approach, a mindset, and a framework for teaching skills and content. Through projects, students not only show what they *know*, they apply their knowledge (show what they can *do*). Project/s can also scaffold the learning leading up to a portfolio artifact, or be an application of learning following an artifact. Interdisciplinary projects and exhibitions should result in at least one or more portfolio artifacts.

Teachers map backwards from the Envision Portfolio tasks and content standards. This means giving the students multiple chances to practice elements of the portfolio tasks. Through project based learning, students get this practice of showing what they *know* and can *do*, and continually *reflect* on their growth in the leadership skills they use. Ultimately, the goal is that this practice and reflection lead to proficiency in the competencies assessed in the Envision Portfolio.

The Envision Portfolio and Defense is the capstone activity that pulls *knowing, doing*, and *reflecting* into one place, into one moment. It is the final inquiry, the final essential question, the final exhibition – a culmination of a 4-year *project* (or 2 years for sophomores).

Appendix C (cont'd)

The Envision Portfolio is organized by tasks which draw on different subject areas:

A completed Benchmark Portfolio (for moving on from 10th grade) has four proficient deep pieces of work (artifacts), a reflection for each artifact & a cover letter:

- ◆ Research Paper
- ◆ Analysis
- ◆ Inquiry
- ◆ Creative Expression

> Students choose 3 of these artifacts to defend.

A completed Envision Portfolio (for graduation in 12th grade) has five proficient deep pieces of work (artifacts), a reflection for each artifact & a cover letter:

- ◆ Research Paper
- ◆ Analysis
- ◆ Inquiry
- ◆ Creative Expression
- ◆ Workplace Learning Experience

> Students choose 3 of these artifacts to defend.

Each of these competencies is demonstrated in a different subject area (and subject areas can be combined), so that English language arts, science, social studies, mathematics, art and digital media, and work-based learning experiences (WLE) are all represented.

Envision graduates are *knowers* of academic subjects, *doers* and *reflecters* of four competencies and leadership skills required for college.* For their WLE, students complete a project that demonstrates their ability to use leadership skills as well as inquire, analyze, research or express themselves creatively in the workplace. For their work-based learning experience (WLE), students complete a project that demonstrates their ability to use leadership skills as well as inquire, analyze, research or express themselves creatively in the workplace.

Projects that students have completed are certified by teachers when they meet a standard of quality reflected in common rubrics that teachers have been trained to use. At the end of 12th grade, as the culminating opportunity for students to demonstrate their learning, students identify and defend three of their certified work artifacts before a panel of internal and external experts. The defense is evaluated, also using common rubrics, in terms of how well the students have demonstrated mastery of the Envision Schools 21st Century Leadership Skills, and show how the presented work both meets the school's criteria for graduation and supports his or her personal and professional goals. For the defense:
- ü   One artifact must come from the humanities (English or social studies)
- ü   One artifact must come from science or math
- ü   The third artifact is the student's choice
- ü   Each artifact is tied to a *different* leadership skill

Appendix C (cont'd)

Envision Schools' 4 Core Competencies

Research	Science, Social Studies or English	Leadership Skill	Reflection
Inquiry	Science or Social Studies	Leadership Skill	Reflection
Creative Expression	English and/or Art/ Digital Media	Leadership Skill	Reflection
Analysis	Math or English	Leadership Skill	Reflection
Research, Inquiry, Creative Expression or Analysis	WLE	Leadership Skill	Reflection

Source: http://www.envisionlearning.org/tools-and-resources/

scope

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Opportunity Policy in Education