Competency-Based, Project-Based, & Authentically Assessed Learning
March 2015

Basic Policy Questions
There are many complex layers to implementing competency-based and project-based learning, including creation of authentic assessments. This paper focuses on analysis and strategies that might be considered without needing to completely dismantle the current public school system.

1. The kind of school. Is there a difference between competency and project based learning at the elementary level – where one teacher is responsible for all subjects – and a middle or high school environment – where there are distinct subjects, realms of knowledge, disciplines, and teacher credentials? If the answer is yes, how would we talk about and address these two educational delivery environments?

2. Out of school success. Looking at middle and high schools, is it possible to recognize and incorporate authentic learning contexts, such as success in music performance, success in visual arts, success in the science fair, success in History Day, and success in the Speech League? If the answer is yes, are there ways to provide both funding and “equivalency credits” for success in these areas?

3. Progressive projects. Is it possible to create a progressive series of competencies and projects from elementary through high school that does not require a major overhaul of the State’s GLOs, Learning Objectives and Benchmarks? If the answer is yes, can Complex Areas be tasked with creating these?

4. Doing what adults do. Is it possible to look at how adults use specific areas of learning as a guide for constructing the progressive series of competencies and projects culminating in a mature portfolio upon graduation? For example, rather than learning about history, would it be possible to require students actually write history – a biography, a history research paper, the history of an event or a place? Rather than learning how to read and write English in a generic sense, would it be possible to require students to produce a set of poems, short stories, a novel, a screen play, a play? Rather than learning about biology, would it be possible to require that all students pose a scientific hypothesis and then design and implement experiments to prove or disprove it?

5. Authentic assessments. We do not judge competency in music through a written test – experts listen to the audition or performance. We do not judge a hula competition through a written test – experts, kupuna – watch and judge. We do not admit any athlete to a team via a written exam – they must try out. And for awarding high quality teachers a special national credential – great and
experienced teachers observe and judge. The essential question is whether it is possible to use experienced and expert assessors – such as the judging at the science fair – as a supplement to traditional assessments.

The World Bank Analysis
In 2003, The World Bank articulated what it felt were the shifts needed in public education: The World Bank’s publication, *Lifelong Learning in the Global Knowledge Economy*, contrasted the characteristics of traditional and lifelong learning models in this way:  (World Bank, 2003, p. 29)

<table>
<thead>
<tr>
<th>Traditional Learning</th>
<th>Lifelong learning</th>
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<tr>
<td><em>The teacher is the source of knowledge.</em></td>
<td><em>Educators are guides to sources of knowledge.</em></td>
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<td><em>Learners receive knowledge from the teacher.</em></td>
<td><em>People learn by doing.</em></td>
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<td><em>Learners work by themselves.</em></td>
<td><em>People learn in groups and from each other.</em></td>
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<td><em>Tests are given to prevent progress until students have completely mastered a set of skills and to ration access to further learning.</em></td>
<td><em>Assessment is used to guide learning strategies and identify pathways for future learning.</em></td>
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<td><em>All learners do the same thing.</em></td>
<td><em>Educators develop individualized learning plans.</em></td>
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<td><em>Teachers receive initial training plus ad hoc in-service training.</em></td>
<td><em>Educators as lifelong learners. Initial training and ongoing professional development are linked.</em></td>
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<td><em>“Good” learners are identified and permitted to continue their education.</em></td>
<td><em>People have access to learning opportunities over a lifetime.</em></td>
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THE CURRICULUM DEVELOPMENT PERSPECTIVE: The Importance of Inquiry
Many educators are coming to embrace the importance of inquiry in the development of educational policymaking, systems development, governance, curriculum development, professional development, and student learning. These levels of inquiry speak not only to an individual student or classroom, but the very process by which educational systems and schools change. Any educational system or curriculum that does not set as its goal these in-depth levels of inquiry is at a great disadvantage. The following was developed by the University of Hawai‘i’s Curriculum Research and Development Group:
Comprehensive Assessments
Many educators embrace a broad and comprehensive definition of assessment and evaluation. The importance of high quality, innovative, inquiry-based and project based assessments and evaluation methods are central to the holistic development of a system, a school and a student. An important lesson of No Child Left Behind is that a narrow definition of assessment (i.e. high stake multiple choice tests in two or three subjects) leads to a narrow and counterproductive curriculum that cannot speak to the needs of the whole child.

Comprehensive, Articulated Curricula
Central to the promotion of 21st century learning may be development of a fully articulated, sequential, discipline-based inquiry curriculum from preschool through grade 12. This curricular component might embrace the themes of many forms of literacy for Citizen and Society. Student citizens evolve out of a broad and authentic experience in the sciences, technologies, and humanities. As products of this curricular experience, students meet local, national and international standards, become prepared for post-secondary studies, become sophisticated and critical users of electronic and other informational media, become eager continuing learners, become able contributors to society, and become ready to take leadership roles when needed. There is a spirited ongoing debate on how to connect the dots between theoretical broad

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<th>Inquiry Modes</th>
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<td>Curiosity</td>
<td>Search for new knowledge in spontaneous probes of environments</td>
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<tr>
<td>Replicative</td>
<td>Search for new knowledge by validating inquiry through duplication of known operations</td>
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<tr>
<td>Technological</td>
<td>Search for new knowledge in satisfaction of a need through construction, production, and testing of procedures, strategies, and tangible artifacts</td>
</tr>
<tr>
<td>Authoritative</td>
<td>Search for knowledge new to the seeker in established knowledge found in devices and people</td>
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<tr>
<td>Evaluative</td>
<td>Search for new knowledge about the capacity of the products of technology to meet valuing criteria</td>
</tr>
<tr>
<td>Descriptive</td>
<td>Search for new knowledge through creation of accurate and adequate representation of things or events</td>
</tr>
<tr>
<td>Inductive</td>
<td>Search for new knowledge in data patterns and generalizable relationships in data association—a hypothesis-finding process</td>
</tr>
<tr>
<td>Deductive</td>
<td>Search for new knowledge in logical synthesis of existing knowledge—a hypothesis-making process</td>
</tr>
<tr>
<td>Experimental</td>
<td>Search for new knowledge through testing predictions flowing out of hypotheses</td>
</tr>
<tr>
<td>Theoretical</td>
<td>Search for new explanatory knowledge through synthesis of multiple hypotheses</td>
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Common Core Standards and the realities of teacher professional development and classroom learning.

**Challenges and Strategies in implementing project-centric learning**
The following summarizes some current trends and challenges, and suggests strategies that educators have offered to meet those challenges.

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<th>Issues, Trends &amp; Challenges</th>
<th>Possible Strategies &amp; Responses</th>
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<td>Relatively short school days, semesters and times on task: extending the formal school day is a structural and financial challenge.</td>
<td>Develop strategies to complement the formal school day and semester by partnering with schools and systems to extend learning opportunities for students, and professional development for teachers.</td>
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<td>Teacher turnover at public schools is chronic, with only 50% of U.S. public school teachers working more than 5 years at the same school. Thus, stability, continuity, and investment in professional development are weakened.</td>
<td>Train teams of teachers, assistants, content experts and mentors in the effective techniques associated with rigorous articulated curricula that can create teacher learning communities even in remote areas or among smaller schools.</td>
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<td>In the US, NCLB narrows formal school focus to subjects tested, and knowledge memorized, but not in depth inquiry or critical thinking. Superficial “covering” material is increasingly crowding out in depth higher level learning strategies.</td>
<td>Develop and incorporate high cognition, inquiry and problem based strategies to “drill deeper” for student learning.</td>
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<td>Most formal schooling in middle and high school approaches learning in isolated subject-specific silos with few opportunities for cross subject or holistic, project-based applied learning.</td>
<td>Develop an articulated sequence of multi disciplinary real world projects for applied learning in each semester of each year. Develop a profile of skills, knowledge and habits of mind that a high school graduate should embody. Develop strategies for facilitating implementation of the senior or capstone project in high school as well as a portfolio of selected works. This sequence of applied learning projects will also be applicable to the international community, as multi-disciplinary activities can be used to transcend cultural and other differences.</td>
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<td>Most school assessments are designed driven by cost and convenience of the staff – i.e. it is less expensive to administer a boiler plate multiple choice exam than to evaluate essays.</td>
<td>Develop alternative rigorous assessment and evaluation instruments appropriate for demonstrating proficiencies and expressing attributes embodied in Hawai‘i ‘s General Learner Outcomes.</td>
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<td>Most institutions of higher learning have not yet developed portfolio or demonstration alternatives to high stake tests.</td>
<td>Work with college departments to develop these alternatives that move beyond the high stake multiple-choice testing paradigm (much like music or art departments which require</td>
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Hypothetical Case Study: Citizenship Competency as a unifying concept

Should SCHOOL X Adopt Civics Education as a Unifying Concept?

Civic education places a high value on inquiry-based, student-directed problem-solving, which are consistent with the pedagogical approaches to many SCHOOL X courses;

According to ECS (Education Commission of the States), citizenship education is not necessarily the same as “civics.” State civics or government standards, which guide instruction in nearly every state, generally describe the knowledge needed for a basic understanding of government and the rights and responsibilities of citizenship such as voting. Citizenship education is a more comprehensive approach aimed at instilling in students the knowledge, skills and dispositions necessary for effective civic participation. Civic knowledge is a key component of citizenship education, but equally important are opportunities for students to practice civic skills such as problem solving; public speaking; consensus building; and discussion, writing and reflection on controversial issues.

The advocates of the problems approach claim:
1. It furnishes a natural objective – the solution of a problem. The students see purpose in their activities and the necessity of reaching a decision; thus interest is heightened and intrinsic motivation provided.
2. It is based upon the process of reflective thinking and requires the utilization of facts learned, skills attained, and values acquired to make adjustment to life situations.
3. It is functional in that it is build upon the needs and interests of students.
4. It emphasizes contemporary problems that have not been solved.
5. It permits pupils to share in determining what problems will be studied and the activities and procedures to be used in studying them.
6. It encourages students to do further research and to develop better work habits and study skills because it is challenging to them and presents issues about which they have a real interest.
7. It requires the drawing of generalizations or conclusions and calls for action in terms of the conclusions reached.
8. It provides more opportunity for the utilization of community resources and non-textbook materials than does either the chronological or the topical approach because it focuses on contemporary problems.
The Case for Transforming SCHOOL X by Using Civics Education as a Unifying Theme
(From a 2003 CRDG discussion paper)

1. Many SCHOOL X students have little direct or practical knowledge about democracy or our economic and political systems; last year few students knew Hawai’i had four counties. Economic literacy is rare. Outside of one-day tours, few SCHOOL X high school students even experience attending or testifying at a public hearing or any other democratic event.

2. SCHOOL X does not require any service learning or community service projects before graduation – thought to be keys to developing a well-educated and caring citizen.

3. SCHOOL X does not yet require (or assist in preparing) the development of a holistic portfolio, a CD or DVD that includes samples of writing, reports, musical performances, artistic creations, or evidence of community involvement and leadership. Portfolios, however, are the wave of the future. For teachers, they are already a reality.

4. SCHOOL X does not require that teachers in different subjects coordinate either their methods or their subject matter. Developing the skills and habits to generate a well-researched and well-reasoned term paper (with higher standards for each year), or publishing a peer-reviewed article, are not yet seen as a commitment throughout the school. (It is interesting that the professional SAT course people recommend that students read TIME magazine for the vocabulary that will be used on the SAT. However, TIME or other such vocab-rich sources are not required either for English or social studies at SCHOOL X. This is a case where a civics-oriented approach (reading a current events magazine) might well have positive impacts on even the narrowest of academic goals – a higher SAT verbal score.)

5. Development of the educated citizen answers the questions: If I’m not going to be a scientist, or a mathematician, then why am I learning science and math? Is it just to get into college? Yet we know that an educated citizen is unlikely to appreciate impacts on the natural environment or endangered species without some knowledge of biology, nor would be able to understand an EIS dealing with pollution without some knowledge of chemistry. And most public issues usually involve applied statistics, if not more complicated math, to evaluate assertions, studies and data. However these links do not come through osmosis. Relevant problems and examples need to be integrated into each discipline.
6. The scientific method of inquiry, applicable to the physical and the social sciences, places a high value on logic and the gathering of objective information and data. These are essential habits of mind for the educated citizen.

7. It would not be a great stretch for each SCHOOL X discipline to frame at least part of its approach in the context of the needs of an educated citizen.

8. The presence and relationship with the UH may offer special opportunities to link SCHOOL X students with adult learners and leaders. There are, for example, legislative intern programs as well as other community-based projects for college students in which SCHOOL X students might be able to participate. Some schools link their students with UH profs to be participants in real-world, cutting-edge research. I found this to be true of the science fair students.

A Preliminary Framework for Civic Education as a Unifying Theme

There are three realms that can be overlapped or linked:

1. The realm of the Disciplines. Each subject or discipline (math, science, social studies, health/physical education, performing arts, visual arts, English, foreign language, etc.) has its own integrity in terms of content, approach, competence, etc. Each discipline can and should be respected. This compartmentalization of life and learning is part of reality. If there is one element that can be added, it might be an understanding of the focus (and bias) of each.

2. The realm of the SCHOOL X Pedagogy. Inquiry-based, student-directed problem solving is what SCHOOL X is all about. This approach is integrated into most subjects, but not all. One important standard might be: how do adult professionals in this field behave, think, solve problems, and perform their work? If scientists conduct original research, can students? If writers write novels, could students? If bi-lingual people can translate for foreign visitors, can students? If historians write history and debate what is relevant, do students? If economists develop a model of the economy, or start a small business, could students? If political consultants design and implement surveys and polls, could students? We already do this for the arts, but not always for the other disciplines.

3. The realm of civic and community engagement: Each discipline, using appropriate methodology, would seek links to the real-world of the informed, educated citizen, which means participation in community problem solving, service learning, and democratic decision making. Today, only a handful of SCHOOL X students collaborate on the Student Council or to create a yearbook.
Outside of classroom exercises, might there be other ways to include all SCHOOL X high school students in a real-world collaborative project?

To frame this in a different way, the educated citizen has certain habits of mind, attitudes, knowledge, and engagement with the community. The educated citizen has the benefit of experiences that taught teamwork, ethics, individual and collective decision-making, and a clear idea of what goes on in a democratic society. The educated citizen is familiar with, first hand, the democratic and economic institutions that shape his or her life, and which he or she can in turn influence. The educated citizen understands and appreciates the physical environment of not only Hawai‘i but the world. The educated citizen is a global citizen.

Consider these comments by a leader in Hawai‘i’s Civic Education in the Information Age project with Russia, reflecting on the poise and knowledge of Russian high school students who, for the first time, were asked to address real problems in their society:

The highlight of the entire conference [was] a “press conference” featuring 14 students, some current, some graduates from as many as two years ago. They spoke on the course and what they had learned. To say that they were inspiring is to understate the impact they had. They spoke with confidence and assurance. They told of meeting with politicians and military people, of solving problems, and again and again they spoke of learning to collaborate, and what a powerful learning that was.

The Center for Civic Education’s (http://www.civiced.org/index.php) rationale for a more rigorous civic curriculum:
Rationale

CIVITAS opens with a rationale that argues the case for what R. Freeman Butts has called the "civic mission" of the schools. The rationale states that "Civic education in a democracy is education in self-government. Self-government means active participation in self-governance, not passive acquiescence in the actions of others....The ideals of democracy are most completely fulfilled when every member of the political community actively shares in government....The first and primary reason for civic education in a constitutional democracy is that the health of the body politic requires the widest possible civic participation of its citizens consistent with the common good and the protection of individual rights. The aim of civic education is therefore not just any kind of participation by any kind of citizen; it is the participation of informed and responsible citizens, skilled in the arts of effective action and deliberation."

Moreover, "No one's civic potential can be fulfilled without forming and maintaining an intention to pursue the common good; to protect individuals from unconstitutional abuses by government and from attacks on their rights from any source, public or private; to seek the broad knowledge and wisdom that informs judgment of public affairs; and to develop the skill to use that knowledge effectively. Such values, perspectives, knowledge, and skill in civic matters make responsible and effective civic participation possible. Fostering these qualities constitutes the mission of civic education."

Civic education should consist of: "...the intensive study and understanding of American political institutions, especially the system of self-government, its values, commitments, and assumptions; its relevant history, its problems, burdens, and opportunities; its challenges and alternatives, in short the theory and practice of free and open democratic society as it has developed in the United States" and "a study of the purpose of government, the nature of law, the way private behavior affects the public order and the political system, and the international context of politics. Citizens need to recognize the growing importance for the preservation of American democracy of the political, economic, environmental, and social context of the world beyond our borders. Finally, learning to develop and practice civic skills is essential to fulfill the promise of constitutional democracy."

The revitalization of education for citizenship is especially timely. The rationale notes that "the failure of citizens to take part in elections at every level is just one indication easily measurable and therefore unmistakable one of widespread disengagement of citizens from the responsibilities and rewards of involvement inherent in our constitutional system. Americans tend to perceive the Constitution "a machine that would go of itself." Our constitution's very success
has created indifference in many citizens to investing themselves in the political system that sustains their prosperity and well-being."

But it is a dangerous illusion to suppose that American democracy is like a self-perpetuating mechanism. Beneath the discernible operation of constitutional machinery, the American system is not mechanical but organic. It is like a plant whose visible portion remains healthy only as long as its hidden but vital roots are watered and nourished. It does not "go of itself" but requires careful attention and assiduous cultivation.

"It is a general truth that societies that neither understand nor practice their own principles are liable to find their institutions in decay or overthrown. This could be said of the ancient Roman Republic, of royal absolutism, including the ancient regime in France, and of Communist states in the late twentieth century. The decline of institutions that follows the widespread disbelief or cynicism regarding the principles that underlie them is the political expression of the biblical proverb, "where there is no vision, the people perish."

Moreover, many citizens lack an adequate understanding of fundamental constitutional features. But principles that are repeated simply as catechisms, rather than grounded in experience and understanding, rest upon weak foundations. The citizen needs a deeper understanding of the American political system than is currently commonplace, both as a framework for judgment and as common ground for public discussion. Events often vindicate the common sense and basic good judgment of the American electorate; but common sense is more reliable when rooted in clear understanding of basic principles.

**Early Support for The Problem Solving Approach**


PP158-159

In a 1955 bulletin the National Council for the Social Studies gave special recognition to use the problem-solving approach...Because the problems approach uses the scientific method – the method of reflective thinking – to solve a problem which genuinely concerns a group of students, any problem chosen for group study should be one which:

1. Involves a block, a tension, or a disturbance which students recognize as a problem and about which they wish to do something.
2. Has not been solved to the group’s satisfaction.
3. Has several possible solutions which the group can examine, test, discard, or accept in the light of all the pertinent and reliable information available.
4. Permits the group to test the final solution – either in action or in imagination-so that the tension or disturbance is resolved and students derive emotional satisfaction from the challenging and worth-while experience of problem solving.

Advantages of the problems approach (p.160)

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