

UTILITIES AND CONSTRUCTION PREP PROGRAM/CAREER ADVANCEMENT ACADEMY

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Background. The Utilities and Construction Prep Program (UCP) is a short-term intensive program at LATTC that employs a cohort-based learning community model. The program focuses on improving students' basic math, English, workplace readiness and financial literacy skills for entrance into careers in the construction trades and utilities sectors. UCP is part of a broader network of "Career Advancement Academies" (CAAs) supported by funding from the State Chancellor's Office and leadership and technical assistance from the Career Ladders Project. CAAs are designed to address students' foundational skills in the context of career pathways of economic importance to regional economies.

When developing its CAA, LATTC made a strategic decision to focus on the utilities and construction industries. The college maintains credit construction programs into which UCP participants can easily matriculate—preparing them for self-sustaining careers and a college degree or certificate. The region also has a high demand for well-trained construction and utility workers. The construction trades prove generally to be more "felony-friendly" than other industries and the hands-on work often attracts disconnected men, a key target population for the program.

Program organization. Between April and December 2008, three cohorts completed the UCP. The program originally included an eight-week, full-time commitment with five primary components which students experienced concomitantly:

- › Industry overview and career opportunities (18 hrs)
- › Pre-employment skills training and workplace readiness (117 hrs)
- › Contextualized basic skills including reading, computation, mechanical and test-taking preparation based on KeyTrain and WorkKeys (72 hrs)
- › Applied construction skills (54 hrs)
- › Workplace fitness and conditioning (54 hrs)

LATTC learned numerous lessons about how the program model and content does and does not work for its target population during its rapid implementation of multiple cohorts over nine months. In turn, LATTC recently revamped the program format to accommodate students' need to work and to address the range

Model Type: learning community

Description: short, intensive training program to prepare students for entry into the construction trades and/or utilities or continued education

Target population: "disconnected" (undereducated, underemployed, underprepared) young adults with a 7-12th grade English/math proficiency

Requirements: participation in an orientation and assessment

Type of Assessment: CASAS pre, middle, post-testing; USA TestPrep

Length: full-time training program, 315 hours over 8 weeks (new format beginning Spring 2009)

Credit/Noncredit: noncredit

Program status: in progress since April 2008

of skills, abilities and knowledge students bring to the program. The revised model now includes 306 hours conducted over 12 weeks. The first week offers participants a transition to college and the last week provides a supported move toward the next stage of education and/or employment. The middle 10 weeks deliver an intensive core academic and workplace readiness program with a similar configuration of components outlined above.

Faculty roles and collaboration. Approximately eight faculty members work together to implement all program components with student cohorts. Weekly meetings allow for curriculum alignment and development. Three instructors, Kelly Dodge, Tom Vessella and Wally Hanley, focus on building students' basic skills English, math and applied construction skills respectively. They worked together and with program director Allison Tom-Miura to develop the curriculum for contextualized basic skills delivery and will continue to refine this curriculum using the California Department of Education *Career Technical Education Standards for Building Trades & Construction and Energy & Utilities Industry Sectors* as a guide for curricular focus. Dodge and Vessella have a unique combination of experience with both the construction trades and their subject matter (English and math respectively). Hanley is also a practicing contractor. All are relatively new to community college instruction.

Key components of instruction. Program instruction focuses on preparing students to enter employment or apprenticeship in the construction trades and utilities as well as matriculate into college credit courses. In turn, these sectors serve as the context for building students basic English and math skills. Given the short-term, intensive nature of the program and the variation in students' basic math and English preparation, the program focuses on raising students' skill level to a point where they can demonstrate sufficient proficiency for entry-level employment based on the KeyTrain/WorkKeys assessment system. Keytrain curriculum supports this process including modules focused on Reading for Information, Applied Math and Locating Information.

English instructor Dodge describes her component of the program as “English for Contractors...instead of reading *Wuthering Heights*, I have students read articles from *Fine Home Building*. I assign reading pertinent to construction.” She describes developing students' grammar, reading comprehension and composition skills by “going in through the back door.” Dodge notes the challenge of engaging students with the necessity of building English skills when preparing for a field such as construction. “To them, construction is about digging holes and building walls. I had to gain their trust before I could even begin addressing [skill development].” To do so, she often starts class with a warm-up, such as a review of construction vocabulary terms, to focus their attention on the utility of improving their English skills to their goal of employment. “When I start with a term that may be unfamiliar to them, it helps them realize that ‘maybe I don't know everything I need to’ and then I can work from there.”

Dodge begins her course with a focus on grammar to ensure a common foundation for subsequent reading comprehension and composition instruction. In-class activities to develop students' grammar skills such as subject/verb agreement focus on construction and utilities situations. She then moves to texts that focus on a particular aspect of construction, say building a table, and works with students to analyze those readings to develop their comprehension skills.

Math instructor Vessella speaks of how the context of construction lends itself naturally to developing students' math capacity as the job commands that students utilize a range of basic skills such as fractions, decimals, multiplication, subtraction and beginning geometry and algebra. Vessella tends to start by instructing students on a math idea in the abstract but immediately moves to engaging students in hands-on construction activities that show the math in action. When describing a typical class period, Vessella says he spends the first half on didactic instruction and the second half on practicing what they learn in a construction lab setting. Vessella notes that having longer class periods (105 minutes) allows more latitude for hands-on instruction of math concepts.

Like the English component, homework and quizzes focus on testing students' math knowledge using construction and utilities problems. Vessella explains, "For example, I teach them the Pythagorean Theorem and the 3-4-5 triangle rule. If a triangle is 3 feet on one end, 4 feet on the other and the hypotenuse is 5 feet, then the corner should be square. We then go into the lab and construct the triangle and if the corner isn't square, they can use the Theorem to figure out why. Or, I give them 10 feet of lumber and ask them how many pieces they can cut if I need two foot sections." To demonstrate their knowledge of ratios and scale, Vessella asks students to create a scale for and draw a 20 x 20 foot room based on paper with 2 x 2 inch squares, each of which represented five feet. Students then have to locate various items in the room based on the scale.

Like Dodge, construction instructor Hanley and Vessella both talk about changing students' fundamental perception of math from one of irrelevance to that of critical utility. Hanley says, "Lots of students did not have success in school, particularly with math. It's the typical story where students say, 'why do I have to learn this...I'm never going to use it.' We put that to rest. When you're on a job site, math is as valuable a tool as a screw driver or a power saw. Just cutting at random doesn't do any good. Knowing where to cut is critical. They've been resisting math all their life and now we have to fundamentally change the game."

Unlike Vessella, Hanley tends to start instruction by engaging students in hands-on construction activity and then moves to identifying the math theory or English competency being developed as appropriate. He finds this helps students connect better to the theory, provides them a starting point for why or how something works the way it does and again, reinforces the relevance of further developing their capacity with a given math or English competency.

Impact on/outcomes for students. Hanley, Vessella and Dodge all cite the impact of this short, intensive program on students' motivation, self esteem and performance. Hanley says, "Our constituents have such a negative approach to learning as a whole...but here we set up a positive educational experience that is specific to their goals. The contextualization makes it seem doable and that education is something they can be part of." Dodge furthers this sentiment by noting that students can "see the benefits of what they're learning almost immediately. They can see the instruction is helping and they are excited and willing to learn." After three cohorts, 73 of 86 students have completed and approximately 70% are employed or continuing their studies. Given the range of skills present in the first three cohorts, performance outcomes vary. CASAS post-test show 100% gain some improvement on reading and/or math assessment.

Challenges and supports. LATTC's UCP program benefits from several key partnerships. LATTC annually receives \$100,000 in State Chancellor's Office Career Advancement Academy funds. As mentioned, the Career

Ladders Project provides technical assistance including professional development, guidance on program and curriculum development, evaluation services and connectivity with other Career Advancement Academies. Additionally, the Career Ladders Project advocates for the long-term support for and sustainability of these models.

LATTC also engages several employer and workforce system partners including: the Electrical Training Institute of Southern California and IBEW Local 11, IBEW Local 18-LADWP Joint Training Institute, the Los Angeles Department of Water and Power, Los Angeles Infrastructure and Sustainable Jobs Collaborative, Regional Economic Development Institute (established with support from the Bank of America Foundation), Southern California Gas Company, UAW Labor Employment and Training Corp and Women in Non Traditional Employment Roles. These partners engage in curriculum design and provide classroom speakers and mock employment interviewers. LATTC notes that they are particularly helpful in helping students apply for employment in their respective organizations and institutions.

Dodge, Hanley and Vessella highlight the benefits of having both experience with construction and subject matter expertise. They believe it heightens the legitimacy of their contextualization process and suggest that it would difficult for an instructor to teach in the manner they employ without some exposure to and/or experience with the occupation. Vessella says, “having experienced the context itself makes it easier for students to trust what your saying...which is an issue for our students.” At the same time, Tom-Miura says having training in the discipline enhances instructors’ ability to teach the academic skills content. She notes that finding this combination of skills presents a recruitment challenge.

Tom-Miura acknowledges the need for rigorous ongoing professional development to provide faculty the training and support necessary for teaching UCP’s population of disconnected adults. LATTC recently became part of the Chabot Faculty Inquiry Network and Tom-Miura aims to utilize this professional development to strengthen instructional delivery. She also recognizes the program’s struggle to hone in on the specific competencies to address in the UCP program as well as the challenge to appropriately assign students to the program based on their math and English skill levels. Current program restructuring efforts are aimed at 1) developing a comprehensive set of program options and support services, of which the UCP is a part, to appropriately serve any student who comes to LATTC seeking workforce preparation and 2) clearly identifying the types of basic skills each level of training addresses and refining curriculum accordingly. Continued support from the Career Ladders Project will allow LATTC to assess the impact of these revisions on students’ success.