Strengthening Pre-collegiate Education in Community Colleges

The education of the so-called "remedial" student is the most important educational problem in America today…. [E]ffective "remedial" education would do more to alleviate our most serious social and economic problems than almost any other action we could take.

Alexander Astin, 2000

Introduction and Intentions

In the spring of 2001, The William and Flora Hewlett Foundation and The Carnegie Foundation for the Advancement of Teaching joined forces to improve the quality of teaching and learning in higher education. As we turn our collaborative focus to work with community colleges, our intent is to strengthen the mathematics and literacy achievement of academically underprepared students who enter the higher education system through our two-year institutions here in California.

This work is critical in its own right because pre-collegiate courses [1] are the gateway to opportunity for huge numbers of students who are not otherwise well served by the state's higher education system. It is important, too, because the challenges facing higher education more generally, across the country and in all sectors, are present in high relief in California's community colleges. Further, we believe that community colleges and their developmental programs are sites of important pedagogical innovation and energy, and are therefore excellent laboratories for studying the conditions that support more effective learning for increasingly diverse groups of learners. With instruction as their clear and central mission, and their "can-do" spirit, a great deal can be learned from these campuses.

Central to this work will be the development of tools and protocols that faculty and students can use to explore, document, more deeply understand, and improve learning in mathematics and English. Moreover, the Carnegie Foundation's capacity for highly visible

[1] The term "pre-collegiate here includes courses designated variously as "developmental," "remedial," "basic," "foundational," and other courses designed to prepare students for access to credit-bearing coursework in mathematics and English language arts.

dissemination and outreach will allow the work to be undertaken in ways the larger educational and policy communities can learn about and build on.

Initial Parameters: Planning Grants and Design

Specifically, we plan to undertake a three-year project focused on improving the academic effectiveness of the pre-collegiate courses that are prerequisite to credit-level college courses in mathematics and English in California community colleges. Numerous research studies support the importance of developmental preparation and of moving through it quickly.

Our intent is to select a number of institutions in three clusters: in the Bay Area, the Central Valley, and Southern California. Working at multiple levels—with teams of individual faculty and students, with the developmental program, and with the campus—we will collaboratively design, test, and document effective models for teaching these essential areas of knowledge. We seek to identify and create models that yield learning more lasting and less fragile than those that have already failed many students. This project will be a chance to demonstrate, document, and disseminate effective practice, whether it is a current practice, a local adaptation on a known model, or an innovation.

In calendar year 2005, we envision giving 9-12 initial pilot grants of $75,000-$100,000 that will cover the first year's work. Selected campuses will be invited to write a proposal for first year activities as well as the potential design for continuing those activities for two more years. Based on progress, grants will be renewable annually for two additional years. Our intention is to support work at campuses that have already focused on pre-collegiate education; the grants are not designed to build a program from the ground up. Thus, we are looking for campuses that

- have already allotted attention and resources to developmental education
- have institutional research capacity and a commitment to using data for improvement
- have faculty development capacity and infrastructure
- serve a diverse student body with a sizable percentage of low income students.

Because the grant is meant to build on existing efforts, grant funds are aimed at the extra expenses required to refine and expand those efforts. Funds cannot be used to create new full-time positions or hire new faculty, though partial support for such a position may be allowed if there is strong commitment for continuation. The grant can cover such activities as (but not limited to)

- faculty stipends or release time for faculty
- project administration costs (could be a faculty reassignment)
- consultants or external coaches
- travel
- outreach and local meetings
- creation of printed materials for outreach.

The grant may include indirect costs up to 10%, which can be used for computers, supplies and communication, phones, space, etc. Budget details and other commitments will be negotiated with each campus through a memorandum of understanding (MOU).

In turn, campuses will be asked to commit resources to sustain project activities beyond the period of the funded project, which should be designed, documented and evaluated so that it can be picked up by regular campus funding. To ensure continuity, the project will require active support by the campus president and leadership.

Both the Carnegie Foundation and the Hewlett Foundation will support this effort. The Carnegie Foundation, building on its work in the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL), will regularly convene participating programs and visit clusters of sites. Faculty from participating campuses will commit to attend meetings, host visits, and build an extended network engaging other campuses.

Evaluation will be conducted at both the campus level and the level of the program-as-a-whole. Participating campuses will be asked to specify and collect information that will provide a picture of what is happening with students at each college. One component of this effort will focus on common indicators that are part of the community college information and accountability system—for example, course completion rates with a grade of A or B in developmental courses, total time to complete all developmental prerequisites, and grades in

subsequent college-level courses. This information will allow for judgments about the effectiveness of the program but will also be essential to ongoing improvement. The intent is to use the results to draw broad conclusions about what seems to work best, and under what conditions. The Carnegie Foundation will be responsible for monitoring the progress of individual campus efforts and conducting the "meta level" evaluation of the project as a whole.

A Focus on the Classroom

The problem we seek to address—in its largest sense—is that while many students in this country have a powerful undergraduate experience that propels them into successful, fulfilling lives, alarming numbers find their educational aspirations frustrated. This dynamic plays itself out in all sectors of higher education but nowhere so dramatically as in the two-year institution. According to the Community College Research Center (2003), 70% of community college students (who constitute approximately one half of the students in higher education) aspire to the BA, but less than a quarter actually transfer to four-year institutions; less than 1/10 complete the BA. NCES figures are slightly different, but both sources clearly support the view that it is time to get serious about "greater expectations" for *all* students (Association of American Colleges and Universities, 2002), and we believe that students entering higher education through community colleges are among the most urgent candidates for those raised expectations.

This need is especially acute in California, where the challenges appear in bold relief. By long-standing policy, two-thirds of first-time students in the public sector in California begin in one of the 109 community colleges; that amounts to 2.9 million students by head count, and 1.6 million FTEs. This diverse student body includes individuals coming directly from high school and also large numbers of working adults, some without a high school degree. Unfortunately, most of those students never make it through the system. California ranks 46th in number of BA degrees awarded per 100 undergraduates. And this situation will only worsen as budgets are cut and Tidal Wave II brings huge additional numbers of students

to the state's community colleges—many of them underprepared, first-generation, and/or minority students who will typically be at high risk (Hayward, et al, 2003).

While numbers vary somewhat, the vast majority of students entering California community colleges place into pre-collegiate courses. Many of these students have already studied the subjects in question. Indeed, odds are that they have "learned" the same content several times before, and maybe even managed to pass a test of some sort. Thus, the challenge for developmental courses in the community college setting is to find fresh approaches to teaching this material so that it will not be forgotten or misunderstood so easily, but will instead serve as a foundation for future learning. This, in turn, means understanding more about why prior (and much current) teaching leaves such temporary and fragile traces, and what can be done about it; it also means matching approaches more accurately to the different students who are identified as needing developmental work

We recognize that the problems—and the solutions—in developmental education are multifaceted. Along with course instruction, developmental programs include a range of supplemental services. The issue that we aim to tackle is only a part of the picture, but we would argue that it is at the core: what happens—or does not happen—in the classroom. Although there has been a good deal written about the organizational characteristics of developmental education, there are few "on the ground" accounts of what needs to happen in the classroom for particular populations of students in order to bring out the kind of deep and lasting learning that all students have a right to expect. This focus on the classroom can include reconstruction of course content, experiments or examination of instruction, and alterations in the structure and organization of work and time by faculty and students Description of student learning processes and evidence of student learning and success will be essential components of the program.

The Scholarship of Teaching and Learning

To understand and improve what is going on in classrooms, we have to involve faculty, staff, and students in inquiry, documentation, and active experimentation. The scholarship of teaching and learning is a powerful mechanism for doing so. By this term (first

popularized in a 1990 Carnegie Foundation report by then-president Ernest Boyer, and now a lively movement on campuses across the country), we refer to practices, habits and commitments that 1) make the work of teaching and learning, which otherwise "disappears like dry ice" as Lee Shulman has said, visible and public; 2) open that work to critical peer review; and 3) make it available so that others can build on it. This project will be an opportunity for faculty to bring their habits, values, and skills as scholars to their work as teachers:

> A scholarship of teaching …requires a kind of "going meta," in which faculty frame and systematically investigate questions related to student learning—the conditions under which it occurs, what it looks like, how to deepen it, and so forth—and do so with an eye not only to improving their own classroom but to advancing practice beyond it…. [Such work] is a condition—as yet a mostly absent condition—for excellent teaching. It is the mechanism through which the profession of teaching itself advances, through which teaching can be something other than a seat-of-the-pants operation, with each of us out there making it up as we go. As such, the scholarship of teaching has the potential to serve all teachers—and students. (Hutchings and Shulman, 1999, p. 14)

Principles of Teaching, Learning, and Assessment

Although there is no single formula for good teaching, there is a wealth of knowledge from research and practice. Drawing on Carnegie's work on the scholarship of teaching and learning, on Lee Shulman's long-standing research on "pedagogical content knowledge," and on the work of people like Vincent Tinto, Robert McCabe, and Norton Grubb, we propose to shape this project around the following principles of powerful teaching and learning:

- **Making the goals and purposes of learning clear to students:** Effective learning begins with clearly articulated goals and outcomes, which encompass not only content-area learning but also performance outcomes in more general college skills and literacies. Expected outcomes must be communicated by faculty and understood and owned (rather than guessed at) by students.
- **Connecting coursework to students' prior knowledge and assisting them to make connections among ideas:** Students learning a topic like mathematics may add new skills but fail to understand when, where, or how to apply those skills. Similarly,

competency in reading and writing is not simply a matter of basic skills. Learning occurs in a context, and must be "scaffolded" by a carefully selected, arranged and organized set of ideas and strategies that reflect the nature of the subject matter and the current knowledge of students.

- **Creating learning environments where students are active agents in their own teaching, learning, and assessment:** Learning happens best when learners are aware of their own processes of learning, moving from mere performance to thoughtful and intentional deliberations on their own competence. One aspect of this is frequent self-assessment by students of their own work in ways that help them become "intentional learners"—more purposeful and self-directed in the pursuit and assessment of education and career goals (Huber and Hutchings, 2003).
- **Creating learning environments where students get regular feedback for continuous improvement:** Frequent interaction and feedback encourages learning. Feedback from faculty and peers needs to strike a dynamic balance between intellectual challenge and individual support. Students in community colleges are adults who come with constraints and needs, but also strengths and resilience. The academic work and the personal interactions in and around courses must provide serious intellectual challenge and multiple sources of support, encouragement, and belief (e.g., belief in the student's ability to learn) to meet that challenge.
- **Creating communities that improve performance by attending to the social aspects of learning:** Learning is a social experience that takes place in a community where students have the opportunity to collaborate and communicate their growing understanding. This social dimension of learning, whether in formal structures such as learning communities, or more informal and co-curricular activities, creates opportunities for peer instruction, distributed expertise, and stronger feelings of connection with and commitment to the college experience.

In addition to these principles of powerful teaching and learning, the project will be shaped by a number of assumptions about assessment—that is to say, a regular, ongoing cycle

of gathering, analyzing, and using data about student learning, be it through direct measurement of achievement or more indirect indications of student engagement, attitude, and experience. Several points will guide our work:

- **Tapping the power of classroom-based, low-stakes/high-yield assessment:** Although some observers (see Lazerson, 2000, for example) contend that the assessment movement in higher education has left campuses pretty much unchanged, many faculty have been deeply engaged by assessment at the classroom level. In California, for instance, some community colleges have developed faculty networks for individuals using "Classroom Assessment Techniques" (CATs) as popularized by K. Patricia Cross and Tom Angelo (1988). These low-stakes/high-yield approaches, though they do not typically address larger questions of institutional effectiveness, can be important elements in the approach to teaching improvement proposed here; they are powerful tools for the process of continuous inquiry by faculty, especially when used in small groups and communities of practice. Indeed, asking questions and gathering evidence about students' learning (i.e., "doing assessment") is a process that prompts transformative reflection and innovation for many faculty.
- **Putting placement exams in the service of learning:** A good deal of assessment is already going on in developmental education (Grubb, 1999, p. 177) and we want to tap into this and help campuses to strengthen assessment. For example, placement exams, which each campus selects or designs, are a source of data worth mining. Currently the placement test results in community colleges are confidential and proprietary. They therefore cannot and do not contribute to instruction in any way. But alternative applications are possible, for example:
    - A thorough analysis of placement test results might well reveal patterns of student problems that could help instructors decide on course content, what to stress, etc.
    - A pre/post analysis would be highly informative and would significantly advance our ability to judge the effectiveness of developmental education, which is most often defined (inadequately, we believe) as passing the course.

In fact, at one college we have visited, institutional research shows that students who receive a C in developmental math are among the least likely to succeed in subsequent math classes. A better metric is needed.

- Since placement tests and scores are campus-specific, faculty might learn a good deal by looking at placement exams from other campuses; this might be a productive exercise for a project-wide meeting early in the three-year cycle.

- **Using data and evidence for continuous improvement:** Good data is only half the assessment battle. What's also needed are structures and habits of data use, be it by individual instructors seeking to improve their own classroom practice, developmental education programs, or the campus as a whole. Regional accreditation, with its new emphasis on "a culture of evidence," may be an emergent force for greater attention to the use of data and evidence for improvement. In this sense, the Western Association of Schools and Colleges may be another important partner in this work.

Goals and Strategies

What will this collaborative work look like and what will it produce? Three goals shape the central activities of the project.

1. <u>To produce rich representations of actual classroom approaches that work for developmental students</u>.

In order to move more students successfully through developmental education and into the higher education mainstream, faculty must have a broad repertoire of teaching approaches to draw from. To build such a repertoire, they need access to rich, concrete, fully contextualized representations of *what it looks like* when such teaching and learning works—and this is precisely what the profession is lacking. For most educators, teaching tends to be a solitary enterprise, shared only with their own students behind a closed classroom door. In higher education especially, where few have formal training in pedagogy, teaching is a kind of "trial and error" endeavor, learned on the job. In this sense it could not be more different from the work of scholarship and research where building on and contributing to the work of others is the clear expectation. What is needed, we believe, and what this project aims to produce

through collaborative work with campuses, faculty, and students, is a set of rich representations of actual teaching practice in developmental settings that community college faculty (and others) can consult, critique, adapt, and build on.

Taking advantage of Carnegie's Knowledge Media Laboratory (KML), we will use new multimedia technologies to capture what is learned about effective approaches in ways that teachers and students in other settings—beyond the initial sites—can adapt and use. (For examples of the work of the KML, see http://gallery.carnegiefoundation.org/.) An illustration is perhaps useful here—a multimedia exhibit based on the work of Yvonne Divans Hutchinson (see **http://gallery.carnegiefoundation.org/yhutchinson/**). Hutchinson is an award-winning, National Board-certified teacher with 35 years of experience in the Los Angeles schools. In the Web-based exhibit she developed in collaboration with KML staff, we see how Hutchinson guides her inner-city students toward the capacity for sophisticated intellectual exchange around a complicated literary text. Fellow teachers who share Hutchinson's commitment to this kind of learning can see videos of her classroom interactions and samples of student performance; they can hear Hutchinson reflect on her purposes and methods in the particular episode of teaching and in the larger course in which it occurs; they can access (and borrow and adapt) creative materials that scaffold the learning of Hutchinson's students—an "anticipation guide" that prepares students for class discussion, for instance, and a set of "rules of engagement" for participating in an intellectual discussion. To put it differently, Hutchinson's exhibit is an example of "enhanced" OpenCourseWare—including not only course content but additional information that other teachers would need in order to critique and adapt the work to their own settings.

The case of Yvonne Hutchinson is an example, not a model or formula; nevertheless, Hutchinson's example illustrates four key design features that Carnegie's work over the last six years has shown to be particularly powerful as a prompt for professional development—features that can inform the work with community college faculty around representations of developmental teaching and learning.

1) First, we are not talking about a list of disembodied best practices or tips; the idea is to give the viewer access to the particulars of teaching and learning in a particular context and a particular content area.
2) The most useful representations focus not only on the teacher's "performance"—what Hutchinson does—but on the thinking and understanding (the "competence") that lies behind that performance.
3) What's needed are representations that deal with aspects of student learning that are widely recognized by teachers as essential to their goals, and difficult to achieve—in Hutchinson's case, the ability to participate meaningfully in thoughtful, analytical exchange about a difficult text.
4) These representations must include explorations and evidence of learning by diverse students in a variety of forms and formats.

2. To develop and support the use of tools and processes for understanding student learning.

Faculty provide only one window into the documentation of teaching and learning; the student perspective on the process of knowledge building is a vital component, for it provides an insiders' view of "what's really happening" in developmental education. The intent in this project is to make student learning visible—for both faculty and students—around key topics in mathematics and English

If we are to move more students successfully into the mainstream of higher education, faculty and students themselves must understand more about student learning. More specifically, we need to identify and explore learning around the predictable pitfalls in courses that are likely to be a cause of failure. We know, for instance, that many students assume that if a math problem cannot be done in a few minutes (a lesson we inadvertently teach them through timed, high-stakes tests), it cannot be done at all. We know that the idea of revision—not simply as the repair of superficial features of style but as a process of trying out alternative structures and arguments—is something that most novice writers find completely against the grain. We need to identify these "moments of difficulty," and then find ways to turn those moments into opportunities for learning. This means giving both faculty and students a clearer

understanding of the learning process that students in developmental math and English must navigate.

There are a number of ways to capture student learning. Using a range of tools such as "think-alouds"—where a student articulates her thoughts as she solves a math problem—faculty can map the topography of learning from a student's point of view. Cumulative formats such as portfolios, electronic and otherwise, allow faculty and students to see the trajectory of learning over time. New technologies also promise a different view of the learning process: many of the faculty working with the Carnegie Foundation are examining learning in an on-line environment and finding that both formal and informal electronic exchanges make student learning more visible and more accessible. Likewise the new communication venues (e.g., chat rooms or blogs), so familiar to our students but often foreign to faculty, offer additional opportunities for gathering information about the fine-grained processes of knowledge formation and the development of learning strategies often invisible in the standard classroom environment.

In addition, students can serve as co-investigators in the examination and documentation of classroom interactions, and as users of tools designed for students to understand their own learning. As co-investigators of teaching and their own learning, students are uniquely positioned to ask different questions, provide unexpected insights, and gain privileged access to the workings of developmental classrooms. Some tools will thus be designed for students to use in organizing and advancing their own learning. Such tools are increasingly important as students "swirl" in and out of various campus environments, and responsibility for developing a coherent and considered pathway to learning falls more and more on their own shoulders.

3. <u>To foster a culture of inquiry and reflection on and across campuses.</u>

The final ingredient in our strategy is the creation of habits, occasions, structures, and infrastructure that will support the ongoing use of the exhibits and tools described above. To put it differently, the project will attend not only to the supply side of the problem (new representations of teaching and new tools for investigating learning) but to *the demand side* as

well: creating communities and networks in which new exhibits and evidence will be wanted, consulted, and built upon. Moreover, we believe that these two sides of the problem must be connected—that those who begin documenting and investigating their own work will also develop a habit and a hunger to learn from the work of others as well. Our goal is to allow faculty to both build on and to contribute to the work of others. This means building a new kind of community on and across campuses.

What might these communities look like? Again, we draw our image in part from work over the past six years with the Carnegie Academy for the Scholarship of Teaching and Learning. During that time, some 200 campuses created new structures and occasions to bring together faculty who wanted to employ a more reflective, inquiry-based approach to their teaching and their students' learning. These took different forms in different places. At Middlesex Community College, for instance, a group of faculty created a study circle to read the literature about student motivation—the "problem" they decided to organize their efforts around—and to undertake modest experiments in their own classes to find ways to increase students' engagement with their learning. Middlesex has now parlayed that local work into a larger network involving faculty from six other institutions.

Closer to home, consider the "Basic Skills Academy" recently established by a California community college. The Academy brings together approximately 40 math and English faculty to talk and think about their teaching in developmental courses. In fact, only faculty selected for the Academy are allowed to teach such courses. Working as a community, this group identifies issues they want to read and study about, and reports what they learn to a larger group of faculty. A course release gives them time to reflect on and investigate their own teaching, a process that includes interviews with their own students.

Structures and communities like these must be built around local needs and circumstances; there is no single model. At the same time, however, campuses can learn from each other and adapt elements of each other's models. One of Carnegie's roles will be to build bridges across local communities, and to begin creating an infrastructure that connects them around the need to continuously improve developmental education.

Knowledge, Field-building, and Beyond

The penultimate goal of this work is increased knowledge about learning and teaching in developmental mathematics and English. The ultimate aim is broad application of that knowledge in practice in ways that lead to stronger student learning and success.

If the above strategies prove as effective as we anticipate, the successes will inspire growth and movement of ideas. For example, at participating colleges we will see a broader repertoire of effective teaching that is grounded in continuing evidence of student learning. Campuses will create structures and infrastructures to foster the kinds of formal and informal collaboration, deliberation, and data analyses that support the continuous improvement of teaching. These changes will stretch beyond the boundaries of developmental education to other academic areas.

Moreover, the products of this effort—tools, models, and resources—will move from participating campuses across the state and beyond through various professional networks. Faculty, staff, and administrators as individuals, as campus teams and as cross-campus teams will share their work with relevant audiences at professional conferences and in other settings, inviting peer review and critique. These exchanges will allow the project's work to contribute to and benefit from efforts in other settings and arenas.

At present, a number of efforts to strengthen developmental education, supported by various funders, are taking place in community colleges in California and nationally. These other efforts focus on different levels, including system, institution, and policy. The effort outlined in this paper focuses on interactions in the classroom which will, we hope, complement and contribute to other major initiatives.

RESOURCES AND NOTES

Academic Senate for California Community Colleges. *A Survey of Effective Practices in Basic Skills.* Adopted spring 2003.

Association of American Colleges and Universities. *Greater Expectations: A New Vision for Learning as a Nation Goes to College.* Washington, DC: AAC&U, 2002.

Astin, Alexander. "The Civic Challenge of Educating the Underprepared Student." In *Civic Responsibility and Higher Education*, ed. by Ehrlich, T. Phoenix, AZ: The American Council on Education and Oryx Press, 2000.

Bailey, Thomas R. "Community Colleges in the 21st Century: Challenges and Opportunities." *CCRC Brief*, Community College Research Center, January 2003.

Bueschel, Andrea Conklin. "Linkages and Disjunctures: California's K-12 and Community College Systems." In *Improving the Transition from High School to Postsecondary Education.* Policy Analysis for California Education, Stanford University, April 2004.

Cohen, A. M., and Brawer, F. B. *The American Community College*. Third Edition. San Francisco: Jossey-Bass, 1996.

Cross, Patricia K. and Angelo, Thomas A., *Classroom Assessment Techniques: A Handbook for Faculty.* Ann Arbor, Michigan: National Center for Research to Improve Postsecondary Teaching and Learning, 1988.

Grubb, W. Norton, and Associates. *Honored But Invisible: An Inside Look at Teaching in Community Colleges.* New York: Routledge, 1999.

Hayward, Gerald C., Jones, Dennis P., McGuinness, Jr., Aims C., and Timar, Allene. "Ensuring Access with Quality to California's Community Colleges." Unpublished paper, by the National Center for Public Policy and Higher Education, commissioned by The William and Flora Hewlett Foundation, July 2003.

Huber, Mary Taylor, and Hutchings, Pat. "Integrative Learning: Mapping the Terrain. A working paper for a Carnegie/AAC&U National Project." Menlo Park, CA: The Carnegie Foundation for the Advancement of Teaching, 2003. Available at: http://www.carnegiefoundation.org/LiberalEducation/index.htm[.]

Hutchings, Pat, and Shulman, Lee S. "The Scholarship of Teaching: New Elaborations, New Developments." *Change*, September/October 1999. Volume 31, Number 5. Pages 10-15.

Lazerson, Marvin, Wagener, Ursula, and Shumanis, Nichole. "What Makes a Revolution: Teaching and Learning in Higher Education, 1980-2000." *Change*, May/June 2000, 32(3), 12-19.