

A DIFFERENT WAY TO THINK ABOUT DEVELOPMENTAL EDUCATION

Basic Skills for Complex Lives

DESIGNS FOR LEARNING IN THE COMMUNITY COLLEGE

A Report from
The Carnegie Foundation for the Advancement of Teaching
**STRENGTHENING PRE-COLLEGIATE EDUCATION
IN COMMUNITY COLLEGES**
2008

The William and Flora Hewlett Foundation

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Foreword

Conceived as part of a longer collaboration with The William and Flora Hewlett Foundation, Carnegie's work with California community colleges over the past three years has been both challenging and deeply inspiring. It has been challenging because the needs are so great. Large numbers of students begin their work in courses below college level, and far too many of them fall by the wayside—a loss with grave consequences for students themselves and for our society. This number is far larger than either of us imagined before the work began. It has been inspiring because community colleges are powerful laboratories for pedagogical innovation, and we have had the opportunity to work with remarkably creative, thoughtful teachers who have treated this daunting situation as a challenge rather than an excuse. They have much to teach all of us about the conditions that support effective learning.

Throughout this work, we have learned from and endeavored to build on the efforts of others working in this arena, some for many years. As our organization's name makes clear, the Carnegie Foundation's distinctive angle on developmental education is to enhance the quality of learning through “the advancement of teaching.” We are guided by the view that one critical key to educational improvement lies in creating opportunities for teachers to develop their pedagogical powers by learning about and improving their own practice. The project you will read about in the pages that follow—Strengthening Pre-collegiate Education in Community Colleges (SPECC)—was designed to explore and document what is needed to make such improvement possible.

To begin, the participating SPECC colleges took the challenge of basic skills seriously. They understood the inherent challenge of teaching academic material to students who have often seen the same tasks before and have repeatedly not mastered them. SPECC campuses responded to this educational challenge with a range of programs and approaches.

What animated these approaches was not only the commitment to student learning, but a spirit of inquiry. Educators participating in SPECC brought their intellectual curiosity, as well as their skills as thinkers and problem solvers, to the study of their students' learning. Individually and collaboratively they worked with their colleagues to shape questions, gather and analyze a range of evidence—from fine-grained classroom observations to larger patterns of student performance—and implement what they learned in their own classrooms and programs.

Moreover, we all learned that the challenge of developing, sustaining, and adapting the capabilities of teachers is not a matter of getting “it” right and then ensuring that “it” keeps running (with regularly scheduled maintenance and tune-ups). Educational institutions are ever-changing, adaptive systems. Old problems are solved more slowly than new ones develop. New populations of students arrive at the campus gates, new expectations arise from rapidly evolving worlds of work and of community engagement, new technologies become commonplace as old ones become obsolete, and thus new educational goals demand refreshed curricula, new programs, and better courses. These realities require that inquiry be treated as

an ongoing and central feature of the job description of faculty members and the institutional mission of colleges. Ongoing applied research, evaluation, and inquiry by faculty members themselves emerge as hallmarks of the community college as an effective learning community.

There are many lessons to be drawn from the efforts of the educators we have worked with in SPECC. The challenges of basic skills go well beyond the 11 participating campuses, the state of California, and the community college sector. But the commitment and creativity demonstrated on these campuses begin to show what is possible. Individual educators can come to see their efforts through the lens of what works for students. Institutions can come to see professional learning as an integral part of their ongoing work. And the larger public and policy makers can come to see community colleges not only as the institutions that *do* much of the teaching but as places that *know* a great deal about it—and from which needed new knowledge is likely to flow.

Lee S. Shulman, President

Rose Asera, Senior Scholar

The Carnegie Foundation for the Advancement of Teaching

Spring 2008

Acknowledgments

Many people have been part of and partners in Strengthening Pre-collegiate Education in Community Colleges. My colleagues and I at the Carnegie Foundation deeply appreciate the contributions of all those who have worked with us to create, study, and disseminate the work reported in these pages and other SPECC products and publications.

Our partners at The William and Flora Hewlett Foundation, Marshall Smith, Jorge Ruiz de Velasco, and Pamela Burdman, have provided the support and wherewithal to make this project possible and the good counsel to make it as good as it could be.

Participants on the 11 SPECC campuses have been thoughtful, creative, and generous beyond compare, and the project would literally not exist without them. The campus coordinators, particularly, have been active partners in leading new work, learning along the way, and helping those of us from beyond the campuses more deeply understand the culture of the community college.

A number of organizations have been important partners in sharing ideas and action: the growing group of programs that meet under the banner of the Partnership for Strong Community Colleges—California Tomorrow, MDRC, Career Ladders, CalPASS, the Center for Urban Education, the Foundation for California Community Colleges, the Dale Tillery Institute and the Basic Skills Initiative—as well as the Research and Planning Group and the wonderful team that organized the Strengthening Student Success Conference.

As the director of the project, I want to express my heartfelt thanks to the full team: Randy Bass, Lloyd Bond, Andrea Bueschel, Lisa Glenn, Sherry Hecht, Mary Huber, and Cheryl Richardson. A special thanks to Pat Hutchings and Molly Breen for taking the lead on this report. All of us are grateful in turn to our colleagues at the Carnegie Foundation, where we are nurtured by good conversation and open exchange, and to our president, Lee S. Shulman, for his leadership and vision.

Rose Asera
Spring 2008

A Word About Language

Throughout SPECC’s work, all of us involved—including and especially the authors of this report— 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 now moving into a third phase of activity, 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.

Introduction and Overview

The table in room 303 is cluttered with books, student papers, and the predictable collection of caffeinated beverages in paper cups with plastic lids. It's late afternoon and eight English department faculty members have assembled, as they do each week, to discuss their students' work in a basic skills reading and writing course.

Over the last several years, these educators have been exploring recent research on literacy, sharing what they do in their classrooms, and devising more effective ways to work with their underprepared students. One of the innovations they're most excited about is a move from separate reading and writing courses—the long-standing model on their campus—to an integrated, team-taught approach that offers students a more intensive, engaging experience in one course. The new course features a radically revised curriculum, new assessments, a reorganized class and lab schedule, and regular meetings (like this one) where faculty can reflect on and examine the effects of their new approach.

This kind of change is hard work intellectually—and an emotional roller coaster. There's plenty of room for frustration as pass rates in the new course refuse to budge from the level seen in courses taught by the traditional model. At the same time, these teachers are excited about signs of real progress: students grappling with genuine issues, writing and reading about these issues in ways that matter to who they are and what they do with their lives, coming to see themselves as readers and writers. Determined to get a better sense of which elements of the new course are working and why, the group has been digging deeper into a wide array of evidence and artifacts: analyzing student writing samples and exams, conducting focus groups with students, and, most recently, designing portfolios in which students collect and reflect on their work in ways that can also help their teachers understand more clearly what further changes in teaching and curriculum will be most powerful. At today's meeting in room 303, the group is developing a rubric they will all use to evaluate their students' portfolios....



Scenes like this one are now unfolding at 11 California community colleges that have been part of a three-year initiative sponsored by The Carnegie Foundation for the Advancement of Teaching and its funding partner, The William and Flora Hewlett Foundation: **Strengthening Pre-collegiate Education in Community Colleges** (SPECC).

An action-research project focused on teaching and learning in pre-collegiate English and mathematics, SPECC is perhaps best described as a laboratory for exploring what works and what it takes to bring about real and lasting improvement. On each of the participating campuses, educators have been exploring a variety of approaches to classroom instruction, academic support, assessment, and professional development. In parallel with these innovations, they have systematically examined the effects of their efforts, gathering and evaluating a wide range of data, including examples of student work, classroom

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

observations, interviews with students and faculty, and quantitative data on student retention and success across courses. As participants in this collaborative venture, they continue to share their successes, disappointments, and surprises with other campuses in the project and beyond.

A Preview of Key Messages from Carnegie's Work

This report by the SPECC project team at the Carnegie Foundation provides an overview of project activities, central themes, and lessons learned. Because the classroom was SPECC's central focus, faculty are a central audience for its work and conclusions, and we have included classroom examples that capture the complexities of teaching and learning in ways that will, we believe, speak to faculty and perhaps inspire them. Additionally, readers will find a set of **five principles for teaching underprepared students**.

But the vision of developmental education set forth here calls for action on multiple levels, not only by faculty in their own classrooms. This report has important messages for administrators and policy makers as well. Indeed, our argument is that **the success of underprepared students must be an institution-wide, core responsibility**. Basic skills cannot be learned—or taught—in isolation as a set of discrete mechanical skills. In fact, one of the reasons they're so important (so basic) is that they enable other kinds of learning, skills, and capacities, be it in a pre-collegiate writing class, a transfer-level sociology course, the nursing program, or automotive repair. Thus, the success of underprepared students cannot be the responsibility of a small group of faculty teaching specially designated courses. It must be an *institutional* responsibility: given visibility and priority by campus leaders at the highest levels, attended to in every classroom and every interaction with students, and constantly tracked and evaluated so that improvements can be made.

A key component of institutional responsibility lies in the area of professional development. If faculty are to implement and sustain more effective approaches in their classrooms—and to continue to improve upon them—**campuses must reinvent professional development as an intellectually engaging, integral element of their ongoing work**. Professional development is a contractual obligation for most community college faculty, but too often the opportunities presented are episodic, uncoordinated, and disconnected from any shared goals for student learning. The result, not surprisingly, is widespread cynicism about what should be a core commitment of professional life, whatever the arena, to learn from practice and to work with colleagues to advance the field. In this spirit, professional development for community college educators must be revitalized in ways that make it more sustained, collaborative, and focused on evidence of student learning. These conditions are critical to ongoing improvement; they should be part of the experience of all educators and built into the fabric of the institution. Our recommendation, more specifically, is for a form of professional development that took shape on SPECC campuses, which we call **Faculty Inquiry Groups**, where educators work together in sustained ways to investigate and improve their students' learning.

But such a process cannot occur or thrive in a vacuum. What's needed is a culture in which rich, reliable evidence about student learning is available, understood, and engaged at multiple levels. Thus, the Carnegie team also recommends that **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 collaborating 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.

Rethinking—and remaking—institutional research and professional development is a significant challenge, requiring changes in institutional policy as well as commitments from those who control funding and shape priorities beyond the campus level. These changes are especially urgent in today’s climate of accountability, as higher education struggles to document its effectiveness. The metrics most commonly used for this purpose (student grades, retention, persistence, and degree attainment) will continue to play an important role. But Carnegie’s experience with SPECC persuades us that 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. Thus, we believe that **community colleges should lead the way in developing richer, more revealing measures of student learning.** Progress on this front means working toward clear, explicit goals for student learning while also developing tools and approaches that capture more complex aspects of students’ movement toward those goals, as well as the stumbling blocks they encounter along the way. Seen in this light, accountability is more than an external reporting requirement; it is an enactment of our professional responsibility as educators.

SPECC PROJECT RESOURCES

“Basic Skills for Complex Lives” is one of a number of SPECC products and publications developed by Carnegie staff members. For a full listing, see www.carnegiefoundation.org/specc.

Finally, Carnegie’s work with the 11 SPECC campuses affirmed our sense (enacted in many of the Foundation’s programs over the last decade) that there is much to be learned *across* campuses. One of the biggest impediments to educational improvement is that teaching as a profession, and the institutions and systems in which teaching takes place, have so few habits and practices through which educators can learn from one another’s work. Thus, our final recommendation focuses on **the importance of building a larger network and infrastructure through which promising developments on individual campuses can be made visible, shared, and built upon much more widely.** The good news is that higher education today is increasingly enjoying the benefits of an emerging **teaching commons**, a conceptual space in which educators from all settings and sectors can share their questions, explorations, and new insights about student learning. Participation in this kind of exchange is a critical condition for ongoing improvement. What’s needed then is purposeful investment on multiple levels, in the occasions, structures, networks, and tools through which educators in basic skills and beyond can share what they know in ways that benefit students and build the field.

In the final chapter of this report we return to these recommendations, along with more specific points about what it will take to achieve them. Readers should note that this report is one of several related papers and products, including a set of multi-media Web sites called *Windows on Learning* documenting classroom practice. All can be found on the Carnegie Web site at www.carnegiefoundation.org. They were prepared with heartfelt thanks to the scores of generous, thoughtful educators—and their students—on the SPECC campuses. We hope you will think of this document as a kind of “hub,” connecting you to other materials and information—and as a catalyst to further work by the many groups and individuals who are working hard to strengthen the learning of all students.

I. Too Many Chutes, Not Enough Ladders

At a SPECC gathering early in the project, Carnegie Foundation President Lee S. Shulman proposed a metaphor for the challenges participants face: “Some of you,” he said, “will remember the children’s board game, Chutes and Ladders. That’s what we have in developmental education. Students who land in the wrong place (and that’s what happens more times than not) fall down the chute, out of the game. Only a lucky few find the ladders that allow them to climb to their educational and personal goals. Our job, our responsibility as educators,” he told the group, “is to figure out how to build a whole lot more ladders.” Doing so is SPECC’s core purpose.

Uncertain Success

Looking across the higher education landscape, the chutes are, indeed, all too evident. While many students in this country have a powerful undergraduate experience that propels them into successful, fulfilling lives, alarming numbers find their educational aspirations frustrated. This reality is evident across all sectors of higher education but nowhere so dramatically as in the two-year institution, which by history and mission opens its doors to all comers. According to the Community College Research Center, 70 percent of community college students (who constitute approximately one-half of the students in higher education) aspire to the B.A., but less than a quarter actually transfer to four-year institutions; less than one in ten complete the B.A. (Bailey, 2003, p. 1).

Those numbers are startling—certainly they *should* be startling. But they are not perhaps so surprising. In California, for instance, up to 90 percent of incoming, first-time students test below college level in math and over 70 percent test below college level in reading and writing (Moore and Shulock, 2007, p. 12). Having to make their way through multiple levels of remediation before they begin “regular” college courses, the odds that these students will stumble into one of Shulman’s chutes are huge.

Many come to college with a negative view of school and of their own prospects for succeeding. Unfamiliar with the practices and norms of academic life, they are “clueless in academe,” as literary scholar and education writer Gerald Graff has put it, and likely puzzled by the styles of writing, analysis, and argument required by various disciplines. Many have been “wounded” by their

prior schooling, experiencing episodes of failure, discouragement, and rejection (Rendon, 1994). Students such as these are likely to make only a tentative and partial commitment to their first attempts at higher education. They enter college wondering if it is really for them, if they have a realistic chance to succeed, and if they will be welcomed and supported.

Basic skills education on most campuses has been shunted off to the margins, staffed largely by part-timers, and underfunded. Expectations have been way too low.

Job One for Community Colleges

Students are not the only ones underprepared for the challenges presented by this scenario. Campuses, too, are underprepared, and on several levels. Most faculty teaching developmental courses have no particular training for the role. They look around and realize that remediation

is seen by many of their colleagues as second-class work, and they rightly understand the potential for frustration and burnout. At the institutional level, developmental programs are often treated as the poor cousin of transfer-level courses. Historically, the transfer function has been the prestige mission for community colleges (Grubb and Associates, 1999, p. 5), and many campuses have not made the commitments or invested the resources required to make pre-collegiate education more than a revolving door. Nor, in fact, do they want to be seen as the place for remediation. In short, basic skills education on most campuses has been shunted off to the margins, staffed largely by part-timers, and underfunded. Expectations have been way too low.

But this reality has begun to change. A growing number of educators and education-watchers argue that developmental education must now become “job one” for community colleges (McClenney, 2007). A sense of urgency is in the air, with even the most mainstream media trumpeting the high stakes for individuals, as college education becomes the prerequisite for middle-class life, and for society, which needs capable workers and engaged citizens. As Alexander Astin has observed, “effective ‘remedial’ education would do more to alleviate our most serious social and economic problems than almost any other action we could take” (2000, p. 130). The good news is that there are now many efforts underway to respond to this need: national projects, state-based initiatives, newly targeted grant money, and an exciting array of innovations (albeit often small scale) on campuses that are striving to do better.

STRENGTHENING CALIFORNIA’S COMMUNITY COLLEGES FOR THE FUTURE

PROJECTS SUPPORTED BY THE WILLIAM AND FLORA HEWLETT FOUNDATION

The William and Flora Hewlett Foundation has shaped and supported numerous initiatives aimed at increasing student success and completion rates in California’s community colleges. In addition to the Carnegie program, Strengthening Pre-collegiate Education in Community Colleges (SPECC), Hewlett also supports:

- California Benchmarking Project
- California Tomorrow
- Cal-PASS (California Partnership for Achieving Student Success)
- Campaign for College Opportunity
- Career Ladders Project
- Digital Bridge Academy
- Institute for Higher Education Leadership and Policy (IHELP)
- Institute for College Access & Success
- MDRC
- The RP Group (The Research & Planning Group for California Community Colleges)

For information about these projects and Hewlett’s grant-making strategy, see www.hewlett.org.

The Push for Improvement in California

In this changing context, California offers a particularly rich laboratory for exploring what's happening and what is possible in developmental education. By long-standing policy, the state's 109 community colleges provide the only access to higher education for two-thirds of first-time students in public sector institutions. Most of those students never make it through the system. And the situation will only worsen if the "tidal wave two" predicted by some researchers brings to campuses even larger numbers of underprepared, first-generation students who will inevitably be at high risk (Hayward, Jones, McGuinness, and Timar, 2004). With these challenges breathing down the state's neck, a number of high-visibility ventures in pre-collegiate education have gotten underway in the last few years: a major, agenda-setting report from the Academic Senate for California Community Colleges (2003), a number of externally funded projects and, perhaps most notably, a statewide Basic Skills Initiative funded by the State of California.

How can Carnegie's project contribute in this busy arena? Clearly there are many facets to the challenge of developmental education, many factors that need to be rethought and reshaped: funding formulas, public advocacy, student support programs, better data systems. **SPECC's special niche is the least visible but core work of education: how teachers work with students in the classroom.** Often, for community college students, the classroom

THE CALIFORNIA BASIC SKILLS INITIATIVE

The California Basic Skills Initiative is a statewide effort that aims to increase the ability to address basic skills and ESL needs through education on effective practices and professional development.

The BSI defines basic skills as "foundation skills in reading, writing, mathematics, and English as a Second Language, as well as learning skills and study skills, which are necessary for students to succeed in college-level work."

The BSI is currently funded through the Foothill-De Anza Community College District which is working closely with the Academic Senate for California Community Colleges. Each campus receives funds based on the number of students in basic skills classes. Along with campus funds, the BSI includes statewide professional development and research. This initiative began in 2006 when the Research and Planning Group conducted a thorough review of the literature on effective practices resulting in the report entitled *Basic Skills as a Foundation for Student Success in the California Community Colleges*. This work was widely disseminated in a statewide professional development campaign. During the next phase of activity, each community college prepared a self-assessment of their existing practices, and developed an action plan. The third phase, which began in 2008, is implementation of what colleges learn from their self-assessment along with further statewide professional development and further research.

For more information, see www.cccbsi.org.

is the only point of contact with the institution. Many developmental students have already studied the subjects in question; odds are that they have, in fact, studied the same content several times before, and may have even managed to pass a course or an exam of some kind. Yet placement tests administered to entering students make it clear that much of this earlier "learning" has been too shallow and ephemeral to serve them well. The challenge for developmental courses in the community college setting is to find fresh new approaches to teaching this material so that it will not be forgotten or misunderstood so easily, and will instead serve as a foundation for future learning.

II. A Different Way to Think About Basic Skills

The education of underprepared students has recently emerged as a high-profile agenda, but it certainly isn't a new one. American higher education has a long history of admitting (and then struggling to assist) students who were previously shut out as somehow unqualified. The 1862 Morrill Land-Grant Colleges Act expanded access beyond the privileged few to residents of the states in which the new land-grant institutions were established; many of these new students came from settings that didn't provide even a high school education. A century later, the GI Bill brought a wave of students to higher education who would otherwise have had limited access to college and who, in many cases, did not bring sophisticated academic backgrounds with them. In the 1970s, the open admissions movement in The City University of New York (CUNY) System made higher education available to all New York City high school graduates regardless of their academic standing and made the topic of remediation a matter of intense public debate; in the 1990s this function was relegated to the two-year institutions in the CUNY system, a trend one sees in other states as well. (See Malnarich et al, 2003, for an excellent summary of the history of developmental education.) In some sense, then, the situation in developmental education today can be seen as the latest chapter in a long story of what has come to be called the “massification” of higher learning.

What is arguably new to the story is an emerging body of scholarship that challenges educators and policy makers to think differently about what has variously been labeled “remedial,” “developmental,” “pre-collegiate,” and “basic skills” education (this report uses all four terms). For many people in this country, the process of reading, say, the morning newspaper, or doing basic arithmetic has become so automatic, so taken for granted, as to be essentially invisible. It is hard, in fact, to understand how someone could have trouble learning to do something so simple. But in fact, these “basic skills” are not so basic, and they are definitely not simple—either to learn or to teach. This perspective has been a central principle of SPECC.

Reading and Writing

Consider reading—the most daily of activities for many of us. Over the last several decades, scholars in English studies have documented just how complicated the reading process really is, for novice and sophisticated readers alike (see, for example, the work of Robert Scholes, Wolfgang Iser, Mariolina Salvatori, and Patricia Donahue). The common sense view that a text has a message that is somehow passed from words on the page into the reader's head has been largely set aside by those who study the process. “Most authorities no longer believe that meaning lies in the text and that the teacher's job is to see that students understand the author's meaning,” says Martha Maxwell in her review of literacy education. “Psycholinguistic theory argues that reading and writing are models of learning and share common purposes and processes. That is, they are ways that students construct meaning or ways of thinking and knowing. Reading

A DIFFERENT WAY TO THINK ABOUT DEVELOPMENTAL EDUCATION

“We have learned...that the typical paradigm around Basic Skills must be exploded; it works against us, inhibiting our thinking and short circuiting our dialogue. We have learned that teaching skills and calling them basic and associating this work with the term “pre-collegiate” or remedial leaves us as a group of faculty impotent to reach our students who really are struggling and failing in large numbers.”

—Chabot College, SPECC Report, 2006

involves an interaction between a learner’s prior knowledge, text, and context...” (Maxwell, 1998, p. 160). It turns out that readers bring a vast reservoir of linguistic and cultural knowledge to bear as they read, connecting new ideas with old ones, figuring out words they don’t know, and actively questioning and constructing meaning.

WRITING AND THINKING

“I have become acutely aware of the pedagogical necessity of iteration with a difference in the developmental classroom. That is, the importance both of repeating key concepts in the course and of (re)presenting those concepts in as many ways and via as many diverse models as possible. Watching students learn and forget, relearn and forget again—over and over until a given idea or process finally holds (or does not)—has reminded me of a fundamental concept that I had forgotten as a teacher: how intimate the connectedness is between writing and deep-rooted processes of mind...And if this is so, then instilling in students new writing processes, new ways of manipulating language (however simple the lesson may seem), requires on the part of students a significant restructuring of their most habitual ways of ordering and discursively interacting with their intellectual (and lived?) experience.”

—Monette Tiernan, Glendale Community College, SPECC Report, December 2006

Moreover, the reading process does not start with simple discrete skills and move toward more complex ones in some linear, predictable, “developmental” fashion. The identity and purposes of the reader matter, genre and medium matter, and, as even Mortimer Adler’s classic *How to Read a Book* reminds us, disciplinary content matters.

Many of the same observations can be made about the so-called basic skill of writing. Peter Elbow, a well-known teacher and scholar of the writing process, observes, “Reading is just like writing: a process of cognitive (and social) construction in which everyone builds up meanings and cues in the text” (Elbow, 2004, p. 13). Even the apparently most basic aspect of writing—grammar—turns out to be a complex business, and, it might be said, one of the most vexing, hair-pulling topics facing teachers at every level. Recognizing this complexity, one SPECC campus decided to depart from traditional grammar exercises and focus instead on helping students develop skills of questioning, predicting, summarizing, and clarifying. “While there are many reasons for this change,” they report, “one is our realization that the teaching of grammar is highly complex” (Los Medanos College SPECC Report, 2006, p. 1). Clearly, students need to know the rules and conventions of grammar, but those rules and conventions

cannot be understood or acted on in the abstract. Whether a semicolon is the right punctuation depends on the writer’s purpose, on questions of rhythm and parallelism, even on the medium (with email arguably calling for less formal punctuation). Not so simple.

Mathematics

The complications of context rear their heads in basic mathematics as well. Consider this comment from a mathematics faculty member, quoted in a well known study of community college teaching and learning, about the use of an apparently simple thing, the minus sign: “Say you had that sign, and a four. Some people would say [it signifies] negative four. Some people would say minus four. And there is a third meaning, the opposite of four, the additive inverse. There are three different meanings for the same symbol...” (Grubb and Associates, 1999, p. 160).

Once again, simple things are not always so simple. Indeed, Liping Ma, a former Carnegie Foundation scholar of mathematics education, has coined the phrase “Profound Understandings of Fundamental Mathematics” (PUFM) to point to the complex knowledge and skills that are required in order fully to learn and to teach even the most apparently simple mathematical functions (1999). How many of us actually understand the need to invert and multiply when dividing by fractions, for instance, or why a negative number multiplied by another negative number yields a positive one? SPECC faculty have come to similar conclusions: “We realized that arithmetic is full of conceptually rich mathematics and that we need to think deeply about these concepts in order to teach them well,” participants on one campus reported (Los Medanos College SPECC Report, 2006, p. 3).

Student Identity

There’s another sense, as well, in which basic skills are not so basic. In developmental classrooms, as in other educational contexts, knowledge and skills are essential goals. Yet the most powerful forms of growth are not only about what the learner *knows* but about who she *is* and how learning shapes and reshapes her sense of herself. Indeed, personal “formation” (to borrow a term from Carnegie’s studies of professional education) is both a result of and a condition for meaningful learning.

To return to reading, for instance, students must not only learn how to make sense of a text but to think of themselves as readers—a significant transformation for individuals who may not have had easy access to books while growing up, and for whom reading may feel like a chore, a risk, an exercise in the unfamiliar, or even a recipe for failure. In writing, too, students must not only learn the mechanics and routines of producing readable texts; they must come to see language as a tool and resource through which they can express themselves in the world, make things happen, and connect with others. The role of confidence and identity is also well known in mathematics, as reflected in the extensive body of research on math anxiety and the effects of gender and racial stereotypes on mathematical learning (see, for instance, Tobias, 1978, 1993; Steele, 1997, 1999).

Students must not only learn the mechanics and routines of producing readable texts; they must come to see language as a tool and resource through which they can express themselves in the world, make things happen, and connect with others.

Even beyond specific disciplinary contexts, developmental students often do not think of themselves as “college material.” Though they bring powerful life experiences to their work as learners, they often need help seeing those experiences as assets in an academic setting. And while all students need encouragement, inspiration, and motivation, these conditions are especially important for students who have not succeeded in the past, who have been away from formal education for a number of years, or who come from settings in which higher education is not an expectation. In short, faculty who teach in basic skills contexts play an essential role not only in teaching their discipline but also in moving students towards greater confidence and a stronger academic self-image.

This not-so-basic view of basic skills has the power to transform developmental teaching and learning. Harnessing that power has been central to the work of SPECC at the classroom

level, at the level of institutional policy and practice, and in thinking about the conditions for change across campuses. The next three sections take up these three contexts.

This not-so-basic view of basic skills has the power to transform developmental teaching and learning.

III. Creating Powerful Classrooms

Basic skills courses are notorious for dumbed-down, “drill and kill” methods of instruction (Grubb and Associates, 1999). All too often they operate as a kind of lock-step march toward “real” courses, with students essentially quarantined until they make the grade. Such approaches are a natural consequence of a view of basic skills as simple skills that can be disconnected from context and engrained in students through rote and repetition. Certainly there’s a place for repetition, for practice, for step-by-step skills development. But the most promising innovations are shaped by an understanding that basic skills are not so basic (Asera, 2006); that even underprepared learners bring assets to their work (Smyth and Heath, 1999; Malnarich, et al, 2003); and—as reflected in the title of this report—that life today presents unprecedented challenges. With the pace of change accelerating, vast amounts of information washing over us on a daily basis, and developments in science and technology creating new opportunities but also new risks, basic skills must prepare students for complex lives.

Five Principles

What does it look like when these understandings drive classroom practice? A crucial first lesson from Carnegie’s work with community colleges is that there are many answers to this question. As an action-research project, SPECC invited campuses to experiment with a variety of classroom approaches and build on efforts that were already taking shape. The most widespread intervention was the use of **learning communities**. Additionally, some campuses experimented with technology in the classroom. Others focused on designing more effective forms of tutoring, involving both students and professionals in these roles. All campuses used more than one approach.

As part of their commitment to the project, campuses monitored and studied the effects of their various interventions, preparing reports around commonly defined data elements, conducting interviews and focus groups with students, and, in a few cases, contracting with

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LEARNING COMMUNITIES

Learning communities are a flexible set of arrangements that link courses with one another to highlight the integration of ideas and the value of crosscutting skills, build a sense of community among students, and bring faculty together around shared goals. In SPECC these arrangements took different forms, including the linked, team-taught reading and writing course featured at the beginning of this report; a basic skills English course paired with a general education course in the social sciences; a developmental mathematics course linked with a counseling class; and a reading course connected to a child development course in the vocational program. Students enroll concurrently in these courses, which are sometimes but not always team taught, and move through as cohorts. Learning communities are now widespread in California and nationally, thanks in large part to work by the Washington Center for Improving the Quality of Undergraduate Education, which has studied and promoted this innovation.

outside evaluators to study their work. Carnegie's role was to look across the various settings for general patterns but also to look deeply into individual classrooms. What we learned underlines what most faculty already know but which is often ignored in prescriptions for reform: that any pedagogical approach, whether innovative, like learning communities, or traditional, like lecture, can be done well or poorly. Execution is everything. And execution depends on how one understands basic skills and the learners seeking to develop those skills.

What is therefore more helpful than a set of ready-made models is a set of principles that embody an understanding of basic skills and can shape how different models are actually employed. SPECC has identified five such principles:

1. High Structure
2. High Challenge
3. Intensity
4. Intentionality and Learning How to Learn
5. Inquiry and Making Learning Visible

Our aim in presenting these five principles is to illustrate how they can shape and strengthen a wide variety of classroom approaches. Indeed, because what works for underprepared students often works for others as well (all education is developmental, after all), they may be useful for a much broader array of courses and programs, across a wide range of institutions. They are not simple formulas to follow, and building them into one's practice as a teacher is a process that takes time and thought.

1. High Structure

Chabot College English instructor Katie Hern recalls something a student said to her in her office a few years back—"something I've remembered many times since":

He was fresh out of high school, in his first semester at Chabot, and on the verge of not passing. "What's going on?" I asked him. "College," he said. "There's too much freedom." It wasn't like high school, where his days had been tightly scheduled and teachers might call his parents if he wasn't doing well. It was all up to him.

Students coming from a high school environment sometimes say it seems that "college teachers don't really care" if they do the work, or that there are "no consequences" when they don't...Many students [fail] because they haven't learned to handle the "freedom"...of the college environment. (2007a, p. 3)

The insight that too much freedom can be paralyzing is probably familiar to all of us, and it's certainly familiar to educators who work with developmental students. In her landmark 1976 study of new students entering higher education, K. Patricia Cross noted that underprepared learners may lack the organizing frameworks needed to understand difficult academic concepts, calling for learning experiences that are explicit in their expectations and highly structured. Her message has weathered well, reinforced by further research on the importance of step-by-step instructions, explicit models, and examples to imitate and then adapt (see

Bransford, Brown, and Cocking, 1999). Learners at all levels, though in different ways and degrees, benefit from such scaffolding. One of the most important pedagogical steps a teacher can take is to be explicit about the practices and “moves” of more advanced learners.

At Pasadena City College, for example, a large number of intermediate algebra students fail (about 50 percent). When mathematics professor Yu-Chung Chang began to explore the reasons for this lack of success, she discovered that her students had particular trouble with word problems. Even students who could easily solve a specific math equation “were stymied when that same equation was presented as a word problem” (Chang, Curtis, and Wright, 2007). Their struggle, Chang saw, was not so much with math as with reading and the process of translating English into the language of math. To address this problem, she created a much more structured approach to solving word problems.

Chang’s approach, which she dubbed WRAMPS (Writing and Reading Activities for Math Problem Solving), has had a marked effect. Through a carefully scripted process of rewriting the word problem in their own words, reading it aloud, receiving peer feedback on their “translation,” and revising, students not only achieved significant gains on post-WRAMPS tests administered by Chang; they also outperformed students in other intermediate algebra classes on the word problem segment of the department’s common final. (Answers were graded on a 1–4 scale, with 4 points being the highest. On average, Chang’s students scored 3 out of 4 points, while students in other sections scored an average of 1 out of 4 points.) Chang also observed a powerful qualitative effect: through frequent practice with word problems using WRAMPS, students reported feeling less anxious about math and began to see it as “relevant and applicable to their daily lives.” Or, as one student put it, “I figured out how to do payroll using the word problem we had in class” (Chang, Curtis, and Wright, 2007).

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High structure has also emerged in SPECC as a key element of effective literacy instruction. Several years ago, Glendale Community College English instructor Chris Juzwiak began experimenting with interactive PowerPoint presentations designed to move his pre-collegiate students through critical thinking and writing exercises in carefully structured step-by-step fashion. The presentations employ multi-media elements of sound, color, and motion to keep students engaged in what is often necessarily iterative (yes, even sometimes boring) work. In response to the survey question “Did the technology help you learn the course materials better?” some 83 percent of Juzwiak’s students (110 students total) answered “Yes, definitely.” The majority of students also reported preferring the interactive course Web site to a traditional textbook (Ezell and Juzwiak, 2006; Juzwiak and Tiernan, 2007). These positive perceptions of Full E-mersion Pedagogy, as Juzwiak and his colleagues call it, have been supported by student success rates higher than the departmental average and by evidence that Full E-mersion students often outperform those from traditional sections in subsequent courses.

In conjunction with the SPECC project, Juzwiak’s designs and materials are now being adopted by others at Glendale, and adapted to additional courses in the developmental sequence. Monette Tiernan has begun using the approach in her English 120 classes (one level higher than Juzwiak’s original context). In previous semesters, typically 50 to 60 percent of students finished the course, while in the semester she implemented Full E-mersion, 76 percent finished, a considerable jump. These numbers are especially encouraging in light of Juzwiak’s original goal to improve success rates, regardless of various instructors’ teaching styles and experience. It appears that this high-structure pedagogy is a practice that travels well (Glendale Community College SPECC Report, 2006, n.p.).

Examples like these (and we have seen many more in SPECC) can usefully be viewed through the lens of an approach called **Reading Apprenticeship** (RA) that has been central to SPECC. Developed by WestEd’s Strategic Literacy Initiative, RA was originally designed for work with K-12 teachers, but its central principles are relevant at other educational levels as well, and SPECC participants from a wide range of disciplines have found the approach powerfully formative. At its heart, Reading Apprenticeship is a different way to think

ANOTHER EXAMPLE OF HIGH STRUCTURE

At Cerritos College, Lynn Serwin teaches basic skills writing through a series of very explicit steps, from brainstorming, to revision, to the submission of the final draft, and she has developed different rubrics for each assignment. Serwin believes this method is working not because of *her* use of the rubric, “but because the students have in their possession a clear rubric by which they assess their own and peers’ work” (Cerritos College SPECC Report, 2006, p. 8).

about basic skills, one founded on a recognition that readers—novice and sophisticated alike—must make complicated interpretative moves at every step along the way; that every text presents difficulties and lacunae where the reader must fill in knowledge that is not in the text; and that disciplinary context matters deeply (see Schoenbach, Greenleaf, Cziko, and Hurwitz, 1999; and Ybarra, 2006). Thus, Reading Apprenticeship helps teachers make learning visible and explicit as Chang, Juzwiak, and others in SPECC are doing.

The principle of high structure has been powerful in SPECC, and it has also been something of a hot button: How much structure is enough? When do explicit step-by-step instructions become a crutch? Or even demeaning to students? What is the right balance between structure and openness, between guidance and independence, and how does one strike that balance in

a classroom with diverse learners? These balancing acts have been the focus of lively debate among SPECC participants, which has in turn brought into view the importance of the next principle.

2. High Challenge

A second principle one sees in effective pre-collegiate classrooms is high challenge—the flip side, one might say, of high structure. Yes, students need clear, explicit, step-by-step guidance for undertaking complicated academic tasks. But they also need something they can sink their intellectual teeth into, something that engages and challenges them. One of the long-standing critiques of community colleges is that they’re in the business, intentionally or otherwise, of “cooling out” students, lowering their level of ambition, teaching them to settle for less (Clark, 1960; also see Grubb and Associates, 1999, p. 11). All structure and no challenge

makes Jack a dull and unmotivated boy! But SPECC has made it clear that this need not be the case. Even at the most fundamental levels of English and mathematics, intellectually engaging problems and issues exist in abundance. With a balance of challenge and support, students can engage in authentic debate and intellectual exchange.

At Laney College, for instance, Annie Agard has done what many basic skills instructors see as asking for trouble: she uses poetry to teach English language skills in a low-level ESL class. She began rethinking her teaching practice when she found her students—and their teacher—trapped in a form of learning that felt like little more than decoding: students stumbled over

THE MARRIAGE OF HIGH CHALLENGE AND HIGH STRUCTURE

At Merced College, SPECC participant Jennifer McBride asks her basic skills English students to grapple with complex analytical essays—for instance, about Hispanic immigration, a difficult topic at the very highest levels of policy making, and one that cuts close to the bone for her many Latino students. The assignment is shaped around contrasting point-of-view essays by Samuel Huntington, arguing that “Hispanic Immigration Threatens to Divide America,” and Jan Jarboe Russell, who believes that diversity strengthens community. (Both essays appear in *Opposing Viewpoints*, a reader edited by James E. Torr, 2005). Students are asked to write an essay that argues for one view or the other, using quotes from the essays as evidence—a strategy McBride explicitly models for them and which students then practice and try out on one another in carefully sequenced steps. What’s striking is the level of sophistication evident in students’ papers.

a new word, looked it up or asked the teacher, and moved on, effectively learning to read English without gaining any larger sense of context, tone, or meaning from the text. Intrigued by Reading Apprenticeship and its embrace of difficulty, Agard turned to poetry. As she puts it: “In a poem, students can for the first time explore the realms of connotation, implication, and cultural nuance—all the ways in which understanding a language is much more than simply finding the dictionary definitions of words.”

The challenges of translation and meaning-making are compounded by the diversity of Agard’s students. One videotaped segment from a typical class shows a group of four students, with as many native languages between them, responding to a poem by Mel Glenn about a student’s anxiety over showing a play she has written to her English teacher. Because of the high level of scaffolding Agard provides (she moves the class through 13 distinct steps), her students are able to rise to the challenge of reading and understanding poetry in their second language. Indeed, as Agard tells students, difficulty and uncertainty are essential to the experience of reading poetry, and to learning itself (Agard, 2007).

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Similarly, at West Hills College, David Reynolds assigned the novel *Petals of Blood* by Ngugi wa Thiong’o to his Introduction to Communication Skills class. With its riveting but non-linear plot and collection of morally ambiguous narrators, the novel seemed perfectly suited to stimulate the complex interpretive skills that expert readers employ. Like Agard, Reynolds designs

assignments that give students step-by-step guidance (his strategies include reader self-assessments, “talking to the text” through annotation, and logs in which students track the development of the novel’s characters). But what’s most striking is how they rise to the occasion of high challenge: “My students must fit together characters’ confessions, reminiscences, reports, musings, and sometimes dim remembrances to understand the truth of the story,” he says. And they do. As one student put it (in a comment that captures one of the most fundamental pleasures of reading literature): “Can’t wait to finish it to see who really done it” (Reynolds, 2007).

And what about math? How does the principle of high challenge play out in a discipline that deals with numbers rather than words? Interestingly, the answer may not be more advanced (harder) versions of the problems currently presented but rather a different conception of *what kinds of problems* build true foundational understandings. For starters, this shift entails a more applied approach. At College of the Sequoias, for instance, faculty member Renee Thornburg

has been teaching and studying the effectiveness of a course that approaches mathematics through agricultural applications—an intersection especially apt for the Central Valley where the college is located.

“Literacy” is a term that sometimes carries connotations of low-level skills, be it in verbal or quantitative contexts. But today’s students need and deserve higher expectations and more sophisticated understandings of both verbal and quantitative literacy.

In a similar spirit, math faculty at Los Medanos College have reshaped the algebra sequence, which traditionally focuses on procedural skills needed for calculus. Their goal was to make math more engaging—more connected to everyday applications—but also to promote in students the habits of mind displayed by mathematicians.

“Our courses emphasize real-world scenarios,”

says Myra Snell, “but the mathematical context is *modeling*, which definitely prepares students for advanced math.” Put another way, faculty want to provide students with opportunities to think and reason like mathematicians. Thus, a problem about compound interest on a loan serves as a more applied approach to exponential functions. Drawing on mathematics education research, the department has designed learning experiences that promote “mathematical reasoning and non-algorithmic problem solving” and a rubric that helps faculty formulate questions and assignments that 1) allow multiple strategies, 2) require “math talk,” 3) make connections and invite multiple representations, and 4) present a “high cognitive demand” (Holtmann, Poku, Snell, and Wagener, 2006).

The changes suggested by these examples may not seem radical to those outside mathematics, but it is important to note that—even at the basic skills level—the discipline has been dominated by a quite different stance, one, says Robert Orrill, that values “an ascending pursuit of abstraction” and looks “inward” in ways that keep the field distinct from the outside world (2001, p. xviii). In contrast, the more real-world engagement being pursued at Los Medanos, College of the Sequoias, and other campuses, represents a shift toward the capacity

to deal with the messy problems of a world that is, increasingly, “awash in numbers” (Steen, 2001, p. 1). In some circles, this shift has a name. “Quantitative Literacy” (or occasionally “numeracy”) points to

the need to know more than formulas and equations. [Learners] need a predisposition to look at the world through mathematical eyes, to see the benefits (and risks) of thinking quantitatively about commonplace issues, and to approach complex problems with confidence in the value of careful reasoning. Quantitative literacy empowers people by giving them tools to think for themselves, to ask intelligent questions of experts, and to confront authority confidently. These are the skills required to thrive in the modern world. (Steen, 2001, p. 2)

“Literacy” is a term that sometimes carries connotations of low-level skills, be it in verbal or quantitative contexts. But today’s students need and deserve higher expectations and more sophisticated understandings of both verbal and quantitative literacy. SPECC’s work shows that even the most basic skills can be aimed in this direction.

3. Intensity

In his television documentary on community colleges, *Discounted Dreams: High Hopes and Harsh Realities at America’s Community Colleges* (2007), award-winning journalist and Carnegie Foundation Visiting Scholar-in-Residence John Merrow profiles several students and the challenges they face: a young woman who goes directly from her night-shift job to attend a full load of classes during the day, for instance, and a man who is retooling for a new career as a chef while raising a family. These profiles—familiar to and valued by community college educators—remind us of a basic fact about basic skills education: today’s students have heaping plates. School is important to them, and they make significant sacrifices to be there. But it is often, and necessarily, not the highest priority. Child care plans fall apart, cars break down, finances falter, spouses fall ill... At every turn there are developments and needs that pull students’ energy and attention away from their academic goals. This reality frustrates virtually every educator, and there’s no neat solution. But a number of SPECC campuses have discovered that high levels of intensity, which may take a variety of forms, may be part of the answer.

For instance, intensity can mean **a more sustained experience**, as illustrated by data from Los Medanos College, where mathematics faculty worked with institutional researchers to track the progress of students who took and passed elementary algebra. “Of those who completed elementary algebra but waited to enroll in intermediate algebra, only 25 percent successfully completed a transfer-level math course within three years,” reports Myra Snell, a faculty member in math at Los Medanos. “Of those who went *directly* to the next level, 47 percent completed a transfer course in the three year period.” As it turns out, the same pattern holds in the English department, where the numbers are 12 and 41 percent, respectively. Snell concludes, “This prompted a much greater sense of urgency about the need to counsel students about continuing in the developmental math sequence without stopping out. It also provided a convincing rationale for encouraging faculty to give up precious class time to

do activities that connect students to campus resources like the career center and academic counseling. We cannot take for granted that students who successfully complete our courses will persist” (Snell, 2008).

Intensity can also mean **greater immersion**, or (as some SPECC participants say) **higher “dosage,”** as in several new “math intensives” developed by the Teaching and Learning Center at Pasadena City College (PCC). These include a two-week, no-credit, basic skills math boot camp, called “Math Jam,” for first-time PCC students; XL, an intensive summer learning community focused on pre-algebra; and a NSF supported “MathPath” of two math courses in the same semester that makes it possible for students starting in developmental mathematics to pursue math-based majors. Each of these intensive immersion experiences has proved powerful in raising student retention and success. In the summer Math Jam, for instance, 91 percent of the students were retained, 89 percent qualified for a selective fall program called Lifelines, and 56 percent significantly improved their scores when the placement test was re-administered at the end of the experience (Pasadena City College, SPECC Report, 2006, p. 5).

Intensity can also mean **greater connectedness**, as illustrated by the Springboard to Transfer program at Chabot College, a learning community which links a pre-collegiate English (reading and writing) course with a general education course—for instance, history or anthropology—at the transfer level. Springboard continues for three semesters, so intensity is not only a function of the longer time frame but also of sustained relationships, both among students (who move ahead in a cohort) and with the English instructor, who continues with the cohort for the duration. (See section VI later in this document for data on the impact of this approach.) “Many students describe a strong sense of connection they feel to each other and to the English teacher who stays with them throughout the program,” Chabot’s evaluation of the program points out. “Some use the word ‘family’ to describe the Springboard environment, and several say that during moments when they considered dropping out, they stayed in because of their peers or English instructor...” (Chabot College, SPECC Report, 2006, p. 7).

4. Intentionality and Learning How to Learn

Much is known today about how people learn, and educators at all levels are tapping into new insights from cognitive science, educational research, and the scholarship of teaching and learning. But teachers are not the only ones who need to understand the learning process. Research shows that students are more likely to succeed if they can become *intentional learners*, who understand and can monitor their own learning (AACU, 2002). Indeed, this capacity is arguably more important now than ever, as the world becomes more complicated, as boundaries of all kinds shift, and as change becomes a constant expectation (Huber and Hutchings, 2005).

For several reasons, intentionality is especially important for underprepared learners. For starters, students in basic skills courses (and the much wider set of courses in which basic skills are needed for success) often come with a short supply of what might be called **“studenting skills.”** Many have not developed the habits of planning and persistence needed

for homework problems and assigned reading. They may not have routines for note taking and studying. Time management is an issue. Beset by competing demands on their time and energy, they may not know how to set goals and monitor their own progress.

In turn, teachers have a special responsibility to help students understand themselves as learners. This might mean teaching skills of note taking and outlining, as Reading Apprenticeship prepares faculty to do. It means **helping students monitor their progress**—to understand how grades are calculated, for instance, and what will happen if they receive, say, a D rather than a B on an assigned paper. It means being explicit with students about what is expected and why, and making visible the strategies and processes that have, perhaps, become second nature to more experienced learners. Most of all, it means creating an environment, inside the classroom and beyond, where students can talk openly about their learning, their challenges, and what allows them to succeed.

Consider College of the Sequoias, where a goal of basic skills courses in English is to help students become more able and confident judges of their own work—a key characteristic of expert learners. Toward this end, a number of faculty have adopted the Web-based (and trademarked)

“Calibrated Peer Review” model, now in use on over 500 campuses worldwide, to teach writing. At the heart of the process is a rubric for evaluating writing in three stages, with each stage requiring a more nuanced grasp of what writing and reading should accomplish. First, students evaluate texts produced by the instructor, scoring them as excellent, mediocre, or weak. Next, they score anonymous writing samples submitted by their classmates. Finally, in the self-evaluation stage, they apply the same rubric to their own writing. At the end of the exercise, students review the full set of scores (including the instructor’s) and are encouraged to explore and question the grades they received. At the beginning of the semester, reports English instructor Jeff Maryanow, fewer than half of the students could score their own work accurately—that is, in ways that accord with the instructor’s judgments. (Typically, students start out seeing their writing as significantly more successful than their instructor does.) But by the end of the semester, 90 percent of the students could accurately assess their work (College of the Sequoias, SPECC Report, 2006, p. 3). This capacity for self-assessment is no mean feat; even for the most sophisticated writers, judging one’s own work remains a significant challenge.

A related challenge many students face is **evaluating and prioritizing** the material covered in their college classes. Which of the many concepts covered in a lecture or reading assignment are the most important? Which ideas are fundamental and must be mastered before moving on to the next thing? As Laura Graff, a math instructor at College of the Desert, observed: “We realized that students do not know how to study math...They do not know how to learn the concepts and apply them to the homework.” In an effort to teach her students to become more independent, intentional learners, Graff has them outline the chapters in

Teachers have a special responsibility to help students understand themselves as learners by creating an environment, inside the classroom and beyond, where students can talk openly about their learning, their challenges, and what allows them to succeed.

their math textbook as part of each homework assignment. Early on, the students' outlines were nearly as long as the chapters themselves, but later in the semester they developed more sophisticated reading strategies, and the outlines became more compact, more focused on key concepts. Over time, this process has helped students study for tests more efficiently, and their scores have gone up. One student summed up the responses of many of her classmates when asked whether the outlining had helped them grasp the math concepts: "Doing the outline made me realize how much a tool the book is...I do plan on applying [outlining] to every subject" (Graff, Culhan, and Marhuenda-Donate, 2007).

TUTORING AND INTENTIONAL LEARNING

Several SPECC campuses are exploring ways to make tutoring more effective for developmental students. Consider Merced College's use of Supplemental Instruction—an approach developed at the University of Missouri-Kansas City—where students themselves serve as tutors. At Merced, students who have successfully completed a basic skills course are tapped to serve as tutors in a subsequent semester; they attend class, work with students during class activities, and hold special sessions where the focus is on learning how to learn. Unlike traditional tutors, who are more likely to work one-on-one and target specific homework problems, these students act as group leaders and facilitators of collaborative learning. Three years of qualitative and quantitative data from teachers, tutors, and students show that students attending Supplemental Instruction sessions have higher course completion, retention, and persistence rates, along with greater confidence. Equally important, this approach helps those students who serve as tutors, as they become more aware of what they do as successful learners and more intentional about their own future learning.

What these examples have in common is a focus on **metacognitive routines**—practices that help learners get smarter about their learning process, and, in the spirit of helping students understand and be more intentional about their own learning, ones that some SPECC faculty have explicitly introduced in their classrooms. (Metacognitive routines are central to Reading Apprenticeship, which has infused the work of many SPECC educators.) It's appropriate, perhaps, to let a community college student from one of these SPECC sites explain the term:

I have learned that metacognition is when you think about what you read. Metacognition has changed the things that go on in my head because now I think about what I read more clearly. I predict, picture, question, make connections, identify any problems and check back if I don't understand something the first time I read it. When I used to read before, I just read to get it over with and be done, but now I really get into books and try to predict and make connections to help me summarize what I read. (Strategic Literacy Initiative, 2007, p. 23)

As another student put it, "it's a big word with a small meaning" (Strategic Literacy Initiative, 2007, p. 23), but small is clearly not the same as basic. Indeed, an awareness of one's own metacognitive routines, an

ability to be intentional and self-directed, is not a remedial exercise but a characteristic of the most accomplished learners and a necessity for the kind of life-long learning needed in today's complex, ever-shifting world.

5. Inquiry and Assessment to Make Learning Visible

One of the great impediments to educational improvement at every level is that so much of what goes on in the minds of learners is invisible. It is hard, after all, to design a useful innovation or intervention without knowing what students really understand, what

misunderstandings block their progress, and where they get off track. In tackling a word problem in mathematics, for instance, do they understand what the problem is about? When they stumble, are their difficulties central to the mathematics or more an issue of language literacy? Do they freeze at the very thought of dealing with numbers? Do they have creative “workarounds” for getting to an answer but lack the more streamlined processes they need to be efficient problem solvers? Of course many teachers ask students to “show their work” (be it in math, by requiring that all the steps be documented, or in English, through multiple drafts of a writing assignment), and most faculty spend huge amounts of time and energy taking the measure of students’ learning through exams, papers, projects, and other kinds of assignments that are then evaluated and graded. But the stubborn truth is that the steps involved in thinking through an intellectual task take place “behind the scenes” and are dauntingly difficult to penetrate. They are hidden because mental activity is, by nature, mostly invisible, and they may be even more hidden in basic skills contexts where students are often unsure of themselves and go to great lengths not to have their errors and misunderstandings exposed. Thus, a final principle for powerful learning in basic skills is the importance of inquiry and assessment in making students’ experience as learners visible (to teachers and to students themselves) in ways that can inform and support what happens in the classroom.

While this is not a new idea, it is one that has been gaining ground in the last decade. Sometimes marching under the banner of **the scholarship of teaching and learning**, faculty from a full range of fields and institutional types are treating their classrooms as laboratories, systematically studying their students’ learning in order to improve it (Huber and Hutchings, 2005). Such work reflects a realization that teaching and learning are complex endeavors that raise consequential questions—questions that can usefully be explored and acted upon. Doing so, in turn, requires tools and processes for capturing and analyzing student learning in powerful ways. SPECC offers many examples of such inquiry: interviews with individual students, student focus groups, pre- and post-tests, tracking student progress over time. These strategies have played a major role in the professional development model we will turn to in the next section, Faculty Inquiry Groups. Here, however, we highlight two more unusual examples of inquiry and assessment.

The first example—the use of **think alouds**—is from the mathematics department at Pasadena City College. Faculty member Jay Cho and his colleagues have been deeply concerned about underprepared students: 80 percent of new students at the college place into basic skills math; 40 percent of them receive a D, F, or withdraw; and only 15 percent of all students who place into pre-algebra successfully complete the basic skills math sequence. Over the years, many innovations have been tried, and success rates have gone up and down in modest ways, but probably it’s fair to say that most of these efforts, and their effects, were trial and error. Determined to bring a more evidence-based approach to bear, Cho worked with colleagues to systematically explore what could be done to improve student success. Toward this end they grappled with institutional data about success (or rather failure) rates, reviewed the recent research literature from mathematics education, identified key concepts, and designed real-world applications for teaching them more effectively.

Teaching and learning are complex endeavors that raise consequential questions—questions that can usefully be explored and acted upon.

In addition, this dedicated group of mathematics faculty agreed that they needed different kinds of data—a more qualitative, in-depth sense of students’ experience with the special stumbling block presented by word problems. With this in mind, they employed a “think aloud,” in which the learner describes, as fully as possible, the steps in her or his thinking while trying to solve a problem or perform a task. The rationale behind the think aloud, which was developed by cognitive psychologists studying the learning process, is worth highlighting:

In their classic book, *Verbal Reports as Data*, Ericsson & Simon liken the verbal protocol [of the think aloud] to observing a dolphin at sea. Because he occasionally goes under water, we see the dolphin only intermittently, not continuously. We must therefore infer his entire path from those times we do see him. A student’s verbalizations during problem solving are surface accounts of her thinking. There are no doubt “under water” periods that we cannot observe and record; but with experience, the analysis of students’ verbalizations while trying to perform a task or solve a problem offers powerful insights into their thinking. (Bond, 2007, n.p.)

Though it has an impressive pedigree, the think aloud was new territory for Cho and his colleagues, and they generously documented their journey in a multi-media Web site developed as part of SPECC (Cho, Curtis, Davis, and Klein, 2006). Viewers can see a video of math student Jose Moreno talking through a word problem, and also listen to Cho’s

analysis of Moreno’s thinking. Additionally, the site points to improvements that were made and to an ongoing process of inquiry and assessment that generates further evidence to guide further improvements. These improvements are not, certainly, a result of the think aloud alone, but the protocol is a wonderful example of what Carnegie President Lee S. Shulman calls “low stakes, high yield” assessment. It is low stakes because the student’s standing in the class is not at issue and the results are for improvement purposes, not for any external report or accountability. It is high yield because, says one assessment expert, “the verbal protocol may well be the only reliable road into a student’s thinking” (Bond, 2007, n.p.).

There’s another potential benefit, as well, which is that the think aloud may be powerful for students. Though they may at first struggle with the think aloud, over time they become more confident in their own problem-solving process and more able to monitor and assess their own learning. In this sense, the think aloud is another form of metacognitive routine.

A second, very different example of inquiry emerged at Chabot College, where they aimed to **capture student voices** in a way that would catalyze improvement for both learners and teachers. Determined to frame basic skills as a challenge

READING BETWEEN THE LIVES

Reading Between the Lives is available online at Internet Archive, a grantee of the Hewlett Foundation. The hour-long video was produced by teachers and students at Chabot College as part of their participation in SPECC and features Chabot students sharing their experiences of reading. The film is divided into four parts and can be viewed on the Internet Archive, at www.archive.org.

If you would like more information about *Reading Between the Lives* and other videos produced by Chabot, please contact:

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cutting across the curriculum—beyond English and mathematics (though they were the central focus of SPECC) and beyond courses designated as basic skills—Chabot set about to make reading an issue of broader concern and awareness across the campus:

We at Chabot College have been reflecting on basic skills ‘issues’ over the past two years, and we have begun to wonder whether our thinking about reading as a basic skill, as something our students should have learned in high school or in developmental English classes, might be working against us—and our students. The discussion of reading as a basic skill needs to come out of the hallways of English/ESL departments and be taken up by all disciplines. (Flyer for Chabot College regional conference on reading, 2007)

Toward this end, the campus brought together a group of students who collaborated on a one-hour video that makes reading issues dramatically visible. The many students featured in the video talk about their (sometimes impoverished) history as readers, their reactions (frustration, withdrawal, excitement, urgency) when faced with unfamiliar and difficult texts, and the help that teachers do and (mostly) do not give when handing out reading assignments. The result, *Reading Between the Lives*, has been used in faculty development settings, and also in classrooms, where it has sparked conversations with and among students about their routines as readers, where they encounter roadblocks, and what strategies they find helpful. Projects like these extend the meaning of inquiry by giving a central place to the student voice and underlining the need to find or create many more occasions when that voice can be captured and heard (Bueschel, 2008).

Seen in this way, as a form of inquiry, assessment is not a bureaucratic accountability requirement but a way to enact one’s professional responsibility to students.

These two examples of inquiry and assessment are ambitious and provocative. Overseeing a student video or undertaking a round of think alouds is not something most faculty can do on a regular basis. And yet the principle behind them—**the commitment to make learning visible**—is one that can and should be integral to the everyday business of teaching and learning—through simple classroom assessment tools like the one-minute paper (Angelo and Cross, 1993), assignments that invite students to talk about their process and “show their work,” and new technologies (electronic or otherwise) that document students’ experience as learners. Seen in this way, as a form of inquiry, assessment is not a bureaucratic accountability requirement but a way to enact one’s professional responsibility to students.

Integrating the Five Principles

Of course many classrooms embody more than one of the five principles described above; the most promising innovations, in fact, live at their intersection, and at the nexus where principle and practice come together. Consider, for example, the work that Katie Hern has been doing in her developmental English classes at Chabot College, bringing high structure, high challenge, intensity, intentionality, and inquiry together to create a powerful learning environment for her students. A specific class activity is illustrative: In English 101A, the lowest level English class offered at Chabot, students were asked to read 15 pages from a

chapter of Eric Schlosser's *Fast Food Nation*. Hern provided discussion questions to "guide attention" but otherwise let her students grapple with the text independently, an example of scaffolding that is supportive but not prescriptive. She was also careful to keep the reading assignment relatively short, trusting that if her students read carefully, they would identify the larger themes at play in Schlosser's work—a tactic she describes as "achieving coverage by going deep."

The class discussion that followed this assignment (fortunately captured on video) was lively, contentious, thorough, and almost entirely student-driven, with Hern acting more as a guide and occasional traffic cop than lecturer. Not only were her students engaged with a challenging, culturally current text, they were also determining for themselves what most merited thought and discussion, something all experienced readers routinely do. When they got off track, or reverted to vague generalizations, Hern refocused the conversation with a prompt—and not a simple prompt with a one line answer: "Prompts [should] ask students to do something with the key idea they just explained," she says, "take a position, apply it to a new context, connect it to other parts of the reading— i.e.: engage in higher order thinking about it."

Of course, not every student jumps eagerly and equally into discussions like these, but Hern directly confronts the issue of participation. At the start of the class session, she asks students to "fess up" about whether they have done the reading. If the "fess-up list" is long, Hern "reminds them that the class just doesn't work when they aren't prepared to participate in our discussion... they can't get by on lecture and skip the reading in this class [because] there is no lecture." In this same spirit of explicitness, Hern spends class time teaching students how to calculate grades and monitor their own progress. Part of being intentional as a student, after all, is knowing where one stands (for instance, realizing that to get a B in the course one needs an A on the next exam), and understanding what's at stake. As Hern says in summary, "by reaching out like this, I am simply making more visible to students what has been true all along: I care when they don't do the work. I'm concerned when they don't show up. I want them to be successful" (Hern, 2007b).

Hern's classroom is a window on what it looks like when powerful principles of basic skills education are played out on the ground where teachers and students meet. She brings together high structure (study questions, discussion prompts), high challenge (meaty, difficult books on complex social issues), and intensity (classes met twice a week in two-hour blocks). The class promotes intentionality on the part of students (showing them how to monitor their own progress in the course, coaching them about how to participate), and in the process makes learning visible in ways that both instructor and students can see and reflect upon. In short, both teacher and students are in the business of building a culture of inquiry and reflection in which everyone can continue to improve.

This kind of teaching and learning doesn't come easy, and a crucial part of Hern's story is about what has *not* worked in the past and how she has delved into her students' experience in order to rethink and remake her classroom. This process, and the insights that followed from it, is central to the multi-media Web site documenting her classroom that Hern has developed as part of SPECC's *Windows on Learning* collection (see Hern, 2007b). The story she tells there is also a story about the importance of the larger program and campus context, which is the focus of the next section of this report.

IV. A New Vision for Professional Development

Changes at the classroom level—to make basic skills instruction more structured, challenging, intensely engaging, intentional, and inquiry-based—are the bedrock of improvement; if changes don’t happen “on the ground,” where teachers and students meet, no real gains can be made. But powerful classrooms do not come out of thin air; the climate must be right. The question, then, is what can be done at the program and institutional levels to improve the learning and success of underprepared students. And this, in turn, is a question about how institutions are organized (or not) to support high quality teaching.

On the one hand, the community college sector is distinct in the higher education pantheon for its unambiguous teaching mission. And yet, that mission is sometimes expressed more as the *absence* of research than the *presence* of policies, resources, and practices that actively support effective teaching and learning. Funding formulas are notorious in this regard, based, as they are, on how many students come in the door rather than the quality of their learning and their ability to progress toward their goals. Policies shaping faculty roles are troublesome as well. A tremendous amount of teaching gets done—up to five classes a semester for those teaching a full load—but as a consequence faculty have little time to step back and work with colleagues to improve what they do. In many settings, large numbers of faculty teaching basic skills are part-time, making a real sense of community around shared learning goals difficult to achieve. As one observer quips, “Most community colleges do little systematically to help their instructors improve their teaching. . . . But this isn’t *necessarily* so; it *is* so because community colleges, like so many educational institutions, have failed to assume much institutional responsibility for the quality of instruction” (Grubb and Associates, 1999, p. 49).

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What kinds of institutional support are needed to strengthen pre-collegiate teaching and learning? SPECC’s answer is that the single most important missing ingredient is effective professional development for educators (faculty, counselors, student support staff, and administrators) whose work is critical to student success. A number of studies over the last decade point to this as a key variable in improving student learning (see for instance the section on staff development in the Basic Skills Initiative literature review, Center for Student Success, 2007). One prominent researcher summarizes findings by saying, “No matter what component of developmental education was being studied, an emphasis on training and professional development improved its outcome” (Boylan, 2002, p. 46). But not all professional development is created equal. In this spirit, one of SPECC’s goals has been to develop a model of professional development that truly contributes to learning by students, faculty, and the institution.

This effort builds on the Carnegie Foundation’s ten-year initiative on the scholarship of teaching and learning—the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL)—which has worked with faculty from a full range of disciplines and institutional types, including many community colleges. At its heart, this approach invites teachers to pose questions about the impact of their work on student learning and to investigate those questions in ways that colleagues can build on. Such work takes many forms, adapted to particular institutional contexts and disciplines, and its power to affect what goes on in the classroom is well documented. Faculty who participated in the CASTL program report that they have redesigned their courses (93 percent), used new kinds of assessment (92 percent), and identified improvements in their students’ learning (81 percent) (Cox, Huber, and Hutchings, 2004).

Faculty Inquiry Groups

In SPECC, the principles of the scholarship of teaching and learning have been used to design a model for professional development called **Faculty Inquiry Groups**. FIGs, as they have come to be called among project participants, are now a key feature of work on all 11 campuses. One example appears in the opening section of this report: the group of English department faculty coming together to explore and refine their newly integrated approach to the teaching of reading and writing. City College of San Francisco, the inspiration for that example, now has multiple FIGs at work and significant findings about their impact: “I am much more aware of my own decision-making process around issues of teaching and learning,” one participant

reports. “There is no better staff development project than regular meetings with a committed core of teachers that sits down together to analyze the myriad issues that we face,” says another. The work looks good from the point of view of the dean as well, who notes, “the participating teachers reported that they are better equipped to face the many student learning challenges that arise in the classroom” (City College of San Francisco, SPECC Report, 2006, p. 9, 1).

A different model has emerged at Los Medanos College. Influenced by findings from the Third International Mathematics and Science Study showing that professional development must be focused on content to make a difference in student learning, 11 mathematics faculty on that campus created a FIG (they use the language of “teaching community”) in the form of bi-monthly seminars. Participants explored key questions in the teaching and learning of pre-algebra, applying their findings to their own classrooms. They later documented their work using Carnegie’s KEEP Toolkit to illustrate and share their findings (Holtmann, Poku, Snell, and Wagener, 2006). As summed up in their final report: “Over time, by documenting the work of these teaching communities, and representing it in

FACULTY INQUIRY GROUPS

- Create professional communities in which educators can share what happens in classrooms
- Articulate and negotiate the most important outcomes for student learning
- Use the tools of classroom research to understand the experience of students more deeply
- Share insights and findings
- Examine a wide range of evidence, from examples of student work to campus-level quantitative data tracking patterns of student performance
- Invite and offer critical reflection and peer review
- Foster collaboration in the design of curriculum, assignments, and assessments
- Build trust as an essential component of ongoing improvement
- Support professional identity and responsibility among educators

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-informed decisions that improve teaching and learning” (Los Medanos College, SPECC Report, 2008, p. 1).

Taking a page from Los Medanos, the math department at College of the Desert also created several content-focused FIGs, organizing around key courses in the developmental sequence: college arithmetic, elementary algebra, and intermediate algebra. Involving both full- and part-time faculty, their work together focused on identifying their learning goals for students and designing common final exams—tasks that are often resisted when imposed from the outside but that become engaging when seen as collaborative, investigative study.

In other settings, a more multidisciplinary FIG format has emerged. Laney College began their faculty inquiry work (they use the term “Reflective Inquiry”) with faculty participants from math, English, ESL, and Project Bridge, a learning community dedicated to at-risk and returning adult learners. The second cycle of their FIG work brought to fruition an idea they had from the start: bringing vocational education faculty into communication with traditional basic skills faculty. Faculty members from machine technology and environmental control technology met with basic skills faculty for a year. The addition of perspectives from technical and vocational fields increased faculty awareness of basic skills issues outside the core disciplines. As Meryl Siegal, who leads this process at Laney, puts it: “Our vocational faculty realize that as the world becomes more complex technologically, students need more literacy skills than before; Reflective Inquiry provided faculty with ideas on ‘technical literacy’ and ways to begin to implement a technical literacy program” (Laney College, SPECC Report, 2006, p. 16).

As these examples illustrate, FIGs provide a flexible format for powerful professional development. But three features that crosscut their varieties are important to highlight.

Key Features of Powerful Professional Development

First, the work is **sustained over time**. Professional development in community colleges (and elsewhere) has often taken the form of one-time workshops and activities which may or may not be connected to the program or campus’s goals for student learning. SPECC participants have been forceful in pointing out the shortfalls of that model. As one campus put it, “We believe that the one-hour, lunch-time faculty development workshop has little impact on the transformation of a faculty’s attitudes and behavior.” In contrast, the FIG process “has taught us that if we are serious about making radical changes to the way we deliver instruction, we must work intensively with a select group of faculty over an extended period of time” (Pasadena City College, SPECC Report, 2006, p. 8, 6). Timeframes vary from several months to several years, but clearly the opportunity to learn together *over time* is a critical element.

THE KEEP TOOLKIT

The Carnegie KEEP Toolkit is a set of software applications that allow educators at all levels to record and publish their pedagogical work online. Visit the KEEP Web site at www.cfkeep.org.

Second, FIGs treat professional development as **a collaborative enterprise**. One of the most persistent impediments to educational improvement is that teachers have—because institutions provide—so few purposeful, constructive occasions for sharing what they know and do with one another. Thus, one of the most important moves a campus can make is to create occasions for educators to talk, to find colleagues, to be part of a community of practice. As an administrator at Merced College remarked during a SPECC site visit, “Good things happen when teachers talk.” FIGs are one model for inviting such talk.

Of course talk is not enough, and not all talk is equally valuable. Skeptics worry that FIGs may produce energetic conversation but no real advance in knowledge or improvement in practice. One external reviewer of SPECC wondered if the open exchange encouraged in FIGs might reinforce misguided notions about the capacity of certain groups of students to succeed. Thus, it is important to stress that collaboration is not “just talk.” Indeed, many of the campuses have worked their way toward FIGs with carefully structured routines and

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protocols for collaboration. The English group at Los Medanos, for instance, operates as a kind of graduate seminar, with clear tasks and homework for each meeting and an emphasis on developing new understandings and products—course assignments, for instance, and assessment instruments. At Glendale Community College, FIGs employed by the math department are dedicated to the design and analysis of common final exams, and at Cerritos College one focus has been on identifying explicit student learning outcomes. At City College of San Francisco, several FIGs now organize themselves around a carefully structured process of classroom observation, which is then grist for discussion during their meetings. One might in fact observe

that FIGs benefit from the same principles that operate in effective developmental classrooms: high structure, high expectations, intense engagement, intentionality, and inquiry. Teachers are developmental learners as well.

The third defining feature of FIGs is **the focus on evidence about student learning**. FIGs have served as laboratories for exploring how to bring different kinds and levels of evidence more effectively to bear on the improvement of teaching and learning.

Most important, certainly, is information at the classroom level. As a form of practitioner research, FIGs depend first and foremost on evidence generated in the regular routines of teaching and learning: student performance on exams, projects, papers, problem sets, office consultations, and grades. These should be at the heart of powerful feedback loops. But having evidence at hand is not enough. Teachers need—and FIGs provide—a chance to step back from their own practice and see their students’ work, and their own, anew. To borrow a metaphor that circulates widely at the Carnegie Foundation, they need mirrors (to see themselves more clearly) and lenses (to view familiar realities in different ways). Looking

together, as a group, at samples of student writing, for instance, is an exercise likely to prompt new insights about the teaching of composition. Working within a FIG to develop a new assessment tool or a rubric for assessing a common final exam is a process that moves faculty toward articulating, and sometimes battling over, otherwise tacit assumptions about, say, what it means to know beginning algebra in a deep way, or how students begin to move into more complex forms of critical reading. It bears repeating that these kinds of questions rarely arise where faculty teach four or five courses a term and have little time and less occasion to come together with colleagues to reflect and inquire into their own practice. And of course the likelihood of such work is even lower with high numbers of part-time instructors employed in basic skills settings. FIGs are not a panacea for these deeper structural issues, but the model is flexible and a number of SPECC campuses have found ways to include part-time faculty. Several, in fact, have designed FIGs that aggressively recruit part-timers.

New Roles for Institutional Research

What has also become clear through SPECC's exploration of FIGs is the power of viewing classroom data through the lens of larger trends and patterns. Most campuses have a good deal of information available at the institutional level: data about student demographics, enrollment, retention, and the like. And some institutions seek out information that allows for a comparative perspective. For instance, West Hills College District administers the Community College Survey of Student Engagement (CCSSE). Students participating in learning communities who were surveyed as part of the 2007 CCSSE study reported higher levels of engagement than did the overall college sample (West Hills College District, SPECC Report, 2008, p. 6).

Additionally, FIGs can be an occasion for faculty to raise questions that fall into what might be described as the “missing middle”—the gap between information from individual classrooms and institutional-level data in the form of big-picture, aggregate trends and patterns. The power of focusing between (and connecting) these two is nicely illustrated by a story from Los Medanos College where the Developmental Education Committee realized that their efforts to reshape curriculum and pedagogy needed to be informed by evidence faculty members did not have, including and especially patterns of student course taking and success beyond the level of individual courses. The committee approached the Office of Institutional Research, and the two groups worked together to develop a data-gathering

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COMMUNITY COLLEGE SURVEY OF STUDENT ENGAGEMENT (CCSSE)

Approximately 310,013 students at 525 colleges in 48 states, British Columbia and the Marshall Islands participated in the 2005, 2006, and 2007 CCSSE surveys, administered in the spring semesters in each of those years. CCSSE allows the campus to compare itself to other community colleges on a set of five benchmarks based on groups of conceptually related items that address key areas of student engagement. CCSSE's five benchmarks denote areas that educational research has shown to be important in quality educational practice. The benchmarks are active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners.

Adapted from the CCSSE Web site at www.ccsse.org.

plan that would address the questions faculty wanted to understand more fully. The result was a report tracking students from the capstone pre-collegiate courses in English and math into the first level of transfer English and math courses (Los Medanos College, SPECC Report, 2006, p. 8). This was not the kind of information Institutional Research staff members were in the habit of preparing; nor was it a perspective that faculty were accustomed to seeing. But it turned out to be a powerful impetus for attention to intensity and intentionality. As noted earlier in this report, the Institutional Research data gave faculty “a convincing rationale” to take measures that keep students moving through the developmental sequence without stopping out.

Additionally, the collaboration between faculty and Institutional Research points to the value FIGs can add as sites where educators (not only faculty, that is, but a wider group of individuals, full-time and part-time, whose work contributes to student success) can engage together with the richest and most useful range of information and evidence.

Challenges

This vision, sensible though it may seem, is more easily invoked than achieved. For one thing, it implies a significant recalibration of the resources and roles of institutional research (IR). On a number of SPECC campuses, IR staff members have begun working closely with faculty to make sense of larger patterns of information, and this turns out to be an exciting opportunity for engagement. A SPECC participant at Merced College notes, “Before this, we didn’t know we *had* an office of research; now we’re in there all the time.” Still, this is quite clearly the exception rather than the rule. Typically, information at the institutional level is generated in response to reporting requirements that only *indirectly* pertain to student *learning*. As one institutional researcher put it in a SPECC meeting, “Our job is to produce reports for the president. That’s why we’re valuable.” Changing this will be difficult, but a new model for institutional research is critical both for meeting external calls for accountability and for shaping internal processes of improvement.

Additionally, the experience of SPECC campuses shows that using data for improvement is no simple matter. Most educators have no training to prepare them for such work. And the numbers do not speak for themselves: If the retention rate in intermediate algebra is 57 percent, is that good or bad? To what should the number be compared? What does it say about what to do differently? At the same time, more and richer data do not automatically make things easier. Many SPECC campuses (recall the example from Pasadena City College mentioned earlier) are now using think alouds as part of their FIG work, a process, often videotaped, in which students are asked to talk through their mental steps as they read a text or do a math problem. This strategy has been a useful stimulus to pedagogical deliberation and reform in some settings, but at least one institution reports that faculty “struggled with making sense of the Think Alouds... All agree that the video reveals interesting and important information, but they have not been able to organize the material or articulate what they believe they learn from them” (Cerritos College, SPECC Report, 2006, p. 9).

In this spirit, one clear lesson from SPECC is that data are best seen not as definitive answers but as grist for inquiry. As many participants observed, what campuses need are occasions where educators can come together around rich information and use it to formulate questions, hypothesize about causes and effects, and identify red flags that call for deeper analysis and deliberation. FIGs provide such occasions.

Institutional Support

Or rather, FIGs *can* provide such occasions, but that is likely only if institutions make such work possible and valued. Faculty may well have a hunger to talk and connect, and to work collaboratively around teaching and learning agendas, but, like students, they must juggle multiple responsibilities while time is at a premium. The vision of professional development set forth here carries with it a message about the need for different policies pertaining to faculty roles and time. FIGs call on educators to make their work with students visible and available for peer review and collaboration, and that can feel risky. Campuses must create spaces that make such efforts safe, contexts that lower the stakes in order to increase the benefits. Indeed, this kind of work must count in the reward system if it is to be sustained and carried out in meaningful ways, as it has begun to do on some SPECC campuses. At College of the Desert, for instance, participation in FIGs counts toward the faculty's contractual obligations for institutional service and "flex" (professional development) days. Additionally, campuses must support this work by providing structures and leadership to facilitate it, as a number of campuses are doing through the establishment of teaching and learning centers that provide an institutional infrastructure for organizing and facilitating FIGs. These examples at least begin to gesture in the direction of a more affirmative answer to the question: What does it mean to be a teaching institution?

The bottom line is that institutions must find ways to ensure that professional development is the powerful experience it should be; to weave it into the fabric of professional practice and institutional life; to engage both full- and part-time faculty; and to make it an expectation of educators at every level. This, in turn, means creating a real culture of evidence and inquiry in which faculty are joined by institutional researchers and professionals from student support services in practices that bring good questions and good evidence to the pedagogical table. Until campuses become places where educators regularly come together in sustained, reflective, evidence-based ways to address the challenges of teaching and learning, longer-term, deeper institutional change is unlikely. Doing so is also a prerequisite for change that extends beyond the campus, our focus in the next section of this report.

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V. Implications for Work Across Campuses: Building the Teaching Commons

In community colleges, as in higher education more generally today, there are many promising pockets of innovation, but they often remain disconnected from one another and do not add up to larger patterns of improvement. One reason is that community colleges are, by their very mission, locally focused. Keeping the institution attuned to community needs and opportunities is important. But the downside is a sort of parochialism that makes it hard for ideas from elsewhere to penetrate practice. Promising new developments are often simply invisible, undocumented, unable to travel. Particularly in the case of developmental education, the work is too challenging and the stakes are too high not to be able to learn from innovations beyond one's own setting. The question, then, is how to move from pockets of innovation to whole cloth, from scattered improvements on individual campuses to more widespread reform within the larger system.

This question has been central to SPECC from its inception. The partnership between Carnegie and the Hewlett Foundation was predicated on the need not only to increase capacity and improve student success on 11 campuses but also to generate new knowledge and practices that would spread beyond them. Sadly, this is exactly what most educational reform

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initiatives have not managed to accomplish. The reason is not that local efforts are not often worth spreading more broadly; the problem, rather, is that teaching has lacked the habits and mechanisms that other professions use to advance and improve what they do: ways to document and share their work, occasions to come together and learn as a field, ready outlets for important ideas, and processes of peer review. Fortunately, this situation has begun to change with the emergence of a **teaching commons**, in which “communities of educators committed to pedagogical inquiry and innovation come together to exchange ideas about teaching and learning, and use them to meet the challenges of

educating students for personal, professional, and civic life in the twenty-first century” (Huber and Hutchings, 2005, p. x).

Cultivating a teaching commons at the campus level is a first step. But our aim in SPECC, building on this vision, is to bring effective work with underprepared students much more fully into the *larger* teaching commons—for it has much to offer the wider educational community—across campuses within the community college sector and beyond. SPECC's experience points toward a number of possibilities for building such a commons.

Connecting People and Ideas

First, there is much to be gained by encouraging exchange across campuses. To repeat a phrase from Merced College: “Good things happen” when faculty members have a chance to step back from the daily rush and routines of teaching in order to design and study better approaches—and good things also happen when *campuses* have a chance to step back and learn from and about one another, as well. The hunger for this kind of trading zone has been apparent in SPECC as campus participants have visited one another, traded materials, presented workshops on each others’ campuses, and come together at project meetings sponsored by Carnegie. These exchanges have borne real fruit: Pasadena City College borrowed the Los Medanos model of teaching communities (an adaptation of FIGs) and built them into a number of curricular reform efforts in mathematics. Merced College visited Chabot to learn how to organize a writing center, which is now up and running. A rich online resource for students working on literacy skills, developed at City College of San Francisco, is used on campuses in other parts of the country (see Kleinman, Delich, and Young, 2008). And the Chabot College video on reading has now been shown on a large number of campuses within and beyond SPECC, both in professional development settings and in classrooms, where it is used to invite students to talk candidly about themselves as readers.

As these examples suggest, innovations can clearly move from campus to campus, and this is especially likely when they can be carried in the form of stories and conversation (see Brown and Duguid, 2000, on the “social life” of information). It’s probably no accident that one of the most successful statewide improvement networks, the Washington Center for the Improvement of Undergraduate Education, began with an exchange program in which faculty spent time teaching on one another’s campuses (Smith, 1988). Relationships and trust are engines of change.

As is true at the campus level (think of FIGs), this kind of connection making is much more likely when there are regular, structured occasions for exchange, and these occasions have been on the rise. SPECC project meetings have served this purpose for the 11 participating campuses, and the power of the resulting network has been multiplied by the establishment of other, larger venues. Several of the campuses have sponsored regional conferences that have drawn large numbers of attendees from nearby and further afield. Especially notable has been the Strengthening Student Success Conference established in 2005 by the Research & Planning Group for California Community Colleges (RP Group) and the California Partnership for Achieving Student Success (Cal-PASS); the conference serves as a meeting ground for faculty in basic skills settings and beyond, as well as institutional researchers, educators from student support services, campus administrators, and system-level leaders.

LEARNING FROM ONE ANOTHER

“Each of us has figured out how to do a part of basic skills education well and we’re all here together to look at those visions of the possible, to look at those existence proofs, and to ask ourselves not how can we copy it, take it, imitate it, and plunk it down in our own environment, though occasionally that may work. Rather, we need to ask how we can put on a set of lenses that make the underlying principles very clear and move them to our own environment. Because in effect that’s what an intellectual, professional, and in our case pedagogical community is all about. It is about learning from each other’s practice, learning from each other’s disasters, and moving ahead as a field.”

—Lee S. Shulman, keynote address to the Strengthening Student Success Conference, 2007.

Sharing Work through Multi-Media Technologies

Face-to-face is not the only way to enter the teaching commons, and in times of tight budgets it's useful to think about other routes as well. With this in mind, SPECC has invited faculty (sometimes in teams) to build multi-media representations of their teaching and their students' learning that can be accessed widely and without cost through a central Web site. This collection, called *Windows on Learning*, reflects developments in the larger Open Educational

Resources movement of the past decade—ventures like the OpenCourseWare initiative at MIT and the Sharing of Free Intellectual Assets (SOFIA) project at Foothill College.

WINDOWS ON LEARNING

Windows on Learning is a collection of multi-media Web sites created by English and mathematics faculty from the SPECC campuses. The sites are designed to capture the full complexity of what goes on in the classroom. In one site, the instructor posts the results of her department's common algebra final and reflects on her students' performance. Another site includes a video of four beginning ESL students, with four native languages between them, working together to unpack a poem in English. The sites can be used in a variety of ways: as archives of teaching and research materials; as hands-on resources for teachers who can download materials and study their implementation in an actual classroom; and as tools for professional development. By presenting their sites at conferences, faculty have forged connections with community college instructors across the country doing similar research and exploring similar formats for making their work visible. The sites are designed to preserve the trace of both teaching and inquiry, so that the complicated process of identifying a problem of learning, designing an intervention to address it, and evaluating the success of the intervention becomes clear. The sites may be viewed at the SPECC *Windows on Learning* Gallery at www.gallery.carnegiefoundation.org/specc/.

In contrast to initiatives that are aimed primarily at making course content more widely available, *Windows on Learning* provides a way for educators to explore and build on one another's teaching practice in ways that new multi-media tools have only recently made possible. Thus, visitors to *Windows on Learning* can look into Katie Hern's classroom, borrow PowerPoint materials from Chris Juzwiak, examine pre- and post-tests on poetry from Annie Agard's class, and learn how several campuses have employed Faculty Inquiry Groups to strengthen student learning. In contrast to a teaching-tips-and-techniques approach to improvement, *Windows on Learning* embodies a view of professional development that emerges from practice and reflects the importance of context.

It's probably fair to say that these multi-media examples are, as yet, supported by a technology for which the culture is only now emerging. Much remains to be learned about how they can best be used—and what makes them useful. But already it is clear that they can enrich the teaching commons and catalyze promising exchange. The sites have been used in workshops and conference presentations—at the annual Strengthening Student Success Conference in California, the International Society for the Scholarship of Teaching and Learning, the League for Innovation in the

Community College, the American Association of Community Colleges, the California Association for Teachers of English as a Second Language, Laney College, Bronx Community College, and others. These are simply a sampling of early uses, but they offer a tantalizing peek at what might be possible with a much larger collection of representations drawn from excellent classrooms across the state and the nation. Most important, perhaps, these rich representations bring reports on classroom practice vividly to life in ways that engage and inspire. Capturing this wisdom of practice is an essential step in improving our ability as educators to work effectively with students who have the most to gain.

Approaches at the State and System Level

Propelled by a number of forces and circumstances, higher education is now arguably more focused on learning and teaching than ever before. Individual campuses have important innovations underway to increase the success of underprepared students, and they have a great deal to learn from their own experience and from one another. What's needed are larger networks of support and resources for doing so, and an intriguing variety of models are now taking shape across the country. In California, the Carnegie Foundation has been hosting a conversation among key stakeholders about a possible statewide resource network on basic skills education. The University of Wisconsin System has organized an initiative around the scholarship of teaching and learning, inviting campuses to study the learning of their students and share what they discover. The Maricopa Community College System, in Arizona, has created the Institute for Learning (began in 2000), a residential fellowship program for faculty who are interested in studying important issues in their teaching and contributing to a larger community of scholarly exchange about teaching and learning. (Many of the participants have used Carnegie's KEEP Toolkit to document their work.) One of the most successful, long-standing efforts is the Washington Center for Improving the Quality of Undergraduate Education, which creates opportunities for exchange and learning in institutions across the state.

The point is not to replicate any one of these models but rather to recognize the role of more centralized, systemic approaches to change. Grassroots, largely faculty-driven efforts at improvement (like those in SPECC) need support and central coordination to deliver fully on their promise. A vital teaching commons can help strike this balance.

VI. The Link to Student Learning

Clearly, the most important goal for developmental education, and for SPECC, is to improve student learning and success. It is hard to imagine a more urgent agenda for individual students, for higher education, and for society. This is not an agenda that will be quickly achieved, or wrapped up once and for all. With new developments every day on every front—shifting student demographics, new technologies, evolving ideas about how people learn, and emerging visions of what learning is most important in an ever more complex world—improvement is necessarily an ongoing enterprise with multiple facets.

As this report makes clear, the 11 SPECC campuses charted different paths to improvement, and they are at different points along those paths. In the spirit of action research, the project encouraged and cultivated a range of approaches, and even where campuses were doing what *sounds* like the same thing (many employed learning communities, for instance) the design of the project encouraged variation. One thing they did in common, however, was to track the

results of their innovations using agreed upon definitions of student success, retention, and persistence, and to compare results in SPECC courses with those in baseline groups. Beyond the use of their agreed upon metrics, each campus was also required to develop an evaluation plan which included, variously, focus groups with faculty and students, interviews with individual students, surveys, and partnerships with university researchers who studied their work and progress. What conclusions can be drawn as the project moves toward a close?

COMMON DATA ELEMENTS TRACKED BY SPECC CAMPUSES

SUCCESS RATE: the percentage of students in a class (out of the total enrolled) who received an A, B, C, or CR (credit).

RETENTION RATE: the percentage of students (out of the total enrolled) who did not withdraw but were “retained” through the end of the course, even if they did not receive a passing grade.

PERSISTENCE RATE: the percentage of students who enroll in a course in the following semester.

These definitions are taken from the Research & Planning Group for California Community Colleges, whose Web site provides further details about their calculation. See www.rpgroup.org/publications/definitions.html.

Patterns of Improvement in English and Mathematics

As part of their SPECC initiatives, the 11 campuses employed a wide variety of instructional innovations in the English and mathematics courses that were the focus of their work. Indeed, the variety of programs and interventions was limited only by the imaginations of the some 300 instructors who have participated so far in these projects.

It should come as no surprise that, given the variety of interventions, summary statements about overall

improvements in student learning averaged across programs or over time probably conceal as much as they reveal. In addition to the sheer variety of instructional innovations, new instructors joined the project along the way, and SPECC interventions began to “infect” courses not officially part of the project. Moreover, at virtually all of the campuses, the various interventions were not static treatments that remained constant over time. Rather, changes were made on the basis of past experience, and programs were modified in various ways as instructors learned what appeared to work and what did not. In spite of these complications

and the resulting “noise” in the data, it is important to assess, even if only in a preliminary way, the effects these innovations have had on student learning and success. (See Bond, 2008, for a more extensive analysis of SPECC data.)

On the English side of the house, SPECC interventions on five of the campuses have consistently resulted in success rates that exceed the baseline comparison group. The comparative difference in percentage of students passing a SPECC-supported course range from a low of 4 percent to a high of 25 percent. It is worth noting that this largest difference in success rates (25 percent) occurred in the last developmental English course in a three-course sequence. In fact, this finding is consistent with a more general trend that bears close monitoring: the longer students persisted in SPECC courses (even after failure or withdrawal), the larger the subsequent, comparative success over their baseline counterparts.

The five additional campuses trying new approaches in English (one of the 11 worked only in math) show mixed results, with students in SPECC-supported courses having higher success rates than their baseline counterparts in some sections of the courses, and lower rates in others. We have been unable to detect any reliable cause for these fluctuations, but several possibilities are worth exploring. At Cerritos College, where intervention success rates were initially lower than baseline, faculty participating in an inquiry group saw this phenomenon as a reflection of their own movement toward clearer, more demanding standards for what students must know to go on to the next level. This may well be a more general consequence of participation in Faculty Inquiry Groups. Another explanation arises from the non-random way in which students are recruited. For example, at Pasadena City College, students were recruited into their SPECC program precisely because of their extremely low placement scores.

In math, one sees a different story. 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 to 74 percent in the first year of the innovation, and from 55 to 79 percent 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 have 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 immediate and profound effects on eventual student transfer and graduation.

Tracking Success in a Learning Community

Most of the SPECC campuses instituted some version of learning communities. City College of San Francisco combined its traditionally separated reading and writing developmental English courses into a single, jointly taught course that could be taken over an entire school year. West Hills College District formed learning communities that included courses from

both developmental English and content areas such as physical education and geography. Several campuses linked vocational courses with basic skills math or English. Campuses that moved in these directions were able to build on previous research (see for example Tinto, 1994, 1995, and 1998) showing that even the simplest form of linked courses can be beneficial. Learning communities often increase retention, since dropping two or three courses is much more consequential to students than withdrawing from a single course, affecting financial aid and status at the college. Also, linked courses encourage cohort group formation that can provide a sense of community that in turn encourages persistence. Indeed, learning communities can provide faculty with a sense of collegiality and connectedness as well (Kahlert and DiSalvo, 2006).

But like any classroom approach, learning communities are not automatically effective. They can be implemented well or poorly, and even the best approaches take time to show real gains. Therefore, it is no surprise that within SPECC the use of learning communities shows mixed results thus far. Consider, for instance, Springboard to Transfer, Chabot College's high-challenge, intensive learning community, for which data from two cohorts tell very different stories.

For faculty teaching the first Springboard cohort, it was difficult at first to tell whether the program was making a meaningful difference in student performance. The impact started to become more visible, however, in the second semester. Students who successfully passed Springboard's English 102 were much more likely to persist into English 1A the following semester (92 percent) than students in other sections of the course (75 percent). And if they took the course within Springboard, not only were their retention rates much higher than average (93 percent vs. 72 percent), but their success in English 1A started to outpace the average for other sections of the course (65 percent vs. 61 percent).

In the third semester, persistence from English 1A to English 4 or English 7, the two final courses in the sequence, was even higher for Springboard students than for students in other sections of the course (79 percent vs. 51 percent). The members of the original cohort—now in their third semester of Springboard—again had much higher than average retention rates (91 percent vs. 76 percent), and this time their success rates significantly outpaced the average for other sections of the course (87 percent vs. 69 percent).

At the end of fall 2006, 100 percent of the students who remained in Springboard for all three semesters were “transfer directed” (that is, they earned at least 12 units and attempted college-level math or English), and the vast majority were making steady progress toward transfer (95 percent had earned 15 or more transferable units).

A second Springboard cohort, with different instructors and students, began with English 102 in the fall of 2006. Relative to the success of the first cohort, the attrition rate in this second group was disappointing. Of 83 students initially enrolled in English 102, only 46 (55 percent) subsequently enrolled in English 1A, and 21 (25 percent) enrolled in English 4 or 7. Only 12 students from the original cohort of 83 enrolled in all three semesters of the program. This is significantly less than the first Springboard cohort, where 23 of the original 87 students (26 percent) enrolled in all three semesters.

Despite the attrition in the Springboard program, persistence within the larger English curriculum was high among students who took English 102 in the fall of 2006. Many students chose to take subsequent English classes outside of the Springboard program. Of the 53 students who succeeded in English 102, 49 (fully 92 percent) enrolled in English 1A. This compares with only 192 of the 261 students (74 percent) in the baseline group of students enrolled in non-Learning Community English 102 courses. Moreover, 82 percent of Springboard students who succeeded in English 1A enrolled in English 4 or English 7, compared with only 61 percent in the baseline comparison group.

Once again, it should be kept clearly in mind that the “noise” in these comparisons is substantial. Because learning communities require a sustained commitment by students to take a prescribed set of courses over multiple semesters, students must be *recruited* into learning communities. The students so recruited no doubt differ in systematic and unknown ways from non-recruited students who are free to choose from a shopping list of available courses. Moreover, instructors differ in the effectiveness with which they “hold,” support, and nurture students. In some sense, it may matter less that a course is part of a learning community than that the teacher employs the kind of powerful principles (described in section three of this report) that characterize SPECC courses more generally. These complications notwithstanding, we believe that following different cohorts of students over several years will reveal consistencies that represent durable advantages of learning communities over regular course matriculation.

Better Tools for Tracking Student Learning

The importance of tracking student progress over time—in learning communities or otherwise—raises a host of questions about the tools and metrics for doing so. Identifying patterns of success, retention, and persistence will clearly continue to be important. But several SPECC campuses have felt the need for additional, more diagnostic windows into student learning. Two examples are illustrative.

The first is from City College of San Francisco (CCSF), where faculty in English undertook a major curricular change that integrated basic skills reading and writing. In the early stages of this transformation, they were able to point to “considerable qualitative evidence of improvements in student achievement based on the efforts to integrate reading and writing,” but the usual quantitative measures (for instance, pass rates and persistence) had barely budged. What was needed, they realized, was a better, more nuanced tool to examine changes in students’ writing performance. The solution? A **portfolio-based assessment**, with a carefully constructed rubric, to delve into student learning in a richer way. According to Erin Denney, the Basic Skills Coordinator for CCSF’s English department, “In the three years we have done this assessment, we have virtually eliminated the lowest score. It is very rare to find a portfolio now that ranks as a ‘1.’ Furthermore, the numbers of portfolios receiving the highest scores have increased as well, and more and more students are eligible to skip the next class in the sequence and go straight to English 93” (Denney, 2008).

Common Exams as Prompts for Improvement

Our second example comes from Glendale Community College's mathematics program, which in 2000 instituted a **common final examination** for all sections of pre-collegiate algebra. If the CCSF story is about the need for better measurement instruments, this one is about better processes for using results. The department produces tabularized information after each examination in order to show, among other things, the dropout rate and mean GPA for each class, as well as the performance of each class (properly coded to ensure anonymity) on the overall test and on subtopics.

The faculty as a whole discuss topical areas in which students appear to be learning well and those where they are still struggling. Individual instructors examine their own students' performance on the test in ways that reveal important aspects of their teaching practice and grading standards. For example, instructors whose A and B students do relatively poorly on the final examination must ask themselves whether their standards are too lax. Instructors whose C students perform well on the test must ask themselves if their standards are unrealistically high. The entire project stimulates faculty discussion and reflection in ways that did not occur before.

Additionally, as participants in this process testify, the *process* of developing and coming to consensus on an assessment framework, along with the development of exercises and a scoring rubric, all tend to get faculty on the same page about what is important for students to know and be able to do. Instructors who entertain idiosyncratic notions about grading or essential content must defend their ideas to their colleagues in an open forum where departmental objectives and disciplinary considerations are the reference standards. Glendale's experience with the

common examination nicely illustrates its power to encourage honest discussion about the appropriate weight to be given to effort over outcome, to growth over absolute level of achievement, and to test performance over class participation—crucial considerations in a commitment, like SPECC's, to documenting improvement over time.

Yet Glendale enjoys an additional benefit that in its long-term effects may prove to be more important than all the rest. It is exemplified in how the math faculty use test results in professional development. Noting that some instructors' students

repeatedly performed well above average on the examinations or on particular topical areas, the department began a program in which faculty observe these highly effective instructors in action. In this way, the Glendale experience points to another important lesson about impact: while improvements in student learning are the bottom line, they are often wrapped up in other kinds of impact that are hard to untangle. Indeed, the experience at Glendale and many other SPECC campuses suggests that *faculty* learning may be the single most important variable in improving *student* learning. In today's accountability culture, this is a point that can get left behind, and it is worth hammering home. Student learning matters; of course one wants to see an upward trajectory in student success. But faculty growth and development matter as well. And on a healthy campus, the two work together.

The process of developing and coming to consensus on an assessment framework, along with the development of exercises and a scoring rubric, all tend to get faculty on the same page about what is important for students to know and be able to do.

The Impact of Faculty Inquiry Groups on Faculty and Student Learning

This point comes vividly home in what SPECC has learned from the conduct of Faculty Inquiry Groups. In the fall of 2007, the Carnegie staff designed and administered a survey of participants in FIGs across the 11 campuses. Our aim was to gather more systematic information about the impact of that work on classrooms, assessment design and results, professional identity, and the sense of collaborative community and trust that many studies of educational reform point to as essential to ongoing improvement (Bryk and Schneider, 2004). Among reported benefits of the experience are expanded networks of colleagues, a higher level of trust in talking about teaching, and experimentation with new teaching approaches. Eighty-two percent of respondents agreed or strongly agreed that FIG participation made them “more confident about responding to student learning challenges,” 72 percent reported “raised expectations for student learning,” and 70 percent had “evidence that my students’ learning has improved.” (See Huber, 2008, and Richardson, 2008, for more details about survey design and results.)

The experience at Glendale and many other SPECC campuses suggests that faculty learning may be the single most important variable in improving student learning.

These general trends are supported by emerging findings on individual campuses that have looked at the relationship between FIG participation and student learning. At Laney College, for instance, course sections taught by participants in FIGs show higher success, retention and persistence rates than those taught by non-participants (Laney College, SPECC Report, 2006). At Pasadena City College, the introduction of FIGs in conjunction with the summer bridge pre-algebra course (.XL) has been an important ingredient in raising student success rates—and faculty engagement:

The FIG had an immediate impact on .XL summer bridge pre-algebra. .XL persistence and retention rates have consistently been higher than those of all comparison groups, but success rates have wavered. Our research suggests that the FIG process has had a positive impact on the retention and success rates of .XL students in cohorts 5 and 6. In addition, faculty who participated in the inquiry group and who taught stand-alone pre-algebra courses showed an increase in the retention and success of their students, albeit more modest. Finally, FIG participants revealed in focus groups that they enjoyed having the opportunity to participate in a formalized process of inquiry, and as a result they felt a greater sense of community among their colleagues, believed they gained insight into the issues they and their students face, and look forward to continuing the FIG process. (Pasadena City College, SPECC Report, 2006, p. 1)

Navigating Change

Reports like this, and the experience of educators like those from Glendale and CCSF, bring to the surface an important lesson about educational reform—and it isn’t simply that “it takes time,” which is all too well known. The lesson, rather, is about the character of the journey. Higher education has often been likened to an ocean-going ship, slow and hard to turn. But

a close look at any one of the SPECC campuses suggests that the process of improvement is much more like a fleet of small boats, each headed in the same direction but not always at the same speed or on identical bearings: The math department is experimenting with common final exams, a Faculty Inquiry Group organized around a new learning community is working out the wrinkles in a set of reading assignments, three members of the English department have taken a detour to spend a week learning about Reading Apprenticeship. What makes this process work, what keeps the boats headed in the same direction, is communication, which in turn depends on information that people trust and understand. Participants—and this includes everyone from students to trustees—must be trading and making sense of information at every step along the way.

In short, the ability to make and sustain positive change may well be a function of being able to weave these separate routes into a compelling story that can guide people on their way. (For a fuller account of lessons learned about institutional change, see Asera, 2008.)

VII. Recommendations

When Carnegie President Lee S. Shulman likened developmental education to the game of Chutes and Ladders, he was pointing to the many ways higher education fails the students who need it most. For too many reasons to count, they fall down the chute and out of a game they cannot afford to lose. But he was also pointing to the possibility of climbing toward something better. SPECC is a small project: 11 campuses, focused largely in two disciplines (English and math), with a three-year timeline. But the work done by its participants has yielded powerful lessons and pointers for future work.

Here, then, we return to the recommendations previewed at the beginning of this report. As noted there, faculty are essential agents in the kinds of transformation SPECC has explored and promoted. Faculty leadership in the classroom, at the department and program level, and in campus decision making is essential; it has been a key ingredient in the good things that have happened through the Carnegie project, and a reason for great hopefulness. But institutional leaders and policy makers must also step up to the plate, to create the conditions in which creative, dedicated faculty can work successfully with underprepared students. The five recommendations that follow point to changes in policy and institutional practice that will support improvements underway and pave the way for further gains.

I. The success of underprepared students must be an institution-wide, core responsibility.

Basic skills are not so basic. They cannot be learned—or taught—in isolation as a set of discrete mechanical skills. Indeed, one of the reasons they're so important (so basic) is that they enable other kinds of learning, skills, and capacities, be it in a pre-collegiate writing class, a transfer-level sociology course, the nursing program, or automotive repair. Thus, the success of underprepared students cannot be the responsibility of a small group of faculty teaching specially designated courses. It must be an *institutional* responsibility: given visibility and priority by campus leaders at the highest levels, attended to in every classroom and every interaction with students, and constantly tracked and evaluated so that improvements can be made. Literacy and numeracy, and the sense of oneself as a capable learner, are, quite simply, essential in today's increasingly complex world, and community colleges are uniquely positioned to embrace and succeed with this mission. Specifically, this means:

- Seizing every occasion to give visibility and voice to the importance of serving underprepared students more effectively; leadership for such work must be clear at every level of the institution.
- Seeing every educator on campus as a basic skills instructor and providing professional development experiences to help them succeed in this role.
- Employing the principles of high structure, high challenge, intensity, intentionality, and inquiry to strengthen teaching and learning; these principles are drawn from practice as well as from the research on learning.
- Giving priority to the ability to work effectively with underprepared students when hiring new faculty, orienting them, and setting expectations for advancement.

- Working at the state and national level to develop training programs for faculty who can work effectively with underprepared students.
- Treating the campus and its classrooms as a laboratory for generating new knowledge of, and questions about, the learning of underprepared students.

2. Professional development should be reinvented as an intellectually engaging, integral element of work in an educational institution.

Professional development is a contractual obligation for most community college faculty, but too often the opportunities presented are episodic, uncoordinated, and disconnected from any shared goals for student learning. The result, not surprisingly, is widespread cynicism about what should be a core commitment of professional life, whatever the arena, to learn from practice and to work with colleagues to advance the field. In this spirit, professional development for community college educators must be rescued and revitalized in ways that make it more sustained, collaborative, and focused on evidence of student learning. These conditions are critical to ongoing improvement; they must be part of the experience of all educators and built into the fabric of the institution. Specifically, this means:

- Making ongoing professional development an expectation for all educators and an institutional responsibility.
- Creating policies and resources for involving part-time educators in significant professional development.
- Establishing institutional structures that provide space, time, and other kinds of support for educators to reflect together on their work with students; often this means building on possibilities that already exist—such as centers for teaching and learning.
- Encouraging the establishment of Faculty Inquiry Groups, and providing support to sustain them.
- Expanding the definition of teaching to include not only classroom contact hours but time to reflect, work with colleagues to examine evidence of learning, and work toward improvements; teaching loads must be adjusted to accommodate this broader definition.
- Creating incentives for participation in professional development, with leadership and accomplishment in this arena linked to rewards such as salary, promotion, and awards.

3. 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.

4. 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 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.
- Negotiating 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.

5. Ongoing, larger-scale improvement requires a lively, open “teaching commons” that values the knowledge of practice.

Community college educators are on the front lines of learning. Working with underprepared students is one of the most intellectually challenging roles imaginable, and the stakes could not be higher. The commitment of individual teachers is a powerful ingredient in doing this well, but no one can do it alone, and community college educators are hungry for colleagues who share their commitment and for occasions in which they can learn from one another.

The good news is that higher education today is increasingly enjoying the benefits of an emerging *teaching commons*, a conceptual space in which educators from all settings and sectors can share their questions, explorations, and new insights about student learning. Participation in this kind of exchange is, in fact, a critical condition for ongoing improvement. What’s needed, then, is purposeful investment, on multiple levels, in the occasions, structures, networks, and tools through which educators (in basic skills and beyond) can share what they know in ways that benefit students and build the field. Specifically, this means:

- Creating structures and occasions on campus that bring people together to talk about their students’ learning.
- Experimenting with new ways (multi-media representations are a promising avenue) to represent effective classroom practice so others can build on it.
- Inviting exchange across institutions, through campus visits and consultations, and participation in larger regional, statewide, and national conferences.
- Participating in multi-campus projects and initiatives that bring new perspectives and ideas into the mix.
- Working to create a coordinated, statewide network for sharing knowledge and resources about developmental, basic skills education.
- Giving the kinds of efforts described in this report a chance to evolve, mature, and take root over time.

The vision of developmental education presented in this report aims high. Basic skills are basic not because they’re simple but because (like “basic” research in the sciences) they lay the groundwork for other things. For this reason, the lessons learned from SPECC are cast in broad terms, relevant not only to the introductory composition or beginning algebra course but across a full spectrum of courses and instructional settings. Moreover, the lessons learned here carry implications for a wide range of actors—not only teachers but counselors, department heads, deans, presidents, and students themselves. Each must take responsibility and all must work together—at the classroom level, across courses, institutionally, and throughout the community college system. There’s work enough to go around.

References

- Academic Senate for California Community Colleges. "A Survey of Effective Practices in Basic Skills." Sacramento, Calif: Academic Senate for California Community Colleges, 2003.
- Adler, M. J. *How to Read a Book*. New York: Simon & Schuster, 1940. Revised Edition With C. Van Doren. New York: Touchstone, 1972.
- Agard, A. "Asking Their Own Questions: ESL Students Take Charge of Their Reading." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.
- Angelo, T.A., and Cross, K.P. *Classroom Assessment Techniques: A Handbook for College Teachers*. San Francisco, Calif.: Jossey-Bass, 1993.
- Asera, R. "Change and Sustain/Ability." Strengthening Pre-collegiate Education in Community Colleges (SPECC). Stanford, Calif: The Carnegie Foundation for the Advancement of Teaching, 2008.
- Asera, R. "Pipeline or Pipedream: Another Way to Think about Basic Skills." *Carnegie Perspectives*, Aug. 2006. <http://www.carnegiefoundation.org/perspectives/sub.asp?key=245&subkey=1878>. Accessed February 11, 2008.
- Association of American Colleges and Universities. *Greater Expectations: A New Vision for Learning as a Nation Goes to College*. Washington, D.C.: Association of American Colleges and Universities, 2002.
- Astin, A. "The Civic Challenge of Educating the Underprepared Student." In T. Ehrlich (ed.), *Civic Responsibility and Higher Education*. Phoenix, Ariz.: The American Council on Education and Oryx Press, 2000.
- Bailey, T. "Community Colleges in the 21st Century: Challenges and Opportunities." *CCRC Brief*. New York: Community College Research Center, January 2003.
- Bond, L. "Toward **Inf**ormative Assessment and a Culture of Evidence." Strengthening Pre-collegiate Education in Community Colleges (SPECC). Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2008.
- Bond, L. "The Think-Aloud Protocol: A High Yield/Low Stakes Assessment." *Assessment: It's Not Just for Experts Anymore*, 2007. <http://bondessays.carnegiefoundation.org/?p=9>. Accessed February 11, 2008.

- Boylan, H. R. *What Works: Research-Based Best Practices in Developmental Education*. Boone, N.C.: Continuous Quality Improvement Network with the National Center for Developmental Education, Appalachian State University, 2002.
- Bransford, J.D., Brown, A.L., and Cocking, R.R. (eds.). *How People Learn: Brain, Mind, Experience, and School*. Washington, D.C.: National Research Council, Committee on Developments in the Science of Learning, National Academy Press, 1999.
- Brown, J.S., and Duguid, P. *The Social Life of Information*. Boston: Harvard Business School Press, 2000.
- Bueschel, A. C. "Listening to Students About Learning." Strengthening Pre-collegiate Education in Community Colleges (SPECC). Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching. 2008.
- Bryk, A. S., and Schneider, B. *Trust in Schools: A Core Resource for Improvement*. New York: Russell Sage Foundation Publications, 2004.
- Center for Student Success and the Research and Planning Group for California Community Colleges. *Basic Skills as a Foundation for Student Success in California Community Colleges*. Sacramento, Calif.: Academic Senate for California Community Colleges, 2007.
- Cerritos College. *SPECC Report*. Norwalk, Calif.: Cerritos College, 2006.
- Chabot College. *SPECC Report*. Hayward, Calif.: Chabot College, 2006.
- Chang, Y., Curtis, C., and Wright, L. "No Longer Lost in Translation: How Yu-Chung Helps Her Students Understand (and Love) Word Problems." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.
- Cho, J., Curtis, C., Davis, A., and Klein, B. "How Jay Got His Groove Back." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.
- City College of San Francisco. *SPECC Report*. San Francisco: City College of San Francisco, 2006.
- Clark, B. *The Open Door College: A Case Study*. New York: McGraw-Hill, 1960.
- College of the Desert. *SPECC Report*. Palm Desert, Calif.: College of the Desert, 2006.

College of the Sequoias. *SPECC Report*. Visalia, Calif.: College of the Sequoias, 2006.

Community College Survey of Student Engagement. Survey Results. <http://www.ccsse.org/survey/national.cfm>. Accessed April 25, 2008.

Cox, R., Huber, M. T., and Hutchings, P. *Survey of CASTL Scholars*. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2004.

Cross, K.P. *Accent on Learning: Improving Instruction and Reshaping the Curriculum*. San Francisco: Jossey-Bass, 1976.

Denney, E. "Re: SPECC—For Your Review." E-mail to Molly Breen, March 18, 2008.

Elbow, P. "Write First: Putting Writing before Reading is an Effective Approach to Teaching and Learning." *Educational Leadership*, Jan. 2004, 62(2), 8-13.

Ezell, D., and Juzwiak, C. "Powerful Uses of Technology in Developmental English." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Glendale Community College. *SPECC Report*. Glendale, Calif.: Glendale Community College, 2006.

Graff, G. *Clueless in Academe: How Schooling Obscures the Life of the Mind*. New Haven, Conn.: Yale University Press, 2003.

Graff, L., Culhan, D., and Marhuenda-Donate, F. "Outlining Mathematics: Transforming Student Groaning into Student Learning." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

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

Hayward, G. C., Jones, D. P., McGuinness, Jr., A. C., and Timar, A. "Ensuring Access with Quality to California's Community Colleges." National Center for Public Policy and Higher Education, commissioned by The William and Flora Hewlett Foundation, 2004.

Hern, K. "When Capable Students Don't Pass: The Problem of Academic Sustainability." *The National Teaching and Learning Forum*, Sept. 2007a, 16(5), 1-5.

Hern, K. "When Capable Students Fail: The Academic Sustainability Gap." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007b. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Holtmann, E., Poku, K., Snell, M., and Wagener, P. "Prealgebra Classroom Research: Working Together To Improve Student Learning." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Huber, M. T. "The Promise of Faculty Inquiry for Teaching and Learning Basic Skills." Strengthening Pre-collegiate Education in Community Colleges (SPECC). Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2008.

Huber, M.T., and Hutchings, P. *The Advancement of Learning: Building the Teaching Commons*. San Francisco: Jossey-Bass, 2005.

Hutchings, P. "Building Pedagogical Intelligence." *Carnegie Perspectives*, Jan. 2005. <http://www.carnegiefoundation.org/perspectives/sub.asp?key=245&subkey=571>. Accessed February 11, 2008.

Iser, W. *The Act of Reading*. Baltimore: Johns Hopkins University Press, 1978.

Juzwiak, C., and Tiernan, M. "The Full E-mersion: Electronic-Based Pedagogy in Developmental Composition." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Kahlert, S., and DiSalvo, B. "The Whole is Greater Than the Sum of its Parts." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2006. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Kleinman, C., Delich, P., and Young, J. "Documenting and Guiding the Convergence of Technology, Teaching, and Learning." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2006. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Laney College. *SPECC Report*. Oakland, Calif.: Laney College, 2006.

Los Medanos College. *SPECC Report*. Pittsburg, Calif.: Los Medanos College, 2006.

Los Medanos College. *SPECC Report*. Pittsburg, Calif.: Los Medanos College, 2008.

Ma, L. *Knowing and Teaching: Elementary School Mathematics*. Mahwah, N.J.: Lawrence Erlbaum Associates, 1999.

Malnarich, G., et al. *The Pedagogy of Possibilities: Developmental Education, College-Level Studies, and Learning Communities*. National Learning Communities Project Monograph Series. Olympia, Wash.: The Evergreen State College, 2003.

Maxwell, M. "A Commentary on the Current State of Developmental Reading Programs." In J. L. Higbee, and P.L. Dwinell (eds.), *Developmental Education: Preparing Successful College Students*. Columbia, S.C.: National Resource Center for The First-Year Experience and Students in Transition, University of South Carolina, 1998.

McClenney, K. Quoted in Merrow, "Discounted Dreams: High Hopes and Harsh Realities at America's Community Colleges." PBS Broadcast, April 2007.

Merced College. *SPECC Report*. Merced, Calif.: Merced College, 2006.

Merrow, J. "Discounted Dreams: High Hopes and Harsh Realities at America's Community Colleges." PBS Broadcast, Apr. 2007. <http://www.pbs.org/merrow/tv/discounteddreams/>. Accessed February 12, 2008.

Merrow, J. "The (Often Rocky) Path to the American Dream." *Change*, Nov.-Dec. 2007, 39(6), 14-21.

Moore, C., and Shulock, N. *Beyond the Open Door: Increasing Student Success in the California Community Colleges*. Sacramento, Calif.: Institute for Higher Education Leadership & Policy, California State University, Sacramento, 2007.

MIT OpenCourseWare. <http://ocw.mit.edu/OcwWeb/web/home/home/index.htm>. Accessed February 11, 2008.

Orrill, R. . "Preface." In L. A. Steen (ed.), *Mathematics and Democracy: The Case for Quantitative Literacy*. Princeton, N.J.: National Council on Education and the Disciplines, 2001.

Pasadena City College. *SPECC Report*. Pasadena, Calif.: Pasadena City College, 2006.

Rendon, L. I. "Validating Culturally Diverse Students: Toward a New Model of Learning and Student Development." *Innovative Higher Education*, Fall 1994, 19(1), 23-32.

Reynolds, D. "Helping Students Read Difficult Text." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

Richardson, C. "Strengthening Pre-collegiate Education in Community Colleges: Survey of Participants in Faculty Inquiry Groups," in Huber, 2008. Stanford, Calif: The Carnegie Foundation for the Advancement of Teaching, 2008.

Salvatori, M., and Donahue, P. *The Elements (and Pleasures) of Difficulty*. New York: Pearson/Longman, 2004.

Schoenbach, R.C., Greenleaf, C., Cziko, C., and Hurwitz, L. *Reading for Understanding: Improving Reading in Middle and High School Classrooms*. San Francisco: Jossey-Bass, 1999.

Scholes, R. *Protocols of Reading*. New Haven, Conn.: Yale University Press, 1989.

Scholes, R. *The Rise and Fall of English: Reconstructing English as a Discipline*. New Haven, Conn.: Yale University Press, 1998.

Smith, B. L. "The Washington Center: A Grass Roots Approach to Faculty Development and Curricular Reform." In J. G. Kurfiss, and others (eds.), *To Improve the Academy*, Vol. 7, 165-177. Stillwater, Okla.: POD/New Forums Press, 1988.

Smyth, L., and Heath, S. B. *ArtShow: Youth and Community Development*. Washington, D.C.: Partners for Livable Communities, 1999.

Snell, M. "Re: SPECC—For Your Review." E-mail to Molly Breen, March 24, 2008.

SOFIA (Sharing of Free Intellectual Assets). <http://sofia.fhda.edu/>. Accessed February 12, 2008.

Steele, C. M. "A Threat in the Air: How Stereotypes Shape the Intellectual Identities and Performance of Women and African Americans." *American Psychologist*, June 1997, 52(6), 613-629.

Steele, C. M. "Thin Ice: 'Stereotype Threat' and Black College Students." *The Atlantic Monthly*, Aug. 1999, 284(2), 44-54.

Steen, L. A. (ed.). *Mathematics and Democracy: The Case for Quantitative Literacy*. Princeton, N.J.: National Council on Education and the Disciplines, 2001.

Strategic Literacy Initiative. "The Impact of Metacognition on College Students." Article from Leadership Institute in Reading Apprenticeship notebook distributed at WestEd conference. Oakland, Calif.: WestEd, 2007.

The Carnegie Foundation for the Advancement of Teaching. "Windows on Learning: Resources for Basic Skills Education." Strengthening Pre-collegiate Education in Community Colleges (SPECC) Participant Multi-media Web Sites. Stanford, Calif: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 11, 2008.

Tinto, V. "Colleges as Communities: Taking Research on Student Persistence Seriously." *The Review of Higher Education*, Winter 1998, 21(2), 167-177.

Tinto, V., and Love, A. G. "A Longitudinal Study of Learning Communities at LaGuardia Community College." ERIC Document Reproduction Service No. ED 380 178. Washington, D.C.: ERIC Clearinghouse, 1995.

Tinto, V., and Russo, P. "Coordinated Studies Programs: Their Effect on Student Involvement at a Community College." *Community College Review*, October 1994, 22(2), 16-25.

Tobias, S. *Overcoming Math Anxiety*. New York: Houghton Mifflin, 1978. Revised Edition. New York: W. W. Norton & Co., 1993.

Torr, J. E. *Opposing Viewpoints – Race Relations*. Farmington Hills, Mich.: Greenhaven Press, 2005.

Wagener, P. "Can Problem Solving Become a Habit of Mind?" *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

West Hills College District. *SPECC Report*. Coalinga, Calif.: West Hills College District, 2008.

Ybarra, N. "A Glimpse Into a Reading Apprenticeship Classroom." *Windows on Learning: Resources for Basic Skills Education*. Multi-media Web sites by participants in Strengthening Pre-collegiate Education in Community Colleges. Stanford, Calif.: The Carnegie Foundation for the Advancement of Teaching, 2007. <http://gallery.carnegiefoundation.org/specc/>. Accessed February 13, 2008.

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