

Toward **I**nformative Assessment and a Culture of Evidence

Lloyd Bond

A Report from
The Carnegie Foundation for the Advancement of Teaching
**STRENGTHENING PRE-COLLEGIATE EDUCATION
IN COMMUNITY COLLEGES**
2009

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A DIFFERENT WAY TO THINK ABOUT DEVELOPMENTAL EDUCATION

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A Word About Language

Throughout SPECC’s work, all of us involved have grappled with finding the right language to capture our focus on underprepared students. As readers will see, we have used several terms: pre-collegiate, developmental, remedial, and basic skills, recognizing that these are not synonymous and that, for better or worse, each brings its own history and values. The term “basic skills” has recently gained ground in California because of the ambitious state-wide Basic Skills Initiative, and it is thus a term that connects SPECC’s work to a larger set of activities from which we have learned and to which we hope to contribute.

Our intent throughout is to point to the importance of knowledge and capacities without which students cannot achieve higher levels of learning or thrive as workers and citizens in today’s world. These include foundational skills in reading, writing, and mathematics, as well as attitudes and habits related to effective learning: study skills, confidence, and an ability to persevere and succeed.

SPECC PROJECT RESOURCES

“Toward *Informative Assessment and a Culture of Evidence*” is one of a number of SPECC products and publications developed by Carnegie staff members. For a full listing, see www.carnegiefoundation.org/specc.

Introduction

Strengthening Pre-collegiate Education in Community Colleges (SPECC) was a three year multi-site action research project directed by The Carnegie Foundation for the Advancement of Teaching. Undertaken with The William and Flora Hewlett Foundation as funding partner, the program focused on teaching and learning in basic skills mathematics and English at 11 California community colleges. **This report discusses the myriad ways in which the participating colleges have used both traditional measures of student performance, such as class grades and course completion, as well as more innovative forms of assessment and data collection to improve pedagogical practice and to enhance student learning.**

The importance of the problem the project was designed to address—for students, for community colleges, and for the nation at large—cannot be overstated. Indeed, no less an authority than Alexander Astin states, “Effective ‘remedial’ education would do more to alleviate our most serious social and economic problems than almost any other action we could take” (Astin, 2000, p. 130). Specific numbers vary depending on the source, but many researchers have reported that approximately 60 percent of community college students take at least one remedial course. For example, 59 percent of students participating in Achieving the Dream, a current national initiative on student success in community colleges, enrolled in at least one developmental educational course during the three years they were tracked (Bailey, 2008, p. 2).¹ The numbers in California are somewhat higher; of entering students who go through the assessment process, 70 percent place into basic skills English, and 90 percent into basic skills mathematics (Moore and Shulock, 2007, p. 12). The practical implication of such pervasive underpreparation is that pre-collegiate education cannot be the exclusive concern of a select group of instructors or a single department or two. Virtually every instructor in the typical community college is directly affected.

One of the central themes undergirding the SPECC project was that scholarly attention to data and evidence is essential to any informed attempt to improve teaching and learning. While the premise is simple it is often overlooked in discussions about what specifically can be done to improve student learning. From the beginning of the project, the Carnegie team stressed the importance of having rich and reliable evidence—evidence of classroom performance, evidence of student understanding of content, evidence of larger trends toward progress to transfer level courses—to inform faculty discussion, innovation, collaboration and experimentation. Because teaching and learning in the classroom has been a central focus of the Carnegie Foundation’s work, our intent was to heighten the sensitivity of individual instructors, departments, and the larger institution generally to how systematically collected information about student learning can help them improve learning and instruction in a rational, incremental, and coherent way.

CAMPUSES PARTICIPATING IN SPECC

Cerritos College

Chabot College

City College of San Francisco

College of the Desert

College of the Sequoias

Glendale Community College

Laney College

Los Medanos College

Merced College

Pasadena City College

West Hills College District

Toward this end, the 11 SPECC campuses were required to report the performance of developmental students in courses supported by the project; they were also encouraged to move beyond a “business as usual” approach to data. In our discussions with project coordinators and our visits to the various campuses, the SPECC team encouraged faculty to obtain information directly from students through interviews, focus groups, special surveys, and diagnostic tests. Developmental instructors were encouraged to probe more deeply into student learning difficulties and misconceptions through the use of powerful assessment techniques such as “think aloud” protocols—that is, audio and video records of students verbalizing their thought processes while trying to read texts or solve problems. Faculty were urged to consider actual growth over the course of a semester through “value added” or pre-post assessments, rather than final grades alone. Departments were encouraged to adopt or in some cases expand already existing programs of common examinations. As will be discussed in more detail below, the development, scoring, and discussion of common examinations by a group of faculty

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is an enormously effective impetus to pedagogical innovation and improvement. Basic skills faculty at the 11 campuses had to look “behind and beneath” traditional indices of student learning to uncover possibilities for improved instruction that are tied more directly to what students lack and need, as well as what they know and can do.

Finally, the project stressed the central but often under used role that institutional research offices can play in the design, collection, and analyses of student data. These offices have historically served as preparers of and repositories for reports on institutional “effectiveness” such as enrollment and graduation rates for purposes of accountability and public consumption. To be sure, this is a vital and necessary role, but as Pat Hutchings and Lee S. Shulman note, one can imagine “a different way of thinking about institutional research *as a capacity to work closely with faculty to explore questions about what students are actually learning*. Such a shift would mean asking much tougher, more central questions: What do our students know, and what can they do?” (2006, n.p.).

The 11 SPECC campuses responded to these requirements and urgings with an impressive variety of instructional innovations. The most common approach was the use of learning communities—structures that link courses to one another and strengthen connections among students who move through the curriculum together. But other innovations were also in evidence: the use of new technological tools to support learning; novel forms of peer interaction and peer review among students; and supplemental instruction, where experienced students serve as in-class counselors and tutors. Indeed, a central principle of the project was the importance of a culture of experimentation in the classroom.

As we have noted in other SPECC reports, the focus and goal of these experiments was the improvement of student learning and success. And while the project was not a search for the elusive “one best way,” campuses found ways to compare the performance of students in “SPECC classrooms” with those in current or previous “non-SPECC” settings. The data resulting from their analyses appear in the Appendix to this report.

In addition to classroom innovations in teaching and curriculum, SPECC focused on a variety of strategies for learning from those innovative experiments. These included new uses of assessment and classroom examinations that not only facilitate grading but also inform and animate faculty inquiry and discussion; the use of common examinations and pre–post testing; new approaches to professional development in the form of faculty inquiry groups that met regularly to discuss issues of instruction and learning; and in–depth analyses of assessment, grading, and attrition data by offices of institutional research that illuminated impediments to learning and progress. To be sure, the ultimate goal of these innovations was to improve student learning, but SPECC was also interested in a more immediate and direct outcome: to heighten individual, program, and institutional sensitivity to data and evidence that could inform practice. Project coordinators report that it is the developmental instructors’ new commitment to using data to illuminate problems and to monitor regularly and consistently the effects of what they do that is a lasting legacy of SPECC.

To summarize, encouraging a culture of evidence and inquiry does not require a program of tightly controlled, randomized educational experiments. The intent of SPECC was rather to spur the pedagogical and curricular imagination of participating faculty, foster a spirit of experimentation, strengthen capacity to generate and learn from data and evidence, and bring developmental education—the mastery of basic skills in reading, writing, and mathematics—front and center as one of the core missions of community colleges. Toward this end the project sought to bolster and invigorate programs that already showed promise in ways that could inform the broader developmental education community, if not higher education generally.

In Part I of this report we examine student outcomes from innovations initiated or expanded under the auspices of SPECC using traditional indices of student learning and progress. The performance and progress of students in the signature projects of each campus are evaluated and compared with that of other basic skills students using *success*, *retention*, and *persistence* as defined and elaborated below. In addition, Part I includes a discussion of the difficulties encountered in attempting to ascertain the impact of educational innovations in this way, especially as related to grade variability.

Part II focuses on innovative forms of assessment data in the service of inquiry and student learning, highlighting three that were prominent in SPECC activities: the “think aloud” protocol, pre–post testing, and common examinations. The section ends with a discussion of faculty inquiry groups as settings in which rich evidence about student learning can be carefully examined as part of an ongoing improvement process.

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Part III attempts to provide an overall context for evaluating efforts to improve student learning in developmental education by examining the complexities involved in the progress of underprepared students toward college-level work. The report then concludes with recommendations for bringing more “*informative*” methods of assessment to developmental education. An Appendix at the end of the report includes a brief summary of each campus’s project, as well as tables that present the most recent data on success, retention, and persistence of basic skills students who took part in SPECC innovations.

PART I. Signature Projects in Developmental English and Mathematics: Success, Retention, and Persistence

The Research and Planning Group for California Colleges has traditionally monitored three different indicators of student learning and progress in California community colleges: Success, Retention, and Persistence. (See www.rpggroup.org/publications/definitions.html.)

Success Rate is defined as the percentage of students in a given course who obtain a passing grade of C or better, or CR (credit).

Retention Rate refers to the percentage of students who “complete” a given course, even with a failing grade. Two versions of the indicator have been monitored:

- **Retention I:** Percentage completing the course with a grade of D or better;
- **Retention II:** Percentage “completing” the course, including students with grades of F.

The **Persistence Rate** is the percentage of students in a given course who enroll in a course the following semester.

These three indices in combination are the building blocks of “progress toward transfer” discussed below. Failure in any one directly affects a student’s chances of reaching college-level courses and eventually obtaining a certificate, an AA degree, or transferring to a four-year college. The Appendix lists key features of work supported by SPECC on each campus along with the project coordinators’ executive summaries. These are followed by the most recent comparative data on student success, retention, and persistence rates for each campus’s signature projects in developmental English and math. The tables and graphs for each campus present comparative data for the SPECC supported courses and for a comparison/baseline group of developmental students. The comparison/baseline group is either a sample of students matched on selected demographic variables (comparison group), or all corresponding developmental classes not supported by SPECC (baseline group). An examination of the data suggests, however, that using all corresponding developmental classes as the baseline for comparison may have obscured some program effects.²

In their signature SPECC projects in developmental English, the campuses have experienced uneven but generally higher success rates of SPECC students over their counterparts. For the final year of the project, at three of the 10 campuses that reported comparative data, the percentage of students in SPECC supported developmental English courses who achieved grades of C or better exceeded the comparison/baseline group by 10 or more percentage points.³ Of the remaining six campuses, four had higher but less dramatic success rates in SPECC supported classes over baseline students (between 4 and 9 percentage points). The SPECC and comparison students were virtually identical at two campuses, and a final campus had mixed results, with SPECC students having higher rates of success in some classes, and lower in others.

In math, the story looks a bit different. Of the five campuses with sustained innovations in their developmental math sequence, the most recent year saw student success rates exceed the baseline comparison group in four. The fifth had mixed results, with success rates of the baseline group exceeding those of the “experimental” course sections in three of four comparisons. Pasadena City

College, which has dramatically reorganized its pre-algebra class to make it intensive and “high dosage,” has had extremely positive results, with student success rates jumping from 53 percent for baseline to 74 percent for participating students in the first year of the innovation, and from 55 percent for baseline to 79 percent for participants in the second. At College of the Sequoias, where individual instructors are encouraged in the spirit of action research to experiment with a variety of instructional aids, including those that take advantage of advances in technology, students using the MyMathLab (MML) package consistently out-performed baseline comparison students. In the first full year of the project, 44 percent of the MML students, compared to 32 percent of baseline students, were successful; in the most recent year, 46 percent versus 35 percent were successful. These are two examples of substantial improvements that, if effectively brought to scale, would have significant, immediate effects

on the number of students who eventually transfer and graduate.

IMMERSION AND INTENSITY

The long-standing conventional wisdom regarding “remedial” education is that slowing down and distributing instruction over a long period of time is the optimal way to insure that more and more students are successful. However, a repeated finding among the 11 SPECC campuses (a finding with important implications for program design) is that fully immersing students in developmental English or math courses over a more abbreviated period of time has powerfully positive effects on all three of the traditional indicators of success, retention, and persistence. Students in summer courses, where instruction is concentrated and where they typically take only one or two classes, are much more likely to pass the course, more likely to complete the course even with a failing grade, and more likely to persist to the next course in the sequence. Pasadena City College’s experiment with an intensely concentrated pre-algebra course over the summers of 2004, 2005, and 2006 resulted in, respectively, a 73 percent success rate, a 97 percent retention rate, and a 94 percent persistence rate to the next course in the sequence. The figures for a sample of students matched on age and ethnicity who took the course during the regular school terms were 53 percent, 80 percent, and 68 percent respectively.

Differences of this magnitude cannot be ignored. They strongly suggest that community colleges could productively explore curricular and scheduling changes of a structural nature that concentrate instruction over shorter periods of time (for example, half-semester modules). For their part, students must realize (or, more accurately, be made to realize) that taking fewer, concentrated courses is likely to accelerate rather than impede their progress toward a college degree.

As noted earlier, the signature innovation on most of the SPECC campuses was learning communities, which linked an English or math course with other offerings and, in some cases, with each other. Preliminary results midway through the three-year grant period indicated that learning communities were having relatively more positive effects on retention and persistence than on success in class per se. This result tends to confirm one of the assumptions underlying the continued general popularity of learning communities—that the bonding and mutual support engendered by a community of learners in classes taught by the same instructors over multiple courses and semesters would increase their inclination to persevere where other students might give up. The most recent comparative data, however, support this notion at some campuses but not at others. At four of the campuses, the retention rates of students in the SPECC learning communities were essentially identical to those of students taking regular sections of the corresponding basic skills courses. At two campuses, the retention rate for learning community students was decidedly superior (10 percentage points or more). The reverse was true at two other campuses.⁴

Comparative data on the persistence of students in learning communities is likewise mixed. Based upon the most recent data, students at five of the campuses who were taking a regular basic skills course not in the context of a learning community were as likely to enroll in a course the following semester as were students in learning communities. At one campus learning community students were decidedly more

likely to persist to the next semester than their non-learning community counterparts. The opposite pattern obtained at another campus, and one campus had mixed results. Given the variety in format and implementation of learning communities, these mixed results may reflect variation in the models, and should serve as a reminder that the term “learning community” (like the names for most instructional and pedagogical innovations) implies a general design that is typically adapted to fit local circumstances.⁵

A Cautionary Note Concerning Grades, Data, and Action Research

It is also important to put the above results, those that follow and, in fact, the results of any educational innovation in context. Grades are the gold standard by which success and progress in school are measured so it is vital that we understand both their strengths and their weaknesses as academic indicators. Most people believe that they know at some intuitive level what a grade of A, B, C, and so on means in a given course. An A, it is thought, represents complete or near complete mastery of the knowledge and skills that the instructor intended students to acquire. Grades of B, C, and D suggest progressively less, and a grade of F denotes an arrant failure to acquire even a minimally acceptable level of the intended knowledge and skill.

To be sure, it has long been acknowledged that grades are not absolute categories that are completely interchangeable from one school to the next. An A in the beginning calculus course at MIT no doubt denotes a materially different level of both mastery and rigor than an A in an Advanced Placement calculus course in high school or an A in beginning calculus at the local community college. Further, as widespread concern about grade inflation indicates, there is also the possibility for a historical drift in general grading patterns. This is one reason for the public faith in state-mandated standardized achievement tests not only at the secondary level, but increasingly in higher education as well; tests are believed to mitigate the variability in the meaning of grades across schools and over time.

Although grade variability across schools is generally known and acknowledged, what is perhaps less generally recognized is the enormous variability in grades and grading standards *within* schools and, indeed, across sections of the same course within schools. The extent of this variability is clearly in evidence at all 11 SPECC campuses, but is most dramatically illustrated at City College of San Francisco (CCSF), where the number

STUDENT PERSEVERANCE PAYS OFF

Students who place into developmental courses in community colleges have for a host of reasons not acquired the skills necessary to do college-level work. At the 11 SPECC campuses, 30 to 40 percent either drop out of their first developmental course or fail to attain a grade of C or better. But students who do not drop a course even if they are failing are significantly more likely to succeed upon repeating the course than those who drop the course. This is clearly evident in analyses performed by City College of San Francisco (CCSF). As part of its report on the SPECC project, the office of institutional research at CCSF analyzed the performance of over 12,000 students in the pre-collegiate elementary algebra course as a function of how many times they repeated the course and whether the subsequent attempts followed (1) dropping the course or (2) completing the course with a failing grade. For students who repeated the course three times, if they never withdrew from the course in their prior attempts, over 80 percent eventually passed. However, only 63 percent of those who had previously dropped the course once eventually passed. Even more dramatically, if students withdrew twice from the course, the pass rate decreased further to 54 percent, and students who withdrew from the course in all three prior attempts eventually passed at a rate of only 38 percent.

The implications of the above analyses for institutional counseling of developmental students seems clear: the odds of eventual success and transfer to credit level courses are dramatically increased if, rather than withdrawing from developmental courses, students persist in classroom attendance and in completing assignments, even if they fail in their first attempts. Perseverance, it turns out, pays off.

of sections of the most popular developmental English course (English 90, Basic Composition and Reading I) often exceeds 50. The CCSF office of institutional research examined the variability across 33 sections of English 90 over a three and one-half year period from 2003 to 2006. The percentage of students receiving passing grades—C or better—range from a low of 26 percent to a high of 94 percent. Almost four times as many students passed the course in the latter section as in the former.

It should be noted that all of these students placed into the developmental class because of their performance on the English placement test, so students in these classes all scored below their particular institution's cutoff point for college-level work. While there may still be large differences in entering ability, there is no reason to think that students in any one section of a specific course are more or

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less prepared than in others. This means that the differences in grades across classes are largely a function of differences in instructor stringency, and it is a safe assumption that the same letter grades across classes do not represent comparable levels of student skill and knowledge. This is not to say that “successful” classes with large numbers of students passing are less stringent in grading. Indeed, a CCSF study indicated that grade variability also derives from the different weightings instructors give to attendance, assignments turned in on time, and other “studenting” behavior (Smith, 2008).

Grading variability is but one example of an endemic problem that plagues real world research in general, and educational research in particular. Research in actual classrooms and schools is characterized by an implacably high ratio of “noise” to “signal,” and the SPECC project is no exception. The large differences in instructor stringency and the substantial grade variability it introduces are part of a constellation of factors that make durable effects of educational innovations difficult to detect. Instructors vary in the effectiveness with which they implement new strategies; students enroll in and drop out of classes in unpredictable ways; new instructional methods, far from being constant “treatments,” are tweaked, adapted, and changed altogether both within and across semesters. The net result of these confounding factors, as many of the SPECC campuses discovered, is a confusing mix of impressive effects one semester that disappear and reappear in subsequent semesters. To their credit, the project coordinators and the dedicated developmental faculty were not deterred by this complexity. They understood that improvement is a process that must unfold over time. Educators need time and space to come together and interpret the evidence they are gathering, ask what conclusions can be drawn, what additional information is needed to confirm those conclusions, and what changes are most likely to be useful.

Part II. Toward *Informative Assessment*: Using Assessment Data as Tools for Inquiry and Improvement

In keeping with SPECC’s focus on a culture of evidence, campuses explored a variety of approaches for using assessment data in the service of instruction and inquiry—what we here call *informative assessment*. The two traditional uses of assessment in educational practice are the *formative*, whereby student progress and instructional effectiveness are monitored, and the *summative*, where end-of-course performance is evaluated. But carefully constructed examinations can further refine formative assessment by *informing* faculty in a more incisive, more articulated way about the nature of student understanding as well as the effectiveness with which they are moving students toward desired learning objectives.

Three assessment techniques—the “think aloud” protocol, pre-post testing, and common examinations—were systematically employed by several of the SPECC campuses as tools of inquiry, providing deeper insight into the difficulties students were experiencing in class and pointing to topical areas in the curriculum where instructional improvements were most needed. In addition, campuses created faculty inquiry groups to make better use of these tools and the data they bring to light.

The “Think Aloud” Protocol

A question that any instructor, from the second grade basic reading teacher to the law school professor, must face on a daily basis is whether students understand the concept, principle, or procedure that she is trying to get across. To be effective, instructors must constantly monitor both formally and informally whether students “get it,” whether they are following the flow and development of ideas, procedures, and concepts under discussion. This constant monitoring of student understanding during instruction is perhaps nowhere more critical than in remedial education. Indeed, the very necessity for such instruction suggests that in the past developmental students have not mastered the enabling concepts that are central to continued learning. Small group work, a show of hands during class, “spot” quizzes, and homework assignments that require students to “show your work,” are some of the techniques that have been tried by instructors to monitor whether students are mastering the lesson at hand, but such techniques have not done enough to illuminate student understanding or lack thereof. Merely repeating them is likely to be met with the same result for many students.

ENCOURAGING A CULTURE OF EXPERIMENTATION IN THE CLASSROOM

At the College of the Sequoias (COS), SPECC project coordinator Robert Urtecho decided that in addition to invigorating initiatives already in place, the SPECC grant should be used to encourage instructors to experiment in their individual classrooms.

The faculty responded with a variety of action research projects. In math, for instance, several instructors experimented with MyMathLab, a software program that contains, among other things, a powerful homework, lesson, and test manager; a custom exercise builder; and a comprehensive grade book tracking system. These features free up considerable time for instructional planning and preparation that would normally be devoted to grading and record keeping. For students, the program contains interactive exercises keyed to each topical area, several multi-media learning aids, and a study plan for self-paced learning. One professor who supplemented MyMathLab with an in-class tutor reports a solid and consistent 10 percentage point increase in the number of students passing his course. This is but one example of how the SPECC grant was employed to create a culture among the basic skills faculty where the “freedom to experiment,” to ask questions and systematically seek answers about one’s instructional effectiveness, is not only encouraged but expected.

A powerful assessment procedure, the “think aloud” technique, has been employed by cognitive psychologists for years to get a firmer grip on the nature of a person’s understanding of a procedure, principle, or concept. The “think aloud” protocol is a transcribed record of a person’s verbalizations while reading text or attempting to solve a problem or perform a task. As part of their SPECC initiative, the basic skills instructors at Pasadena City College and Cerritos College formed faculty inquiry groups that brought basic skills faculty together to observe and discuss videotapes of students reading text and attempting to solve arithmetic and pre-algebra problems.⁶

The exercise proved powerfully enlightening for many faculty. They expressed surprise at the forms of conceptual and procedural misunderstandings by students that the protocols revealed. Basic “enabling” knowledge and procedures that faculty assumed the majority of students possessed were often absent.

The richness and depth of insight into student thinking that the “think aloud” technique affords faculty cannot be overstated. Only by finding out what students are and are not learning can instructors effectively redesign their instruction or course. This is assessment at its most informative.

Students repeatedly applied procedures incorrectly and were often unable to use what they knew in principled and purposive ways. Indeed, the richness and depth of insight into student thinking that the “think aloud” technique affords faculty cannot be overstated. Only by finding out what students are and are not learning can instructors effectively redesign their instruction or course. This is assessment at its most informative.

Pre-Post Testing in Pre-collegiate Mathematics

The straightforward technique of pre-post testing was usefully employed by math departments at College of the Desert, Glendale Community College, Pasadena City College, Cerritos College, and College of the Sequoias. At the latter institution, instructors Stephanie Logan and Jeff Basham have led the introduction of a pre-post assessment program in the math department that the project coordinator states is one of the single most powerful stimuli at College of the Sequoias in animating faculty discussion and spurring curricular innovation among the basic skills math faculty. A carefully constructed set of 20 pre-algebra exercises was designed by instructor Tracy Redden to assess the standards set down by the California community college system for meeting the math requirements for the AA/AS degree. The test also acts as a gauge to determine whether students are making adequate progress toward transfer-level college algebra. The basic skills math faculty at College of the Sequoias began administering the test at both the beginning and the end of the pre-algebra course. By a close examination of the competencies underlying each exercise and the differences in performance between the pre- and post tests, the math faculty has been able to zero in not only on beginning difficulties that students experience, but also on the effectiveness with which those misunderstandings were remedied during the course of instruction.

Faculty discussion of these results led to a host of curricular and instructional changes across the entire department. The topics in the pre-algebra course outline were revamped to address critical student misunderstandings of percent applications, conversions of weight units, and order of operations, problems that in some classes none of the students answered correctly on the post test. The department chair distributed the new topic outline to the entire department, to both full-time and adjunct faculty. The pre-post assessment project resulted in the development of a new course, one level below pre-algebra. The department decided that study skills, such as note taking, “unpacking” word problems, and time management would be formally included in the pre-algebra course. According to project

coordinator Robert Urtecho, the entire project has been transformative and has sparked collaboration, exchange, and discussions among the math faculty about classroom practice and student learning that had been largely absent.

The use of pre-post or “value added” testing in instruction is not without controversy. Some measurement specialists have long advised against the practice because measures of change or difference tend not to be as reliable as the original measures themselves. Some have questioned the extent to which “growth” or change can be unambiguously ascribed to individual teachers or teaching methods. Still others have raised technical questions about the very meaning of the construct “change.” Fortunately, the SPECC colleges, to their credit, were not persuaded by these arguments. They realized that the logic underlying the difference between what students know before instruction and what they know after instruction is too compelling to be trumped by statistical niceties (see Bond, 2005).

Common Examinations as Tools of Inquiry

Several of the SPECC campuses (College of the Desert, College of the Sequoias, Glendale, Pasadena) have instituted programs of common examinations for all sections of certain developmental math courses. A well-conceived program of common examinations has the potential to literally transform the way faculty think about their craft. Common examinations provide a continuing occasion for faculty inquiry and discussion focused on pedagogy and learning. Such examinations may enhance grade comparability across classes (especially at the developmental education level, where there are multiple sections of pre-algebra and algebra) and may well cause instructors to be more reflective about their grading practices. Common examinations can dampen the effects of grade variability and inflation, may encourage students to be more intentional about their curricular choices, and finally, may provide the impetus for faculty development.

While the common examination program at Glendale College has been discussed elsewhere (Bond, 2007), it will be instructive to review that discussion here. The Glendale program began shortly before the start of the SPECC projects in 2002, but has been enhanced and invigorated since then. The program has matured from its initial beginnings into a powerful mechanism for faculty inquiry and innovation. The development of exercises and construction of a scoring rubric are a community affair where all faculty have the opportunity to contribute. New examinations are developed each semester, and old exams are posted online so that students can glean from concrete examples the skills and knowledge that are expected.

The math faculty meet to discuss the performance of students, exercise by exercise, in all sections of pre-algebra, elementary algebra, and intermediate algebra on the targeted mathematical competencies of the course. The importance of student performance data presented in this way for faculty deliberation and discussion should not be overlooked. First, data of this kind, arrayed across sections, provide the program—the faculty as a group, that is—with information about precisely where they as instructors and their students as learners are succeeding and where work still needs to be done. The students, for example, may have acquired facility in working with complex fractions but be struggling mightily with word problems involving simultaneous rates of change. Second, the process provides individual faculty with useful comparative data on how their own students are mastering the material that the entire faculty deems important to learn, and how their students compare with other sections.

The common examination data also facilitates the calibration of grading in ways that would not otherwise be possible. The instructor whose A and B students perform relatively poorly on common examinations must ask himself whether his grading is too lax. The instructor whose C students perform relatively well on the examinations must ask himself if his standards are unrealistically high. Finally, as the Glendale Community College math department has demonstrated, common examinations may also facilitate faculty development. Noting that some instructors' students repeatedly performed well above average on the examinations or on particular topical areas, the department began a program of having faculty observe these instructors in action. Common examinations have, of course, been used on a limited basis in higher education for many years, but their use by campuses in the SPECC project revealed new ways that they can serve as tools of inquiry and as powerful aids in transforming instructional practice.

Faculty Inquiry Groups: Coming Together Around Data

The tools and processes described above (and others as well) can be powerful prompts to improvement. But data do not speak for themselves. What is also needed are occasions that bring educators together, over time, to examine evidence about student learning, reflect on its meaning and implications, and identify approaches that yield better results. Surprisingly, although there are many formal and regular occasions where faculty might discuss with each other the pedagogical challenges they face and the learning difficulties their students have, it turns out that such discussions are the exception rather than the rule. One would think that “faculty development” programs would be the natural forum for discussions of such issues, but more often than not they are occasions for invited speakers,

conference attendance, and faculty retreats where in-depth issues of teaching and learning are rarely discussed. Nor are regular faculty meetings the site for such exchange. These are typically dominated by issues of faculty load, grading, curriculum, and other administrative matters. But such need not be the case. One of the most promising developments to come out of SPECC at the departmental and program level is the use of faculty inquiry groups to foster a culture in which attention to data is built into the ongoing work of the institution.

Data do not speak for themselves. What is also needed are occasions that bring educators together, over time, to examine evidence about student learning, reflect on its meaning and implications, and identify approaches that yield better results.

In an earlier SPECC publication, Mary Taylor Huber (2008) describes the promise of faculty inquiry for improving basic skills education and explores the variety of forms that work has taken across the 11 SPECC campuses. As she reports, the groups may be discipline-based (e.g., six mathematicians meeting together) or cross-disciplinary (faculty from a variety of courses serving basic skills students), highly structured or more informal, but what all of them have in common is a commitment to meeting over time to think and talk about their teaching and their students' learning. The desirability of such inquiry and exchange should be self evident. For too long, teaching has been a private affair, visible to the students in the classroom, but largely invisible to the outside world. As a result, instructors have rarely benefited from each other's experience. Faculty inquiry is a step toward sharing and creating “a teaching commons” in which educators can build on each other's pedagogical work (Huber and Hutchings, 2005).

A continuing challenge faced by those committed to this model of improvement is relating participation in inquiry groups to student success, retention, and persistence. How do faculty discussion and exchange translate into improvements in student learning? Inasmuch as faculty inquiry groups are not instructional “treatments” or innovations, as such, the foregoing question is not easily answered in a direct and measurable way. Laney College has taken a first step in investigating this question.

During the 2005–2006 academic year, as part of its SPECC initiative, Laney College established a Reflective Inquiry (RI) group for faculty in the basic skills areas of math, English, ESL, and Project Bridge, their long-running learning community program for underprepared students. The initial group of eight faculty consisted of both veteran and new teachers, both full and part-time instructors. In the following year, 2006–2007, the group was enlarged to 10 and included career/technical faculty.

The tables in the Laney College section of the Appendix show the success, retention, and persistence data of students in the classes of instructors who actively participated in the inquiry groups and those in non-SPECC related classrooms. As can be seen, students in classrooms of inquiry group instructors either equal or exceed other students in the three traditional indices. To be sure, the effects are not dramatic. And it should be said that participation in faculty inquiry was likely not the only difference between SPECC and non-SPECC classrooms at Laney. Participants in faculty inquiry were also engaged in systematic classroom innovation, which may help account for the differences in student performance. Nevertheless, these results are encouraging, and they underline the need for further studies of the impact of inquiry-based professional development on the improvement of student learning and success.

Part III. Putting Results in Context: Understanding Progress to Transfer Level

The impact of SPECC innovations at the classroom, department, and institutional level are encouraging, but they tell only part of the story. Ultimately we want developmental students to successfully overcome their educational deficiencies, move on to college-level courses, and progress to a degree, certificate or transfer. This imperative has been the focus of numerous reports over the last several years (see for example Bailey, 2008; Center for Student Success, 2007; Moore and Shulock, 2007; Hayward, et al., 2004) that together provide a quite detailed picture of both the challenges and promising developments in serving underprepared students. To fill in that picture for SPECC, Table 1 presents “progress to transfer level” data of the 11 SPECC campuses for the cohort of students enrolled in a pre-collegiate English or math course in the fall of 2003. The 2003 cohorts were tracked over the ensuing four academic years (i.e., to the fall 2007 semester).⁷

TABLE I
Success Rates of Developmental Students in Transfer-Level English and Math Courses
(Fall 2003 – Fall 2007)

Percent of Fall 2003 Developmental Students Completing a Transfer-Level Course by Fall 2007									
College	Enrolled in Lowest Level Pre-collegiate Course in Fall 2003				Enrolled in Any Pre-collegiate Course in Fall 2003				
	English		Math		English		Math		
	Rate	N	Rate	N	Rate	N	Rate	N	N
1	31%	881	4%	665	42%	2635	19%	3949	
2	44%	678	7%	768	49%	1596	24%	2622	
3	29%	289	4%	1056	43%	1394	17%	2857	
4	30%	710	5%	664	41%	1483	17%	1881	
5	29%	293	9%	744	46%	931	20%	1693	
6	39%	354	12%	416	41%	1423	20%	4055	
7	17%	333	3%	293	23%	975	11%	1597	
8	23%	362	10%	155	37%	933	19%	1526	
9	17%	664	2%	484	20%	2740	18%	3060	
10	36%	992	12%	809	52%	4137	27%	3248	
11	25%	165	8%	110	37%	725	17%	1030	
Mean	29%		7%		39%		19%		

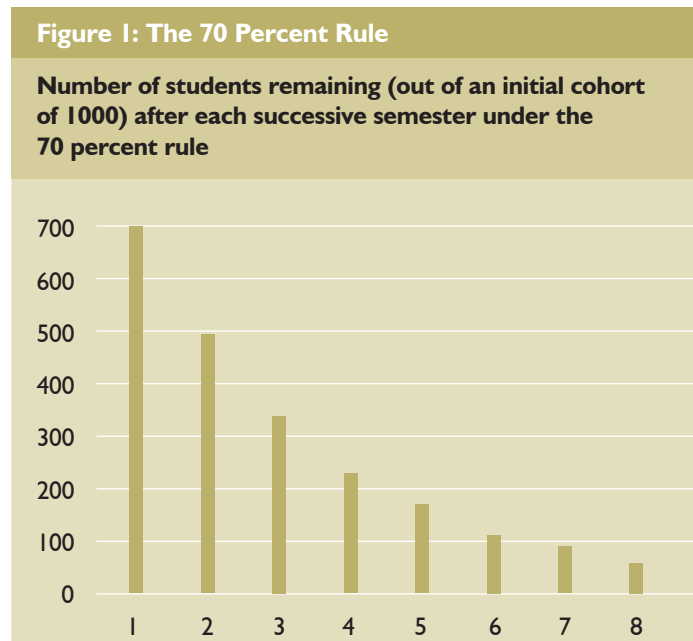
The two columns on the left of the table show the percentage of students enrolled in the lowest level pre-collegiate English or math course in the fall of 2003 who successfully completed a transfer level English or math course by the end of the fall 2007 semester. The two columns on the right show the percentage of students enrolled in *any* pre-collegiate English or math course in the fall of 2003 who successfully completed a transfer level English or math course by the end of the fall 2007 semester. These data provide a baseline against which the campuses can gauge current and future attempts to increase the number of students who successfully complete the developmental sequence.

The first point to note about these data is that attrition in the math developmental sequence is substantially more severe than in English. The percentage of students in the lowest developmental math course who successfully completed a credit-level math course over the four year period ranges from a low of 2 percent to a high of 12 percent, with a mean of 7 percent. By contrast, the comparable percentages for English are 17 percent and 44 percent, with a mean completion rate of 29 percent. Across the 11 campuses, compared to math, over four times as many lowest level basic skills students in English successfully complete a transfer-level English course.

An oft quoted statistic is that while 70 to 90 percent of all entering students in California community colleges place into either a pre-collegiate English or math course, or both, less than 10 percent ever graduate with an AA degree or transfer to a four year institution. This is clearly an unacceptable state of affairs, even if due allowance is made for the many non-academic factors that contribute to students not continuing their studies and the variety of community college student goals. Many students have families and jobs and will find it difficult to strike a balance between these pressures and those of school. Quite apart from scholastic ability, *per se*, many developmental students will not have acquired the constellation of study skills and habits that make for academic success.

Another circumstance shaping this trajectory is that community colleges differ widely in the number of developmental courses students must move through before they reach transfer-level offerings. Some offer only one pre-collegiate course, others as many as five.⁸ It will be instructive to consider those students who place two or more courses below transfer level at one of the many community colleges that have three to six levels of pre-collegiate courses. Assuming they persist, these students will typically spend at least one, and more likely two or three, years taking basic skills courses before they enroll in their first transfer-level English or math course. By way of illustration, consider a hypothetical cohort group of 1000 students who, if they persist, will take two years to be eligible for a transfer-level course. These students face a series of repeated critical “attrition points”: first, whether they complete a course and second, whether they go on to take the subsequent course.

Figure 1 shows the percentage of students who would be eligible, after two years, to enroll in a transfer-level course according to the 70 percent rule.⁹



The 70 percent rule is firmly grounded in the actual data of the 11 SPECC campuses. Indeed, the City College of San Francisco provided data showing that over the ten year period from 1998 through 2007 (that is, for 20 consecutive semesters) 24 to 30 percent of first time students took one, and only one, developmental English course, and were never heard from again (CCSF Final SPECC Report, 2008). As Figure 1 illustrates, less than 6 percent (5.7%) of the initial cohort of students are eligible for a transfer-level course after two years.

Although the 70 percent rule is grounded in data from SPECC campuses, it remains a hypothetical model. Attrition in fact varies from semester to semester and from year to year. The most severe attrition occurs earlier, rather than later, as the data from all 11 SPECC campuses demonstrates. It is also the case that attrition between the spring and fall semesters (i.e., over the summer) is substantially more severe than attrition between the fall and spring terms.

Getting seriously underprepared students ready to do college-level work is a lengthy, uphill endeavor that requires not only the coordinated efforts of instructors, departments, and the larger campus community, but also a sustained single-mindedness and perseverance on the part of students themselves.

The above analyses suggest that getting seriously under-prepared students ready to do college-level work is a lengthy, uphill endeavor that requires not only the coordinated efforts of instructors, departments, and the larger campus community, but also a sustained single-mindedness and perseverance on the part of students themselves. The analogy of a chain being only as strong as its weakest link comes to mind. The links in the “progress to transfer” chain are many. They include competent instruction, monitoring, feedback, counseling throughout, a strong tutoring component where necessary, mature balancing of competing demands by students, the acquisition of a constellation of “studenting” skills including study habits and time management, and of course sufficient motivation and ability. Competent instruction, counseling, and tutoring can

be nullified if students cannot balance life and school demands; adequate student motivation is useless if the student does not know how to study effectively; and excellent monitoring of student progress is pointless if appropriate student feedback is lacking. All of these things are needed, but what may also be needed is a fundamental restructuring (for instance, a move to more intense, “high-dosage” experiences like those offered in mathematics at Pasadena City College) of how this kind of educational opportunity is delivered. A number of observers, including Tom Bailey in a recent report for the Community College Research Center, have suggested that the multiple levels of remediation that students must move through are themselves a barrier to students reaching their goals (Bailey, 2008).

Part IV. Recommendations for Future Work

This essay is SPECC’s final data report, intended to pull together the results of the project’s work in a comprehensive way. It is part of a suite of SPECC papers and online resources, all of which, in different ways, address questions of data and the use of evidence in improvement. Indeed, a commitment to using data for improvement has been central to the project from the beginning, and the importance of that theme has become increasingly clear during the three years of activity. In this sense, SPECC is, in its own way, part of the larger national movement to encourage the reform of educational programs and practices on the basis of evidence.

To some ears, the term “evidence-based reform” (perhaps especially in the K-12 world) points to a need for randomized, experimental trials. But the movement to seek and look more closely at evidence taking shape in higher education is much wider than that, pointing to a process of continuously updated exploration of learning.

In SPECC, for example, we encouraged our participants to form faculty inquiry groups and to think broadly about what kinds of evidence might be useful for designing and assessing innovation at the classroom, course, and program levels. In their various SPECC projects, instructors used a wide array of methods to find out what and how students were and were not learning: specially designed assignments, common exams, pre-post tests and surveys, student questionnaires, “think alouds,” focus groups, interviews, and more. In addition, participants contacted their institutional research (IR) offices for help in viewing their classroom or program data through the lens of larger trends and patterns, such as student demographics, success, persistence, and retention rates.

A central lesson from these experiences is that even with a broad understanding of what “counts” as evidence, acquiring and using it is not as easy or straightforward as it may at first appear. One difficulty is the limited capacity of IR offices to do much beyond the core tasks of producing required reports; there are likewise limits to many faculty members’ time, training, and experience with the kinds of data IR offices typically produce—or, as one SPECC participant put it: faculty and institutional researchers don’t always speak the same language. The need, therefore, is not simply to rethink institutional research but to create a wider community of educators who value evidence, who ask good questions, are creative about identifying and gathering data that bear on those questions, and are willing to talk together about, and act on, what they see. And this in turn means putting in place new tools and processes for gathering evidence.

The need, therefore, is not simply to rethink institutional research but to create a wider community of educators who value evidence, who ask good questions, are creative about identifying and gathering data that bear on those questions, and are willing to talk together about, and act on, what they see.

Recommendations

With these challenges in mind, we end this report with two recommendations from SPECC's work that focus specifically on data and the use of evidence for improvement.¹⁰

Institutional research must be expanded to focus more directly on core issues of teaching and learning.

Traditionally, institutional research offices focus on institutional data (about enrollment, retention, and the like), often in response to external reporting requirements. These are critical patterns to track, but they only *indirectly* speak to questions about student learning, and are therefore necessary but not sufficient. Making the success of all students a real and shared priority means thinking more boldly about institutional research; it means institutional researchers working as partners with faculty and other educators on campus to shape consequential questions about student learning, generate evidence in response to those questions, and work together toward improvements. This vision will require a reshaping of roles as well as expanded capacity. Specifically, this means:

- Increasing staff capacity and resources for offices of institutional research.
- Defining new roles for institutional researchers, focused on working closely with faculty and student support staff to generate and use information about student learning and success.
- Providing occasions in which faculty can develop greater sophistication in dealing with new kinds and levels of data about student learning and success.
- Focusing on how large-scale patterns of student movement link to program- and classroom-level questions about what works.
- Creating strategies and occasions that bring faculty and institutional researchers together around critical questions about teaching and learning; Faculty Inquiry Groups are one vehicle for this kind of collaboration.
- Cultivating a culture in which evidence and information are consistently “on the table” in planning, designing, and assessing educational practices and policies.

Community colleges should lead the way in developing richer, more revealing measures of student learning.

The metrics most commonly used to measure educational effectiveness (student grades, retention, persistence, and degree attainment) will continue to play an important role. But community colleges can be powerful laboratories for creating a fuller, richer set of assessment tools—aimed not simply at tracking progress (or its lack) but at understanding how to facilitate important forms of learning and personal development. Progress on this front means working toward clear, explicit student learning outcomes while also developing tools and approaches that capture more complex aspects of students’ movement toward (and stumbling blocks on the way to) those outcomes. Of particular importance are approaches that provide rich feedback for teachers and students. Specifically, this means:

- Working to identify and articulate what kinds of knowledge and skills are most critical for students in today’s world.
- Promoting the use of low-stakes classroom assessments that give students as well as faculty powerful feedback for improvement.
- Developing shared rubrics and criteria for assessing key outcomes within and across courses.
- Designing common (shared) final examination questions that can be used to prompt departmental deliberations about grading standards and classroom strategies.
- Providing structures and tools (portfolios are one example) through which students can become more effective judges of their own work and therefore more active, intentional agents of their own learning.
- Exploring “the story behind the numbers” (e.g., retention, grades and so forth) through in-depth case studies and interviews of students.
- Adopting instruments (like the Community College Survey of Student Engagement) that allow comparisons with other programs and institutions.
- Finding ways to build information from the assessment of student learning outcomes into institutional data systems.

Looking Ahead

Though it has officially ended, the Carnegie/Hewlett SPECC Project remains a work in progress. As of this writing, and no doubt for some considerable time to come, the projects, activities, analyses, discussions, and new ways of thinking about their work that basic skills faculty have engaged in as part of this project are still limited to a relatively small cadre of dedicated and committed faculty. The various projects still affect a limited number of developmental students. Overcoming individual and institutional inertia and bringing to scale the projects and programs that show promise will require dedication and hard work on the part of many more faculty and departments, as well as support at the highest levels of the institution.

These challenges come as a surprise to no one involved. Nor are they insurmountable. They will, however, require a deeper level of commitment by larger numbers of faculty, by counselors, by department heads and deans, by elected officials, and by students themselves. The cost in dollars and effort of moving the majority of developmental students through college and toward productive lives will be high, but not nearly as high as continuing on the present course.

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NOTES

¹ For analysis of data from the National Education Longitudinal Study (NELS), see Attewell et al. in Bailey, 2008.

² Because some programs targeted students with the greatest need, using all corresponding developmental classes as the comparison may obscure some program effects. This was the case at Chabot College, where the students in the Springboard to Transfer learning community showed a success rate similar to students in other developmental classes. While at first this looked like no program effect, a closer consideration of the demographic makeup of the class showed that the learning community had a higher percentage of underrepresented and historically underperforming minority students than in the classes overall. This suggests that the performance of the learning community students at the same level as the class average was in fact a positive effect of the program.

³ One of the campuses worked on the developmental education program as a whole, and therefore performed no “comparative” analysis.

⁴ Two of the campuses, Los Medanos College and Glendale Community College, do not have SPECC supported learning communities.

⁵ Learning communities have been the topic of many studies; see for example Tinto and Love, 1995; Tinto and Russo, 1994; Malnarich et al., 2003; Zachry, 2008; Price and Lee, 2005; and Visher et al., 2008.

⁶ To see video of a student think aloud in action, visit the Web site “How Jay Got His Groove Back,” created by math faculty at Pasadena City College: <http://www.cfkeep.org/html/stitch.php?s=13143081975303&id=18946594390037>.

⁷ We would like to thank Terrence Willett of CalPASS for providing the data on student progress to transfer level courses.

⁸ Basic skills programs include sequences of classes designed to prepare students for the first college-level class in English and math. In English, colleges offer these classes in both reading and composition. The number of classes in the sequence below the first college or transfer-level class (usually English 1A) varies by campus; some campuses offer one or two such classes, others, usually larger colleges, expect students to enroll in as many as five classes before they reach the first class that counts for transfer-level credit. A typical mathematics sequence includes three classes: pre-algebra, elementary algebra and intermediate algebra. Some colleges offer an arithmetic class below pre-algebra as well. It is worth noting that while completion of intermediate algebra meets the requirement for an AA degree, it still falls below the first class offering credit toward transfer. Transfer-level math classes include pre-calculus, calculus, and statistics, among others.

⁹ Thanks to Myra Snell of Los Medanos College for alerting us to the cumulative impact of attrition points in student progress toward transfer-level courses.

¹⁰ For the full set of SPECC recommendations, please see *Basic Skills for Complex Lives: Designs for Learning in the Community College* (2008), pp. 44–47. The publication can be downloaded free from the Carnegie SPECC Web site: <http://www.carnegiefoundation.org/programs/index.asp?key=26>.

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INTRODUCTION

This Appendix includes the key features of each SPECC campus project along with the project coordinator's executive summary. These are followed by tables that present the most recent data on the three traditional indices of *success*, *retention*, and *persistence* of basic skills students who participated in each of the SPECC campuses' signature projects, along with comparable data for a cohort of non-SPECC students. This latter group consisted of either (1) all basic skills students who were enrolled in traditional (i.e., non-SPECC) basic skills classrooms or (2) a sample of non-SPECC basic skills students matched on such variables as age, gender and ethnicity. For some campuses, data for both comparison groups are presented.

The problems and difficulties we encountered in obtaining these and other data from the various institutional research (IR) offices is a story in itself. Although one of the aims of the SPECC project was to create closer ties between IR personnel and teachers in classrooms, we came to realize during the course of the project that IR offices are grossly understaffed to respond to requests for classroom level data, their enthusiasm for doing so notwithstanding. The typical IR office does not have the personnel required to collect and analyze data at a level of detail that informs instructional practice. At most of the campuses the institutional research office is an overburdened, one-person operation devoted almost exclusively to the preparation of reports on institutional characteristics. As a result, our requests for the kinds of data reflected in these tables was a time consuming distraction from their normal work.

One of the central recommendations that emerged from the project was to define new roles for institutional research personnel that emphasize working closely with faculty and student support personnel to generate and interpret information about student learning. Toward this end, during the course of the SPECC project we arranged special convenings of the 11 campus IR offices. These proved to be powerful mechanisms for getting the offices to coordinate efforts and to exchange strategies for working more effectively with individual faculty and departments.

Cerritos College

The long-term goals of the project are to conduct classroom research so that we can better understand how students in developmental courses learn mathematics and English. The first year interim goals were to introduce faculty to classroom research, assist them in setting up a research project, and facilitate the actual classroom research.

— Campus SPECC Project Coordinator at Cerritos College

Key features of work supported by SPECC:

- Faculty Inquiry Groups
- Systematic investigation of student “think aloud” protocols
- English and math learning communities paired with counseling and guidance

Project Coordinator’s Executive Summary

The Cerritos College SPECC project has focused its classroom research and collaborative inquiry in three areas: English, math, and counseling. Our first group of project participants designed research projects around a variety of learning goals, including the use of specific language and consideration of audience as keys to effective writing in English; methods for solving word problems in math; and understanding the importance of self-management concepts in counseling. The faculty researchers discovered that in most cases students were perfectly capable of learning the material and could demonstrate that learning in relatively sophisticated ways. However, these same students often failed to complete assignments, handed in work below their ability level, or did not attend class. The researchers posited that the students’ failure to succeed was not due to a lack of academic ability, but rather to fundamental insecurities about those abilities. These findings reinforced our belief that student development is a crucial component of basic skills education and changed the course of our inquiry.

After discussing our findings with colleagues at Cerritos and other community colleges up and down the state, the SPECC project participants confirmed that the problem of underprepared, underperforming students is chronic and pervasive. One approach we have taken to address the problem is to combine counseling courses that focus on personal and academic growth with math and English courses. These courses may be combined into formal learning communities or linked informally, with students encouraged to enroll in the counseling course in order to enhance their learning experience.

In general, we found that students achieved greater success in the combined courses taught by teachers and counselors invested in classroom research. However, as significant as these successes have been to the individual students and teachers involved, the numbers were too small to make a difference in campus data on success and retention. In hopes of building on these promising early signs, we have expanded our efforts by creating a number of new Faculty Inquiry Groups (FIGs). The FIGs

are generally small groups of six to eight faculty from similar disciplines who meet for the purposes of studying student work and improving teaching.

The FIGs combine two important elements of effective inquiry: collaboration and research. Faculty members meet and through discussion and debate arrive at a consensus about what they want students to know or be able to do when they complete a specific basic skills course. The group then looks closely at student work to articulate for themselves what they value as a demonstration of the students' skill or understanding of the material. Through this process FIG members create a shared rubric for evaluating student work in specific disciplines. After assessing student work according to the rubric, instructors use the results to generate ideas for improving teaching and further questions about student learning. These questions form the basis for further, more refined individual classroom research that, in its turn, informs the collective inquiry process. In this way, student learning and teaching practice can continue to improve.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Cerritos College

ENGLISH LEARNING COMMUNITIES

SUCCESS

Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel English	26	14	54	30	16	53

RETENTION

Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel English	26	17	65	30	20	67

PERSISTENCE

	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
S 07 ▷ F 07	26	8	31	30	9	30

Cell entries in the Comparison/Baseline column represent a matched sample of developmental English and math students.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Cerritos College

MATH LEARNING COMMUNITY

SUCCESS

Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel Math	13	7	54	41	12	29

RETENTION

Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel Math	13	9	69	41	28	68

PERSISTENCE

	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
S 07 ▷ F 07	13	4	31	41	5	12

Cell entries in the Comparison/Baseline column represent a matched sample of developmental English and math students.

Chabot College

The Springboard to Transfer Learning Community

I know that most students will tell you that from Springboard they learned how to use credible sources, how to structure papers, how to make strong arguments, how to evaluate evidence and come to your own educated conclusion, how to be better critical thinkers and make strong and deep connections and so on, but you get so much more than that. You not only become a strong writer but a strong student and person as well. I could go on and on with what I've learned from Springboard. However, my newfound confidence in my writing is more than I could have asked for. It feels good to read material that is challenging and understand it enough to write a strong paper with my own critical voice.

— A student in the Springboard to Transfer Learning Community

Key features of work supported by SPECC:

- English sequence from one level below to one level beyond transfer level linked with required general education courses in humanities and social sciences
- Same English instructor teaches all three semesters
- At least one book is shared between the two classes, to help students build connections between subjects
- Faculty share one office hour per week in the college reading and writing center to discuss student issues, coordinate due dates, and build integrative assignments
- All levels of English integrate reading, writing, and critical thinking
- Program capacity is 88 students, split between three sections of English, three sections of the paired general education course, and six small sections of the first-term counseling course
- A core group of students enrolls for all three terms, and new students join the program in semesters two and three, as spaces become available

Project Coordinator's Executive Summary

Under the SPECC grant, Chabot College has developed a vision of basic skills that is not segregated in the hallways of English and math but instead spans the entire curriculum. The seeds of this approach were visible in our original SPECC proposal, which featured a learning community linking English classes with classes in social sciences, humanities, and counseling. Aside from this program, we came into the grant focused primarily around projects in the English and math areas (e.g. groups of English instructors examining student learning outcomes and sample student essays for an accelerated develop-

mental English course). As the first year of the grant proceeded, we began to understand that making a difference for basic skills students would require broadening the conversation. After all, students might place into developmental English or math, but they were also enrolling in college-level courses in almost every other part of the campus.

In this spirit, an English instructor worked with four of his students to explore the cross-disciplinary “basic skill” of reading. They analyzed student intake essays about reading and conducted hundreds of hours of interviews, ultimately creating the 70 minute video documentary, *Reading Between the Lives*. In the film, students talk candidly about their backgrounds as readers, their struggles, their perceptions of instructors, and their views of themselves as learners. Their stories provide a compelling window into the complex things that happen when an instructor says, “Read Chapters 2-3 by Monday.”

The video became an important part of the next phases of the grant. Through Flex Day screenings and breakout sessions, we engaged the college as a whole in a discussion of reading. We also pursued this question among a smaller group of social science and English faculty investigating classroom practices to address the idea that “we’re all basic skills teachers.” Several instructors showed the video in their classes and asked their students to respond. A history instructor changed the way he used reading (“I assign less but ask them to do more with it”). Another changed the format of her mid-terms to more directly engage students in comprehending and analyzing historical texts.

In addition to our work in the area of reading, we came to understand a second cross-disciplinary problem among basic skills students, which we came to call the “academic sustainability gap.” This issue emerged as the English teacher coordinating the project’s learning community noticed something troubling in the student performance data from her developmental English classes. Half of the students who did not pass her classes had demonstrated—on tests and essays—a passing level of ability on reading, reasoning, and writing assessments. Over the next year and a half, the instructor conducted classroom research into the reasons behind this gap between student ability and sustainability, then worked with the Carnegie Foundation to create a multi-media Web site on her findings. As with the reading video, this research has become part of a broader cross-disciplinary discussion on basic skills.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Chabot College Springboard to Transfer Learning Community FIRST COHORT

SUCCESS

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Successful	%	N	Successful	%
English 102, Fall 05	87	48	55	360	207	57

RETENTION

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Retained	%	N	Retained	%
English 102, Fall 05	87	65	75	360	266	74

PERSISTENCE

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
F05 ▷ S06	87	44	51	360	159	43

Cell entries in the Comparison/Baseline column are the cohort of students in all developmental English classes who were not in the Springboard Learning Community.

SUCCESS, RETENTION, AND PERSISTENCE RATES**Chabot College
Springboard to Transfer Learning Community
SECOND COHORT****SUCCESS**

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel English	129	86	67	679	480	71

RETENTION

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel English	129	91	71	679	603	89

PERSISTENCE

Course	Springboard (SPECC)			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
F06 ▷ S07 ▷ F07	166	122	73	592*	279	47

Cell entries in the Comparison/Baseline column are the cohort of students in all developmental English classes who were not in the Springboard Learning Community.

* Persistence data for the last cohort of students did not yet exist at the time of publication.

Two elements of the SPECC grant have been particularly powerful in our evolving work:

- 1) Faculty inquiry as a vehicle for looking closely at student learning and our own practice
- 2) The generative power of multi-media windows into teaching and learning

Though the grant is ending, these elements are becoming institutionalized at Chabot through a new Center for Teaching and Learning, which features an ongoing “Making Visible” video team and several cross-disciplinary Faculty Inquiry Groups. In addition, our emphasis on basic skills across the curriculum is a central part of our plans for using Basic Skills Initiative funds at Chabot.

City College of San Francisco

[We] must find ways of sustaining experimentation (with and without external funding) over longer periods of time with more modest expectations of change. There appear to be significant limitations on the use of traditional criteria for assessing improvement in student outcomes.

— Campus SPECC Project Coordinator at City College of San Francisco

Key features of work supported by SPECC:

- Faculty Inquiry Groups, including two composed exclusively of basic skills instructors and one composed of basic skills instructors and instructors from ESL, art, computer networking, and informational technology
- Student focus groups conducted by pairs of FIG faculty in which students were encouraged to discuss their problems and concerns with the class

Project Coordinator's Executive Summary

City College of San Francisco's SPECC project had three components: the revision of the lowest-level English composition course to integrate instruction in reading and writing offered in an intensive six-unit combination of classroom and laboratory instruction; revision of elementary algebra to more clearly delineate student entry and exit characteristics, using methodologies that emphasize students' ability to communicate mathematical ideas using multiple representations of those ideas; and creation of Reflective Teaching Circles (RTC) designed to provide faculty with a highly structured inquiry process in which they work collaboratively on pedagogical issues related to basic skills instruction.

Over the course of six years, a cohort of English faculty has worked collaboratively using an inquiry methodology to completely revise the English department's basic skills curriculum. Focusing on integrating reading and writing, the Strategic Learning Initiative's Reading Apprenticeship training has been used to standardize the approach to reading instruction and to apply metacognitive processes to developmental education. Initially, a reading and a writing course were offered in a "learning community" model, meeting for an extended period two or three times a week. Based on qualitative and quantitative data to support inquiry, the organization of the course was changed to daily meetings with laboratory activities integrated into the regular class meeting schedule.

While qualitative data indicated that faculty and students perceived improvements in teaching and learning, the results as seen in the quantitative data were labeled "bad data," i.e., data that "misbehaved"—not acting the way the faculty expected it would behave. Eventually, the focus turned to grade variability as a major issue. Even after many years of collaborative efforts, faculty grading still varied substantially. So, the faculty began to standardize course requirements, developed protocols for scaffolding assignments, established specific criteria for evaluating assignments, and completely revised the course outline to carefully reflect the specific skills to be developed and outcomes to be measured.

While the success rates for students in the target class have not changed substantially, there is preliminary quantitative data that suggests that students coming out of this program are more likely to persist and succeed in the subsequent courses.

The mathematics department's focus on elementary algebra is a direct result of a fairly common problem encountered in mathematics outcomes assessment. For a number of years prior to the SPECC project, the department had worked collaboratively and aggressively to improve outcomes in the basic computation course that precedes elementary algebra. That project produced three different course structures for the computation course, including the pre-existing, self-paced, mastery model and two structures that combine traditional classroom instruction with intensive, highly coordinated laboratory experiences. These new models produced substantial improvements in pass rates (for some cohorts up to a 100 percent increase). However, these improved outcomes had little impact on the pass rates for students in the subsequent course—a measure that many consider is the most significant outcome for math.

SUCCESS, RETENTION, AND PERSISTENCE RATES

City College of San Francisco ENGLISH LEARNING COMMUNITY

SUCCESS

Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel English	339	213	63	3502	2031	58

RETENTION

Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel English	339	285	84	3502	2350	77

PERSISTENCE

Course	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted*	%
S07 ▷ F07	239	129	54	3502	2361	67

Cell entries in the Comparison/Baseline column represent the cohort of developmental students not enrolled in a learning community; the figures are for the combined 10-year period from 1998 to 2007.

* The number of students who persisted is larger than the number who were successful because many students repeat the course.

group discussions. However, as faculty became comfortable sharing their classroom practices and methodologies with their peers, the process expanded to include classroom observations and student focus groups led by peer-faculty to provide faculty with specific student feedback on faculty efforts to improve instruction.

While the work on elementary algebra is still “in process,” a new outline emphasizes students' ability to communicate mathematical ideas verbally and places more emphasis on problem-solving, including articulation of a generalized problem-solving strategy and multiple representations of mathematical ideas (tabular, graphical, symbolic, or verbal), arming students with multiple ways to approach problem solving. While there is not complete agreement among the faculty on the changes being implemented by the elementary algebra workgroup, it is clear that the door has been opened for the consideration of less traditional approaches, more student centered methodologies, and clearer delineation of the relationship of entry and exit skills at each level.

The Reflective Teaching Circles have created a much broader appreciation of the value of inquiry methodologies in curricular reform and faculty development. Using a highly structured protocol for defining and addressing pedagogical issues defined by the faculty involved in the project, a trusting, proactive environment has been created. Initially, the RTC work was conducted entirely outside of the classroom, using individual consultations combined with

College of the Desert

The most valuable outcomes of our experience with SPECC have included the realization that we really don't know how best to identify our Generation 1.5 students.* We have begun research in reading/placement in order to identify the true Gen. 1.5 student. However, with this in mind, and with funding as it is, we may have to broaden our scope and create learning communities that serve the needs of all first-year students. Most importantly, we truly believe that our students succeed in learning communities because they learn to become students—in other words, they begin to understand the academic culture, sometimes for the first time in their lives, because they have a “posse” of professionals guiding and teaching them.

— Campus SPECC Project Coordinator at College of the Desert

**The term Generation 1.5 was used by R.G. Rumbaut and K. Ima in their 1988 report for the U.S. Department of Health and Human Services, “The Adaptation of Southeast Asian Refugee Youth,” to describe immigrants with both first and second generation characteristics.*

Key features of work supported by SPECC:

English Program

- Learning communities (LCs) generally made up of basic skills-level English and reading courses, along with a student development course taught by full-time counselors
- Each cohort supported by trained tutors present in the classroom at least one day a week, as well as in the college's Academic Skills Center
- Transfer level LCs, pairing English I-A with a course in the social sciences (sociology, psychology, or anthropology)
- All LC English faculty met at least monthly; some faculty met weekly as they recreated student learning outcomes (SLOs) for each mathematics course, designed common final exams, and created Faculty Inquiry Groups (FIGs)

Math Program

- LCs generally made up of basic skills-level mathematics along with a student development course taught by our full-time counselors
- Math department faculty meet weekly to create student learning outcomes for each basic skills math course and to design common final examinations

Project Coordinator's Executive Summary

Overall, College of the Desert has benefited greatly from the support and experience of our SPECC collaborators. We have spent the past three years exploring new avenues for strengthening student learning in basic skills classes. Some areas of focus include configuring learning communities, recruiting students, making the most of student services, and engaging the support of our administrators, Board, and Foundation. We now head into a new academic year with substantial plans for continuing our work in the future. Our fall 2008 schedule of classes includes five learning communities, and we are already meeting and planning new models for the highly successful Block Programs/First-Year Experience. Jerry Patton, our college president as of fall 2007, is heartily committed to learning communities.

The learning communities (LCs) at College of the Desert were generally made up of basic skills-level mathematics, English, and reading courses, along with a student development course taught by our full-time counselors. Each cohort was supported by trained tutors who were present in the classroom at least one day a week, as well as in the college's Academic Skills Center. We also offered transfer level LCs, pairing English I-A with a course in the social sciences (sociology, psychology, or anthropology). Although we tried to develop learning communities geared towards the needs of Generation 1.5 students, we struggled with the process of properly identifying and recruiting these students and have initiated further research into the question.

The mathematics department has broken new ground at College of the Desert with their participation in the Reading Apprenticeship program and the *Windows on Learning* project. They have created teaching communities to address discrepancies in their course outcomes and teaching strategies. Led by Laura Graff, the mathematics department has also created Faculty Inquiry Groups (FIGs) to discover and rediscover best teaching practices in their areas of expertise. Every FIG included at least one full-time and one adjunct faculty member. Their tasks included revising student learning outcomes (SLOs) and developing common assessments for each basic skills math course.

We have benefited from direct collaboration with our SPECC colleagues. In addition to annual SPECC meetings at the Carnegie Foundation, former SPECC Coordinator Dr. Craig Norman and VP of Instruction Dr. Gari Browning, among others, visited Pasadena City College to learn more about their successful Teaching and Learning Center. Faculty from Pasadena City College also visited College of the Desert to assist us with student recruitment at our valley high schools.

We hope to expand these programs in the future because we believe that our students succeed in learning communities because they learn to become *students*—in other words, they begin to understand the *academic culture*, sometimes for the first time in their lives, and because they have a “posse” of professionals guiding and teaching them.

SUCCESS, RETENTION, AND PERSISTENCE RATES						
College of the Desert ENGLISH LEARNING COMMUNITIES						
SUCCESS						
Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel English	155	112	73	3421	2100	61
RETENTION						
Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel English	135	128	95	2487	2050	82
PERSISTENCE						
	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
S07 ▷ F07	135	88	65	2487	1778	71

Cell entries in the Comparison/Baseline column are the cohort of all developmental English students not enrolled in an English learning community classroom.

SUCCESS, RETENTION, AND PERSISTENCE RATES						
College of the Desert MATH LEARNING COMMUNITIES						
SUCCESS						
Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Devel Math	61	31	51	2060	855	42
RETENTION						
Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Devel Math	68	39	57	2060	1592	77
PERSISTENCE						
	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
F07 ▷ S08	61	42	69	2060	1595	77

Cell entries in the Comparison/Baseline column represent the cohort of all developmental English students not enrolled in a math learning community classroom.

College of the Sequoias

Much remains to be done regarding basic skills at College of the Sequoias. I am certain that what has been started as a pilot program [through SPECC] will soon become a part of the fabric of this college. Once [faculty] inquiry has taken hold...it is very difficult for an instructor to return to traditional teaching methodologies. Learning outcomes and faculty inquiry have now become a part of this college's history and undoubtedly its future.

— Campus SPECC Project Coordinator at College of the Sequoias

Key features of work supported by SPECC:

- LISTO learning community
- Action research in the classroom
- Experimental pre–post testing
- Investigations of common examinations

Project Coordinator's Executive Summary

After three years of planning and executing a variety of scholarship of teaching and learning initiatives, a nascent culture of inquiry is developing at College of the Sequoias (COS). Classroom inquiry experiments ranging from learning communities through radical realignment of summative assessments have resulted in improved student success and retention. Longitudinal studies of student persistence suggest that more information is needed to determine eventual student destinations (drop-out, transfer, and workforce). Faculty Inquiry Groups have been organized to share findings, discuss success strategies, and propose departmental initiatives. Practices that showed promise include the use of calibrated peer review (CPR) for basic skills classes; English-based learning communities; math learning communities with a math study skills linkage; mathematics reading assignments; applied mathematics; in-class tutors; and student contracts.

In mathematics classes, improvement in student success and retention were achieved primarily by modifying student homework behaviors. When instructors increased the importance of homework and provided students with incentives to complete all assignments, both retention and success increased. Technology (clickers, tablet PC, computers with MyMathLab) as the primary innovation in a class did not have a strong impact on retention and success. Technologically-based instructional innovations increase student satisfaction with the learning process, but do not translate into greater pass or retention rates. Because students show a natural affinity for technology, more research needs to be done on how to use technology to increase learning.

Learning communities (LCs) have been popular at COS over the past 15 years. Several federally funded programs (Title V) have supported the initiation of LCs. Results at COS and at many other

institutions have shown that LCs can improve student learning. The SPECC program was the first on campus to attempt the creation of these communities of learners at the basic skills level. Various combinations of courses were attempted. Both retention and success have been shown to improve for students in LCs. Some of the highest success rates were recorded in a mathematics course linked to a study skills class. Success was highest when both courses were taught by the same instructor.

Perhaps the most important component of the SPECC grant was the initiation of inquiry groups on campus. The mathematics department was particularly active in creating various interventions that faculty hypothesized would increase student success. Most of these innovations were initially discussed among only a few of the instructors in the SPECC program. During this final year, meetings dedicated exclusively to discussing inquiry were organized and well attended by faculty. The end result is an open dialogue of faculty, each involved in some inquiry project, sharing successes and failure in a safe environment. Future projects will incorporate the use of reading and possibly writing in the mathematics curriculum. An applied mathematics course as well as several, modular arithmetic courses are in the process of being developed for submission to the curriculum committee.

The Basic Skills Initiative Committee at COS has embraced many of the innovations developed through the SPECC grant. SPECC faculty currently serve as a model on how to perform and measure classroom innovation. It is the wish of those involved in this grant that others will learn from our attempts at innovation and share their own efforts in an open setting. It is only through such involvement in teaching and learning that both student learning outcomes and their associated assessments will become a part of the culture of the college.

SUCCESS, RETENTION, AND PERSISTENCE RATES						
College of the Sequoias						
ACTION RESEARCH PROJECTS						
SUCCESS						
Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
MyMathLab	135	59	44	365	161	44
CPR* (Devel Eng)	57	37	65	316	195	62
RETENTION						
Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
MyMathLab	135	135	100	365	364	99+
CPR* (Devel Eng)	57	57	100	316	315	99+
PERSISTENCE						
	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
S04 ▷ S07	135	53	39	2791**	982	35
	57	28	49	1945**	934	48

Cell entries in the comparison/baseline column represent the English (Math) cohort of all non-SPECC classrooms.

* Calibrated Peer Review

** Cell entry is the overall developmental math persistence rate for the four year period beginning Spring 04 through Spring 07

Glendale Community College

Within the developmental composition program at Glendale College, we have witnessed a recent profusion of interest in pedagogy and a collective momentum to render student learning transparent, measure the success of this learning, and find fresh pedagogical approaches to facilitate success. We do not endorse electronic pedagogy as an exclusive approach, but we do acknowledge its seemingly ineluctable capacity to reinvigorate our instruction and our students' learning. In 2004, the proposed scope of the Carnegie grant was to involve four full-time faculty in the evaluation, revision, and implementation of the pedagogy; now, at the end of the three and one-half year grant period, nine full-time and five adjunct faculty are using various applications of the pedagogy, and other faculty have expressed an interest in joining the discussion.

— Developmental English Instructor and Campus SPECC Project Coordinator
at Glendale Community College

Key features of work supported by SPECC:

Developmental English

- The Full *E*-mersion, an advanced electronic pedagogy for developmental composition courses
- Participating faculty observed each others' Full *E*-mersion classes

Developmental Math

- Common examinations and associated scoring rubrics in pre-collegiate algebra courses constructed and administered by math department

Project Coordinator's Executive Summary—English

The Full *E*-mersion, an advanced electronic pedagogy for developmental composition, has been the subject of our Carnegie basic skills project for the last three years. The original premise of the innovation was to infuse as much technology as possible in a developmental composition course and explore the outcomes. Through sustained faculty collaboration and inquiry, our Carnegie team has developed a pedagogy with five overarching applications: 1) interactive PowerPoint lessons; 2) a robust class Web site or "living textbook;" 3) the computer classroom as a transformational learning environment or "cyber spaceship;" 4) the Internet as a primary resource for high-interest writing prompts and supports; 5) rapid student-response devices.

The fullest realization of the pedagogy has been in English 191, our paragraph-to-essay composition course; however, we have created three Web site templates—for English 189, 191, and 120—each containing original instructional materials tantamount to the contents of a textbook. In our 2003 Carnegie grant proposal, we promised to include four full-time faculty in the initiative; at this

juncture, we have nine full-time and five adjunct faculty who apply various features of the pedagogy in their developmental and transfer-level courses. (Many of these faculty approached us, looking for solutions to instructional roadblocks.) Additionally, the GCC Learning Center has adapted some of the materials for self-tutorials and specialized workshops.

In an effort to disseminate these innovations and benefit from the feedback and collaboration of a broader academic community, our Carnegie team has kept up a demanding schedule of conference presentations at meetings of the International Society for the Scholarship of Teaching and Learning (ISSOTL), the League for Innovation, English Council of California Two-Year Colleges (ECCTYC), California Strengthening Student Success, California State Academic Senate, the Hewlett Foundation, and so on. As a result of our presentation at the 2007 Strengthening Student Success Conference, English instructors Monette Tiernan and Chris Juzwiak were invited to conduct a two-day workshop at Santa Rosa Junior College for ESL, English, and Language Arts faculty interested in technology-based pedagogy. The workshop was well attended, and the evaluations were especially enthusiastic. We are also sharing our original instructional materials with Pierce College and the Monterey Institute for Technology and Education. Finally, the pedagogical innovations have found their way into textbook form: *Stepping Stones, A Guided Approach to Writing Sentences and Paragraphs*, and *Cornerstones: Constructing the Academic Essay*—both by GCC instructor Chris Juzwiak—are currently in production at Bedford St. Martin's Press.

A scholarly article, “Pedagogies of Visibility: The Full *E*-mersion and Beyond” (written by Tiernan and Juzwiak), has been accepted for publication in the 2008 edition of *New Directions for Community Colleges*. The title of this edition is *Policies and Practices to Improve Student Preparation and Success*.

While we intend to continue our exploration and implementation of a Full *E*-mersion pedagogy in English 191, our research has led us to a distinct “Incremental and Technology-Based” pedagogy that may have superior applicability and transferability throughout the developmental composition sequence and, eventually, across the curriculum. The new pedagogy uses simple but powerful technology components, while emphasizing a carefully honed, incremental delivery of course content that keeps all students—regardless of skill level—energized and “on board.” In co-teaching three levels of developmental composition, eight instructors are collaboratively evaluating, revising, and augmenting the materials and practices associated with this promising pedagogy.

Project Coordinator's Executive Summary—Mathematics

The mathematics division of Glendale Community College has been working on several projects. These include adjunct mentoring, online classes, common final exam questions in arithmetic/pre-algebra, and common final exams in elementary and intermediate algebra. All of these projects have made our division a clear leader on campus. With the new student learning outcome (SLO) requirements, we are way ahead of the curve as a result of SPECC.

Adjunct Mentor Isabelle Saber has created a handbook of resources and organizes workshops throughout the year to encourage dialogue among full- and part-time instructors. There is a well-attended orientation at the beginning of the year detailing what instructors can expect in terms of policy, procedures, and the student population. Throughout the year, there are workshops to improve teaching by sharing techniques, with topics decided by the common final exam results. At the end of

the year, there is an adjunct dinner that helps promote a family atmosphere in which we take great pride. By connecting more closely with the division, adjunct faculty have also connected better with students.

Our online math classes were cancelled several years ago due to poor success rates, and SPECC has given us an opportunity to revisit and improve them. From the perspective of the administration, online classes help solve the problem of lack of classroom space and help serve a wider population. We began by offering the one semester versions of intermediate and elementary algebra online and found that students did not succeed at a rate comparable to students in traditional lecture classes. We were able to do this analysis due to the common final exam. In an attempt to increase success rates and in turn, retention, we offered the first semester online in the two-semester sequence. As hoped, this sequence helped increase success rates and we plan to continue this practice.

Administering common final exam questions in our arithmetic/pre-algebra classes has been a great exercise in preparing for division-wide implementation of SLOs. The practice has now spread to include most of our courses, including transfer-level courses such as statistics. Again, as a result of SPECC we were more than prepared to expand this practice and implement it division-wide. The intricacies were tested early on and corrected when necessary, which made the transition to higher level courses easier.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Glendale Community College PRE-COLLEGIATE ENGLISH COMPOSITION E-MERSION CLASSROOMS

SUCCESS

	SPECC			Comparison		
	N	Successful	%	N	Successful	%
Dev Eng (E-mersion)	853	438	51	2046	1642	54

RETENTION

	SPECC			Comparison		
	N	Retained	%	N	Retained	%
Dev Eng (E-mersion)	861	672	78	1344	1061	79

PERSISTENCE*

	SPECC			Comparison		
	N	Persisted	%	N	Persisted	%
	861	614	71	1344	973	72

*These cell entries represent the weighted average semester to semester persistence from F02 ▷ F07

Cell entries in the Comparison/Baseline column are the cohort of all developmental English students not enrolled in a Developmental English (E-mersion) classroom.

The common final exam in our algebra classes has been our largest project. We began offering it only to our intermediate algebra classes and now it has doubled in size. The original intent was to make material more consistent across courses taught by adjunct and full-time faculty. Now, the results of our data analysis go above and beyond this goal. In addition to achieving our original goal, some unexpected outcomes have been that instructors are held accountable for their grading scale; workshops have been created examining topics on which students performed poorly (to complete the feedback loop necessary for SLOs); and dialogue has opened up among instructors that was previously lacking. We are pleased to report that all of our SPECC projects have been tremendously successful and we plan to continue most of these projects on campus with internal funding.

Laney College

These data reveal a great need to investigate further who our basic skills students are....In order to serve our students better, it is necessary to understand math pedagogical theory, including approaches to math that connect students to what is happening in the classroom....What we know is that faculty not only need time to be immersed in new ways of thinking about pedagogy but time to fully rethink their own approaches to pedagogy as well.

— Campus SPECC Project Coordinator at Laney College

Key features of work supported by SPECC:

- Project Bridge learning community
- Reflective Inquiry Groups, including faculty from English, mathematics, Project Grid, and career technical education
- Tutor training program

Project Coordinator's Executive Summary

The Laney College SPECC project ambitiously encompassed the areas of professional development, pedagogical innovations, and tutor training. The Basic Skills Learning Collaborative (BSLC), which grew out of a Faculty Senate instructional support subcommittee, managed the SPECC grant. The BSLC organized inquiry groups with faculty participants from the English, ESL, and mathematics departments, as well as from the Project Bridge Program. Faculty from two vocational education programs joined the following year. These interdisciplinary faculty groups, which we call Reflective Inquiry (RI) Groups, formed the core of our professional development.

Reflective Inquiry encouraged collaboration within and across disciplines that in turn gave rise to significant changes in pedagogy and basic skills curriculum. ESL participants created a new, combined, intermediate level ESL reading and writing course. English and ESL instructors trained in the Reading Apprenticeship approach are training faculty in the use of metacognitive techniques to help students engage with their reading. The vocational education instructors modified their teaching in regard to reading and language issues and created new forms of assessment. Not only was the impact of reflective inquiry on programmatic change significant, but the communication protocol readily allowed for the fostering of collegiality, trust, and greater self-confidence among faculty participants.

In an effort to expand the pedagogical innovations set in motion by our Reflective Inquiry Groups, we have formed interdisciplinary Teaching and Learning Communities (TLCs). One such TLC currently being offered is an ESL class taught in conjunction with woodworking. We also offer ESL instruction alongside environmental control technology. TLC members from the English, ESL and theater arts

departments created “The Community Voices Theater English” class, for which students collect oral histories of Oakland residents regarding education and literacy. The students read their collected stories in a college-wide performance in May 2008. Another TLC, which focuses on exploring effective study skills and revisiting ways to teach mathematical concepts, includes among its members a disabilities specialist, a math tutor, and ESL and math faculty.

Finally, in our endeavor to improve classroom instructional support, the BSLC has actively supported the development of a tutor-training program. This past year, two sequentially-linked tutor-training courses were completed. BSLC members worked with administration toward the development of a full-time tutor coordinator position to bring disparate tutoring entities together at the college.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Laney College

REFLECTIVE INQUIRY GROUPS

SUCCESS

	SPECC % Successful	Comparison/Baseline % Successful
Reflective Inq Grp 1	62	59
Reflective Inq Grp 2	64	59

RETENTION

	SPECC % Retained	Comparison/Baseline % Retained
Reflective Inq Grp 1	65	65
Reflective Inq Grp 2	70	65

PERSISTENCE

	SPECC % Persisted	Comparison/Baseline % Persisted
Reflective Inq Grp 1 F06 ▷ S07	53	48
Reflective Inq Grp 2 S07 ▷ F07	59	48

Cell entries under the SPECC column represent the weighted percentages of students in classes of Reflective Inquiry Group participants who were successful, retained, or persisted. Cell entries in the Comparison/Baseline column are the comparable percentages of all Laney basic skills students.

We have made an effort to share these pedagogical innovations and insights both on campus and across a wider network. In addition to sharing our work at college-wide retreats with student services staff, Reflective Inquiry Group members have made numerous presentations on their classroom research. One of our ESL faculty members created a Carnegie-sponsored *Windows on Learning* Web page, and we hosted a well-attended regional conference, “Transforming the Classroom Through Faculty Inquiry,” on November 9, 2007. We have also held monthly workshops through the SPECC Teaching and Learning Series at our college. In addition, the BSLC faculty who participated in the SPECC Reflective Inquiry Groups have published a summary of their insights, findings, and institutional recommendations in two recent reports and disseminated them to faculty, administrators, and the wider college community.

Over the past three years we have come to appreciate the complexity of basic skills instruction at Laney College and the importance of faculty involvement in all phases of curriculum development, collaboration, research, and planning.

Los Medanos College

To better communicate the concept of [our] program and how it differed from a collection of courses and services, we created the metaphor of a tree: the earth surrounding the tree represented the campus mission while the trunk represented the program’s main goals and purpose. The three connected branches represented the basic skills curriculum, student services, and professional development. We developed a plan for each branch. Faculty redesigned the developmental education program in mathematics and English. Student services were integrated into a counseling partnership with instructors....We created mathematics and English teaching communities and put a great deal of effort into codifying the changes in order to pass on that information to the new full and part-time faculty.

— Campus SPECC Project Coordinator at Los Medanos College

Key features of work supported by SPECC:

- Comprehensive, institution-wide initiative to revamp and redesign the developmental education program
- Three main foci: basic skills curriculum, student services, faculty development

Project Coordinator’s Executive Summary

As part of the SPECC grant, Los Medanos College has moved closer to its goal of becoming a prepared institution. We have known for many years that the majority of students who enter our college, like other community colleges in our state and nation, are not yet prepared to succeed in general and occupational course work designed to culminate in a degree or certificate. It took us a bit longer to come to the conclusion that it was not enough to offer courses and services designed to “remediate” the skills deficiencies of our students. We now understand that the institution itself must be prepared to welcome our students and work with them as partners in clarifying and achieving their academic and career goals. This requires a coordinated program that takes an integrated approach to curriculum, support services, and professional development in order to optimize student learning, both in and outside of the classroom.

To that end, we have worked extensively on creating and sustaining a multifaceted program with an emphasis on collaborative inquiry. Believing that questions drive learning, we pose relevant and significant questions and investigate possible answers. One way we do this is through the work of teaching communities—faculty coming together to systematically study student work and listen carefully to what students are telling us, both by what they say, and what they do and produce. Over time, by documenting the work of these teaching communities, and representing it in accessible ways, such as Web pages or electronic portfolios that allow others to see and sometimes hear the work of our

students, we are able to draw on a body of evidence that allows us to make informed decisions that improve teaching and learning.

In addition, we have created an institutional infrastructure that makes our work possible in a systematic, ongoing way. We have full institutional support for faculty leadership in our developmental education program in terms of adequate reassigned time and a reliable budget for compensating faculty participation in teaching communities. We have defined program level student learning outcomes for developmental education and use regular assessments of student work to tell us how our students are doing relative to those outcomes. These assessments inform the work of our teaching communities. We also collaborate with the Office of Institutional Research on a research agenda that is designed to measure student achievement and engagement. We have a committee that meets monthly to coordinate our decentralized program and to conduct regular program evaluations of our program goals. In evaluating our progress toward our goals, we are learning to collect data and disaggregate it in ways that highlight particular populations of students.

Success Rates

Rather than attempt a limited, specific program of instruction, tutoring, or course arrangements, developmental faculty at Los Medanos decided that the developmental program in its entirety was in need of reconceptualization and restructuring. This notion did not begin with the Carnegie/Hewlett initiative. The SPECC grant allowed Los Medanos to reinforce and sharpen an institution-wide initiative that began some 10 years ago. At that time, the institutional research office conducted a retrospective study of student persistence and found that of the 177 students enrolled in English 70 (a developmental course two levels below English 100, their transfer-level English course) in the fall of 1993, only eight (4.5 percent) had successfully completed the transfer-level English course by the fall of 1996.

To gauge the success of the campus wide initiative, Los Medanos examined the English 100 success rates of the fall 2003 cohort of students who were enrolled in English 70 over the period from fall 2003 to fall 2006:

Number enrolled in Eng 70, Fall 03	Passed Eng 70 by Fall 06	Enrolled in Eng 90 by Fall 06	Passed Eng 90 by Fall 06	Enrolled in Eng 100 by Fall 06	Passed Eng 100 by Fall 07	Percent of Cohort who passed Eng 100
240	163/240= 68%	121/163= 74%	88/121= 73%	58/88= 66%	43/58= 74%	43/240= 18%

The 18 percent pass rate for English 100 represents a four-fold increase in the number of developmental students who successfully completed the transfer-level English course after having initially placed into the developmental English 70 course.

In general, a larger proportion of developmental students eventually succeed in transfer-level English than in transfer-level math. The campus-wide program at Los Medanos seems to have bucked this trend. Although baseline fall 1993 figures are not available for math, the comparable success rates for the fall 2003 cohort of developmental math students who placed two levels below transfer-level math are virtually identical to those for English:

Number enrolled in Math 25, Fall 03	Passed Math 25 by Fall 06	Enrolled in Math 30 by Fall 06	Passed Math 30 by Fall 06	Enrolled in transfer level math by Fall 06	Passed transfer level math by Fall 07	Percent of Cohort who passed transfer level math
292	$185/292=$ 63%	$118/185=$ 64%	$96/118=$ 81%	$55/96=$ 57%	$49/55=$ 89%	$49/292=$ 17%

At Los Medanos, fully 17 percent of the students who initially place two levels below transfer-level math eventually succeed in the college's transfer-level math course.

Merced College

When teachers talk, good things happen. We have been reminded about the power behind such a simple notion, and as a result a large number of teachers and counselors have embraced the spirit of teaching and learning. Meetings have led to changes in teaching, curriculum and inter-disciplinary relationships, institutional dynamics, and how we approach research.

— Campus SPECC Project Coordinator at Merced College

Key features of work supported by SPECC:

- Learning communities
- Supplemental Instruction program with tutors present in class and available after class for individualized help

Project Coordinator's Executive Summary

Under the SPECC grant, Merced College developed programs aimed at improving the success of its large pre-collegiate population. To begin, the college expanded its pre-existing Supplemental Instruction (SI) program to include SI for basic skills classrooms. The SI program hires students who have successfully completed a course to work with the classroom instructor to develop study sessions for the students currently enrolled in the class. The student leader then facilitates these study sessions, placing the emphasis on collaborative learning and, eventually, independent learning. The SI leaders employed in these SI classrooms were either pre-collegiate students themselves or students who had recently completed their pre-collegiate requirements. Merced College felt it was important to hire pre-collegiate students as SI leaders both because they understand the challenges pre-collegiate students face and because mentoring other students increased their confidence in their own academic abilities and future success. In addition, Merced College also expanded its learning communities program by offering learning communities for pre-collegiate students. These communities focused on the areas of writing, reading, math, vocational education, and guidance. Previously, the learning communities program focused on transfer-level classes. Merced College hoped to foster a sense of community, peer support, collaboration, and transfer of knowledge from one class to another within the pre-collegiate student population.

After experimenting with these expansions, new issues arose, specifically in the areas of reading instruction and writing services. As a result, Merced College decided to offer both faculty and SI leaders training in Reading Apprenticeship, a reading pedagogy developed by WestEd and the Strategic Literacy Initiative. Reading Apprenticeship relies on the theories of cognitive apprenticeship; a master reader in any given field should apprentice the novice reader. This involves making reading visible, so that the novice can see how a master reader successfully approaches a text. Faculty members from all disciplines were invited to learn about the Reading Apprenticeship approach at a variety of venues. These included teacher in-service days, workshops hosted by WestEd, orientation for new

full-time faculty, and two campus-wide retreats. Since SI leaders have recently “mastered” a certain course and can theoretically apprentice the new students in the class, the SI leaders in both math and English were given training on Reading Apprenticeship by on-campus faculty trainers, as well as WestEd trainers. To make up for a lack of writing services available to students, Merced College opened a Writing Center, staffed in the beginning by faculty members who were eventually replaced by trained students.

Throughout Merced College’s participation in the SPECC program, faculty leaders created several Faculty Inquiry Groups. These groups met on a regular basis to discuss the SI program, learning communities’ pedagogy, reading instruction and the Reading Apprenticeship philosophy, and issues related to the successful operation of the Writing Center. Since faculty development opportunities on the Merced College campus are minimal, these Faculty Inquiry Groups served an important purpose. They offered teachers the opportunity to come together (most of the time in multi-disciplinary groups) to discuss the scholarship of teaching and learning. Oftentimes, the discussions and reflections of these groups made way to the larger campus community and spurred changes to curriculum and the campus culture.

SUCCESS, RETENTION, AND PERSISTENCE RATES

Merced College LEARNING COMMUNITIES AND SUPPLEMENTAL INSTRUCTION CLASSROOMS

SUCCESS

Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
Dev Eng LC	133	65	49	2078	903	43
Dev Eng Sup Instr	204	93	46	2170	942	43

RETENTION

Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
Dev Eng LC	133	79	59	2078	1230	59
Dev Eng Sup Instr	204	129	63	2170	1270	58

PERSISTENCE

	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
F07 ▷ S08	133	66	50	2078	944	45
F07 ▷ S08	204	103	50	2170	960	44

Cell entries in the Comparison/Baseline column represent the cohort of all developmental English students not enrolled in a learning community or supplemental instruction classroom.

Pasadena City College

I think the Teaching and Learning Center (TLC) student tutor/mentors have been the most positive and “data rich” TLC development in the past several years. Those students that do well in math are encouraged to give back to the community by attending a semester-long training program and then volunteering for our Conexion Program. Those that “shine” are offered paid positions and have caseloads of basic skills math students. This group, in particular, has transformed the center from a hangout to a study center. They excel academically; serve as role models, mentors, and advisors; form a bridge between students and instructors; take part in recruitment, orientation, and evaluation; and advise us about what works and what doesn’t. We love them. We just began a long-term evaluation of TLC tutoring/mentoring with our external evaluators from Claremont Graduate University, and I think that their findings will support our feelings about the powerful impact the student tutor/mentors have had on the community we have formed.

— Campus SPECC Project Coordinator at Pasadena City College

Key features of work supported by SPECC:

- Dedicated facility (the Teaching and Learning Center) directed by SPECC project coordinators devoted exclusively to basic skills students, tutors, and instructors
- The signature project, the Basic Skills .XL Program, is a continuing summer bridge/first-year learning community
- Math Jam program provided a no-cost, no-credit math prep and college orientation to new students in the summer and tutoring support in the fall
- MathPath program combined two-semester-long pre-collegiate courses into a single one-semester course
- Faculty Inquiry Groups: Active program of “student voices” involving faculty discussion of “think aloud” protocols of basic skills students in math and English
- Math SLO Pre-Post Project: Math faculty subject SLO to intensive pre-post analysis of student understanding and mastery
- Community College Survey of Student Engagement (CCSSE)

Project Coordinator's Executive Summary

Pasadena City College's SPECC initiatives had two interrelated components: faculty development and summer bridge/first-year experience (SB/FYE) programs. Both were housed in the college's Teaching and Learning Center (TLC) and focused on the needs of young, first-time college students who place into pre-collegiate English and math, and their instructors.

Faculty Development: For almost three years eight to 10 basic skills math instructors engaged in an inquiry process that resulted in the identification of key course concepts, the development of student learning outcomes for the three-course sequence, revision of curricula, engagement in research and evaluation, the strengthening of faculty leadership skills, and the fostering of collegiality and collaboration among the participants and within the math division. Other important outcomes include:

- Student *think alouds*, a valuable learning tool that arose out of the Faculty Inquiry Group (FIG) process. As a result, student voices are now a critical element of TLC faculty development activities.
- Documentation of the work of the FIGs for pre-algebra and intermediate algebra can be seen on The Carnegie Foundation for the Advancement of Teaching Web site *Windows on Learning*.
- A culminating SPECC project—videotaped interviews with math students, instructors, and tutors—is being produced in collaboration with Los Medanos College and will be used to promote teaching and learning in math.

Summer Bridges and First-Year Experiences: Inquiry among the math faculty led to revision of the summer bridge prealgebra curriculum and an increase in retention and success rates for bridge students. SPECC participants used FIG findings to investigate issues of intensity and intimacy and how they relate to program effectiveness, scalability, and transferability. Their work has led to several math program innovations:

- Summer Math Jam, a two-week, non-credit summer “math bootcamp” and orientation for new students enrolled in pre-collegiate math
- Fall LifeLines, a supplemental support program that includes tutoring, counseling, a study skills workshop series, evening study jams, and a textbook loan incentive for basic skills math students
- MathPath, an intense, math-only program that includes two basic skills courses in one semester, a companion math success course, tutoring, study skills, workshops, and field trips

An important component of TLC activities, peer tutoring and mentoring, developed and expanded as a direct result of the SPECC projects described above. Students who have excelled in math and/or English, participated in a college-sponsored training program, and gained experience as a volunteer tutor in the TLC have the opportunity to become paid tutor/mentors, manage caseloads of students, participate in evaluation, and present at student success conferences. These powerful role models have had a profound effect on TLC summer bridge/first-year experience programs, faculty development, evaluation, and the academic and personal success of first-year students.

SUCCESS, RETENTION, AND PERSISTENCE RATES**Pasadena City College
LEARNING COMMUNITY****SUCCESS**

	SPECC			Comparison		
	N	Successful	%	N	Successful	%
Devel English	46	34	74	106	80	76

RETENTION

	SPECC			Comparison		
	N	Retained	%	N	Retained	%
Devel English	46	37	83	106	99	93

Comparison group is a sample of non-SPECC Developmental English students matched on age, gender, and ethnicity.

PERSISTENCE, .XL COHORTS (2005-2007)

Cohort	.XL4	.XL5	.XL6
F 2005 ▷ S 2006	94%		
S 2006 ▷ F 2006	72%		
F 2006 ▷ S 2007	81%	81%	
S 2007 ▷ F 2007	79%	77%	
F 2007 ▷ S 2008	91%	85%	88%

PERSISTENCE, COMPARISON GROUPS

Group	Persistence Rate
Baseline	79%
All PCC Students	67%
Matched sample	83%

West Hills College District

The use of a quantitative analysis of student and program success to support and evaluate college efforts has become a hallmark of the District's recent planning and marketing efforts and will be a tool guiding our work on basic skills.

— Campus SPECC Project Coordinator at West Hills College

Key features of work supported by SPECC:

- Learning communities: basic skills courses in English linked to courses in a variety of disciplines (education, health, history, humanities, political science, art, economics)
- Learning community forums: Instructors from different learning communities meet regularly to discuss issues, problems, successes
- Individual tutoring supplanted by small group tutoring (This SPECC supported innovation has been adopted by the College Tutoring Center and is now the dominant mode of student tutoring.)
- Active and ongoing participation in the San Joaquin Valley Community College Student Engagement Survey (CCSSE)
- Regional outreach to consortium partners

Project Coordinator's Executive Summary

The primary focus of the West Hills Community College District (WHCCD) Carnegie SPECC grant has been to develop a Learning Communities Program that worked with developmental students to strengthen their basic skills in English and math. The idea for the program had four main elements. First, the learning communities themselves were a focus for development. Basic skills and other classes were linked and their content integrated at both West Hills College Coalinga and West Hills College Lemoore. Second, group tutoring approaches were developed and implemented. The group tutoring approaches were successful and this approach has been adopted by the college as the format for the on-going College Tutorial Program. Third, faculty learning community forums have been held on a regular basis to discuss books with an educational theme and address ongoing questions related to teaching and learning. Fourth, we implemented a quantitative approach to looking at learning issues. This effort corresponded to a general district-wide move to utilize an empirical, numbers based approach to understanding the colleges' activities and evaluating effectiveness. We have implemented each of the four components and over the course of the grant life each of them has evolved successfully.

In the spring of 2007, WHCCD participated in the national Community College Survey of Student Engagement (CCSSE). The results of this survey have proved an important measure of the success of our learning communities. WHCCD student responses were compared against responses from 136 medium-size colleges and against 525 colleges from all sizes. Learning community classes were identified separately and a cohort of students participating in learning communities was queried as

part of the CCSSE Study. WHCCD scored 6.3 points above all community colleges in active and collaborative learning, 6.1 points above all in student effort, 3.3 points above all in academic challenge, 2.7 points above all in student–faculty interaction, and 6 points above all in support for learners. Learning community participants ranked their learning community class experiences higher and more favorably than did the overall college sample, which in turn outperformed the CCSSE norming sample. WHCCD was identified in CCSSE’s 2007 National Report as one of a few community colleges that, when compared to other colleges of similar size, have demonstrated outstanding performance on CCSSE benchmarks.

Another important goal of the WHCCD SPECC program was collaboration with other colleges interested in developing learning communities. Foremost, sister colleges West Hills College Coalinga and West Hills College Lemoore have worked closely together. We have also worked actively with fellow SPECC grant programs and with colleges participating in the San Joaquin Valley Learning Community Consortium.

SUCCESS, RETENTION, AND PERSISTENCE RATES

West Hills Community College District LEARNING COMMUNITIES

SUCCESS

Course	SPECC			Comparison/Baseline		
	N	Successful	%	N	Successful	%
All Learning Communities	504	330	66	495	324	66

RETENTION

Course	SPECC			Comparison/Baseline		
	N	Retained	%	N	Retained	%
All Learning Communities	504	410	81	495	417	84

PERSISTENCE

	SPECC			Comparison/Baseline		
	N	Persisted	%	N	Persisted	%
FA 06 ▷ SP 07	563	435	77	597	458	77
SP 07 ▷ FA 07	296	193	65	291	191	66
FA 07 ▷ SP 08	704	539	77	734	561	76

As the grant concludes, plans are in place to continue all four of the major program components. They have been simplified in ways to allow continuation without requiring substantial expenditure of funds. The action plan of the West Hills College District Basic Skills Initiative supports all of the elements of the current Carnegie grant effort, and allows for a robust approach to implementing the elements.

Cell entries in the Comparison/Baseline column represent the cohort of all developmental students not enrolled in a learning community.

TABLE 2
Location and Urbanicity of SPECC Campuses

College	Location	Urbanicity
Cerritos College	Southern	Urban/Suburban
Chabot College	Northern	Urban/Suburban
City College of San Francisco	Northern	Urban
College of the Desert	Southern	Suburban
College of the Sequoias	Central Valley	Rural
Glendale Community College	Southern	Urban/Suburban
Laney College	Northern	Urban
Los Medanos College	Northern	Urban/Suburban
Merced College	Central Valley	Rural
Pasadena City College	Southern	Urban
West Hills College, Coalinga	Central Valley	Rural

TABLE 3
Ethnic Diversity of SPECC Campuses

College	FT Enroll	Amer Ind	Asian Pac Isl	Black	Hispanic	White	Other/ Unk
Cerritos College	22,349	<1%	12%	7%	49%	13%	15%
Chabot College	13,925	<1%	30%	14%	22%	27%	7%
City College of San Francisco	35,660	<1%	40%	9%	16%	26%	8%
College of the Desert	8,341	1%	5%	4%	49%	35%	5%
College of the Sequoias	11,260	1%	5%	3%	45%	35%	10%
Glendale Community College	20,070	2%	4%	5%	22%	58%	9%
Laney College	12,396	1%	33%	29%	12%	15%	8%
Los Medanos College	8,073	<1%	12%	14%	23%	43%	7%
Merced College	8,463	<1%	12%	6%	39%	35%	7%
Pasadena City College	27,199	<1%	30%	6%	32%	18%	10%
West Hills College, Coalinga	4,842	1%	8%	6%	45%	34%	6%
Median	12,396	1%	12%	6+%	32%	34%	8+%
CAGenPop		<1%	12%	6%	36%	43%	

Author

LLOYD BOND recently retired as a senior scholar at The Carnegie Foundation for the Advancement of Teaching. A national assessment expert and former professor at the University of North Carolina at Greensboro, Bond has conducted extensive investigations into the technical measurement quality of the National Board for Professional Teaching Standards assessment system and the effects National Board certified teachers have on student learning. He is a fellow of the American Psychological Association and has served on committees of the National Academy of Sciences, the American Psychological Association, and the American Educational Research Association. He earned his Ph.D. in psychology with a concentration in psychometrics and quantitative methods at Johns Hopkins University and has been an associate editor and member of the editorial boards of many of the leading journals in education and psychology.

