

Basic Skills as a Foundation for Student Success in California Community Colleges

MARCH 2007

*Prepared by a team of researchers,
faculty, and administrators of*



The Center for Student Success



The Research and Planning Group
for California Community Colleges



Sponsored by USA Funds

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Table of Contents

Executive Summary	3
Prologue	8
Part 1 Review of Literature & Effective Practices: Introduction & Definitions	12
Effective Practices for Basic Skills: Findings from Literature	14
Organizational and Administrative Practices	14
A.1 Developmental education is a clearly stated institutional priority.	14
A.2 A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program. Clearly specified goals and objectives are established for developmental courses and programs.	16
A.3 The developmental education program is centralized or highly coordinated.	16
A.4 Institutional policies facilitate student completion of necessary developmental coursework as early as possible in the educational sequence.	17
A.5 A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.	19
A.6 Faculty who are both knowledgeable and enthusiastic about developmental education are recruited and hired to teach in the program.	20
A.7 Institutions manage faculty and student expectations regarding developmental education	22
Program Components	23
B.1 Orientation, assessment, and placement are mandatory for all new students.	23
B.2 Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.	26
B.3 Counseling support provided is substantial, accessible, and integrated with academic courses/programs.	28
B.4 Financial aid is disseminated to support developmental students. Mechanisms exist to ensure that developmental students are aware of such opportunities and are provided with assistance to apply for and acquire financial aid.	29
Staff Development	30
C.1 Administrators support and encourage faculty development in basic skills, and the improvement of teaching and learning is connected to the institutional mission.	31
C.2 The faculty play a primary role in needs assessment, planning, and implementation of staff development programs and activities in support of basic skills programs.	31
C.3 Staff development programs are structured and appropriately supported to sustain them as ongoing efforts related to institutional goals for the improvement of teaching and learning.	33
C.4 Staff development opportunities are flexible, varied, and responsive to developmental needs of individual faculty, diverse student populations, and coordinated programs/services.	34
C.5 Faculty development is clearly connected to intrinsic and extrinsic faculty reward structures.	36

Instructional Practices	38
D.1 Sound principles of learning theory are applied in the design/delivery of courses in the developmental program.	38
D.2 Curricula and practices that have proven to be effective within specific disciplines are employed.	41
D.3 The developmental education program addresses holistic development of all aspects of the student. Attention is paid to the social and emotional development of the students as well as to their cognitive growth.	50
D.4 Culturally Responsive Teaching theory and practices are applied to all aspects of the developmental instructional programs and services.	52
D.5 A high degree of structure is provided in developmental education courses.	53
D.6 Developmental education faculty employ a variety of instructional methods to accommodate student diversity.	54
D.7 Programs align entry/exit skills among levels and link course content to college-level performance requirements.	59
D.8 Developmental faculty routinely share instructional strategies.	60
D.9 Faculty and advisors closely monitor student performance.	61
D.10 Programs provide comprehensive academic support mechanisms, including the use of trained tutors.	62
 Review of Selected Literature Sources	 66
 Selected Out-of-State Example Programs for Basic Skills Identified From Literature Sources	 85
 Additional Resources	 88
 References Cited	 89
 PART 2 Assessment Tool for Effect Practices in Basic Skills	 98
Introduction to the Self-Assessment Tool	
Baseline Measures	
Section 1: Organizational and Administrative Practices	
Section 2: Program Components	
Section 3: Staff Development	
Section 4: Instructional Practices	
 PART 3 A Tool to Estimate Costs and Downstream Revenue	 139
Introduction	
The Incremental Revenue Approach	
Excel Model Instructions	
Real-World Examples of Excel Models	
Final Thoughts	
 Appendix: Sample Models with Actual Data	 145

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The Research and Planning Group and Center for Student Success

The Research and Planning (RP) Group is the organization representing California community college research, assessment, and planning professionals. The RP Group provides leadership in research, analysis, and planning issues for California community colleges. Through liaisons with other professional groups, including the California Community College System Office, the Academic Senate, the Community College League of California, and others, the RP Group provides support for institutional and systemwide decision-making and policy development related to research, planning, and assessment. The RP Group also supports faculty and staff development in a variety of areas, including research, assessment, and evaluation.

The Center for Student Success (CSS) is the research and evaluation organization of the RP Group. Founded in 2000, the Center provides research and evaluation services for community college organizations and programs. Among the Center's many contributions to California community colleges are: research to identify the performance measures for the AB 1417 Performance Accountability project; environmental scan data for the California Community Colleges Strategic Plan; numerous research studies on effective practices for recruiting, retaining and graduating community college students in nursing and allied health care professions; and evaluations of community college technology training programs. The Center's Web site (<http://css.rpgroup.org>) serves as an easy-to-use archive for effective practices in the areas of health care training programs, student success, learning assessment, planning, evaluation, and diversity practices.

Executive Summary

Basic Skills as a Foundation for Student Success In California Community Colleges

Prepared by The Center for Student Success (CSS), Research and Planning (RP) Group for California Community Colleges

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Context

In 2004, the California Community College System Office began a comprehensive strategic planning process for the purpose of improving student access and success. On January 17, 2006, the Board of Governors of the California Community Colleges unanimously adopted the final draft of the Strategic Plan.¹ The plan includes five strategic goal areas: college awareness and access; student success and readiness; partnerships for economic and workforce development; system effectiveness; and resource development.

The goal of student success and readiness contains seven areas of focus, one of which is basic skills, as the Strategic Plan describes:

Ensure that basic skills development is a major focus and an adequately funded activity of the Community Colleges.

To successfully participate in college-level courses, many Community College students need pre-collegiate math and/or English skill development. The goal is to identify model basic skills and English as a Second Language programs and their key features and, given availability of funds, to facilitate replication across the Colleges. In addition, best practices in classrooms and labs and descriptions of effective learning environments will be collected and disseminated widely to inform and assist both credit and noncredit programs. However, noncredit basic skills courses are funded at approximately 60 percent of the rate provided to credit basic skills courses, which is a disincentive for colleges to offer those courses. The Colleges need to gather practices with high effectiveness rates, such as innovative program structures, peer support, and counseling, and acquire funding to implement these approaches to reach all students needing basic skills education.

The study presented here was commissioned by the California Community Colleges System Office to identify effective practices in basic skills programs, as outlined above. The Center for Student Success (CSS), which is affiliated with the Research and Planning (RP) Group for California Community Colleges, was selected to conduct the study. There are three major components of the study:

1. An extensive review of the literature related to basic skills practices, as well as an overview of examples of strategies employed by 33 California community colleges and nine out-of-state institutions.
2. A self-assessment tool which will allow colleges to reflect on how their current practices fit with the findings from the literature regarding what are known to be effective practices for basic skills students.
3. A cost/revenue model for developmental education programs which provides a way to explore the incremental revenues that can be derived over time from such programs.

¹ More information about the Statewide Strategic Plan is available at <http://strategicplan.cccco.edu/>.

Literature Review and Overview of Institutional Examples

The approach to conducting the study combined the intense work of a group of associates of the Center for Student Success with iterative reviews of each of the three work products by a panel of faculty with extensive expertise in basic skills. In addition, drafts of each work product were reviewed by Dr. Carole Bogue-

Feinour, Vice Chancellor of Academic Affairs, California Community Colleges System Office, and Dr. John Nixon, Vice President of Instruction, Mt. San Antonio College.

For purposes of this study, the following working definition of basic skills was established:

Basic skills are those 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.²

In order to establish criteria for “effective” practices, this document adopted a variation of Hunter Boylan’s definition of best practice, modified as follows:

“Effective practices” refer to organizational, administrative, instructional, or support activities engaged in by highly successful programs, as validated by research and literature sources relating to developmental education.

Over 250 references, spanning more than 30 years, were reviewed, making this the most comprehensive review of literature in the area of basic skills conducted in California community colleges to date. Study after study by a multitude of researchers confirms a consistent set of elements that commonly characterize effective developmental education programs. These elements can be organized under the broad categories of organizational and administrative practices, program components, staff development, and instructional practices. A total of 26 effective practices emerged under these four major categories and they are listed below.



A. Organizational and Administrative Practices

Institutional choices concerning program structure, organization, and management have been related to the overall effectiveness of developmental education programs. The following effective practices have been identified in this area:

- A.1 Developmental education is a clearly stated institutional priority.
- A.2 A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program.
- A.3 The developmental education program is centralized or highly coordinated.
- A.4 Institutional policies facilitate student completion of necessary developmental coursework as early as possible in the educational sequence.
- A.5 A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.
- A.6 Faculty who are both knowledgeable and enthusiastic about developmental education are recruited and hired to teach in the program.
- A.7 Institutions manage faculty and student expectations regarding developmental education.

² The inclusion of English as a Second Language in this definition recognizes that all ESL is not, by definition, subsumed under basic skills. To the extent that a student is unable to succeed in college-level coursework due to inability to speak, read, write or comprehend English, ESL skills may be considered as foundation skills in accordance with the definition.



B. Program Components

According to the literature, a number of specific programmatic components are characteristic of highly effective developmental education programs. These include:

- B.1 Orientation, assessment, and placement are mandatory for all new students.
- B.2 Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.
- B.3 Counseling support provided is substantial, accessible, and integrated into academic courses/programs.
- B.4 Financial aid is disseminated to support developmental students.



C. Staff Development

According to the literature, the importance of comprehensive training and development opportunities for faculty and staff who work with developmental students cannot be overestimated. Programs with a strong professional development component have been shown to yield better student retention rates and better student performance in developmental courses than those without such an emphasis. Specific training is one of the leading variables contributing to the success of a variety of components of developmental education, including tutoring, advising, and instruction. Effective practices include:

- C.1 Administrators support and encourage faculty development in basic skills, and the improvement of teaching and learning is connected to the institutional mission.
- C.2 The faculty play a primary role in planning/implementation of staff development activities in support of basic skills programs.
- C.3 Staff development programs are structured and appropriately supported to sustain them as ongoing efforts.
- C.4 Staff development opportunities are flexible, varied, and responsive to developmental needs of individual faculty, diverse student populations, and coordinated programs/services.
- C.5 Faculty development is clearly connected to intrinsic and extrinsic faculty reward structures.



D. Instructional Practices

Effective instructional practices are the key to achieving desired student outcomes for developmental programs. Research has linked the following instructional practices with success for developmental learners:

- D.1 Sound principles of learning theory are applied in the design and delivery of courses in the developmental program.
- D.2 Curricula and practices that have proven to be effective within specific disciplines are employed.
- D.3 The developmental education program addresses holistic development of all aspects of the student.
- D.4 Culturally Responsive Teaching theory and practices are applied to all aspects of the developmental instructional programs and services.

- D.5 A high degree of structure is provided in developmental education courses.
- D.6 Developmental education faculty employ a variety of instructional methods to accommodate student diversity.
- D.7 Programs align entry/exit skills among levels and link course content to college-level performance requirements.
- D.8 Developmental education faculty routinely share instructional strategies.
- D.9 Faculty and advisors closely monitor student performance.
- D.10 Programs provide comprehensive academic support mechanisms, including the use of trained tutors.

Self-Assessment Tool

The examples from the 33 California community colleges and nine out-of-state institutions that were reviewed reinforce the effective practices identified in the literature. The majority of these institution employs a combination of several such practices. However, except for course instruction, the common denominator across all developmental programs employing a combination of these effective practices is the limited number of students served in any one year. In order to effectively serve the large student population needing developmental education, California community colleges will be challenged to expand these programs.

The purpose of the self-assessment tool is to allow colleges to determine how their current practices fit with and reflect the findings from the literature.

The self-assessment tool is directly linked to the findings from the literature review. It is organized around the four major areas and the 26 effective practices listed above. In addition, the self-assessment tool contains a variety of suggested strategies for accomplishing each effective practice, as well as a series of prompts which assist institutions in evaluating their current relationship to each effective practice. A culminating Planning Matrix for each section allows an institution to develop a plan for changes, enhancements, or modifications.

The purpose of the self-assessment tool is to allow colleges to determine how their current practices fit with and reflect the findings from the literature regarding what are known to be effective practices for basic skills students. The reflection encourages institutions to examine the scope and efficacy of current practices. Based upon this internal review, an institution may determine which augmentations, changes, or new initiatives might be beneficial and plan for how those augmentations, changes, or new initiatives can occur. In addition, the self-assessment can serve as a baseline measure, allowing an institution to identify its practices and priorities as of a particular point in time.

Where to Put the New Basic Skills Funds: A Tool To Estimate Costs and Downstream Revenue

As will be referenced in numerous places in this document, research has fairly consistently demonstrated that the historical “one instructor, one classroom, limited suite of support services” model to developmental education is not particularly effective. However, it is still the prevalent model offered to the vast majority of our

California community college students. Many of the effective practices identified in the Literature Review can be found interspersed throughout California campuses, most commonly with relatively small programs addressing limited numbers of students. There are many reasons for the fairly restricted occurrence and scope of these programs, including:

- limited awareness about the literature and its findings;
- a need for paradigm shifts in the thinking of campus administrators, faculty, and staff;
- a concomitant need for organizational change;
- a lack of historically detailed institutional research to provide hard data evaluating program results; and
- a desire to pilot programs to determine effectiveness, often without sufficient institutional commitment to evaluate potential efficacy.

Arguably, the most critical factor historically limiting them has been their perceived cost to the campuses. Against a backdrop of limited resources that exists in the California community college system in an absolute sense, as well as relative to other state systems, the cost of deviating from the traditional model of developmental education is a significant concern. Thus, as the literature and local data lead us to investigate the need for colleges to “do things differently,” we are drawn to a discussion of the cost-effectiveness of these alternate approaches for individual colleges. Aside from the numerous moral/ethical responses to this concern and the greater economic payback to society cited elsewhere in this document, there are real, college-level economic reasons that alternate approaches to basic skills at the very least go a long way towards paying for themselves, and in many cases may very well result in a net economic benefit to the college.

This section examines this incremental revenue approach and includes a description of a simple modeling tool that we have developed using Microsoft Excel to look at the potential additional revenue these alternate programs may generate. The goal of this section is to provide a different way of thinking about the cost of these alternate developmental education programs. This approach is not without its parameters and caveats, but as colleges look to potentially expand small programs in order to more systemically improve developmental student outcomes, we feel that this different perspective is very important.

Prologue

This guide to effective practices in basic skills in California community colleges is the work of an experienced team of faculty and administrators from across the state, each having specific expertise and many years of practical experience in the field of basic skills assessment and practice. In preparing this document, more than 250 literature references were reviewed, and effective practices and programs presently in operation (both within and outside of California) were considered. Based on a synthesis of effective practices that emerged from this review, the project team also prepared a self-assessment tool and a cost/revenue framework that colleges may use to evaluate existing programs and services as well as plan for new and revised basic skills initiatives. A set of brief summaries of case-studies gathered by the Center for Student Success are also included as examples of effective practices that have been developed at colleges around the state based largely on the same research and literature cited in this guide.

The effective practices identified throughout this study are based on a careful review and comparison of research conducted over the last 30 years by experts and practitioners across the United States. In order to be included in this study, theory and practice had to meet the test of producing evidence of improvements in student learning and success in college (or similar educational environments). The authors of this guide worked diligently to avoid including their own independent assessments or personal observations in the review of the research literature; their focus was to determine the practices for which there was clear independent evidence of effectiveness. Nevertheless, the collaboration of the team members in the review of the literature and practices has led to a number of general conclusions and observations that deserve attention and should receive specific emphasis. This Prologue addresses those observations and conclusions.

 **The research on basic skills education clearly establishes a series of effective practices that have been demonstrated to produce improvements in student outcomes.**

While this point may seem self-evident as the reader goes through this guide, it is important to draw attention to this fact at the start. There is clear evidence that certain practices work and that we have the tools to more effectively meet our mission for all students. This guide does not assume that all colleges will adopt all of these practices. Each college will need to rigorously review its programs and services and develop and implement action plans designed to improve outcomes within the college's instructional, support services, and organizational structures. In fact, the active engagement of a broadly representative group of faculty and staff in the self-assessment, planning, and implementation process is probably the most crucial first step toward improving practices to be advocated in this guide.

 **The improvement of basic skills education must be an institutional priority and is an institutional responsibility.**


Too frequently, basic skills development is viewed as the responsibility of a limited cohort of the college's faculty and staff. English (reading and composition), Mathematics, and English as a Second Language Departments, as well as educational support services and counseling, are commonly seen as "the people who work with those students." Sometimes this isolation extends to sub-units within each of those programs, segmenting the faculty who teach basic skills courses from those who teach "transfer-level" curriculum.

While specialization is a crucial factor in the success of certain developmental education activities, basic skills students belong to the entire institution. They are registered in all types of classes and the development of their academic skills is the responsibility of all faculty and staff. Many faculty and administrators share a broad-based concern about the erosion of academic standards based upon the inability of large segments of our student populations to adequately perform basic

reading, writing, and mathematical reasoning skills. It is the responsibility of all faculty, teaching in all disciplines at all levels, to communicate appropriate expectations and utilize effective methods for communicating information, support students' growth in reading and writing skills, develop critical thinking processes, and evaluate student work to advance the overall state of our students' basic skills.

In spite of efforts to improve the preparation of students in the K-12 system, the number of students entering community colleges in need of developmental education is increasing. While we cannot assume responsibility for the failures of other segments of our educational system, we must take responsibility for what happens to students within our academic environment. The identity of our students does not change, and many of their needs remain the same as they move from their basic skills classes into discipline-based courses.

Therefore, the approach to improving developmental outcomes must be directly connected to modifications across the curriculum. The effective practices identified in this study are not restricted to basic skills courses. Fundamentally, they are models for good practice in every aspect of the community college environment and any effort to implement these practices should involve every component of the college's programs and services. While much of this study focuses on the responsibilities of the colleges, their faculty, and their staff, the practices advocated also address the responsibilities of students. They address developing the students' resources for functioning effectively in college-level studies and rely on a symbiotic relationship between student and institutional objectives and commitment. Just as the literature on effective practices advocates a holistic approach to meeting the needs of students, so too must the approach to improving developmental education be holistic. The transformation of developmental education must be an institutional activity in which every administrator, faculty member, support staff, and student participates and takes responsibility for improving outcomes.



“Those students”
belong to the
entire institution.

➤ **Our charge in basic skills education is developmental, not remedial.**

There is significant controversy surrounding the name attached to these programs and services. The term “basic skills” is frequently labeled as demeaning, contributing to a negative self-concept for students assigned to these programs. Some colleges have adopted alternate designations such as “foundational skills.” These distinctions may help students to better adjust to the results of placement tests and course requirements, although there is not much research on this topic. Practically speaking, students usually know that they are in some form of developmental education.

However, we believe the distinction between the terms “remedial” and “developmental” is significant. Remedial is defined as “intended to correct, to supply a remedy.” This presumes that something is “wrong,” and that the student must be held responsible for correcting it. Developmental education does not judge the student or even the educational experiences of the student prior to entering the new educational environment. Instead, it views the current educational process as transformational, taking the student from one state and developing his or her abilities into those of a more capable, self-confident, and resourceful learner. Similarly, the assessment of basic skills programs and services needs to be viewed as developmental. We are not correcting something that is wrong. We are trying to transform the way we provide programs and services to make them more effective in producing the desired outcomes for students.

➤ **Improvements in basic skills outcomes are likely to be incremental. Appropriate, realistic expectations for change should be established and communicated.**

Too frequently, efforts to identify effective practices in basic skills resemble the search for a “magic pill”: a practice or set of practices that will completely change the outcomes of developmental education and instantly produce radically improved outcomes using standard measures of success

Studies commonly report increases of five to 15 percent as an indication of success.

such as pass rates or subsequent course success rates. However, the research on successful practice suggests that, in general, changes in success rates are usually incremental. Studies commonly report increases of five to 15 percent as an indication of success. They advocate building on these incremental changes over a long period of time to improve the long-range success measures of program completion, degree attainment, and transfer. Therefore, it is not reasonable to expect that any combination of the effective practices described in this study will create large changes in success rates in a short period of time.

However, the literature does show that sustained efforts over extended periods of time do transform institutions, and student success rates do improve over time. It is crucial that colleges as well as governing bodies (e.g., trustees, outside evaluators, and legislators) see this work on improving basic skills outcomes as developmental, requiring a long-term investment of coordinated efforts and resources. The number of students coming to community colleges with developmental needs is large (and growing), and incremental improvements can produce significantly larger cohorts of individuals capable of succeeding in subsequent educational, vocational, and personal endeavors.

➤ Continued research and documentation of effective practices in basic skills education is essential to facilitating improvements in practice.

The literature review in this guide is based on more than 250 sources, spanning a broad array of studies conducted over the past 30 years. These studies include primary research, practitioner reports of effective practices, writings reflecting expert opinion, and the findings from prior large-scale meta-analyses of the literature. As noted above, the effective practices cited in this study had to meet the test of evidence of effectiveness based on sound research practice. However, this effort to distinguish the practices that were validated by sound research design and valid data from the practices that were not adequately supported by evidence has led the project team to develop some observations and caveats about the overall state of research and literature in this area.

A number of studies relied solely on participant surveys or anecdotal reports from practitioners, students, or other stakeholders with little or no outcomes-based measures of effectiveness. Other studies used data-based evidence but did not contain the rigorous scientific controls or strict methodologies that would allow for reasonable validation of the findings. The project team found that the use of a true experimental research design is rare, largely because of the limitations that researchers and practitioners face conducting research in educational environments. The large body of “good” research reviewed for this project used broadly different methodologies and a wide variety of outcome measures to validate practices. There is not a common set of clearly defined metrics against which all practices can be judged. Therefore, developing a set of effective practices based on sound research and data-based evidence requires a careful analysis and assessment of diverse research methodologies and a variety of outcome measures.

In addition, the literature that attempts to synthesize the varied research and summarize the effective practices for developmental education is becoming dated. While new studies are continually being produced in a variety of specific areas, more comprehensive efforts to draw summative conclusions about effective practice in the field are not keeping pace with the emerging methodologies, evolving research, and changes in the basic skills populations (the most notable exception being Hunter Boylan’s “What Works in Developmental Education,” published in 2002).

Equally important, much of the most significant research happens at the institutional level and either goes unreported or is not readily duplicated to validate its application beyond an individual institution. The examples of good practice drawn from California community colleges by the Center for Student Success are cited in this guide to highlight the use of a number of the effective practices identified in this guide to produce verifiable evidence of improved student performance. We must continue to

develop the collaboration within the community college system to share our examples of good practice and benefit from individual institutional research.

We must also continue to refine the way we evaluate successful outcomes. Good faith efforts to evaluate effectiveness of various interventions too often fall prey to errors in research design or faulty assumptions regarding the validity of outcome measures. For example, a lack of improvement in student grade point average or course success may be the result of variability in faculty grading rather than a lack of effect for a particular programmatic innovation. In every analysis, it is important to examine the entire system and any underlying variables that might affect our assessment results. The promotion of effective practices beyond individual colleges requires good research to support the adoption of these practices across institutions.

We must continue to develop the collaboration within the community college system to share our examples of good practice and benefit from individual institutional research.

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 **The principles contained in this research have the potential to transform institutional efforts not only in developmental education but also in transfer and occupational programs.**

While this study focuses primarily upon research and practice in developmental education, the results of this analysis can be applied to a wider range of institutional efforts. The effective practices described in this guide include a broad range of approaches to classroom pedagogy that result in greater student success. As noted above, the students in our basic skills programs become the students in our transfer and occupational programs, and frequently those students are concurrently enrolled in developmental and college-level course work. Equally important, the students who enter our colleges with better preparation for college-level studies are no less in need of the effective instructional methodologies than the students entering with weaker skills.

Common sense suggests that some—perhaps many—of the effective practices identified in this study would result in measurable improvements in the outcomes for students at all levels of community college instruction. There should not be artificial barriers between the practices used in developmental, occupational, and transfer education. Since research demonstrates that coordinated and focused faculty and staff development is an essential component in any endeavor to improve instruction, staff development activities related to these effective practices should be extended to include all faculty and staff.

.....

 **There is a renewed, vital, and significantly increased commitment to meeting the needs of basic skills students and this commitment provides new opportunities to fulfill our mission.**

The initiatives that this guide represents speak to the power and opportunity we have to transform our programs and services to better serve all of our students. For the first time, the 2006-07 state budget included categorical local funding to address the needs of basic skills students. The Basic Skills Initiative is funded by the California Community Colleges Chancellor's Office using specially designated funding in the state budget. This guide came about as a collaboration among the Chancellor's Office, the Academic Senate for California Community Colleges, and the RP Group, with guidance from representatives of Chief Instructional and Student Services Officers as well as many dedicated faculty and administrators who are deeply committed to our mission.

Similar collaborations among constituencies on individual college campuses are fostering renewed energy and commitment to meeting the challenges of improving student learning in basic skills and extending the use of effective practices to the full range of college programs and services. The level of interest that this study and the related statewide and local initiatives have already generated clearly suggests that California community colleges are beginning a new chapter in their efforts to provide a major pathway to higher education for all students.

PART 1

Review of Literature & Effective Practices

Introduction & Definitions

Serving more than 2.5 million students in the 2005-06 academic year, the


California Community Colleges constitute the largest system of higher education in the world. As open access institutions, these colleges address the needs of a diverse population of learners with vastly varying levels of academic preparation. Assisting the underprepared student in attaining the basic skills needed to succeed in college-level work has been a core function of community colleges throughout their history. More than one in every three students in the California Community Colleges enroll in a basic skills class: nearly one-half million in English and mathematics, with additional enrollments in basic skills reading and English as a Second Language courses (RP Group/Center for Student Success, 2005). Nationwide, 40 percent of all college students end up taking at least one remedial course (Adelman, 2004) at an estimated cost to taxpayers of \$1 billion (Breneman and Haarlow, 1998).

This document reviews relevant literature related to effective practices in the delivery of basic skills education for learners in the postsecondary setting. A variety of terms appear in the literature to describe this field of practice. These include “remedial education,” “developmental education,” “foundation courses,” and “adult literacy,” in addition to the term “basic skills.” The National Literacy Act of 1991 defined **literacy** as “an individual’s ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society to achieve one’s goals, and develop one’s knowledge and potential” (National Literacy Act of 1991, Sec. 3). While basic skills courses are narrowly defined in section 55002(b) of Title V, researchers describing best practices from the field are typically looking at a somewhat broader scope of pre-collegiate programs and courses. Boylan (2002, 2003) describes developmental education as “courses or services provided for the purpose of helping underprepared college students attain their academic goals. The term underprepared students refers to any students who need to develop their cognitive or affective abilities in order to succeed in a postsecondary educational experience.”

Another source defines a remedial or developmental element as “a class or activity intended to meet the needs of students who initially do not have the skills, experience, or orientation necessary to perform at a level that the institution or instructor recognizes as ‘regular’ or college-level instruction” (Grubb and Webb, 1999, 74).

For purposes of this paper, we establish a related working definition of basic skills as follows:

Basic skills are those 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.³



More than one in every three students in the California Community Colleges enroll in a basic skills class.

Courses designed to develop these skills are generally classified as pre-collegiate, basic skills, or both, and may be either credit or non-credit. In order to establish criteria for “effective” practices, this document will adopt a variation of Boylan’s definition of best practice (2002, 2003), modified as follows:

“Effective practices” refer to organizational, administrative, instructional, or support activities engaged in by highly successful programs, as validated by research and literature sources relating to developmental education.

Various outcome measures have been cited in the literature as evidence of effectiveness. These measurements are both quantitative and qualitative. Quantitative measurements typically include course success, course retention, program persistence, progression through sequential levels of developmental courses, progression to college-level courses, and course/program GPA. Qualitative measurements include student perceptions and satisfaction with various elements of the program. Referring to a student enrolled in basic skills classes, the Academic Senate for California Community Colleges asserts that the ultimate measure of success in basic skills “is truly reflected only in his/her ability to successfully complete college-level coursework” (Academic Senate for California Community Colleges, 2004, 14).

This document may be considered to be an integrative review of literature in the field of developmental education as it relates to the community college setting. An integrative review “pulls together the existing work on an educational topic and works to understand trends in that body of scholarship. In such a review, the author(s) describe how the issue is conceptualized within the literature, how research methods and theories have shaped the outcomes of scholarship, and what the strengths and weaknesses of the literature are” (American Educational Research Association, 2006).

In this document, the authors have attempted to include documentation of the success of those practices listed as “effective practices.” The selection of “effective practices” also derives from characterizations of noted experts in the field. Additionally, we also respect the descriptive character of some of the practices detailed in this report coming directly from long-standing practitioners. We recognize the limitations of these reports in terms of the lack of quantifiable results in some cases, but include descriptive information concerning some acknowledged generalizations of effective practice, particularly in the areas of instructional methods and staff development. This is done in the interest of providing comprehensive coverage of this broad field of study. Where outcome data were reported, we have so indicated. The lack of specific numeric data and results of statistical tests may be a function of sources failing to cite such, or may result from the difficulty of aggregating measures from different studies using different measures across many individual institutions over time.

³ The inclusion of English as a Second Language in this definition recognizes that all ESL is not, by definition, subsumed under basic skills. To the extent that a student is unable to succeed in college-level coursework due to inability to speak, read, write or comprehend English, ESL skills may be considered as foundation skills in accordance with the definition.

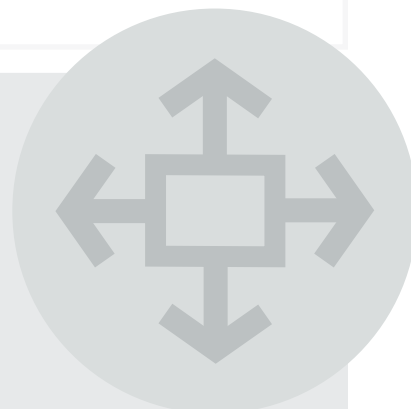
Effective Practices for Basic Skills: Findings from Literature

An extensive body of literature spanning more than 30 years of research has documented a surprisingly unified view of effective practices in developmental education. Study after study by a multitude of researchers confirms a consistent set of elements that commonly characterize effective developmental education programs. These elements can be organized under the broad categories of organizational and administrative practices, program components, staff development, and instructional practices.

A. Organizational and Administrative Practices

Institutional choices concerning program structure, organization, and management have been related to the overall effectiveness of developmental education programs. The following effective practices have been identified in this area:

- A.1 Developmental education is a clearly stated institutional priority.
- A.2 A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program. Clearly specified goals and objectives are established for developmental courses and programs.
- A.3 The developmental education program is centralized or highly coordinated.
- A.4 Institutional policies facilitate student completion of necessary developmental coursework as early as possible in the educational sequence.
- A.5 A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.
- A.6 Faculty who are both knowledgeable and enthusiastic about developmental education are recruited and hired to teach in the program.
- A.7 Institutions manage faculty and student expectations regarding developmental education.



A.1 EFFECTIVE PRACTICE Developmental education is a clearly stated institutional priority.

RESEARCH FINDINGS Various studies have cited institution-wide commitment to developmental education as a characteristic of exemplary programs. Roueche and Roueche (1999) conclude that positive student outcomes in developmental programs are more likely to occur when institutional leaders establish high standards for success, expect everyone involved to work toward achieving program goals, and create appropriate supporting frameworks for program success. Based on analysis of a large volume of literature and research studies, Boylan and Saxon (2002) further noted that commitment at the institutional level is repeatedly cited as a key factor in successful remediation. In a study of 28 exemplary programs, all but one rated developmental education as “completely” or “extensively” important when assessing institutional priorities (Boylan, 2002). A study of developmental education in Texas colleges and universities

also found that programs with the highest student retention rates were located in institutions that considered developmental education to be a priority (Boylan and Saxon, 1998).

An institutional focus and acceptance of remediation as a mainstream activity of the college are communicated via public declaration of administrative support as well as through appropriate allocation of resources. This notion was echoed in a recent Board of Governors study (2002) that characterized “best practice” institutions as those in which the success of underprepared students is a stated, institution-wide priority accompanied by adequately staffed and funded developmental education programs. Other evidence of institutional commitment includes publicizing program results, featuring developmental courses and services prominently in college publications, and including developmental educators in discussions and decisions with respect to broader campus planning and implementation of academic programs.

Programs with the highest student retention rates were located in institutions that considered developmental education to be a priority.

The level of institutional support accorded to developmental education programs is also expressed in the sufficiency of course offerings and support services to meet student needs. Colleges that prioritize developmental education constantly monitor student placement and enrollment data and make every effort to maintain sufficient access for students entering at all levels of the program. Since basic skills learners already have the disadvantage of extended timeframes required to complete their educational goals, best-practice colleges strive to avoid further delays caused by insufficient course offerings or lack of other necessary services. To the extent that providing access involves extra efforts in recruiting and maintaining sufficient staff, purchasing additional materials, or enhancing administrative structures, these colleges accept this responsibility for achieving the desired level of functionality.

The degree to which developmental programs and services are comprehensive and institutionalized are two key factors in evaluating the extent of institutional commitment and prioritization. A strong correlation between the comprehensiveness of developmental education programs within an institution and positive impacts on student learning has been repeatedly documented. Isolated basic skills courses have been shown to be the least likely to produce long-term gains in student achievement, while those programs that incorporate an increasing sophistication of learner support and cross-disciplinary learning “systems” are the most effective (Kiemig, 1983). In order to create and maintain such systems, institutions must place a high value on basic skills programs and see them as fundamental to the institutional mission. McCabe (2000, 49) makes an explicit recommendation that community colleges give remedial education higher priority and greater support, stating,

Institutional commitment to underprepared students is of greatest importance. Successful remediation occurs in direct proportion to priority given to the program by the college. Most important is a caring staff who believe in the students and in the importance of their work.

Presidential leadership, in word and deed, is critical to success.

The increased scope and complexity of embedding systematic, comprehensive systems for developmental education requires increased institutional investment, but doing so has been associated with increased short- and long-range program outcomes (McCabe and Day, 1998). Roueche and Roueche (1999, 29) also confirm that a systemic approach has the greatest potential for success of developmental students, and that the developmental program should be “one part of an institution-wide commitment to success for all students.” Additional studies and policy recommendations from other states have also emphasized institutional commitment as a key component of successful programs (Neuberger, 1999; Ritze, 2005).



A.2 EFFECTIVE PRACTICE **A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program. Clearly specified goals and objectives are established for developmental courses and programs.**

RESEARCH FINDINGS Subscribing to an overarching, articulated philosophy of developmental education that is shared among all institutional stakeholders is an acknowledged best practice according to a variety of literature sources (Board of Governors, 2002; Boylan, 2002; Roueche and Roueche, 1999; McCabe, 2000). Developing and adopting such a philosophy should be the result of a highly directed, coordinated effort involving multiple stakeholders. Reviewers have commented that the success of community college developmental education programs depends on faculty having a clear understanding of and commitment to the philosophy and objectives of developmental education that are espoused by the institution (Sheldon, 2002). “Best practice” institutions are commended for assigning faculty to developmental courses only after they have been oriented to this shared institutional philosophy and the associated institutional expectations for desired student outcomes (Boylan, 2002).

Successful developmental education efforts feature clearly specified goals and objectives for all courses and programs.

In addition to having a unified mission and philosophy of practice, successful developmental education efforts feature clearly specified goals and objectives for all courses and programs. Roueche (1973) notes that clear-cut goals are essential, both to set student expectations and to influence the development of a cohesive course structure having solid alignment between exit and entry skills across sequential levels. Further, the National Study of Developmental Education (Boylan, Bonham, Claxton and Bliss, 1992) found that developmental programs with written statements of mission, goals, and objectives had higher student pass rates in developmental courses than programs without such statements. Other studies connected mission, goals and objectives with higher pass rates on state-mandated tests and higher year-to-year retention rates for developmental students (Boylan and Saxon, 1998). The National Association of Developmental Education recognizes the importance of this element in effective programs in that it requires all programs seeking certification to describe both their philosophy and all related goals and objectives.



A.3 EFFECTIVE PRACTICE **The developmental education program is centralized or highly coordinated.**

RESEARCH FINDINGS A considerable body of research has examined the role of program organization as it relates to effectiveness of developmental education efforts. The consensus view among researchers originally established that a centralized model of program and service delivery was superior to a more distributed “mainstreamed” model (Roueche and Baker, 1987; Boylan, Bonham, Claxton, and Bliss, 1992; Boylan, 2002).

A centralized organizational structure places the delivery of all remedial courses, programs, and services in a separate department, supervised by a dedicated department administrator with its own identified line of budgetary and other resource support. Advantages cited for this model include more accessible, integrated support services and greater likelihood that faculty teaching remedial courses will be highly motivated and have specific expertise with developmental learners (Perin, 2002). Various studies have connected the centralized model with higher student retention and course success, as well as with higher first-term and cumulative grade point average (GPA). (Roueche and Baker, 1987; Boylan, Bliss, and Bonham, 1997; McCabe and Day, 1998). Evidence further suggests that the centralized model is more effective for students with the lowest skill

levels; when surveyed for their opinions concerning the most desirable structure, “many faculty thought centralization was most beneficial to the students” (Perin, 2005).

Despite the finding that centralized programs lead to more positive student outcomes, only about 38 percent of community colleges nationally operate from a centralized department (Shults, 2000). The alternative model, referred to as mainstreaming, distributes the teaching of remedial courses among various academic departments, such that single departments may teach both college-level and remedial courses. Advantages cited for this model include greater cost efficiency, better alignments between remedial and college-level courses, greater communication among faculty across levels (for a consistent transmission of college-level expectations), and reduced stigma attached to students who are not isolated in a separate department (Perin, 2005; Academic Senate, 2003). In 1991, the Academic Senate for California Community Colleges recommended against the centralization of basic skills into a stand-alone discipline, concerned that “the establishment of a separate basic skills discipline would lead to a two-tiered system, where basic skills students were regarded as inferior” (Academic Senate, 2000, 7).

Only about 38 percent of community colleges nationally operate from a centralized basic skills department.

Recent studies have concluded that the demonstrated superiority of student outcomes associated with the centralized model may not be due solely to the structural organization, but may instead arise from the higher level of communication and collaboration associated with centralization (Boylan, 2002). This interpretation suggests that decentralized programs might achieve the same benefits with respect to student achievement as centralized programs, provided that they are highly coordinated. Boylan argues that decentralized programs still demand “coordination of developmental programs and services by an administrator with primary responsibility for campus-wide developmental education” (Boylan, 2002, 11). Additional traits of a highly coordinated decentralized effort include: regular meetings of all those involved in the delivery of developmental courses and services; articulation of common goals and objectives for all developmental courses and services; and the integration of developmental courses and academic support services.

A number of other factors have been identified related to the choice of developmental program organization. Some colleges may prefer to distribute developmental students across departments so that the whole college shares responsibility for their progress. Other factors involved in the choice of program structure include placement policy, size of the institution and its academic departments, and institutional politics. Due to the many issues and diversity of institutional conditions concerning each, the research literature fails to arrive at a consensus recommendation for a single “best” structural model for organization of developmental programs across institutions.



A.4 EFFECTIVE PRACTICE **Institutional policies facilitate student completion of necessary developmental coursework as early as possible in the educational sequence.**

RESEARCH FINDINGS Two schools of thought relate to the timing of developmental courses versus other college courses over the term of a student’s educational plan. If existing assessment procedures are presumed to be accurate indicators of a student’s actual level of preparation (and to the extent that basic skills competence is actually required for success in college-level courses), it is logical to infer that students are best served by completing preparatory developmental coursework prior to enrolling in other non-developmental courses. The other view holds that mandatory completion of a comprehensive basic skills pathway prior to enrollment in other courses may be seen as stigmatizing and restrictive to students’ engagement with the overall college experience. It may be that concurrent enrollment in carefully selected academic or vocational courses outside of basic skills areas could help in sustaining student motivation and providing early successes to enhance persistence. Acknowledging that both views

have merit, research overwhelmingly supports the notion that early assessment and completion of developmental coursework improves student achievement.

Research overwhelmingly supports the notion that early assessment and completion of developmental coursework improves student achievement.

Weissman, Bulakowski, and Jumisko (1997) examined the timing of remediation in relationship to overall program effectiveness. In a study of 2,028 college-ready students and 1,254 underprepared students entering in the same semester, researchers reported that completing developmental education courses during the first year of enrollment increased persistence, especially for those students least prepared for college-level courses. They also found that students who took developmental education courses during their first term of enrollment remediated at a much higher rate than students who did not attempt any developmental courses during their first semester. These authors conclude that the study supports a policy of requiring underprepared students to begin their developmental courses upon initial enrollment.

Similar findings have recently been reported in another nationwide study, the Achieving the Dream Initiative. This study found that students who successfully completed a developmental mathematics course in their first term of enrollment were more likely to persist and succeed from that point forward than those in other groups, including those who attempted but did not complete developmental math, and even those who did not require math remediation in the first place (McClenney, personal communication, 2006).

The actual practices of colleges with respect to the simultaneous enrollment of students in developmental and regular college coursework vary. In 1996, about two-thirds of colleges placed some restrictions on the regular academic courses that students could take while enrolled in remedial coursework. At least one study has compared success between college-ready students, underprepared students who did not remediate, underprepared students who completed remediation, and underprepared students concurrently enrolled in college-level courses (Castator and Tollefson, 1996). These authors found that both underprepared students who had remediated and underprepared students concurrently enrolled in developmental and college-level classes earned grades comparable to those of college-ready students, while underprepared students who did neither had lower grades. They conclude that colleges are justified in implementing policies requiring completion of remediation either prior to or concurrent with enrollment in college-level courses.

Some practitioners fear that relegating students to a core of developmental courses that must be completed prior to entering other course offerings may create a “two-tiered” system, singling out and perhaps marginalizing students in these programs. In arguing for concurrent enrollment, Maxwell asserts that college skills programs have historically been hindered by “enduring faculty myths.” One persisting myth is that “underprepared students will learn more if taught in separate classes and removed from the main body of students” (1997c, 324). The fact that students do in fact sometimes succeed when simultaneously enrolled in both developmental and college-level course is offered as an argument that prerequisite remediation is not needed. Grubb (1999) asserts, “the idea that remediation has to precede content learning creates a teaching problem” (184), in that such actions may tend to reduce students’ cognitive development activities to repetitive “skill and drill” exercises, disconnected from meaningful applications in content areas. To the extent that such practices characterize the usual methods employed in developmental courses, the point is well taken. However, if developmental courses are designed to develop enhanced critical thinking and to scaffold learning in ways that contribute to increased self-regulation and self-efficacy, such experiences may instead enhance student preparation for higher-level study.

Boylan (2002) observes that students are rarely exposed to instruction in critical thinking in high school; developmental students’ particular lack of this key ability leads to increased failure for these students. As developmental instruction moves away from simple repetitive practice to a more

fully developed focus on critical thinking and learning strategy development, the acquisition of these foundation skills has great potential for improving subsequent success in a variety of content disciplines. Boylan argues that this shift in approach during the earliest developmental courses may help students reduce the overall time spent in remediation.



A.5 EFFECTIVE PRACTICE **A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.**

RESEARCH FINDINGS The majority of acknowledged studies of best practices in developmental education call for the offering of comprehensive support services for remedial students (Board of Governors, 2002; McCabe and Day, 1998; Neuberger, 1999; Raftery, 2005; Boylan, 2002; Roueche and Roueche, 1999). A review of 51 developmental programs reported that the “programs that showed the greatest gain in scores, GPA improvement, and retention also tended to be comprehensive in scope, mission, and services” (Boylan, 1983, 32).

Support systems have been described as existing at four “levels,” representing increasing potential to produce positive program outcomes (Kiemig, 1983). At the first level, remedial courses exist in isolation, with no additional outside support provided. Second-level programs offer some additional learning assistance, such as generalized tutoring not connected to individual courses. Course-related learning assistance is provided at the third level, in which trained personnel who have specific information about course content, assignments, and expectations engage with students either inside or outside of class. This would include support services such as Supplemental Instruction and course-embedded counseling models. The fourth level is characterized by the presence of comprehensive learning systems (for example, learning community models) in which all participants share the responsibility for providing monitoring, advising, and instructional support. In 1998, Los Medanos College based the reform of their developmental education program on this framework, moving toward third- and fourth-level services. This program was subsequently identified as “very effective” and is listed among several model programs within California community colleges (Academic Senate, 2003).

Roueche and Roueche (1999, 29) have explicitly called for colleges to examine the comprehensiveness of support services available to developmental students, stating that “colleges must increase the support and structure they offer at-risk students who need support and structure more than any other students in higher education.” Services these authors note as being essential include mandatory orientation, assessment, and placement; expanded pre-enrollment activities; establishment of peer and faculty mentors; and more comprehensive financial aid programs.

One approach to integrated, comprehensive support for developmental students is the use of Learning Assistance Centers (LACs). Maxwell’s review of the literature concerning these centers (1997a) concluded that LACs commonly contain the following functions:

1. Academic evaluation and diagnostic testing
2. Instruction in study skills and learning strategies
3. Peer tutoring and/or professional tutoring
4. Supplemental instruction, or course-related, systematic, and highly structured group tutoring
5. Computer-assisted instruction and access to other educational technology

Colleges must increase the support and structure they offer at-risk students who need support and structure more than any other students in higher education.

Only 20 percent of institutions in a national study reported requiring full-time faculty to possess specific training for developmental education before teaching remedial courses.

6. Credit and non-credit developmental courses
7. Faculty services, such as research opportunities, assistance in developing Supplemental Instruction programs, cooperative learning demonstrations, and classroom support materials
8. Publication of LAC programs through newsletters and class and faculty visits
9. College administrators who are informed about LAC programs and services
10. Staff training and development activities
11. Referral to other programs and services on campus
12. Close relations with offices that provide personal, financial, educational, and career counseling and training for peer counselors
13. Integration with advising departments and faculty advisors
14. Program evaluation

Programs such as Extended Opportunity Programs and Services (EOPS) and Disabled Students Programs and Services (DSPS) also model the integration of a variety of student support services with academic instruction. The challenge for colleges often becomes one of scale: how to expand a service model that operates effectively for small groups to one that can be implemented across the institution. A variety of studies have confirmed that developmental students who have the services of a comprehensive learning assistance program available to them have been shown to make larger gains in academic performance than those that do not (Neuberger, 1999, 10).



A.6 EFFECTIVE PRACTICE **Faculty who are both knowledgeable and enthusiastic about developmental education are recruited and hired to teach in the program.**

RESEARCH FINDINGS The pivotal role of faculty in developmental programs underscores the need to ensure that these key personnel are knowledgeable, experienced, and motivated to work with developmental learners. Roueche and Roueche (1999, 26) argue that the success of developmental students is predicated on “faculty attitude and competence,” and they call for a mandate to recruit, develop, and hire the best faculty. These same authors note that instructors who choose to teach remedial classes, as opposed to being assigned to them, were characteristic of “successful” developmental programs. McCabe and Day (1998, 22) also recommend the use of “instructors committed to the students and the field.” O’Banion (cited in Cooper, 1979) goes so far as to recommend that remedial instructors’ discipline should be developmental studies. Perin (2005) recommends hiring instructors with experience and training in developmental education who are sympathetic to the needs of at-risk students, and further notes that this recommendation is more likely to be achieved in a centralized departmental structure than in a mainstreamed model. At the recommendation of its executive board, the New York College Learning Skills Association also advises the hiring of “appropriately credentialed, trained, educated, and experienced faculty and professional staff” (Neuberger, 1999).

Despite these and other numerous references identifying recruitment and hiring of eager, trained faculty as an exemplary practice, only 20 percent of institutions in a national study reported requiring full-time faculty to possess specific training for developmental education before teaching remedial courses (Shults, 2000). Furthermore, there is a noticeable gap in the research-based literature connecting these desired criteria with any documented increase in student achievement or any other student outcomes. In a related statement, however, Boylan (2002) does find a correlation between negative attitude of faculty toward developmental education and poor developmental program outcomes, but the specific effects are not noted.

Assuming that knowledgeable, well-prepared faculty with specific developmental expertise would contribute to successful students, what are the characteristics of such faculty? Attributes of effective developmental educators have been suggested by the Academic Senate (2003, 12) to include the following:

- Demonstrates content knowledge and the ability to deliver the content
- Varies instructional delivery methods
- Maintains organized and structured activities
- Possesses knowledge of learning styles and how to apply this information
- Provides critical thinking activities
- Relates the curriculum to the real world and careers
- Actively engages students
- Maintains high academic standards
- Engages in classroom research
- Engages in professional development activities
- Chooses to teach underprepared students and demonstrates a passion for working with these students
- Enjoys and respects students
- Sees the whole student
- Creates a “classroom community” learning environment
- Motivates students
- Engages in “intrusive” (proactive) student activities
- Encourages students to use all available support services
- Maintains an innovative spirit
- Knows how to and enjoys working with teams

Increasingly, California community colleges rely on an adjunct workforce to deliver the transfer, occupational, and basic skills curriculum.

A similar list of attributes offered by Casazza (1996, 6) also adds consideration of the affective needs of learners, the ability to assess strengths and weaknesses and communicate them to the learner, the ability to assess individual development, and the ability to gradually release responsibility for learning and self-assessment to the learner.

A number of researchers mention the role of adjunct faculty in teaching remedial courses, and it has been noted that in public two-year colleges nationwide, 67 percent of faculty teaching remedial courses are employed part-time (Shults, 2000). In its 1998 survey of practices related to basic skills, the Academic Senate for California Community Colleges found that 56.5 percent of credit basic skills instructors were part-time faculty, with numbers up to 70 percent when non-credit courses were considered (Academic Senate, 2000).

Increasingly, California community colleges rely on an adjunct workforce to deliver the transfer, occupational, and basic skills curriculum. Implicitly, most instructors assume that the reliance on part-time faculty compromises student learning and potentially erodes academic standards; however, little research has been conducted to mark its specific effects. Using the National Center for Educational Statistics data, Jacoby (2006) attempts to evaluate the evidence regarding graduation, learning outcomes, and the use of adjunct faculty. Jacoby concludes that “community college graduation rates decrease as the proportion of part-time faculty employed increases” (1,100). He concludes that when “faculty-student ratios are low, the Integrated Postsecondary Education Data System (IPEDS) graduation rate rises from 21.1 percent to 25 percent ... Likewise, for schools...categorized as having the best (highest) faculty-student ratios, graduation rates rise from 26 percent to 34.6 percent” (1,097).

Further, Jacoby cites other research that questions the relationship between a reliance on part-time faculty and student engagement. Several studies indicate that because part-time faculty may be less

67 percent of faculty teaching remedial courses are employed part-time.



likely to be integrated into the institution, they were also less available to students, affecting student engagement and assimilation into the college culture. Grading patterns were also noted by McArthur (1999), who cites a difference in grading patterns between part-time faculty and full-time faculty, indicating that part-time faculty have a tendency to record higher grades, due in part perhaps to decreased job security and concerns about student evaluation results.

Although this condition has been mentioned as a potential concern for effective practice, research has documented no significant differences in student outcomes between full-time and adjunct professors who teach remedial courses (Boylan, Bonham, Claxton, and Bliss, 1992). Programmatic outcomes, however, have been lower for institutions in which 70 percent or more of the developmental courses were taught by adjunct faculty (Boylan and Saxon, 1998). Since full-time versus adjunct status has not been shown to have significant impact on student achievement, it may be that the time commitment for coordination, planning and program development suffers when using large contingents of adjunct faculty. Boylan (2002) also notes that “best practice” institutions identified in his 2000 study had only about 50 percent of remedial courses taught by adjunct faculty, and further recommends that any adjunct hired be “fully integrated into the program and considered as valuable assets to the program” (56).



A.7 EFFECTIVE PRACTICE Institutions manage faculty and student expectations regarding developmental education

RESEARCH FINDINGS Related to the establishment of clearly-specified goals and objectives for developmental education programs, the communication of explicit expectations for both students and program providers enhances the effectiveness of developmental programs. Increasingly, students are coming to college with uninformed expectations that are not initially aligned with those of the faculty and the institutions. This mismatch results both from the increasing number of first-generation college students who lack role models to convey accurate expectations and from students’ experiences with the prevailing expectations in their elementary and secondary schools.

Research indicates that today’s high school students report studying only about six hours per week on average, that they are more frequently bored in or miss classes compared to a decade ago, and that many students matriculate into college “with an entitlement mentality” (Kuh et al., 2006a, 32). Kuh further notes, “One more reason expectations are more important is because so many traditional-age students appear to start college already ‘disengaged’ from the learning process, having acquired a cumulative deficit in terms of attitudes, study habits, and academic skills” (33). Early attention to correcting misinformation about what students can expect in college and what mechanisms exist to support them in the college environment should be formalized to ensure that students are able to set manageable, realistic goals. Studies recommend that institutional values and expectations be clarified “early and often” to matriculating students, and that such reinforcement be the shared responsibility among faculty, staff, and administrators of developmental programs.

In a benchmarking study of best-practice institutions, Boylan found that these institutions go to substantial lengths to make sure that that faculty, staff, and students each know what is expected of them to support the developmental education effort (Boylan, 2002). Upon hiring, institutional and programmatic expectations are communicated to faculty and staff via an orientation to the program, and they are provided with continuing in-service training to ensure that they have the resources needed and are meeting the expectations.

Boylan further recommends that each program should agree upon a definition of “successful developmental education” in the context of the institution, and this definition should then be widely disseminated. The activities of the developmental education program should then be publicized via newsletters, program reports or other means so that expectations are continually managed across the institution. Boylan further emphasizes the need to particularly include adjunct faculty as part of this process, and recommends that course and program expectations be included in any written manuals or other documents provided for adjunct faculty orientation.

Studies recommend that institutional values and expectations be clarified “early and often” to matriculating students.

B. Program Components

According to the literature, a number of specific programmatic components are characteristic of highly effective developmental education programs. These include:

- B.1 Orientation, assessment, and placement are mandatory for all new students.
- B.2 Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.
- B.3 Counseling support provided is substantial, accessible, and integrated with academic courses/ programs.
- B.4 Financial aid is disseminated to support developmental students. Mechanisms exist to ensure that developmental students are aware of such opportunities and are provided with assistance to apply for and acquire financial aid.



B.1 EFFECTIVE PRACTICE Orientation, assessment, and placement are mandatory for all new students.⁴

RESEARCH FINDINGS There is widespread agreement in the literature regarding the benefits of mandatory orientation, assessment, and placement for developmental students. Roueche and Roueche (1999) call for required student orientation, pointing out that universities are far better at this than community colleges; these authors further suggest that new students be matched with experienced student mentors. The use of orientation sessions to encourage entering students to address their recommended English and mathematics remediation at an early stage has also been recommended (Academic Senate, 2004). Research has demonstrated that those who participate in new student orientations are more likely to be retained in community college than those who do not receive orientation (Boylan and Saxon, 2002).

Despite the noted benefits of mandatory orientation, system data for the California Community Colleges indicates that most students may not be receiving it. Of the 2.4 million credit students

⁴ Locally defined exceptions may arise related to definitions of “all new students.” The literature fails to specify the context (e.g., first-time college student, new to a particular institution, students enrolling for enrichment only, etc.).

enrolled in 2002-03, 1.5 million were directed to orientation, while those remaining were exempted. Of those required to attend under matriculation guidelines, only 1 million actually did so. Of the 393,322 non-credit students enrolled in that year, less than 7 percent received directed orientation (Academic Senate, 2004).

Mandatory assessment and placement are repeatedly cited as best-practice recommendations for exemplary programs (Roueche and Roueche, 1999; Maxwell, 1997b; Casazza and Silverman, 1996; McCabe, 2000; Neuberger, 1999; Board of Governors, 2002; Boylan, 2002). A recent Board of Governors study compared the best practices identified in several of the most cited literature

references, and found that mandatory assessment and placement was one of only two program features on which all four sources agreed (Board of Governors, 2002).

Recommendations calling for these services have been supported by evidence of improved student outcomes.

Roueche and Roueche report that “information from colleges that make assessment and placement mandatory, together with data reporting the performance of all students taking remedial work, suggests that remediation correlates with improved performance over the rest of the college experience”

(1999, 47). They further note that colleges in states that require assessment and placement showed improved student retention and success levels when mandatory policies were enforced. In a study of

nearly 6,000 developmental students from 160 two-year and four-year institutions, students who were subject to mandatory assessment were significantly more likely to pass developmental English or mathematics courses than those in programs where assessment was voluntary (Boylan, Bliss and Bonham, 1997).

Students who were subject to mandatory assessment were significantly more likely to pass developmental English or mathematics courses.

Although often touted as a “best practice” criterion, mandatory course placement after initial assessment has been somewhat more controversial with respect to outcome data. While mandatory placement was found to be positively correlated to student retention in four-year colleges, a negative correlation was shown for two-year colleges (Boylan, Bliss, and Bonham, 1997). However, developmental course success rates were positively correlated with mandatory placement in both two- and four-year schools. These authors interpret this finding as positive support for both mandatory assessment and placement. They argue that, under voluntary placement, the weakest students may not take the remedial courses at all, and so are not counted. The stronger students filling remedial classes are more likely to be retained in this case, compared to a situation of mandatory placement in which the service population would include both high- and low-ability/motivation students, and therefore more course drops. Essentially, voluntary placement tends to prevent a large number of the weakest students from being included in the program’s service population. Since fewer than 10 percent of those needing remediation survive college without it (Cross, 1976), mandatory placement’s loss to attrition is the lesser of the evils. Even though large numbers of students may be lost to attrition under mandatory placement, more would be expected to survive than if they had not received any remediation at all.

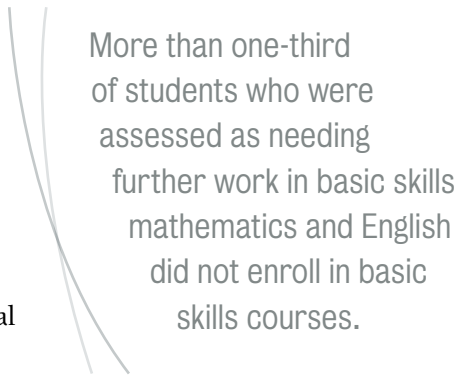
To combat the negative impact on student retention that may accompany mandatory course placement, McCabe (2000) reminds colleges of their responsibility to encourage students and to counteract lowering of student motivation that may come with placement into remedial coursework. He notes that many students express that they don’t understand why they are required to enroll in remedial coursework, and adds that colleges need to help them see the value of such courses and programs.

In California, mandatory placement has also been the focus of legal challenges, such as the 1988 suit filed by the Mexican American Legal Defense and Educational Fund (MALDEF). The issue centered around the use of a single means of assessment for determining course placement, particularly with regard to lack of validation for students of specific groups that might be disadvantaged by the instrument used. These issues have largely been resolved with the implementation of required

multiple measures for assessment, requirements for local validation of cut scores, and more. Despite continuing confusion at community colleges regarding this issue, researchers and policy advocates (for example, Shulock and Moore, 2007) believe that there is currently no legal impediment to implementation of a mandatory placement policy at either the state or local level, so long as existing regulatory safeguards (such as the use of multiple measures) are in place.

The prevalence of mandatory assessment and placement practices is variably reported. In 1994, survey results indicated that 76 percent of the nation's developmental programs required incoming students to undergo assessment (Boylan, Bonham, and Bliss, 1994). A survey of 1,100 community colleges across the country reported 58 percent of institutions required mandatory assessment of all students, and that 75 percent of those requiring mandatory assessment further required mandatory placement (Shults, 2000). In California, it has been reported that more than one-third of students who were assessed as needing further work in basic skills mathematics and English did not enroll in basic skills courses (Academic Senate, 2004). If, as Cross suggests, only 10 percent of these students are likely to succeed in college without such remediation, a serious loss of individual and institutional potential exists in our state.

An additional factor regarding assessment and placement has recently been highlighted in the literature. Perin (2006) found that both colleges and states soften their own placement mandates by permitting subjective assessment procedures as an override. In one college, students could avoid required placement by signing a waiver; in another, lack of sufficient developmental sections resulted in the college allowing low-scoring students to take selected credit classes instead. These policy adaptations respond to threats of low enrollment and facilitate access to college curriculum for students eager to earn a degree. In addition, the very significant issues of validating assessment instruments and of documenting successful outcomes of prescribed remedial coursework make the landscape of mandatory assessment less black and white. It seems that colleges recognize the “value” of universal assessment, but actual practice often reflects the challenges of faithful implementation.



More than one-third of students who were assessed as needing further work in basic skills mathematics and English did not enroll in basic skills courses.

The higher education system in Ohio affords an interesting opportunity to examine the effects of enforced placement and remediation. The colleges and universities in this state have considerable autonomy in establishing their individual assessment and placement policies, resulting in variation among the various schools' placement standards. A recent study examined students of similar academic preparation (based on high school courses/grades, ACT scores, etc.) who received remediation at a college with a stringent standard for placement compared to those who attended colleges in the system where the placement standard did not prescribe remediation. After controlling for a range of other variables in the student populations, this study estimated that over a five-year period, math and English remediation reduced the likelihood of stopping out by 10 percent and increased the likelihood of baccalaureate degree completion by nine percent (Long, 2005). Although the study population did not include students at the lowest levels who were placed into developmental levels at both colleges, these findings do demonstrate the value of developmental course-taking to improve outcomes for students who are assessed at slightly below college level.

The Academic Senate for California Community Colleges has engaged in a comprehensive analysis of assessment and placement in California community colleges. Supporting the importance of both assessment and placement for basic skills, the Academic Senate notes,

Basic skills and ESL courses are the foundations for the other work a student will do at a community college. When a student does not enroll in these courses, a student jeopardizes his/her ability to successfully pursue college-level work. While the CSUs and UCs both impose deadlines for addressing remediation in language and mathematics skills, the California Community Colleges do not (Academic Senate, 2004, 13).

The Academic Senate report goes on to emphasize the importance of multiple measures for assessment; careful alignment of placement instruments with course content and objectives; and ongoing research and program evaluation in order to document whether remedies prescribed via recommended course placements are translating into successful student outcomes. Attention is also drawn to the lack of complete information related to assessment, placement, and measures of their effectiveness with respect to the system's 400,000 noncredit students (Academic Senate, 2004).



B.2 EFFECTIVE PRACTICE Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.

RESEARCH FINDINGS Various studies provide evidence that comprehensive and systematic program evaluation is a hallmark of successful developmental education programs. In a nationwide benchmarking study of best practices in developmental education, all the programs that were eventually identified as exemplary reportedly engaged in ongoing and systemic evaluation activities (Boylan, 2000). Additionally, program evaluation has been shown to be positively correlated to both student retention and success in developmental courses at both two-year and four-year schools (Boylan, Bliss, and Bonham, 1997). Among the various programmatic elements examined for their relationships to desired student outcomes, systematic program evaluation was among those demonstrating the strongest relationship to student success.

Program evaluation has been shown to be positively correlated to both student retention and success.

The recommendation for a strong evaluation component in successful developmental programs is called for by a number of authors (McCabe and Day, 1998; Neuberger, 1999; Perin, 2005; Grubb, 2001; Roueche and Roueche, 1999). Boylan (2000) defines a systemic evaluation as one that is done at regular intervals, is part of an overall plan, includes both formative and summative activities, uses a variety of measures, and is shared with a variety of audiences. McCabe and Day (1998) recommend an evaluation system focused on outcomes as well as on continuous improvement. Roueche and Roueche (1977, 107) concur that “the most successful developmental education programs are generally those that use a number of indices on which to evaluate their efforts.”

Although most colleges engage in at least some evaluation activities related to their developmental programs, these are often fragmented and episodic. A systematic evaluation of developmental education activities should collect data at three levels:

- **Primary level:** descriptive data such as number of courses, hours of tutoring, and students served
- **Secondary level:** short-term outcomes such as course completion, grades in courses, and semester-to-semester retention
- **Tertiary level:** data on long-term outcomes such as grade point averages, long-term retention, and graduation rates

In terms of summative evaluation, Boylan, Bonham, White and George (2000) describe an “industry standard” for criteria to be used in evaluation of developmental education programs. These include:

- completion rates for developmental courses;
- grades in developmental courses;

- grades obtained in post-developmental education curriculum courses in the same subject area;
- retention rates for developmental students;
- grades in courses for which developmental students are tutored;
- student satisfaction with courses and services;
- faculty satisfaction with the skills of students who participate in developmental courses and services; and
- graduation rates for developmental students.

The collection of qualitative data is vital for formative evaluation and continuous program improvement.

The New York College Learning Skills Association (Neuberger, 1999, 10) recommends that developmental programs should be measured by using more than one of the following:

- Course completion rates and grade distributions for developmental courses
- Course completion rates and grade distributions in related/subsequent courses
- Retention and persistence rates
- Graduation rates (at the very least, tracking students for three years for an Associate's degree)
- Rates of developmental students who maintain good academic standing and rates of those who experience probationary status
- Achievement rates as revealed by pre- and post-test gain, course and semester GPA, and cumulative GPA
- Rates of students who meet standards on competency-based assessments
- Rates of student goal attainment rather than graduation rates. Students should be asked to define their goals after their first semester and be asked if those goals were achieved during an exit interview
- Transfer rates (or transfer intentioned, as shown by transcript requests)
- Graduate school, military, and other continuing education
- Employment rates and length of employment, including employment in degree field or related field
- Labor statistics: percent not on welfare, percent above poverty line, etc.

Weissman et al. (1997) also emphasize the need for a well-designed evaluation component for developmental education programs, noting that program evaluation not only answers public concerns for accountability, but also determines if institutional policies and practices are succeeding, and which, if any, need to be changed. These authors strongly advise that evaluation of developmental course effectiveness is not enough and stress the need to examine all policies that the college has established to govern the developmental education program, including placement, the timing of remediation, and enrollment in college-level courses.

Although an emphasis on program outcomes is essential in any comprehensive evaluation of developmental programs, the collection of qualitative data is vital for formative evaluation and continuous program improvement. The National Association of Developmental Education (NADE) has developed *The NADE Self-Evaluation Guides: Models for Assessing Learning Assistance/ Developmental Education Programs* (Clark-Thayer, 1995) for use in formative program evaluation. These excellent guides suggest benchmarks that are aligned with research-based best practices in tutoring, adjunct instructional programs (e.g., Supplemental Instruction), developmental coursework programs, and other factors influencing the teaching/learning process. In addition, student learning outcomes at the course and program level can be developed and assessed, and the data collected used to inform program improvement.

Boylan (2002) strongly recommends the development of a comprehensive assessment plan for the developmental education program, created by program stakeholders and including a well-developed plan for dissemination of program results.



B.3 EFFECTIVE PRACTICE **Counseling support provided is substantial, accessible, and integrated with academic courses/programs.**

RESEARCH FINDINGS According to the literature, a strong counseling component is characteristic of successful remedial programs (McCabe 2000; Maxwell, 1997b; McCusker, 1997; Kozeracki, 2002; Boylan, 2000). Key to this success is a program that integrates counseling with teaching and has a highly structured, easily accessible, and proactive format. Maxwell (1997a, 12) notes,

In programs for underprepared disadvantaged students, it is essential that counseling be an integral part of the academic program and that counselors provide both formal and informal assistance to students and staff. Counseling arrangements which consist of counselors who sit in their offices and wait for clients to schedule do not work with at-risk students who need more intrusive intervention.

She goes on to suggest that these students need comprehensive services including advising and mentoring as well as academic skill development and help to “undo the lingering effects of negative attitudes, emotions, and fears they experienced in their earlier schooling” (Maxwell 1997b, 2). In this respect, counselors move from the role of crisis intervention to that of a more preventative, proactive function.

Counselors move from the role of crisis intervention to that of a more preventative, proactive function.

The counseling function is also tied to intensive student monitoring and advising in effective developmental programs. Pre-registration counseling, including that provided via mandatory orientation, helps students understand the need to pursue suggested remediation routes and the value in doing so. In a study of credential-seeking students at 58 national community colleges who entered as freshman in 2002, 86 percent of students who were placed in and completed developmental courses in their first term persisted to the second term, while only 57 percent of those who were placed but elected not to enroll in developmental courses persisted to the second term (Lumina Foundation, 2006). In situations lacking mandatory course placement after initial assessment, counseling and advising play an even greater role in referring students to appropriate courses to promote their persistence and success.

The offering of counseling and advising services in connection with colleges’ developmental education program has been correlated to improved first-term GPA and success in developmental courses (Boylan, Bliss and Bonham, 1997). In general, students in programs with a counseling/ advising component are more likely to have higher pass rates than students from programs where a specific counseling/advising connection is lacking. This relationship is also highlighted by McCabe and Day (1998) who suggest that broad support services should include assessment, placement, orientation, tutoring, advising, counseling, peer support, early alert programs, study skills training, and support groups.

Counseling in and of itself is not sufficient to significantly impact student success. According to research (Boylan and Saxon, 2002), effective counseling for remedial students must be:

- integrated into the overall structure of the remedial program;
- based on the goals and objectives of the program;
- undertaken early in the semester;
- based on sound principles of student development theory; and
- carried out by counselors specifically trained to work with developmental students.

Maxwell (1997b) further suggests that true integration of counselors into the developmental program means including them in program planning, regular meetings with instructional staff,

and program evaluation activities. In support of the instructional function, counselors who work closely with faculty know and can communicate the content-area goals and expectations to students and help them navigate the developmental sequence appropriately. They also serve to support faculty by helping them understand and deal with student motivational and behavioral problems.

Students in programs with a counseling/advising component are more likely to have higher pass rates.



B.4 EFFECTIVE PRACTICE **Financial aid is disseminated to support developmental students. Mechanisms exist to ensure that developmental students are aware of such opportunities and are provided with assistance to apply for and acquire financial aid.**

RESEARCH FINDINGS Community colleges have long been labeled “democratizing” institutions because they provide high quality education at an affordable price; however, even an affordable system is beyond the reach of some students if the financial aid process is too complicated, or if students are unaware of its benefits. According to Haycock (2006), “college-going among students from low-income families grew from one-in-five to over one-half,” and yet even with increases in financial aid packages, the aid fails to meet the costs (4). Pell and other grants are most often the first option for financial aid, while federal loan programs provide additional options. According to Haycock, “in 1975, the maximum Pell Grant covered approximately 84 percent of the cost of attending college or university. Today, it covers only 36 percent, effectively blocking access for thousands of aspiring college students from low-income families” (4).

In an Opening Doors study of financial aid approaches, Choitz and Widom (2003) assert that student grants had a greater impact on student retention and certificate completion if grants were more generous and offered incentives for participation and enrollment in more units. Further, they assert that some academic barriers may inhibit college success. For instance, many remedial courses are not eligible to demonstrate “satisfactory progress” requirements for the Pell Grant (17). Finally, Choitz and Widom indicate that students may be intimidated by the financial aid process or unaware of the process entirely. “At many colleges, financial aid staff have little time to meet with students individually, and written materials on how to apply for grants and loans tend not to be user friendly” (12).

In a study by MDRC and the Louisiana Opening Doors program, researchers Brock and Richburg-Hays (2006) document the impact of financial incentives on performance among low-income students. They found that students at Delgado Community College and Louisiana Technical College-West Jefferson participating in the study were more likely to demonstrate an explicit commitment to their academic goals and performance. Participating students were offered \$1,000 performance-based scholarships for two semesters. The program also provided students with enhanced counseling services. The study found that participating students enrolled in approximately 8.9 percent more units than the control group students. Additionally, students passed “nearly half a course more” than their counterparts in the study. Among those attempting a course, almost 65 percent passed the course with a C or better. They also tended to withdraw less frequently (23).

Another recent study further confirms the positive outcomes associated with provision of financial aid packaged as scholarship incentives. (Glenn, 2006). In a large, randomized study of students at a Canadian university, 650 first-year students were divided into three experimental groups. One group was offered a suite of tutoring and support services, a second group was offered large merit scholarships in their sophomore year if they met certain grade-point averages, and a third group was offered both tutoring and scholarship incentives. At the end of the freshman year, persistence

A significant increase in GPA was also noted for those offered both tutoring and scholarship incentives.

and GPA of these groups was compared with those of a matched control group that was offered neither the services nor the financial incentives. Results showed that those offered tutoring alone were no more likely to persist than the control group, but those offered scholarship incentives were statistically more likely to return for their sophomore year, and those offered both tutoring and aid did better still. A significant increase in GPA was also noted for those offered both tutoring and scholarship incentives. Moreover, these students used the proffered academic support services much more than the control group or the group that was not offered financial assistance. The authors of the study also noted that the positive outcomes were concentrated almost exclusively among female students.

While more investigation is necessary to determine the long-term effects, these studies indicate a strong correlation between financial aid and student performance. In addition to providing more direct aid in the form of scholarships or grants to students, colleges can also contribute to student success by enhancing student opportunities to acquire available aid. Effective practices would include creating strong mechanisms for communication with developmental students, increasing student awareness of financial aid opportunities, and providing accessible assistance with aid application processes.

C.

Staff Development

According to the literature, the importance of comprehensive training and development opportunities for faculty and staff who work with developmental students cannot be overestimated. Programs with a strong professional development component have been shown to yield better student retention rates and better student performance in developmental courses than those without such an emphasis (Boylan, Bonham, Claxton, and Bliss, 1992). Furthermore, analysis has demonstrated that specific training is one of the leading variables contributing to the success of a variety of components of developmental education, including tutoring, advising, and instruction. Boylan goes so far as to state that, “no matter what component of developmental education was being studied, an emphasis on training and professional development improved its outcomes” (Boylan, 2002, 46). Effective practices include:

- C.1 Administrators support and encourage faculty development in basic skills, and the improvement of teaching and learning is connected to the institutional mission.
- C.2 The faculty play a primary role in needs assessment, planning, and implementation of staff development programs and activities in support of basic skills programs.
- C.3 Staff development programs are structured and appropriately supported to sustain them as ongoing efforts related to institutional goals for the improvement of teaching and learning.
- C.4 Staff development opportunities are flexible, varied, and responsive to developmental needs of individual faculty, diverse student populations, and coordinated programs/services.
- C.5 Faculty development is clearly connected to intrinsic and extrinsic faculty reward structures.





C.1 EFFECTIVE PRACTICE Administrators support and encourage faculty development in basic skills, and the improvement of teaching and learning is connected to the institutional mission.

RESEARCH FINDINGS The research and analytical literature consistently points to the relationship of high-level administrative support to the success of faculty development programs and services (Brawer, 1990; Eble, 1985; Murray, 2002; Sydow, 2000). Administrative leadership must establish institutional goals related to the improvement of teaching, create a climate that fosters and encourages faculty development, and, most importantly, communicate to faculty the “belief that good teaching is valued by administrators” (Murray, 1999, 48). Faculty development is most effective when it is directly tied to the institutional mission, and the executive administration usually provides the leadership for the development and implementation of institutional mission processes (Murray, 2002; Richardson and Wolverton, 1994; Tierney, Ahern, and Kidwell, 1996). While the literature also strongly advocates for the primacy of faculty involvement in the development and implementation of staff development initiatives, several national surveys (Murray, 2002; Grant and Keim, 2002) report of successful programs, and numerous analytical commentaries (Eble, 1985; Nwagwu, 1998; Vineyard, 1994) clearly substantiate the important role that chief academic and chief executive officers play in successful developmental programs.

Faculty development is most effective when it is directly tied to the institutional mission.

Ironically, while the support and leadership of chief academic officers is vitally important, the literature also points to the limitations of that leadership. Murray (1999) and others report that in the absence of a designated staff development coordinator, the chief academic officer is identified as having responsibility for leading staff development in the vast majority of community colleges, a task that clearly requires more time and focus than can be expected of a chief officer. Given the importance of faculty ownership of staff development, a careful balance needs to be established in which the administrative leadership sets the context for faculty development and then “remove[s] the stones from the path of faculty” (Travis, 1995, 85).



C.2 EFFECTIVE PRACTICE The faculty play a primary role in needs assessment, planning, and implementation of staff development programs and activities in support of basic skills programs.

RESEARCH FINDINGS In a paper on faculty development, the Academic Senate for California Community Colleges states that “faculty development activities should be designed by faculty who know their needs, who can develop forums geared toward teaching excellence, and who can design sustained and collective efforts” (Academic Senate, 2000, 10). There is ample support for this assertion found over the 40-year history of contemporary literature on staff development theory and practice. Starting with the seminal works of Gaff (1975) and Berquist and Philips (1975), continuing in the faculty-based theories related to the scholarship of teaching and learning, classroom research, and reflective teaching practices (Hutchings and Shulman, 1999; Cross and Angelo, 1993; Brookfield, 2002), and culminating with recent research (Murray, 1999 and 2002; Grubb, 1999; Grant and Keim, 2002), it is absolutely clear that the key to successful faculty development programs is the direct involvement of faculty in every aspect of the planning, implementation, and evaluation of developmental activities.

Beyond the obvious truism that professional staff members are more likely to benefit from developmental activities that they feel they have created to meet their own needs, there are also several issues related to the professional identity of community college faculty that emerge from the literature as significant factors. First, there is an inherent conflict between the role of the faculty member as a professor in higher education and the needs of the highly diverse, heterogeneous student populations found in community colleges, particularly in basic skills courses and programs. The literature on community college faculty consistently points to the adjustment that community college faculty must make when they move from graduate programs in research-oriented universities into teaching institutions that serve students with weak academic skills and preparation (Grubb, 1999; Murray, 2002; Brawer, 1990; Boylan, 2002). While community college hiring practices attempt to emphasize teaching theory and practice, Grubb (1999) and others note that the amount of time and procedural limitations imposed on the hiring practices mean that hiring committees “do not gather valid information about teaching” even from teaching demonstrations which are usually “so short and artificial as to be laughable” (289). Murray (2002) summarizes a common theme found throughout the literature: “If instructional improvement efforts are to succeed, faculty must first accept the unique mission of the community college” (90).

“If instructional improvement efforts are to succeed, faculty must first accept the unique mission of the community college.”

Even faculty who seek preparation for teaching in graduate programs directly related to basic skills instruction (such as university-level reading programs) find that their training programs are frequently not specific to adult learners and, once hired by a community college, find that their status in the institution is sometimes viewed by some colleagues as lower than traditional discipline-based faculty (Kozeracki, 2005; Grubb, 1999).

A second significant factor might be described as the gap between the faculty’s own educational experiences and their students’ educational experiences and needs. There is overwhelming evidence that graduate programs in most colleges and universities provide little or no training in the art of teaching to graduate students (Grubb, 1999; Brawer, 1990; Eble, 1985; Gaff, 1975;

Svinicki, 1990). This produces two common results. First, many faculty, without the benefit of specific staff development, teach as they were taught: placing an emphasis on lecture, large group discussion, and what might be described as relatively passive student learning styles. “A second defining aspect of instructor’s lives,” notes Grubb (283), “is isolation.” The literature on instructor isolation is rich with explanations related to the independence assured by academic freedom (Grubb, 1999), the teacher as expert/scholar, and even suggestions that faculty fear that their pedagogical weaknesses, either real or imagined, will be “found out” (Collay, Dunlap, Enloe, and Gagon, 1998). However, Grubb concludes that “the isolation of instructors is created by the lack of any activities that draw them together *around teaching*” (285).

Finally, the works of Boyer (1990) and Hutchings, Shulman, and Huber (Hutchings, 2000; Hutchings and Shulman, 1999; Huber and Sherwyn, 2002) address the real and perceived links between the organization of knowledge within a discipline and the methodologies commonly used to teach that discipline. This literature suggests that certain disciplinary structures are inherently connected to certain pedagogical frameworks. However, the literature also points to ways faculty can re-conceptualize these frameworks to promote better learning among students who lack the academic background or bring other perspectives to the college learning environment (i.e., diverse learning styles and multicultural life experiences of community college students).

Effective faculty development not only imparts specific skills that can improve the faculty member’s effectiveness in promoting student learning, it also seeks to change the basic identity of the community college instructor, striking a balance between the higher education scholar and the adult education practitioner. There is much discussion in the literature regarding which faculty

participate in staff development. A common theme is summarized by Angelo (1994): “those faculty who do participate [in staff development programs] are often the ones who seem to need them least” (3). However, there is virtually no reliable research to support this assertion except surveys that ask faculty and administrators to share their *perceptions* of who benefits (Blackburn, Boberg, O’Connel and Pellino, 1980; Maxwell and Kazlauskas, 1992). In fact, some recent research suggests that faculty participation in relevant staff development activities is significantly increasing among all types of faculty (Grant and Keim, 2002).



C.3 EFFECTIVE PRACTICE **Staff development programs are structured and appropriately supported to sustain them as ongoing efforts related to institutional goals for the improvement of teaching and learning.**

RESEARCH FINDINGS The most common criticism of staff development activities found in the literature is that these programs “appear to be a plethora of activities: it is difficult to detect the desired outcomes or identify how activities are linked to institutional goals” (Beno, 2003, 4). Richardson and Wolverson (1994) found that “professional development opportunities in higher performing institutions were linked in systematic ways to institutional priorities” and that in lower-performing institutions, “faculty had no sense of priorities” (46). Clearly articulated goals linked to systematic sets of programs and activities are a key factor in successful staff development (Travis, 1995; Murray, 1999; Beno, 2003; Grubb, 1999).

Workshops are the most common form of staff development offered by community colleges, yet they are also the most consistently rejected as ineffective by research, expert analysis, and even the faculty and administrators who participate in these activities (Murray, 1999 and 2002; Maxwell and Kazlauskas, 1992; Brawer, 1990; Grubb, 1999). There is little evidence that “one-shot” workshops produce any change in pedagogical practice; and, even when workshops *do* affect faculty performance, the improvements are short-lived unless they are reinforced and developed with ongoing staff development activities (Clark, Corcoran, and Lewis, 1986; Lenze, 1996; Grubb, 1999). “A well formed faculty development plan recognizes that many diverse activities are needed over a long period of time,” concludes Murray (1999). “It also recognizes that these activities must be united around a common institutional mission—the systematic, demonstrable, and highly regarded improvement of teaching” (48).

There is little evidence that “one-shot” workshops produce any change in pedagogical practice.

Leadership is another central feature of a formalized staff development structure. As noted above, strong support from the chief academic and executive officers is important. However, the key to effective program development and implementation is the designation of specific staff with direct responsibility for staff development and adequate professional time to work on development activities. In national studies, Murray (1999) found that the chief instructional officer was identified as the leader of staff development in 68 percent of community colleges and Grant and Keim (2002) found similar designations in 48 percent of two-year colleges. The amount of time that the designated leaders of staff development reported spending on development activities was generally very limited. In Murray’s study, 83.3 percent of the institutions had staff development leaders who spent *less than* 50 percent of their time on development activities. Only 2.3 percent of the institutions had a faculty leader assigned full-time. While Grant and Keim argue that commitment to staff development is improving, Murray and others “found a glaring lack of commitment on the part of leadership for faculty development” (58).

One of the most reliable and accessible methods for achieving well-planned and well-executed staff development is the establishment of a teaching and learning center, responsible for overseeing a broad range of staff development activities, providing individual faculty training and consultations, and promoting staff development at the institutional, program, and department levels (Cross, 2001; Singer, 2002; Travis, 1995). Cross notes that these centers are effective in “(1) maintaining

high visibility, high credibility, campus-wide conversations focused on forward-looking learning and teaching and (2) providing quality support for all teachers, from beginning instructors to experienced, highly regarded faculty members” (59).

“Lack of funding has constantly plagued professional development programs.”

While teaching and learning centers have become a central feature of instructional development activities at many four-year institutions, their growth at two-year colleges has been significantly more limited. As indicated above, the lack of a clearly articulated organizational structure for staff development within the institution is one reason these centers have not flourished at community colleges.

However, the limitations and instability of funding is another major factor inhibiting the implementation of these centers and almost all other forms of staff development. The source of funding for staff development appears to have changed very little over the last 30 years. Centra (1975) and Grant and Keim (2002) report that over 70 percent of the funding for staff development came from general funds through state apportionments, with the balance from foundations and governmental grants. But the Academic Senate for California Community Colleges notes that the “lack of funding has constantly plagued professional development programs” and there has been no increase in state staff development funding “since early in the 1990s” (Academic Senate, 2000, 4). In addition, the Academic Senate finds that local senates frequently are not consulted on the allocation or expenditure of those funds. The lack of faculty control and limited institutional resources are significant in light of the findings of Eble and McKeachie’s highly respected study of faculty development in which they concluded, “a firm conclusion from this study is that faculty development programs need to be *shaped by the individual college or university* and be invested with a *sense of faculty ownership*” (1985, 210, emphasis added).



C.4 EFFECTIVE PRACTICE **Staff development opportunities are flexible, varied, and responsive to developmental needs of individual faculty, diverse student populations, and coordinated programs/services.**


RESEARCH FINDINGS The literature and research on faculty development contains a broad spectrum of theoretical frameworks and specific programmatic activities that can support the improvement of teaching and learning. These range from individualized peer mentoring to structured reflective teaching practices to broad-based efforts to promote the scholarship of teaching and learning across large groups of faculty. While there is extensive literature on the specific processes and benefits for each type of development activity, the literature generally does not specify or provide adequate research for assessing the applicability of each framework to basic skills staff development. However, when viewed in the context of the other effective practices articulated in this review, each framework has the potential for effective development related to basic skills. This concise literature review can only briefly cite a few of the more prominent methodologies.

Peer mentoring is one of the oldest and most varied forms of faculty development. In its simplest form, it involves two faculty working together to improve their teaching. Some peer mentoring involves a “master teacher” format in which an experienced faculty member is teamed with a less experienced instructor. In the “master teacher” format, the development focus is primarily on the

less experienced instructor and is usually related to evaluation or tenure review procedures. Other forms of peer mentoring involve more of an equal exchange between faculty, sometimes combined with a particular developmental methodology such as “microteaching” in which faculty incorporate a specific teaching strategy into their classroom work and use video and peer feedback to assess the strategy’s success (Levinson-Rose and Menges, 1981).

Instructional consultation involves the use of an outside expert to work with individual instructors or groups of faculty on specific pedagogies. While the literature suggests that use of outside consultants for single-session workshops has a limited impact, if any (Brawer, 1990; Levinson-Rose and Menges, 1981), the use of experts within a specific discipline or across disciplines with clearly defined shared interests can be an effective resource (Maxwell and Kazlauskas, 1992; Murray, 2002). This type of discipline-based consultation supports the faculty’s identity as a teacher/scholar and promotes pedagogical solutions that address the structure of the discipline adapted to the learning styles and personal experiences of diverse community college student populations.

Reflective teaching is a practice-oriented approach in which faculty engage in self-reflection on specific instructional issues, articulate their personal theories on the issue, and engage with peers in developing alternate approaches to those issues. Reflective teaching can be a highly structured process using facilitators and rigorous protocols or it can be informally implemented at the department or program level (Chung, 2005; Weimer, 1990; Hirshfield, 1984). Faculty inquiry groups or “teaching communities” are another form of reflective teaching that provide faculty in basic skills with a focused process for investigation (see www.carnegiefoundation.org for information on SPECC project). Brookfield (2002) describes the reflective process as a “set of lenses” the instructor uses to understand his or her teaching. These include the *autobiographical lens* of the faculty member’s experiences as a student, the *learner’s eyes* using students’ perceptions of the faculty member’s teaching, the *colleagues’ experience* in which faculty reframe and broaden their *theory and practice through consultation with peers*, and the theoretical framework in which individual faculty members compare their personal theories and practices with literature on research and theory.



Staff development programs can assist faculty in developing enhanced skills in other areas that impact the quality of instruction.

The Scholarship of Teaching and Learning and **Classroom Assessment Techniques** are two distinct but strongly related movements in higher education faculty development. The Scholarship of Teaching and Learning (SoTL) began with the work of Ernest Boyer (1990) as an effort to reframe the organizational culture of four-year institutions to recognize faculty accomplishments in teaching and learning theory and practice as having the same status and professional validity as accomplishments in the more traditional discipline-based research and theory. As refined by Shulman, Huber, and Hutchings (Hutchings, 2000; Hutchings and Shulman, 1999; Huber and Sherwyn, 2002), SoTL has become an effective model for promoting individual faculty members’ efforts in using their classroom as a laboratory for self-improvement as well as receiving recognition for their accomplishments by contributing to the literature on effective teaching and learning practices (Paulson and Feldman, 2006).

The work of Patricia Cross and Thomas Angelo (Angelo, 1991 and 1994; Cross, 1993 and 1998) provides faculty with specific techniques for conducting, evaluating, and responding to research in the classroom. The Classroom Assessment Techniques (CAT) developed by Cross and Angelo have been widely used in both two- and four-year institutions (Cross and Steadman, 1996; Belcher and Glycer-Culver, 1998). Teaching portfolios are another technique used in conjunction with classroom-based research in which faculty develop documentation of their work which can be used for evaluation, promotion, or other professional development (Travis, 1995). While SoTL and CAT can be used by all community college faculty, these methodologies provide a particularly useful context for addressing basic skills issues within non-basic skills, discipline-based classrooms, since individual faculty can use these techniques with limited support from staff development specialists.

In addition to training in effective instructional pedagogy, staff development programs can assist faculty in developing enhanced skills in other areas that impact the quality of instruction. Boylan (2002) advises that “quality of instruction” refers not only to effective delivery methods but also to classroom organization, management, and environment. Faculty who may have excellent presentation skills or be very effective in engendering student engagement might still benefit from opportunities to learn effective classroom management techniques or ways to improve their organizational abilities to ensure that students receive the highest quality of overall instruction.

Other forms of staff development include Great Teachers Seminars (GTS) and Academic Alliances. GTS involve an extended set of highly structured, process-oriented workshops held over several days. The agenda for the workshops is developed as part of the process to address the specific needs of the participants (Travis, 1995; Gottshall, 1993). Academic Alliances are usually structured like GTS but involve participants from different levels of education (K-12, community colleges, and four-year

institutions) in a specific discipline (or closely related disciplines) within a geographic region. Grants for instructional improvement also play a major role in faculty development, although the results of these activities are not well documented in the literature except for individual journal articles on specific grant activities. Frequently, grant sponsored curriculum development has had a significant impact on the pedagogy used to implement that curriculum (Schmidt, Houang, and Cohen, 2002; Cohen and Hill, 2002). Funding for travel to professional conferences is another very common form of staff development that occurs at some level in most community colleges (Grant & Keim, 2002).

Support from colleagues is an intrinsic reward that is an important aspect of professional development.

Changes in faculty pedagogy that come as a result of projects to revise and refocus curriculum and support services are a form of staff development that receive little attention in the higher education research literature. However, several studies of K-12 initiatives demonstrate that the collegial interchanges and clear focus on student outcomes related to curriculum reform efforts promote faculty understanding of how students learn content and result in positive changes in pedagogy (Schmidt, Houang, and Cogan, 2002). This type of staff development may be more pervasive in community colleges than the literature suggests. Recent efforts on the part of major external funding organizations (e.g., basic skills initiatives funded and supported by the Carnegie, Hewlett, and MDRC Foundations) and locally funded initiatives (e.g., Chaffey College’s Basic Skills Transformation Project) actively involve faculty in the curricular reforms that focus on more effective teaching and support services.



C.5


EFFECTIVE PRACTICE Faculty development is clearly connected to intrinsic and extrinsic faculty reward structures.

RESEARCH FINDINGS As noted above, the most effective staff development evolves from faculty members’ direct participation in setting the goals, developing the activities, and using the results of those activities to improve instruction. Bland and Schmitz note that “whether faculty activities are considered productive or not depends on whether they relate to the faculty member’s personal and professional goals and to the institution’s mission” (1990, 45). Therefore, it is not surprising that the research suggests that the most important rewards faculty experience from staff development are intrinsic as opposed to extrinsic rewards.

As early as the 1970s, Gaff, Centra, and Berquist and Philips were contending that “faculty development activities...enable faculty members to find intrinsic satisfaction in their

teaching” (Centra, 1978, 15). The Grant and Keim 2002 study found that “intrinsic incentives of professionalism and commitment are incentives for most faculty,” although they did point to certain extrinsic factors such as salary advancement and release time as important for broad-based participation. Murray and others (Nwagwu, 1998; Harnish and Creamer, 1986; Ferren, 1996) assert that “recognition needs to include praise and support for experimentation even when it fails...faculty need to know...that taking risks is not damaging to their careers” (Murray, 1999, 95, emphasis added).

Support from colleagues is another intrinsic reward that is an important aspect of professional development. Many of the development activities described above involve colleague-to-colleague interchanges. The perception among faculty that pedagogy is inherently connected to disciplinary structures and values (Hutchings, 2000; Hutchings and Shulman, 1999; Huber and Sherwyn, 2002) means that pedagogical advice and praise for instructional innovation from colleagues in the same discipline carries particular value (Maxwell and Kazlauskas, 1992). Braxton (2006) and Brothorn and Wambach (2004) describe the characteristics of a “culture of teaching” in which colleagues across disciplines broaden their sense of scholarship to include teaching and learning and thus develop an alternate “community of scholars” (Kozeracki 2005, 45).



The connection between faculty development and student learning is much more elusive.

A Note on Evaluating Faculty Development Initiatives

Evaluating faculty development programs and activities is a vexing problem for researchers, administrators, and faculty involved in development activities. “There is abundant information concerning the structure and organization of professional development,” concludes Sydow in his analysis of the long-term fiscal and human resources investment necessary for effective staff development, “but no data to measure program effectiveness” (383). Actually, there are significant data on the perceptions that participants have about various types of staff development activities. It is common practice to conduct surveys that assess the number of participants, their satisfaction with the activity, and their perceptions of the relevance of the development activity (Murray, 2002; Grant and Keim, 2002). However, the connection between faculty development and student learning is much more elusive.

Using research terms, the problem is the “dependent variable,” or what is used as the measure of success. Maxwell and Kazlauskas (1992) define three measures:

1. The assessment of the activity itself (re: participation and satisfaction)
2. Changes in teaching behavior
3. Improvements in student learning

Beno (2002) adds organizational development and the return on investment as additional factors. However, measuring changes in teaching behavior poses significant challenges in the culture of community colleges. Classroom observations are generally restricted to faculty evaluation procedures and generally must adhere to contractual and other policy restrictions, unless the observations are part of the staff development activity itself (Grubb, 1999). The connection of a specific staff development activity to a data-based assessment of improvements in student learning is even more difficult to accomplish. In a report on faculty development in higher education, the California Postsecondary Education Commission (1998) concluded that “even if it is impossible to prove certain faculty activities result in particular student learning, the development of clear purposes or objectives...can help ensure that individual and institutional resources are directed toward the highest priority needs and are effective in meeting those needs” (22).

D.

Instructional Practices

Effective instructional practices are the key to achieving desired student outcomes for developmental programs.

Research has linked the following instructional practices with success for developmental learners:

- D.1 Sound principles of learning theory are applied in the design and delivery of courses in the developmental program.
- D.2 Curricula and practices that have proven to be effective within specific disciplines are employed.
- D.3 The developmental education program addresses holistic development of all aspects of the student. Attention is paid to the social and emotional development of the students as well as to their cognitive growth.
- D.4 Culturally Responsive Teaching theory and practices are applied to all aspects of the developmental instructional programs and services.
- D.5 A high degree of structure is provided in developmental education courses.
- D.6 Developmental education faculty employ a variety of instructional methods to accommodate student diversity.
- D.7 Programs align entry/exit skills among levels and link course content to college-level performance requirements.
- D.8 Developmental education faculty routinely share instructional strategies.
- D.9 Faculty and advisors closely monitor student performance.
- D.10 Programs provide comprehensive academic support mechanisms, including the use of trained tutors.



D.1 EFFECTIVE PRACTICE Sound principles of learning theory are applied in the design/delivery of courses in the developmental program.

RESEARCH FINDINGS

Self-Directed Learning

An emphasis on active learning methodologies correlates with unique strategies that are effective for adult learners. Boylan describes (2002, 102),


Whatever they are called, active learning methods are characterized by the fact that they are designed to elicit students' active participation in the learning process. Such involvement is critical for adult students because, as Grubb points out, these students have already been exposed to the typical lecture, discussion, drill and practice approaches used in high school courses and college remediation and they have not worked.

Andragogical perspectives are based on the fundamental beliefs that "(1) the individual learner is the primary focus, (2) the goal of learning is to promote personal growth and realization of the individual's potential, (3) autonomy and self-direction are important components of adult learning, and (4) the individual has the power to persevere against social, political, cultural, and historical

forces” (Merriam quoted in Casazza and Silverman, 1996, 119). In this model, “rather than being the source of all knowledge, the instructor is a guide to students as they create their own knowledge” (Grubb, 1999, 32.)

There are three characteristics of self-regulated learning. First, learners attempt to assert control over their learning, their behavior, and their environment. Second, learners are working toward a goal, which provides a standard by which success can be measured. Third, the individual student must be in control of his or her actions and decisions. Self-directed learning is a particularly appropriate approach for adult learners because these models “argue against the notion of intelligence as a characteristic that varies among students and is unchangeable after a certain point in life” (Pintrich, 1995, 8). Frequent feedback using assessment instruments can help students develop awareness about their own motivation and learning. This kind of self-monitoring can be either covert or overt; however, in order for students to benefit from self-monitoring, “students must be able to discern and interpret subtle changes in their functioning” (Pintrich, 1995, 18).

Motivation is also a key component of self-directed learning. Students may set different types of goals for themselves: mastery goals, performance goals, or both. In any case, adult learners may need initial assistance setting goals that are realistic in order to experience success. “The more students can take responsibility for their own learning, the more likely they are to attribute success to their own efforts” (Trawick and Corno, 1995, 53). “Students will perform better if they know what goals they are seeking and if those goals are personally important to them” (Kleinbeck, Quast, and Schwarz, 1989). The assertion of any goal implies the importance of personal control. McCombs argues that teachers must assume some of the responsibility for helping students to develop meta-cognitive awareness. She argues that once students establish a perception of self-direction, they will more ably use self-management skills and learning strategies (Casazza and Silverman, 1996, 205).



Self-directed learning is a particularly appropriate approach for adult learners.

Problem Solving/Critical Thinking

Students in general *and developmental students in particular* are rarely taught critical thinking skills in high school or in their early college courses. As a result, “a lack of well-developed critical thinking skills is often a causative factor in the failure of developmental students” (Boylan, 95). Boylan cites long-term studies at LaGuardia Community College indicating that critical thinking instruction improves course completion rates, grades, intellectual maturity, and satisfaction. Often remediation involves abstract and repetitive practice, which lacks application or connection to the students’ goals. Grubb asserts that “the idea that remediation has to precede content learning creates a teaching problem” (184).

Many colleges and universities offer specific courses in critical thinking; however, the research generally suggests “that this is not the most effective way to teach critical thinking to developmental students” (Boylan, 96). The ineffectiveness could perhaps be explained by the impracticality of isolating thinking skills. Kurt Fischer’s skill theory attempts to provide a descriptive range of cognitive development, ranging from functional to optimal, in between which is the developmental range. Students demonstrate varying levels of skills depending on the circumstances or environment. “Under conditions of low support, students function less skillfully and function at their functional level, which is adequate for their everyday [needs]” (King and VanHecke, 2006, 13).

In order to improve developmental levels of skill and help the student achieve optimal levels of ability, the students must be consistently challenged and supported. According to King and VanHecke, “skill theory suggests that students use cognitive frameworks to solve problems and that, concomitantly, problems inspire new learning” (16). So unless students are challenged to think

critically, even while they develop fundamental skills, they cannot begin to create the necessary cognitive framework to address their collegiate studies. Further, Chaffee (1992) argues that the integration of critical thinking skills throughout the curriculum is even more beneficial than stand-alone courses, especially for the weakest students. Boylan asserts that “an emphasis on critical thinking at the early stages of developmental students’ academic careers may enable them to gain more from their early remedial courses, and, therefore, reduce the amount of time spent in remediation.”

Critical thinking, then, becomes part of a larger framework of “academic literacy,” linking reading, writing, and thinking. As cited in *Academic Literacy: A Statement of Competencies Expected of Students Entering California’s Public Colleges and Universities* (ICAS, 2002), “analytical thinking must be taught, and students must be encouraged to apply those analytical abilities to their own endeavors” (15). Of course, one of the most common ways to verify and assess student thinking is through writing. One respondent to the statewide survey on academic literacy stated, “If [students] can’t write well, I don’t see evidence that they can think well.”

The integration of critical thinking skills throughout the curriculum is even more beneficial than stand-alone courses, especially for the weakest students.

The literature on developmental learning generally asserts that writing must become an essential part of the community college framework because it is the critical link between thinking and learning, rather than being taught as an isolated skill set. According to Hughes, “If writing is connected to thinking, it then becomes the domain of all teachers, not just those in English departments” (1986, 174).

Cognitive Models

More recently, behaviorist frameworks have benefited from the inclusion of cognitive models based on the teachers’ and learners’ abilities to connect new learning with prior knowledge or understanding, evolving into metacognition models emphasizing the students’ participation in the creation of meaning and comprehension. Metacognition refers to the students’ awareness of their own learning and thinking processes.

“Metacognition was the first way of theorizing to promote the idea that the learner had to be driving the process of learning” (Svinicki, 1999, 13). This shift gave rise to the concept of “learner-centeredness...which mirrors a larger social shifting to promote personal responsibility” (Svinicki, 13). Since then, theorists and practitioners have developed pedagogies harnessing the learners’ active participation in the learning process. This quantitative perspective assumes that students “learn cumulatively, interpreting and incorporating new material with what they already know, their understanding progressively changing as they learn” (Biggs, 1994).

Constructivists promote the view that knowledge is created in relation to the web of knowledge students already have. The world is interpreted from a network of previous understanding, and “knowledge is ‘constructed’ by each learner in terms of his or her perceptions of the world and the learner’s mental models” (O’Banion, 1997, 83). This theory lends support for contextual learning and a “learn by doing” approach, reinforcing the need for active learning strategies. O’Banion claims that the “old view of learning is mechanical; it is the factory model in which learners move through the line at the same rate imprinted with knowledge the school deems important. The new learning views learning as organic and natural; learning is unique for each person, and it is related to personal meaning and real life” (89).

Mezirow (2000) describes this in terms of “meaning systems” which act as filters for information as students attempt to make connections to new information. Transformation Theory also includes the necessity of the learners to “become critically aware of [their] own tacit assumptions and expectations and those of others and [assess] their relevance for making an interpretation” (4). Inherently, this idea emphasizes the importance of the learners’ experiences and maturity, which is especially important for adult learners.



D.2 EFFECTIVE PRACTICE Curricula and practices that have proven to be effective within specific disciplines are employed.

RESEARCH FINDINGS Just as ongoing research informs the development of theory and practice for effective teaching and learning in general, similar work continues to advance recommendations for discipline-specific curriculum and pedagogical approaches that work for developmental learners. Although a comprehensive review of these elements across the various disciplines is beyond the scope of this literature review, a few selected approaches that frequently appear in the literature are discussed in this section.

Effective Practices in Reading and Writing

In *Academic Literacy: A Statement of Competencies Expected of Students Entering California's Public Colleges and Universities* (2002), the Academic Senates for California Community Colleges, California State University, and University of California assert that both academic literacy and information competency are institutional goals; however, reading and writing deficiencies are quite prevalent among California college students, making those goals less achievable.

Reading/Writing Curricula Integration. Literacy skills, at their most basic, encompass the ability to read and write. The literature generally supports the use of one of these skills to strengthen the development of the other. Theorists assert that directive reading instruction ends at approximately the third grade. Forget, Spear, and Reinhart-Clark (2003) assert that “if a student has not mastered reading comprehension skills by the fourth grade, chances are that she/he will struggle with learning in grades four through twelve” (3). In general, students who struggle with reading struggle with writing because they are unable to respond analytically to a text. The literature strongly supports an “embedded curriculum” model, where students are immersed in a learning environment which strongly promotes simultaneous reading and writing development, using reading to help students write and using writing to help students read. This approach is also referred to as the Strategic Reading and Writing (SRW) model (Laine 1997). Ultimately, the goal is not just to develop reading and writing as discreet skills, but also to cultivate students’ analytical thinking and reasoning abilities, which improves their ability to learn.

Ultimately, the goal is to cultivate students’ analytical thinking and reasoning abilities, which improve their ability to learn.

This embedded curriculum might be accomplished in the following ways:

- Co-requisite English and reading courses
- Learning communities with an English and/or reading component
- An emphasis on reading and writing across the curriculum
- Integrated reading and writing courses

Zhang (2000) asserts that mainstream faculty at the secondary level must share the burden of literacy problems with English and reading faculty and suggests “shared staff development activities where developmental and mainstream educators learn about better ways to help students learn” (16).

The literature also strongly supports a reading and writing connection for students to develop their meta-cognitive abilities. Adults who are poor readers and writers reveal a lack of meta-cognitive ability about their own skills. Researchers (Rinehart and Platt, 1980; Tei and Stewart, 1985) suggest the following teaching techniques to assist students in developing awareness about their own reading and writing processes:

- Monitoring exercises
- Summarizing activities
- Self-questioning activities
- Reading logs

Most of these strategies involve post-reading activities. However, Elbow (2004) asserts that writing is an effective pre-reading tool, citing the tradition to treat reading as the primary activity: “when writing is assigned, it traditionally serves reading” (10). However, since writing is considered a more active process, it also serves as a way to maintain student engagement. He suggests a variety

Relatively few practices have documented effectiveness in the form of statistically significant results.

of writing activities to help the students prepare for reading by summarizing what they already know about a topic, preparing questions for themselves to answer as they read, or experimenting with a particular writing form. In this way, writers develop a purpose for reading, and these strategies help students develop awareness about their own reading and writing processes.

Reading and Writing Centers. Researchers also stress the importance of creating supportive writing and reading environments through labs or centers. Writing and reading centers can promote literacy skills by providing opportunities to practice skills in a safe and supportive environment, promoting community/social learning models, emphasizing process development, and supporting instruction (Rossini,

2002). Gale (2001) asserts that institutions without formal Writing across the Curriculum (WAC) programs can reap many of the same benefits through activities based in a writing center. Similarly, reading centers can support reading instruction across the curriculum and reinforce holistic meta-cognitive strategies in an individualized environment (Nist and Hynd, 1985; Dorlac, 1994; Baker, 1989). Maitland (2001) also stresses the role of the reading center in helping students become more active learners and readers.

Reading Pedagogy. In addition to literature supporting the strong connection between reading and writing skill development, other approaches specific to the teaching of reading appear in the literature. Unfortunately, although much is published, relatively few practices have documented effectiveness in the form of statistically significant results demonstrated through substantial controlled trials comparing the recommended techniques. In an extensive review of over 4,000 relevant papers published between 1980 and 2002, Torgerson et al. (2004) found only 36 controlled trials with rigorous controls and data reporting. Of these, 34 had a literacy focus, including the application of various strategies to develop basic reading skills and reading comprehension. Among these few studies, five reported a positive effect for a particular intervention, one reported a negative effect, and 10 reported no difference. Eighteen others were inconclusive.

Reciprocal teaching is one method which has strong evidence in support of its effectiveness in developing reading comprehension. Initially described by Palinscar and Brown (1984, 124), this method is described as

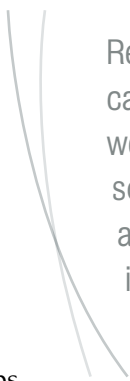
[a] procedure...where the teacher and student took turns leading a dialogue concerning sections of a text. Initially, the teacher modeled the key activities of summarizing (self-review), questioning (making up a question on the main idea), clarifying and predicting. The teacher thereby modeled activities; the students were encouraged to participate at whatever level they could. The teacher could then provide guidance and feedback at the appropriate level for each student.

Essentially, the principle of reciprocal teaching asserts that by observing modeling of effective comprehension strategies, those with poor comprehension can gradually strengthen their own abilities. Such dialogue and modeling can be mediated by either teachers or tutors. In their work applying this strategy to middle school students, Palinscar and Brown (1985) reported greater than 70 percent of students achieved a criterion-based level of performance on an assessment analyzing reading passages, while none of the control group receiving traditional individual instruction achieved the minimum criterion. A much more rigorous study by Rich and Shepard (1993,

reported in Torgerson, et al. 2004) confirmed significant positive gains in reading comprehension using the reciprocal teaching method.

Reading Apprenticeship (RA) is another approach to reading instruction that has been demonstrated to have a significant impact secondary students' reading abilities and scores on standardized tests (WestEd, 2004; Grosso de Leon, 2002). Equally important, a rigorous but accessible staff development protocol has been developed around the principles and practices of Reading Apprenticeship that provides both reading and content faculty effective strategies for developing reading skills in more mature students. The Strategic Learning Initiative at the WestEd research and development agency has developed intensive faculty training workshops that have been demonstrated to produce classroom practices that provide secondary learners effective tools for reading improvement (WestEd, 2004; Schoenbach, Greenleaf, Cziko, and Hurwitz, 2000). Recently, a number of California community colleges (e.g., Los Medanos College and City College of San Francisco) have participated in these WestEd RA training programs and are finding these methodologies to be a useful tool in reading and composition *and* disciplined-based classrooms. In the summer of 2007, WestEd will initiate the Community College Leadership Institute in Reading Apprenticeship, a *training-of-trainers* experience designed to prepare community college teams to lead professional development in Reading Apprenticeship.

Reading Apprenticeship calls on the teacher to weave four dimensions— social, personal, cognitive, and knowledge-building— into classroom instruction using metacognitive conversations with students. The social dimension draws on peer interaction as well as larger sociopolitical and cultural issues and is focused on creating a “safe environment” for students to share their difficulties with texts and recognize diverse perspectives. The personal dimension “draws on strategic skills used by students in out-of-school settings,” their self-awareness as readers, and their “goals for reading improvement.” The cognitive dimension develops students' resources with specific comprehension and problem-solving strategies using classroom modeling of inquiry processes. Knowledge-building involves the understanding that the reader brings to the text including traditional skills such as word construction, vocabulary, text structure, etc., as well as the reader's personal and social interaction with the text.



Reading Apprenticeship calls on the teacher to weave four dimensions— social, personal, cognitive, and knowledge-building— into classroom instruction

The RA method emphasizes metacognitive processes that the teacher models and the student uses to gain confidence and strategies for self-reliance in reading activities (Greenleaf, Schoenbach, Cziko, Mueller, 2001). In addition, RA helps students develop an awareness that “reading is just like writing: a process of cognitive (and social) construction in which everyone builds up meanings from cues in the texts” (Elbow, 2004, 13), providing a strong basis for the integration of instruction in reading and writing. Jordan and Schoenbach (2003) add that if college administrators decide to focus on literacy, instructional leaders need to expect that attention to reading and literacy will be imbedded in subject area instruction.

In summarizing a large number of studies and meta-analyses including both quantitative data and expert opinion, Torgerson et al. (2004, 15) derived the following factors shown to correlate with better progress in reading:

- Phonemic awareness and/or word analysis instruction may lead to increased achievement in other aspects of reading for adult beginning readers.
- Word analysis may be taught using approaches that include direct instruction in word analysis along with instruction in other aspects of reading.

- Fluency (greater speed in reading aloud) may be taught to adult basic education students and fluency practice may lead to increases in reading achievement.
- Providing explicit instruction in reading comprehension strategies may lead to increased reading comprehension achievement.

Effective Practices in Mathematics

As the call for critical literacy has fueled interest in reading and writing across academic disciplines, so has a movement for “quantitative literacy” influenced the ways in which the developmental mathematics curriculum is structured and delivered. A set of standards conveyed by the American Mathematical Association of Two Year Colleges (AMATYC, 2006) recommends that two-year college mathematics programs focus on eight standards of intellectual development:

The movement to a more “learner-centered” environment constitutes the most substantial reform of mathematics.



- Problem Solving
 - Modeling
 - Reasoning
 - Connecting with other disciplines
 - Communicating
 - Using technology
 - Developing mathematical power
 - Linking multiple representations
- In addition, the organization also establishes standards of recommended pedagogy, including:
- Teaching with technology: modeling the use of appropriate technology in teaching mathematics
 - Active and interactive learning: fostering interactive learning through student writing, reading, speaking, and collaborative activities so that students can learn to work effectively in groups and communicate about mathematics both orally and in writing
 - Making connections: actively involving students in meaningful mathematical problems that build upon their experiences, focus on broad mathematical themes, and build connections with branches of mathematics and between mathematics and other disciplines
 - Using multiple strategies: interactive lecturing, presentations, guided discovery, teaching through questioning, and collaborative learning
 - Experiencing mathematics: learning activities including projects and apprenticeships that promote independent thinking and require sustained effort

Further reports from this organization recognize the importance of student engagement in learning activities, and recommend the use of group work, case studies, and projects (U.S. Department of Education, 2005). In general, the movement to a more “learner-centered” environment constitutes the most substantial reform of mathematics education over the past few decades.


Another issue with implications for success in mathematics is the recency of prior preparatory course completion. In a study of five community colleges in Virginia, Waycaster (2001a) reinforces the need for students in foundation-level courses to enroll immediately after succeeding in the previous level math course, citing an almost 15 percent difference in performance when contrasting student groups (9). In addition, the study cites significant differences in student success when students completed the recommended preparation, reinforcing both prerequisite enforcement and careful curriculum sequencing.

Among the practices currently informing the direction of developmental mathematics education in community colleges, the following initiatives are of note:

Addressing Environmental Factors. In their review of literature concerning environmental factors relating to student achievement in mathematics, Higbee and Thomas (1999) identified a number of affective considerations that impacted performance. These included students' attitudes, self-concept, and confidence in mathematics, as well as math anxiety, test anxiety, low motivation, and misplaced sense of locus of control. These same researchers also examined cognitive factors such as preferred learning style and critical thinking skills. Based on this body of research, educators are beginning to explore various techniques to address the barriers and mismatches identified, including increased use of collaborative learning and verbalization of the problem-solving process.

Author Sheila Tobias (*Overcoming Math Anxiety*) concurs that the predominant causes of math anxiety derive from environmental factors created by teachers, leading to destructive student self-beliefs. These obstacles include timed tests, overemphasis on “one right method/one right answer”, humiliation at the blackboard, classroom atmospheres of competition, and the absence of discussion in typical math classrooms (Armington, 2003). Her suggestions for relieving math anxiety and re-envisioning math instruction to respond to the more prevalent verbal learning style of many developmental math students continue to influence the way developmental mathematics instruction is delivered in today's classroom.

Small Group Instruction. In a study of preparatory algebra students at a large urban university, DePree (1998) demonstrated that those taking course sections taught in a small group instructional format had higher confidence in their mathematical ability and were more likely to complete the course than those in comparison courses with traditional instructor-led teaching. This was particularly true of students from traditionally underrepresented groups (Hispanic, Native American, and female students). Among those completing the courses, there was no significant difference in overall course grades.



The predominant causes of math anxiety derive from environmental factors created by teachers.

Problem-Based Learning (PBL). Based on a constructivist approach, this instructional strategy emphasizes the learning and application of mathematical concepts in connection with student exploration of a complex problem, usually deriving from a “real world” situation. Problems are posed in such a way that students need to gain new knowledge in order to solve the problem, and most problems have multiple correct solutions. Problem-based learning involves students gathering information, identifying possible solutions, evaluating the various alternatives, choosing a solution, interpreting results, and defending conclusions. Since complex problems are often solved collaboratively, this method also promotes teamwork, shared responsibility, and skill development for peer-to-peer mathematical communication. Proponents feel that PBL leads to deeper understanding of mathematical concepts and avoids learning by imitation that may occur in traditional algorithmic approaches. Studies have shown that students who learn through a problem-based approach exhibit higher achievement on both standardized tests and on project tests dealing with realistic situations than do students taught in traditional content-based learning environments (Boaler, 1998).

Contextual Learning. Cognitive science teaches that students retain information longer and can apply it more effectively if it is learned in context. With respect to developmental mathematics, an approach gaining favor is the teaching of mathematics “across the curriculum:” the notion that applied mathematics delivered in conjunction with business, technical, or other professional preparatory coursework enhances student motivation and acquisition of mathematical skills. This may also take the form of curricular enhancements in traditional developmental math courses, in which standard math concepts are enhanced with problems, examples, or applications from other fields. A stronger emphasis on reading/math integration (i.e., analyzing word problems, building

mathematical vocabulary, and teaching reading skills as they relate to learning from a math textbook) has also been suggested as a means to leverage interdisciplinary skills and help students see connections between vital components of a developmental curriculum (Haehl, 2003).

Use of Manipulatives. In a study of middle school students, Moyer and Jones (2001) conclude that the use of manipulatives to illustrate mathematical concepts may promote more autonomous thinking, curiosity, and understanding among math students. The study asserts that “communicating the value of representations and the importance of being able to move flexibly among different representational systems, including manipulatives, visual images, and abstract symbols, helps students develop a deeper understanding of mathematics” (30). The study suggests that the practice diversifies instructional delivery and may provide students with additional points of access when contrasted with traditional lecture models.

Offering a variety of instructional formats may allow students more options for choosing a modality that best suits their particular learning styles.

Use of Technology. A great deal of literature in recent years has addressed the use of technology in developmental math instruction. This includes technology primarily used by teachers (e.g., presentation technology), students (e.g., calculators), or both (e.g., computer-assisted instruction, or CAI). A seven-year study in five Virginia colleges examined developmental math classes of 10 instructors whose primary instruction was either lecture with lab or individualized computer-aided instruction to determine how student outcomes from these courses compared to those of traditional lecture courses. Results from this study indicated that student pass rate was independent of the manner of instruction used (Waycaster, 2001b).

An extensive review of recent studies examining computer-assisted instruction found mixed results at a variety of colleges, each implementing slightly different forms of computer-assisted instruction (U.S. Department of Education, 2005). These included self-paced or lab-based instruction with products such as Academic Systems (internet-delivered curriculum combining lecture, practice and self-administered tests), ALEKS (a nonlinear, nontraditional internet-based course), or PLATO (a popular computer-based program for K-adult learners). Instructor-created distance learning courses were also examined, as were courses using computer algebra systems (CAS; programs that manipulate mathematical expressions in both symbolic and numeric forms). The authors of this extensive review find studies crediting CAI and CAS with higher, lower, or no difference in pass rate, no difference or higher rates of persistence to higher level math, and no difference in final grades compared to developmental math sections taught in traditional instructor-led formats. They ultimately conclude, however, that offering a variety of instructional formats may allow students more options for choosing a modality that best suits their particular learning styles. They also reiterate the views of Boylan and AMATYC that, for technology to be effective, it should be used as a supplement to, rather than a replacement for, regular classroom instruction (U.S. Department of Education, 2005.)


Further examples and recommendations for effective practices in mathematics can be found in *Effective Practices for Developmental Mathematics, Vols. 1 and 2*, 2002 and 2003, published under NADE SPIN (National Association of Developmental Education – Special Professional Interest Network, Thomas Armington, editor).

Effective Practices in English as a Second Language (ESL)

Any discussion of effective practices for ESL must first recognize the inherent diversity of student background and literacy level that exists in this heterogeneous population of learners. The exceptional amount of diversity in this group makes meeting their educational needs especially challenging. ESL students are among a group of second language or “L2” learners: those who are acquiring English language proficiency secondary to having learned to speak, understand,

and perhaps read and write in a different language. Within this group, individuals have acquired varying levels of proficiency in their native languages, ranging from those who are functionally illiterate to those who have attained a sophisticated, expert facility with spoken and written forms, many of whom have attained advanced degrees in their home countries. Among those who lack formal education and who have not learned to read and write in their first language, the challenge of ESL instruction takes on the additional complexity of teaching basic literacy skills while also assisting in English language acquisition.

In addition to the direct acquisition of English language skills, ESL students also face complexities arising from the impact of cultural adaptation. Effective instruction must take into account the cultural norms and learning styles that have influenced previous learning behaviors among these students. This consideration is likely to be highly variable within an ESL population, owing not only to a diversity of nationalities, but also to the amount of time individuals have spent in the United States. A typical ESL population in a community college contains a mixture of recent immigrants, long-term immigrants who have decided to pursue a career objective for which they need language skills, international students, and “generation 1.5” learners who may have been largely raised in the United States, but who are acquiring English as an academic medium and speak another language in the home.



Effective instruction must take into account the cultural norms and learning styles.

Recently, effective practices for ESL instruction among adult learners was the focus of a major national study, “What Works” (Condelli and Wrigley, 2004). Funded by the U.S. Department of Education, this is the first large-scale, empirical study designed to determine which instructional practices, student-, and teacher-related variables actually correlate with measurable improvements in reading, writing, and speaking skills for adult ESL learners. Conducted over a three-year period and involving 495 students and 530 separate classroom observations, this study identified statistically significant correlations between various instructional practices and student gains on standardized assessments in basic reading skills, reading comprehension, and oral communication. While the study also attempted to correlate practices with growth in writing, the authors were ultimately unable to make this assessment, perhaps due to the relatively short study timeframe or the inability of the assessment instrument to adequately measure small gains in the development of this complex ability (Condelli, 2004).

Prior to conducting the “What Works” study, its authors identified 11 practices suggested by the literature as potentially having an impact on adult ESL student achievement in reading, writing, and speaking. Following observations from the study which coded the prevalence and application of these practices in the classroom, a factor analysis was performed which identified three main approaches that best represented the underlying practices actually used by teachers in the study:

1. Varied practice and interaction strategy, in which the faculty member teaches the concept in a variety of modalities and allows student interaction.
2. Open communication, in which faculty members were flexible and responded to student questions as they arose; in addition, teachers’ questions to students were open-ended.
3. “Connection to the outside,” in which faculty members link what is being learned to life outside the classroom, utilizing a variety of authentic, real-world items and experiences (printed materials, field trips, speakers, and more).

Findings from the “What Works” study support statistically significant relationships between certain instructional/structural variables and student skill development over time (Condelli and Wrigley, 2004). Major findings from this study include:

1. Use of “connection to the outside” strategy significantly promoted student growth in the development of basic reading skills. This strategy was effective in raising the level of students’ mastery in basic reading skills.
2. Use of a student’s native language had a positive effect on linear growth in reading comprehension. The more the teachers used students’ native languages to give directions or to clarify concepts, the faster students’ reading comprehension grew. This is distinct from instruction in the native language, but instead represents an approach which allows students to ensure understand tasks to be performed and can communicate difficulties or questions in their native languages. Use of students’ native language was also correlated with positive gains in oral communication abilities.
3. Gains in oral English skills were positively correlated with rate of student attendance, longer scheduled length of class in terms of hours per week, the use of students’ native languages for instructional support, and the use of the varied practice/interaction strategy.

Additional sources cite support for the use of native languages in ESL instruction for adult literacy. A report authored through Teachers of English to Speakers of Other Languages (TESOL, 2000) recommends this strategy, stating that “the use of non-English languages facilitates the

learning of English and develops proficiency in those languages.

Research indicates that literacy proficiency in the primary language facilitates literacy acquisition in English” (8). This source further recommends the use of bilingual and native language texts as instructional materials when possible and appropriate, and suggests that effective practices build on learners’ existing knowledge, recognizing and developing the use of different learning styles and multiple intelligences. Instruction in grammar and discrete English language skills is also advised in the context of meaningful language use.

ESL teachers can enhance student motivation by providing short-term goals

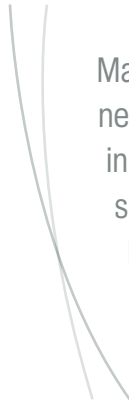


The use of explicit versus implicit instruction in basic literacy skills for ESL learners has not been thoroughly examined for adult learners. Evidence from studies of children in ESL classrooms supports the use of explicit instruction for reading skill development (AERA, 2004). At the present time, a large-scale study is underway to measure the effectiveness of explicit instruction for reading development in adult ESL students, with results expected in late September, 2009 (Cronen, Silver-Pacuilla and Condelli, 2004).

ESL practitioners also acknowledge the importance of learner motivation and interactions in second-language acquisition. ESL students may be motivated by “integrative” motivation (the desire to learn a language in order to identify with the community that speaks the language), or by “instrumental” motivation (the desire to learn the language in order to meet individual needs/goals for transacting the business of daily life). It has been suggested that ESL teachers can enhance student motivation by providing short-term goals, helping students to reflect on their progress and achievements, providing self-assessments or progress-tracking devices, and creating classroom environments that encourage group cohesion and a sense of community (Moss and Ross-Feldman, 2003). The use of assigned projects to stimulate group work and language both in- and out-of-class is also recommended. Research suggests that learners produce longer sentences and negotiate meaning more often in pair and group work than in teacher-led instruction.

The approaches suggested in the “What Works” study have been connected with positive outcomes for adult ESL students needing significant literacy development. However, many ESL students in the college setting have already acquired basic literacy in their native languages, but need additional instruction to acquire sufficient English language proficiency to pursue college-level coursework. Achieving proficiency in this so-called “academic English” may involve additional instructional strategies, and take longer to acquire. For these students, a “participatory approach” has been recommended (Berlin, 2005). This approach sees the ESL classroom as a microcosm of

society, in which development of English language fluency is socially co-constructed along with an understanding of other concepts including democracy, multiculturalism, and social justice. Berlin suggests the use of “problem-posing” as a critical pedagogy to engage students through stages of naming, reflection, and action relating to the problem. Interactive dialogue among students and between the teacher and students in examining the problem creates a vehicle for developing more advanced language skills and building confidence in oral communication.



Many ESL students need additional instruction to acquire sufficient English language proficiency to pursue college-level coursework.

A number of structural and programmatic practices have been advised specifically for ESL programs. The California Pathways Project (CATESOL, 2000) was conducted jointly among representatives from California community colleges, California State Universities, and the University of California to summarize recommendations for professional practice for effective ESL programs. This document identifies a number of effective practices:

1. Assessment for ESL should include both direct and indirect language assessment measures, with raters specifically trained/validated to assess L2 learner skills. Instruments used should be capable of placing students across the board into all levels, including appropriate placement into regular English classes if the assessment scores show that the student no longer requires ESL. A battery of instruments should be used to assess in all four areas (listening, speaking, reading, writing).
2. Counselors and advisors should have special training to meet the needs of L2 learners, including advising on the benefits of ESL programs. Counselors should know the explicit and implicit language requirements for courses and programs at their institutions in order to direct students in earlier stages of L2 development to courses where language demands are less intense. L2 counseling should address personal as well as academic issues for these students.
3. Institutions should provide in-service training to academic support personnel in language acquisition processes, cross-cultural sensitivity, and techniques to make communication with L2 learners more comprehensible.
4. Programs should employ only qualified faculty, informed of TESOL methodologies and cross-cultural issues. Programs should have a core of full-time faculty to guide program development, and should provide incentives to part-time faculty to participate in curriculum development.
5. Programs should encourage collaboration between ESL and non-ESL faculty, and provide appropriate professional development opportunities to both groups.
6. Institutions should maintain appropriate access for ESL students by offering appropriately-designed courses to meet language development needs at various levels with sufficient numbers of sections in each. Courses should address learning in all four areas (listening, speaking, reading, writing). Students should be kept in the appropriate level/course until their language acquisition needs at that level have been met.

A number of California’s community colleges support ESL students through non-credit programs. The noncredit ESL programs at City College of San Francisco, the San Diego Community Colleges, and Rancho Santiago Community College are particularly comprehensive. However, even though noncredit instruction has grown by over 13 percent statewide according to “Noncredit Instruction—A Portal to the Future” (2005) presented to the California Board of Governor’s, ESL enrollments in noncredit have declined by almost 15 percent. Further, ESL instruction represents approximately 16 percent of the total noncredit enrollments in California. The Noncredit Alignment Project (Board of Governors, 2006) concluded that because noncredit is a primary gateway into the credit curriculum, strengthening its status as a viable curricular alternative and coordinating its mission to the academic and vocational missions will result in benefits for both students and colleges.



D.3 EFFECTIVE PRACTICE **The developmental education program addresses holistic development of all aspects of the student. Attention is paid to the social and emotional development of the students as well as to their cognitive growth.**

RESEARCH FINDINGS Although the terms “developmental” and “remedial” are often used interchangeably, a key philosophical difference between the two relates to how students are perceived. “Remedial” approaches derive from a deficit model, assuming that students who have not acquired skills and abilities as a result of previous instruction need additional or modified instruction to correct the deficiency. The preferred “developmental” approach recognizes that all students have strengths and weaknesses, and that learners progressively acquire not only content-specific knowledge, but also attain the skills and attitudes necessary to facilitate higher-order thinking and learning. This view is connected with so-called “whole student” approaches that consider metacognitive, affective, and social aspects of student development in addition to cognitive growth.

According to the literature, “best practice” developmental programs are those that address the holistic development of the student. In an early study of colleges reporting good retention rates for developmental programs, Roueche and Snow (1977) found that course objectives and methods employed at these institutions integrated the use of cognitive, affective, and psychomotor skills. McCabe and Day (1999, 24) cite a study of 10 colleges having model developmental programs, and note a common finding that “each recognizes that the programs must deal with all aspects of student development—personal, as well as academic”. A more recent study of exemplary developmental programs again identified that these colleges shared common beliefs that were both holistic and developmental, addressing students as “total beings with both affective and cognitive characteristics shaping their attitudes and behaviors” (Boylan, 2002, 62). Maxwell (1997b, 19) notes that studies of developmental students consistently show that programs where faculty members are concerned with students’ emotions and attitudes about their work are more successful

than those where the faculty concentrates only on teaching the subject. She states firmly that “without exception, the one variable that separated the successful developmental program from those with moderate success...was that instructors spent as much time on self-concept development as on teaching basic skills.”

Often “at-risk” students require childcare, financial aid, and transportation, as well as an array of personal services, in order to succeed.


Based on these studies, the literature contains various recommendations that developmental programs pay close attention to the social, emotional and personal development of learners. McCabe and Day (1998) recommend that model developmental programs should integrate learning and personal development strategies and services. Hennessy (1990) suggests that

colleges should consider personality variables, particularly self-esteem and self-confidence, as well as academic achievement and persistence. In her commentary on developmental education, Higbee (1995) asserts that developmental educators should address not only student competence, but also the development of identity and purpose, interdependence, mature interpersonal relationships, and integrity. Finally, in defining an underlying philosophy of practice for developmental education, Casazza (1996,8) advocates a talent development approach that aims to maximize learner potential, advising that the process “takes place in a meaningful context and is sensitive to the cognitive, emotional and social needs of the learner.”

Underprepared students have diverse needs, many of which extend beyond the need to learn

fundamental skills. Often “at-risk” students require child-care, financial aid, and transportation, as well as an array of personal services, in order to succeed. This issue is further exacerbated by the fact that most community college students are commuters, contributing to an overall sense of disconnection and isolation. Intentional efforts by colleges to overcome this isolation and to encourage students to identify with the college are important vehicles for enhancing students’ intrinsic motivations to persist and succeed.

Research has consistently shown that students who actively engage with faculty, staff and other students at their colleges are much more likely to succeed in attaining their educational goals (Tinto, 1993; Astin, 1985; CCSSE, 2006; Kuh et al., 2006). Essentially, when students identify strongly with a particular college, they perform better. Tinto’s integration model (1993) suggests that students coming into a college undergo phases in which they separate to some degree from groups of their former association (such as family or high school peers), transition to interacting with members of a “new” group (college personnel and students), and ultimately incorporate the values/behaviors which lead to acceptance of the new group. He further suggests that students who leave college may be those who have been unsuccessful in adopting the values/behaviors that allow them to integrate into college life. Such integration has both academic and social aspects. While research documenting the linkage between academic integration and persistence is modest, the support for social integration as a predictor of persistence is considerable (Braxton, Sullivan and Johnson, 1997).



Successful student services programs use reward and reinforcement in order to promote and enhance the students’ motivation.

An exhaustive review of literature to determine “what matters to student success” recently affirmed the powerful relationship between institutional affinity and positive student outcomes (Kuh et al., 2006). A key finding of this study stated, “Students who find something or someone worthwhile to connect with in the postsecondary environment are more likely to engage in educationally purposeful activities during college, persist, and achieve their educational objectives.” (3)

Among the approaches associated with high student engagement are student/faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning (Chickering and Gamson, 1991). Many initiatives that have proven effective with developmental learners (such as learning communities and freshman experience programs) owe much of their success to the associated affective and motivational attributes that build connections and develop a shared sense of responsibility among students in these programs. Colleges seeking to increase achievement of developmental learners might first consider expanding mechanisms to build affinity and social integration as platforms for intensifying student commitment and motivation.

An example of a comprehensive program that engages students with a variety of college services is the first-year experience program at Bronx Community College, with its focus on personal and academic counseling. Students in the program were those who were required to take at least three remedial courses in English composition, reading and/or mathematics based on their assessment results. These students were required to meet with counselors at least three times, while also enrolling in an orientation and career development course meeting once a week. The course included the Noel-Levitz Retention Management System, the Myers-Briggs Type Indicator, and the California Occupational Preference Survey. The tests emphasized students’ assets, and the counselors emphasized self-esteem development. In addition, students were encouraged to seek tutoring and additional academic support. The program resulted in a 29 percent increase in retention and an overall increase in GPA and course completion for program participants (Baron, 1997).

Muraskin (1998) cites the importance of addressing student motivation in successful student services program. Successful student services programs use reward and reinforcement in order

to promote and enhance the students' motivation to engage in academic careers. She cites the following commonalities of five highly effective programs:

- A project-designed freshman experience for most or all participants
- An emphasis on academic support for developmental and popular freshman courses
- Extensive student service contacts
- Targeted participant recruitment and participation incentives
- Dedicated staff and directors with strong institutional attachments
- An important role on campus

She states that “we do not know that these commonalities of approach and practice are the reasons these projects are successful, but we know that these features are important elements of successful projects” (14).



D.4 EFFECTIVE PRACTICE **Culturally Responsive Teaching theory and practices are applied to all aspects of the developmental instructional programs and services.**

RESEARCH FINDINGS Culturally Responsive Teaching (CRT) theory and practice articulates basic principles and pedagogical strategies designed to enhance learning among all students, regardless of the students' ethnic, socioeconomic, and educational backgrounds. While this theory and practice builds on earlier efforts to diversify the content of curriculum (e.g., readings from different cultures), Culturally Responsive Teaching focuses more directly on the pedagogy for developing students' skills, competencies, and knowledge.

Most of the research in this area has concentrated on the elementary and secondary levels. There are isolated examples of community colleges implementing CRT strategies (e.g., Baltimore County Community College and work at Native American tribal colleges); however, there is very little published research on the impact of these strategies in the community college environment. Nonetheless, given the emerging substantial research that verifies the effectiveness of these practice in the pre-college learning environments (Gay, 2000; Banks, Magee, and Cherry, 2001; Banks 2004), we cannot ignore the importance of these practices to the pre-collegiate developmental education programs designed for those students when they move on to the community college from K-12 or other educational environments.

A number of the core practices of Culturally Responsive Teaching overlap with other effective practices described in this review. However, it is important to view these practices in the context of the needs of students from diverse backgrounds. First, communication of high expectations is fundamental. “Trying to teach from... [a] deficit mindset sounds more like a basis for ‘correcting or curing’ than educating,” warns Gay (24). Rather than “blaming the victim” by focusing on negative socioeconomic factors, CRT calls for positive perspectives on parents, families, and the diverse experiences students bring to their learning environments (Banks, McGee and Cherry, 2001; Banks 2004).

The communication of high expectations and positive perspectives relies on *cultural sensitivity* and *culturally mediated instruction*. *Cultural sensitivity* depends upon the “teacher’s...knowledge of the cultures represented in their classrooms and [their ability to] translate this knowledge into instructional practice.” This cultural knowledge goes beyond the stereotypical “artifacts of the culture, such as food and art” to a thorough understanding of how communication and learning takes place within each culture (Knowledgeloom, 2006, 10). *Culturally mediated instruction* involves:

1. culturally mediated cognition, i.e., a pedagogy that reflects “the ways of knowing, understanding, and representing information within a given culture” (Knowledgeloam 12);
2. an understanding and application of the various cultural perspectives on the relationships of students to students and students to faculty (McCarty, Lynch, Wallace and Benally, 1991);
3. the inclusion of knowledge that is valued and relevant in the student’s personal experiences; and
4. a curriculum that “capitalizes on students’ cultural backgrounds” by fully infusing materials, examples, and strategies drawn from the students’ various cultural backgrounds (Abdal-Haqq, 1994, 2-4).

Culturally Responsive Teaching calls for positive perspectives on parents, families, and the diverse experiences students bring to their learning environments.

Culturally Responsive Teaching embraces the active learning methodologies described in other sections of this literature review. Within those active strategies, the teacher becomes a facilitator responsible for:

- organizing instruction so that the voices and experiences of “students from different ethnic backgrounds...can be incorporated into the teaching and learning processes on a regular basis;”
- providing *cultural mediation* “for students to engage in critical dialogue about the conflicts among cultures...and inconsistencies between mainstream cultural ideas/realities and those of different cultural systems; and
- *orchestrating social contexts* in which teaching and learning processes are “compatible with the sociocultural contexts...of ethnically diverse students” (Gay, 2000, 43-44).

CRT methodologies also emphasize giving the student “control [of] some portion of the lesson” to ensure that the student’s cultural and family learning experiences and the language used to communicate those experiences inform the classroom learning environment (Knowledgeloam, 2006, 15). Small group and cooperative learning strategies provide students the opportunity to develop academic competencies using “underlying values of human connectedness and collaborative problem solving [that] are high priorities in cultures of most groups of color in the United States” and that play “a central role in these groups’ learning styles, especially communicative, procedural, motivational, and relational dimensions” (Gay, 2000, 158).



D.5 EFFECTIVE PRACTICE **A high degree of structure is provided in developmental education courses.**

RESEARCH FINDINGS Early researchers noted the effects of structured learning environments in remedial programs. In her 1976 study, Cross noted that developmental learners tended to lack the organizational schema necessary to comprehend many academic concepts, and advised that highly structured learning experiences helped students by modeling appropriate methods of organizing information. In their study of colleges with good retention rates in developmental programs, Roueche, Baker, and Roueche (1985) determined that the offering of highly structured courses was a characteristic feature. More recent reviews of developmental literature have reinforced this element as an effective practice for instructional improvement (Perin, 2005). Cronbach and Snow (1977) further showed that structured learning environments provided the most benefit to the weakest students, a position also validated by subsequent studies (Kulik and Kulik, 1991; Boylan, Bonham, Claxton and Bliss, 1992).

The benefits of structure have also been noted at the program level, where the use of a well-planned, step-by-step sequence of offerings with proactive academic support has been advised (Roueche and Snow, 1977; McCusker, 1998; Maxwell, 1997b; Roueche and Roueche, 1999).



D.6 EFFECTIVE PRACTICE **Developmental education faculty employ a variety of instructional methods to accommodate student diversity.**

RESEARCH FINDINGS Teaching and pedagogy have most recently been transformed by the concepts of “learner-centeredness” rather than “teacher-centeredness” as well as the inclusion of active learning strategies rather than passive learning strategies. These concepts have given rise to shifts in institutional paradigms from the “college-ready student” to the “student-ready college,” or to what Terry O’Banion calls “The Learning College.” Overall, these shifts have fundamentally changed the roles of teachers and learners, and contemporary pedagogies are likely to emphasize student engagement, individualization, learning styles, collaboration, critical thinking, and classroom assessment. These practices are echoed in Chickering and Gamson’s “Seven Principles for Good Practice in Undergraduate Education” (1991):

1. Good practice encourages student-faculty contact.
2. Good practice encourages cooperation among students.
3. Good practice encourages active learning.
4. Good practice gives prompt feedback.
5. Good practice emphasizes time on task.
6. Good practice communicates high expectations.
7. Good practice respects diverse talents and ways of learning.

Of these principles, Cross asserts that “what the principles really tell us is how to get and keep students actively engaged in learning” (2005). Similarly, she offers a list of guidelines for effective teaching and learning, which include the following instructional or classroom factors as keys to success:

1. Communication of high expectations
2. Encouragement of active learning
3. Provision of assessment and prompt feedback

Active Learning


In a classroom emphasizing active learning, the instructor departs the front of the classroom and the “sage on the stage” model and becomes a facilitator within the classroom. As Cross points

These shifts have fundamentally changed the roles of teachers and learners.

out, other terms are often explored to replace “teacher,” for instance “coach,” “observer,” “trainer,” “arranger,” “manager,” or “co-learner” (6). “There is a convergence in the literature advising flexibility coupled with sufficient structure to assure productive learning toward articulated goals” (Cross 6). Cross argues that “the role of the instructor in active learning includes these responsibilities: orienting students to the goals and purposes of active learning, making decisions about the size and operation of learning groups, assigning and structuring learning tasks, assuring active participation of all students, and monitoring and assessing learning” (6-7).

The most important role of the instructor is the design of the instructional experience in order to provide structure and goals, even if he or she relinquishes control. Weinstein and Meyer conclude that “there is a great deal of intuitive appeal to the cognitive approach to teaching....Applying the

approach is more difficult, however, because [instructors] must give up the illusion of control. That change shakes the foundation of content as the primary focus of our teaching” (36). Partly, this means departing from a traditional model focused on effective teaching performance and moving instead to one which emphasizes the goal of teaching expressed as student learning. Weinstein and Meyer view this change as optimistic as the result is more likely to be “more productive learners who will function effectively and independently in the uncertainties of the future” (Weinstein and Meyer, 36).



Teaching today is more like home gardening than scientific agriculture. Care, attention, and experience will certainly result in better crops than neglect.

Cross summarizes this paradigm change by analogizing teaching to farming:

A successful farmer is judged by the quality and quantity of his crops—not by whether or not he wears bib overalls or rises with the sun. A farmer’s attention is concentrated on understanding the nature of the things he is trying to grow. He knows that some plants require four hours of sun a day; others do well in shade. Some plants are draught resistant; others require irrigation. Some plants require one kind of fertilizer; others something else. The point is that the farmer’s actions are determined by the needs and nature of his crop... Teaching today is more like home gardening than scientific agriculture. Care, attention, and experience will certainly result in better crops than neglect, and some home gardeners get wonderful results. (10)

The students’ role is also changed in this pedagogical paradigm from passive listener to engaged participant. MacGregor (1990, 25) defines some of these changes as follows:

- From listener, observer, and note taker to active problem solver, contributor, and discussant
- From low or moderate expectations of preparation for class to high expectations
- From private presence in the classroom with few or no risks to public one with many risks
- From attendance dictated by personal choice to attendance dictated by community experience
- From competition with peers to collaborative work with them
- From responsibilities and self-definition associated with learning independently to those associated with learning interdependently
- From seeing teachers and texts as the sole sources of authority and knowledge to seeing peers, self, and the thinking of the community as additional and important sources of authority and knowledge

Lectures, then, from a cognitive/motivational standpoint, may not be the most effective method of instruction, especially for developmental learners. In order for a lecture to be an effective method of instruction, it must promote enthusiasm about the subject and provide students with an avenue of response so that their interaction is intrinsic to the activity rather than additive.

Engagement

The validity of active learning strategies is closely related to the valuation of “engagement” among community college students. The results of the Lumina Foundation’s study “Connecting the Dots: Multi-Faceted Analysis of the Relationships between Student Engagement Results from the National Survey of Student Engagement (NSSE), and the Institutional Practices and Conditions That Foster Student Success” indicate that meaningfully including students in the creation of their own learning has particularly significant results on traditionally under-represented groups. The study (Kuh et al., 2006, 68) points to the following findings about engagement:

- Student engagement in educationally purposeful activities is positively related to academic outcomes as represented by first-year and senior student grades and to persistence between the first and second year of college.
- Engagement has a compensatory effect on first-year grades and persistence to the second year of college at the same institution.

The study includes an exhaustive list of collaborative and active learning opportunities (e.g., asked questions in class, made a presentation, sought tutoring, discussed issues outside of class, sought instructor assistance, discussed career plans with an advisor, worked with other students on a project) (81). Tinto quotes a typical student from recent study who expresses his understanding of why engagement enhances learning:

You know the more I talk to other people about class stuff, the homework, the tests, the more I'm actually learning...I learn more about the subject because my brain is getting more, because I am getting more involved with other students in the class...I'm getting more involved with the class even after class. (4)

Collaborative Learning

Collaborative learning is based on social cognitive theories suggesting that students' learning can be facilitated and enhanced by connectivity to peers. "Collaborative learning is based on the idea that learning is a naturally social act in which participants talk among themselves" (Gerlach, 1994, 8). This model assumes that students create learning within this social context, rather than within the solitary confines of their own studying. This approach is also distinct from "cooperative learning," which many theorists deem more appropriate for children; collaborative learning is more closely aligned with the needs of adult learners and adult education.

Students and instructors need to understand each others' roles.

Simply, collaborative learning has been defined as "the instructional use of small groups so that students learn to work together to maximize their own and each others' learning" (Smith, 1996, 71). Of course, in order for this approach to be successful, students and instructors need to understand each others' roles. Further, students need to learn collaborative skills. Bosworth (1994) asserts that teachers should train students to learn what skills will be necessary, ask students to demonstrate

those skills, model those skills in their instruction, provide feedback about students' collaborative skills, and give students an opportunity to reflect on the collaborative experience. Students require this training because "in the traditional classroom setting, where individuals compete for grades and academic standing, cooperation and collaboration are usually not rewarded." Barkley, Cross, and Major (2005, 4) assert that collaborative learning contains the following features: intentional design, co-laboring, and meaningful learning.


Obviously, then, in order for collaborative learning to be effective, the academic and campus climate must support these activities. This climate must emphasize the importance of learning, which involves taking risks, working together, academic integrity, and mutual support. According to Hallinan (2003), when "students are provided with rich educational opportunities and experiences, they are most likely to attain high achievement." Learning, then, must be an institutional priority. Tinto asserts that colleges and universities should "stop tinkering at the margins of institutional life...move beyond the provision of add-on services and establish those conditions with universities [and colleges] that promote the retention of all, not just some, students" (1-2).

Barkley, Cross, and Major (2005, 21) reference studies which indicate that collaborative learning models are particularly effective for diverse populations. The evidence strongly confirms that non-traditional students greatly benefit from the opportunity to participate in group learning settings: "Women, members of under-represented racial and ethnic groups, adult and re-entry students,

commuters, and international students have been identified as students for whom peer and group learning seem especially valued and valuable.” However, they also assert that “taken as a whole, the research appears to substantiate the claim that both underprepared and well-prepared students benefit from group learning, but perhaps for different reasons” (21).

This technique is widely applied across the disciplines. Mathematics instruction has been enhanced by providing students with the opportunity to work problems and discuss them with peers. Hartman (1993, 272) describes the use of a collaborative learning process by which “Thinker and Listener” pairs work on problems together. “Students take turns serving as thinkers (problem-solvers) who externalize their thought processes by thinking aloud, while analytical listeners track and guide the problem solving process as needed.” However, Hartman cautions that to be successful any collaborative technique will require careful student training and consistent feedback from the instructor.

Collaboration is also a key feature in Writing Across the Curriculum (WAC) models. Rather than treating writing as a discreet skill, WAC programs attempt to use writing as a thinking tool, making literacy a core value in every discipline. The use of collaborative writing projects, writing groups, blogs, and discussion boards all contribute to the students’ ability to participate in the discipline discourse, as well as improve their overall literacy. Many WAC programs also support the collaboration of writing experts with other discipline faculty. Stout and Magnotto (1991) surveyed 1,200 community and junior colleges to collect data about WAC programs across the country. They conclude that the investment in WAC programs yields the following benefits: “increased faculty interaction among the disciplines,” “more writing outside of English courses,” and “increased faculty interaction within the disciplines” (11).



Collaborative learning models are particularly effective for diverse populations.

Within composition studies programs, collaborative writing is often lauded for its benefits; however, it also poses a number of potential problems. Elbow (1999) asserts that collaborative writing is often “difficult and unpleasant;” it is often “bland” because the writers must agree on their thinking; and it often “silences weaker, minority, or marginal voices.” He notes that carefully designed assignments, student training, and fair assessment techniques can ameliorate these issues.

Contextual learning

Constructivist theories hold that learners incorporate new information by relating it to what is already known. In this way, meaning is imparted to the new information as it is placed in the context of previous knowledge. Instruction can capitalize on this principle of brain learning by directly seeking to provide relevance and application of new information through presenting it in relation to real-world aspects of the students’ lives. Contextual teaching and learning (CTL) “helps teachers relate subject matter content to real world situations and motivates students to make connections between knowledge and its applications to their lives as family members, citizens, and workers” (Ohio State University, 1999). In addition to facilitating constructed meaning from new knowledge, this method also enhances student motivation and helps to translate often abstract concepts into concrete examples.

Contextual teaching and learning differs from traditional, conceptual instruction in several ways. In general, CTL is characterized by:

1. Centralization of pragmatic life/work issues
 2. Integration of academics with real-life experiences
 3. Personalization of instruction
 4. Visualization of abstract ideas
 5. Demonstration of utility
- (Bond, 2004)

Teaching academic applications in the career context is an effective way to engage hard-to-reach students.

Contextual learning methods have also been termed “cognitive apprenticeships,” a reference to the acquisition of academic knowledge and/or skills in a manner similar to that which has historically been employed among craftsmen in technical occupations (Bond, 2004). Much as in a traditional apprenticeship, CTL makes the knowledge to be mastered visible and presents it in a way that makes immediate sense to the learner. Instructional methods shift from lecture-dominated formats to ones in which instructors provide modeling, scaffolding and coaching as the novice learner trains to do the “task” in which he/she will apply the information gained.

Most often, CTL has been used to connect learning in academic subject areas with vocational training. Researchers have concluded that teaching academic applications in the career context is an effective way to engage hard-to-reach students and to motivate them in the areas of math, written and oral communication, critical thinking skills, and problem-solving (Paris and Huske, 1998). Others have noted the affective benefits of increased learner confidence, development of enthusiasm and interest toward students’ long-term goals, and the education that is required to achieve them (Weinbaum and Rogers, 1995). In reviewing studies on “work-based” learning in high schools, Medrich, Calderon, and Hoachlander (2002) found that this method led to increased student attendance, decreased dropout rates, and increased student engagement with school. Specifically, these studies noted that work-based learning significantly improved a student’s grade point average and attendance and was correlated with students’ enrolling in higher level math and science courses more frequently than their peers.

In Washington, a statewide initiative has recently demonstrated the significant potential of contextual learning for improving student outcomes in basic skills and workforce training. At 10 two-year colleges, the Integrated Basic Education and Skills Training Program (I-BEST) paired ESL adult basic skills instructors in classrooms with professional-technical instructors to simultaneously deliver intensive instruction aimed at developing English language and/or literacy skills in the context of workforce education. Project results indicated that I-BEST students earned five times more college credits on average and were 15 times more likely to complete workforce training than a control group of ESL students over the same amount of time (Washington State Board for Community and Technical Colleges, 2005). The success of the program was profound enough to prompt a change in the system’s full-time equivalent (FTE) calculations for funding reimbursement to accommodate the unique instructional mode involving two instructors present simultaneously in the classroom, along with enhanced support services. Next steps involve plans to escalate the project to scale in the remaining 24 colleges in the Washington state system.

Learning Communities

Learning communities can occur within a course or exist as paired courses. Either way, the goal of learning communities is that “students encounter learning as a shared experience rather than isolated experience” (Tinto, 1997b, 602). Extensive data indicate that these shared experiences contribute to the overall success and retention of developmental and transfer students. Further, Tinto claims that learning communities “emphasizing collaborative learning have a positive impact on student attitudes toward learning.” His research also suggests that learning communities and collaborative learning activities have a positive effect on the academic performance and persistence of developmental students.

Tinto (1997b) argues that “though it is apparent that the college classroom is, for many if not most students, the only place where involvement may arise, it remains the case that most college classrooms are less than involving” (602). For the most part, students take courses in detached and isolated units. However, a number of colleges are exploring the potential for paired courses or formal learning communities. In paired courses, a cohort of students enroll in the same two courses, and usually one course is designed to complement the other. The Puente Project and

MESA in California are based on this model, as is an MDRC project at Kingsborough Community College. The instructors of these courses work together to promote shared curriculum and support each other's learning goals.

In a study of Seattle Central Community College students, Tinto (1997b) concluded that a learning community of paired courses resulted in supportive peer groups, shared learning, and greater voice in the construction of knowledge (608). Students enrolled in learning communities at the college persisted at a rate that was 25 percent higher than those in the traditional curriculum, and reported an increased sense of personal responsibility for their own learning and that of their community members (Tinto, 2000). The learning communities resulted in the development of learning networks that extended beyond the boundaries of the classroom and assisted students in their ability to manage assignments and feel more secure in an unfamiliar academic environment. Additionally, Tinto asserts that a “multidisciplinary approach also provided a model of learning that encouraged students to express the diversity of their experiences and world views” (610). This means, of course, that the instructors modeled methods of expressing both comparisons and contrasts in course materials and personal viewpoints.

A learning community of paired courses resulted in supportive peer groups, shared learning, and greater voice in the construction of knowledge.

Boylan (2002), however, indicates that learning communities are labor-intensive and not necessarily effective for all students, despite the research documenting their success. Therefore, learning communities must have a strong training/staff development component. Further, the “overall effect of learning communities is strengthened by weaving advising, counseling, tutoring, and other support services into the learning community” (70-71). This last salient point is perhaps overlooked in terms of the contribution of these features toward the documented successes of learning communities. Indeed, as suggested by effective practices previously identified in this review, the inclusion of these support service components and their concomitant focus on increased engagement and motivation may account in large part for the success of the learning community structure.

Much of the available research on learning communities has been conducted at four-year, residential colleges and universities. More studies are needed to examine the impact of these models at commuter and two-year colleges. Despite the promise of substantial gains associated with the implementation of learning communities, they are not without their limitations. Colleges should be thoughtful and deliberate in selecting a learning community approach to meet the needs of specific cohorts of developmental students.



D.7 EFFECTIVE PRACTICE Programs align entry/exit skills among levels and link course content to college-level performance requirements.

RESEARCH FINDINGS If basic skills courses are to assist underprepared students in achieving college success, the issue of sequential course alignment with college-level requirements is fundamental to effective developmental programs. Grubb (2001) notes that along the pathway from initial student placement to successful completion of degree or transfer requirements, there are many critical points at which the system may break down. Assessment instruments not carefully aligned with course content may result in either over- or under-inclusion of students in the remedial pathway. Likewise, improper alignment between sequential course exit and entry-level skills may lead students to repeat previously-mastered material or may result in gaps in acquired knowledge and skills needed for success. Grubb recommends that colleges examine the entire trajectory of the developmental curriculum, from initial placement through all levels of remedial coursework to the collegiate-level content course, to ensure consistency and appropriateness of coursework prescribed for developmental learners.

Remedial courses are most effective when regular efforts are made to ensure consistency between exit standards for remediation and the entry standards for content courses.

Research confirms that remedial courses are most effective when regular efforts are made to ensure consistency between exit standards for remediation and the entry standards for content courses (Boylan, Bonham, Claxton and Bliss, 1992). At institutions where such consistency was present, students passing remedial courses had a higher likelihood of also passing their college-level courses. Higher retention rates have also been linked to entry/exit skill alignment in sequential developmental courses (Boylan & Saxon, 1998). In their studies of successful developmental programs, both Boylan (2002) and Roueche and Roueche (1999) found that ensuring linkage between basic skills and college-level courses was a key component, leading them to advocate strongly for colleges to embrace this function.



D.8 EFFECTIVE PRACTICE **Developmental faculty routinely share instructional strategies.**

RESEARCH FINDINGS Effective teaching practices should be shared among faculty to increase the benefits to a larger population of students. While many faculty do this with their colleagues informally, highly effective developmental programs are characterized by formal, embedded mechanisms to facilitate such exchanges. In a national benchmarking study of best practice institutions for developmental education, 89 percent indicated that they had some sort of mechanisms in place to promote creation and exchange of instructional strategies among faculty at the discipline level and across the program (Boylan, 2002). Additionally, many also noted that they made deliberate efforts to support collaboration between faculty and student service personnel.

Boylan (2002) suggests that sharing mechanisms must be routine rather than occasional, and that these must be structured into the activities of the developmental program. Mechanisms that facilitate sharing might include:

- set-aside time at faculty meetings to talk about teaching/learning issues and pedagogical approaches;
- sharing of syllabi or other course materials;
- formation of instructional teams to develop or adapt materials ;
- encouragement of mentoring relationships among faculty;
- provision of opportunities for faculty returning from conferences to “share out” regarding their learning and/or materials obtained; and
- frequent college-wide forums devoted to dialogue and discussion of instructional practices.

McCusker (1998) also notes a recommendation for cross-level sharing and collaboration between faculty in developmental and content-area courses. Since they represent a significant proportion of developmental instructors, adjunct faculty must also be strongly encouraged to routinely communicate and share strategies with others in the program.



D.9 EFFECTIVE PRACTICE Faculty and advisors closely monitor student performance.

RESEARCH FINDINGS According to Cross, “one of the basic principles of learning is that learners need feedback” (2000). The concept of “curriculum bits” or units was first articulated in Bloom’s concept of mastery learning:

Bloom saw dividing the material to be learned into units and checking on students’ learning with a test at the end of each unit as useful instructional techniques. He believed, however, that the tests used by most teachers did little more than show for whom the initial instruction was or was not appropriate...With this in mind, Bloom outlined a specific instructional strategy to make use of ...feedback and corrective measures, labeling it ‘mastery learning’ (Gusky, 1994, 9-10).

Mastery learning, therefore, emphasizes individualized instruction and frequent classroom assessment. Boylan (2002) asserts that techniques using this framework are particularly effective for developmental learners because they provide “regular reinforcement of concepts through testing. An emphasis on mastery requires students to develop the prerequisite knowledge for success in a given course and to demonstrate this knowledge through testing” (88). Mastery learning also provides “regular reinforcement” as well as a high degree of structure (Boylan and Saxon, 2002). Despite the fact that this approach is not as popular as it was 30 years ago, the evidence still supports its efficacy. However, “frequent testing does not necessarily imply the exclusive use of paper and pencil or computerized testing. Any activity that requires students to demonstrate their skills according to a standard can represent frequent testing (Boylan 79). Consequently, the feedback from these assessments gives students an opportunity to practice and study more effectively.

Any activity that requires students to demonstrate their skills according to a standard can represent frequent testing.

According to Craven (1987, 82), the disciplines that are most compatible with mastery learning share the following traits: “[t]hey require a minimum of prior knowledge, they are learned sequentially, they emphasize convergent thinking, and they are closed.” Generally, this description applies to science and some mathematics instruction. Craven asserts that the process of mastery learning—informing the students of what they need to learn, providing opportunity for practice, providing feedback about what students can do to correct errors, and assessing achievement—is relatively easy to employ. Studies show that achievement can be expected to rise with this more individualized model.

This concept of mastery learning has been further explored and popularized through the “classroom assessment techniques” described and validated by Cross and Angelo. The purpose of classroom assessment is for the teacher to obtain continuous information about the quality and depth of student learning, and for students to obtain continuous information about the development of their skills so that they can reflect, monitor, and correct. Some of the most popular techniques include the “minute paper,” which is easy to administer and provides immediate feedback about student learning. Angelo and Cross’ book *Handbook for College Teachers* (1993) outlines approximately 50 techniques that are adaptable for a wide variety of disciplines and help engage students in the evaluation of their own learning while also informing their instructors as to the progress of their skill and comprehension. This, in turn, provides an opportunity for instructors to conduct their own classroom research about the progress of their classes. The institutionalization of the student learning outcomes cycle provides similar opportunities.

In addition to classroom feedback, the literature strongly supports evaluating student progress through student services, either through a counselor or “case manager.” Roueche, Ely, and Roueche (2001) describe a case management approach at the Community College of Denver, where case managers work as “advocates, problem solvers, and friends” for their student charges (2001, 94). Case managers meet routinely with students to map approaches for the students’ course of study and to designate appropriate services as they progress.

The best programs make monitoring a shared responsibility for faculty and advising staff.

While the monitoring of student performance is an important element in most developmental programs, the best programs make monitoring a shared responsibility for faculty and advising staff (Boylan, 2002). Current theories maintain that affective factors such as attitude, motivation, and self-efficacy contribute toward academic achievement as much as a student’s cognitive ability. While faculty are in the best position to monitor cognitive progress, advisors may have additional insight regarding affective factors. Together, this collaborative monitoring model provides for the development of comprehensive interventions. Commonly, this is manifested as an “early warning system” in which faculty may refer

students needing help to an academic advisor who meets with the student to recommend solutions or services. After referring the student to the appropriate services, the advisor follows up to ensure that the student actually takes advantage of the recommended services and reports the outcomes back to the faculty (who may make further assessments or adaptations to instruction). Advisors who are able to work with the same students throughout their developmental programs are better able to build relationships with students, understand their goals, and promote student engagement with the institution.

Kulik , Kulik and Schwalb (1983) found that college interventions for high-risk students were more successful when they began as early as possible in students’ academic careers. Similar findings were reported by McCabe and Day (1998, 59) who noted that “early intervention appears to be a key to the success of monitoring activities in developmental education.” Many colleges have also successfully used peer mentors for monitoring. When using peer mentors, these individuals must be carefully selected and very well trained in areas including interviewing skills, academic policies, and advising ethics.



D.10 EFFECTIVE PRACTICE **Programs provide comprehensive academic support mechanisms, including the use of trained tutors.**


RESEARCH FINDINGS The most common form of academic support or learning assistance occurs at the community college in the form of the lab or center featuring a variety of services. Since most developmental students simultaneously enroll in transfer or occupational courses, learning assistance programs are particularly important for the students’ ability to successfully move through their courses of study. Noel, Levitz, and Kaufman (1982, 7) assert that remediation services alone were unable to ensure student success. In a comprehensive program,

[s]tudents must learn to motivate themselves, to understand their learning strengths and weaknesses, to negotiate the academic and social system, to adapt effective and efficient methods of processing information, and to alter previously established attitudes about their own potential and their sense of self-worth.

These services may be housed under the guise of other names as well (e.g., academic support centers, reading centers, study skills centers, success centers, educational development centers, or resource centers). The literature generally supports the efficacy of tutoring; however, many

educators recommend that in order to be effective, these services must include a number of key characteristics.

One elemental consideration involves the metaphors associated with any form of academic support, often underscored by the name of the service. McQueeney (2001) and Carino (1995) contend that many academic support services suffer under the nomenclature of medical terms such as “labs” or “clinics.” Such connotations underscore the stigma implying that students who need help are damaged or injured and seeking “treatment,” further stigmatizing the status of students with basic skills issues. Arendale (1997a) further argues for the need for a paradigm shift away from the “medical model.”



Software and technological support must be used within the context of the larger departmental and institutional curriculum.

Similarly, when these services are created for the sole support of basic skills students or dedicated solely to the goal of remediation, they also suffer a kind of marginalization in the community college community. The effect, unfortunately, dissuades students from usage rather than encouraging it because the service is seen as a designation for failure or inadequacy. To that end, Burns (2006) argues that learning assistance centers should be accessed by all students, faculty, staff, and administrators, emphasizing interrelationships. Burns goes so far as to assert that learning assistance programs solely devoted to underprepared students actually decrease effectiveness.

Further, location plays a key role in the overall effectiveness of the services. The location promotes either access through “visibility” or marginalization through “invisibility.” Haviland, Fye, and Colby (2001) argue that isolation can prevent instructors from engaging in the learning processes of an academic support center by relegating them to the fringe of the institution. Therefore, they promote geographic centrality as the best location for an academic support center (106).

Tutoring is generally considered the most common function of a learning center. Tutors should be well-trained, and the tutoring services should be subject to program evaluation. While some research (Irwin 1981) indicates that tutoring may have little impact on student achievement, it does seem to have a more significant effect on college persistence (Koehler 1987; Vincent 1983). However, tutor training significantly contributes to the overall effectiveness of peer tutor (Gier and Hancock, 1994; Maxwell, 1995; Gourgey, 1992; Condrary, 1995; Damashek, 1999). Specifically, Boylan, Bliss, and Bonham assert that tutors participating in a systematic training component are more likely to promote higher pass rates and higher grade point averages. Generally, the tutor training model sponsored by the College Reading and Learning Association (CRLA) is most widely supported (Gier and Hancock, 1994). Generally, tutor training helps to emphasize the students’ need to learn to learn rather than improvement of specific assignments. Additionally, training helps alert peer tutors to their own metacognitive strategies so that they can more effectively assist students in their own engagement and learning. Ashwin’s (2003) study on peer support asserts that peer support has the potential to change the way students study by improving their metacognitive skills, therefore improving the quality of their learning.

Researchers generally agree that tutoring is only one possible component to an academic support center. Effective assistance requires that the services are focused on the students’ specific learning needs as well as the students’ metacognitive development. In order to meet the students’ needs, an academic support center can serve many functions by providing the following:

- Appropriate academic resources such as computer access and academic resources
- Diverse and active learning experiences such as workshops, study groups, self-paced instruction via video or software, and experiential learning
- Flexible hours
- Referrals to other services (medical, psychological, financial)

Many researchers agree that such a diverse set of goals requires full-time faculty leadership and full institutional support.

Many learning centers diversify student support through the use of technology and software support. However, some caution that the software itself cannot provide positive results (Stoik, 2001). Software and technological support must be used within the context of the larger departmental and institutional curriculum. Caverly (1994) recommends a careful evaluation process and lists the following applications as some of the most common uses of technology in a learning environment:

- Diagnostic
- Management
- Drill/practice
- Tutorials
- Simulations
- Telecommunications

Caverly agrees that software can facilitate learning by providing opportunities to practice skills, but from a holistic perspective, students must also have access to direct instruction, modeling, and guidance.

Many learning centers diversify student support through the use of technology and software support.

Another approach to academic support is the offering on Student Life Skills (SLS) courses. Recently, the Florida Department of Education (2006) published a study indicating that Student Life Skills courses have an affect on community college student success. These courses are designed to teach students fundamentals such as time management, study skills, and test-taking strategies. Using data from the Florida Community College System over a five-year period, researchers concluded that students who enrolled in these courses were 17 percent more likely to succeed academically and 16 percent more likely to be retained at the institution. Results were also

disaggregated by their college readiness, and both college-ready and basic skills students were similarly affected. In addition, the course had the greatest impact on African American students. In every ethnic group, success improved approximately 1.5 times compared to non-participating students.

Supplemental Instruction


Supplemental Instruction (SI) was created by Deanna Martin at the University of Missouri-Kansas City in 1973 and has since become a common practice at many colleges and universities. While many other intervention programs target at-risk students, SI targets historically difficult courses (classes with a 30 percent failure or withdrawal rate) or “gatekeeper” courses. According to Ogden, Thompson, Russell, and Simons (2003), “student performance cannot be addressed effectively by serving only those students who demonstrate predisposed learning weakness.” Historically, students participating in effective SI programs earn higher final course grades, succeed at a higher rate, and tend to persist at higher rates.

Bowles and Jones (2003) attempted to further validate the results of SI by controlling for the selection bias, which suggests that a higher course grade may result from SI because “better students choose to attend” (241). From their model, Bowles and Jones concluded that “inherently less able students are more likely to attend SI” (242). Therefore, some of the current studies correlating student success and participation in SI may be undervaluing its overall effect.

Hensen and Shelley (2003) confirm this research in their SI study of entry-level biology, chemistry, mathematics, and physics students. Their study found that “SI participants have lower pre-entry characteristics than non SI participants, contradicting the belief of many that participants’ higher

mean final course grades can be attributed to higher-achieving students participating in the program” (258). They concluded that “students of all levels are utilizing the program and being impacted by that participation” (258).

SI focuses on both content issues as well as learning process habits, contributing to the students’ overall learning improvement while also decreasing a sense of isolation, commonly viewed as a cause of attrition among first-year college students. Maxwell asserts that “college social relations are so invariably isolating,” which impacts overall student success.



Supplemental
Instruction integrates
what to learn with
how to learn

The SI user’s role is to take an active part in providing the material for the session, while the SI leaders are responsible for structuring the session (Ashwin, 2003, 160). The SI leaders are trained to incorporate a number of collaborative and review techniques to help the student learn the course material within a safe and familiar context. Arendale (1997b) stresses the importance of continuous program evaluation and training in order to promote success. Casazza and Silverman (1996) stress the importance of training, especially as it relates to supporting adult learners. Since the learning focus for adults is on empowerment, “details of assignments may be negotiated rather than prescribed, with the learner taking an active role in the decision making and the [tutor] functioning with less authority” (119). This allows the “tutor to mediate the session while letting the adult learner determine the direction of assistance” (119).

SI integrates what to learn with how to learn. Video-based Supplemental Instruction is the newest variation of this model for students who need a more intensive experience of learning how to apply study strategies immediately with difficult course work (Martin and Blanc, 1994).

Martin and Blanc, however, point to a number of challenges for the delivery of supplemental instruction which include the students’ inability to do the following:

- Hear and understand professor’s language
- Read and understand course texts
- Sit through lecture and take meaningful notes
- Write well enough to express ideas on an essay

These limitations inhibit the overall effectiveness of the session and the SI leaders’ ability to assist in learning. Even with these potential challenges, “supplemental instruction or SI is probably the single most well documented intervention available for improving the academic performance of underprepared students” (Boylan, 75).

Review of Selected Literature Sources

REVIEW OF

“ESL Students in California Public Higher Education” ICAS ESL Task Force Report

Adopted by the Academic Senate for California Community Colleges in Spring 2006

http://www.academicssenate.cc.ca.us/Publications/Papers/ESL_Students_CA.html

Language minority students comprise nearly 40 percent of all K-12 students.

The increasing numbers of immigrant students in the United States and the special needs of English as a Second Language (ESL) learners have been prominent topics in national conversations about education at all levels. Nowhere in the United States have educational issues concerned with ESL learners been more critical than in California, where language minority students comprise nearly 40 percent of all K-12 students and an ever-growing population of postsecondary students. Many ESL learners have problems that lead to special challenges when they need to use academic English in college and university classes. Therefore, there is a critical need for California colleges and universities to find effective ways of educating the rapidly growing population of learners who speak a language other than English at home in order to help them achieve a wide range of educational, professional, and career goals.

Although California's postsecondary ESL learners are extremely diverse in their ethnic, cultural and linguistic backgrounds, they tend to belong to one of several very broadly defined populations. One group consists of long-term immigrants or American-born children of immigrants who reside in non-English linguistic communities. These learners, sometimes called generation 1.5 students, have done most, if not all, of their schooling in the United States yet are still struggling to reach competency in college-level oral and written academic work. A second population includes more recently arrived immigrant students who may or may not have developed first language literacy and who may have completed several years of schooling in the United States. These students are generally more easily identifiable as second-language learners than the longer-term immigrants. A third population, the size of which varies significantly from campus to campus, consists of international students who exhibit a wide range of native languages and cultures and have typically developed first-language literacy skills. There are many students in each of these groups who are still struggling to use English effectively in their academic work, and, therefore, create challenges for institutions, programs, and individual teachers.

This report responds to some of the key questions raised by educators and legislators about ESL practices, programs, and support services across the three California postsecondary systems: the California Community Colleges (CCC), the California State University (CSU), and the University of California (UC).


- Are campuses effectively identifying those non-native English speakers who need specialized instruction to achieve academic success from those who do not need it?
- Are the assessment and placement procedures we currently have for English learners adequate?
- What kinds of programs, courses, and support services are currently offered for English learners? How could they be more effective?

While this report was produced to address the particular concerns of the California Community College Board of Governors, a great many others, both within the CCC system and beyond it, share the concerns of the Board. The problems facing ESL learners affect not only their ability to be successful within or transfer between public institutions of higher education but also their ability to fully participate in and contribute to the social and economic well-being of the state of California.

This report is based on an online survey, statistical data from education web pages, and the collective knowledge of the task force members. For each college and university campus, the ESL task force identified and contacted respondents whom they believed would be qualified to answer the survey questions. Faculty and administrators who responded included professors, instructors, lecturers, and program directors or coordinators. Over 82 percent of the respondents reported that teaching was at least a part of their position. Of the 109 community colleges, representatives from 61 (56 percent) completed the survey. Of the 23 California State Universities, 12 responded. Of the 10 University of California campuses, the eight that have ESL classes or programs (San Francisco and Merced do not) were asked to complete the survey, all of whom did so.

Identification, Assessment and Placement of ESL Learners

The findings of this survey support the belief of many educators involved in ESL and English programs that the identification, assessment, and placement of ESL learners is a critical issue on our campuses. Identification of ESL learners is complicated and inconsistent, and this hinders any effort to collect information about their status and progress. In the majority of community colleges, self-identification is the primary tool for identifying ESL learners. However, some students are reluctant to self-identify as ESL learners because of the perceived stigma. In addition, there are generation 1.5 students who do not fit neatly in either the traditional ESL or native-speaker categories. Culturally, these students are not ESL learners. However, results on placement tests and students' work in classes show that they have ESL features in academic writing and reading.



In the majority of community college campuses, self-identification is the primary tool for identifying ESL learners.

At CSU, freshmen, when taking the English Placement Test (EPT), can self-identify as being second-language users of English. This self-identification shows students' language background but not whether they have ESL problems. At the UCs, entering freshmen may be identified as having writing errors characteristic of the writing of nonnative speakers of English when they take the UC Systemwide Analytical Writing Placement Exam (AWPE). While some students may be initially identified as ESL learners, ongoing identification is lacking, and this hinders collection of longitudinal data to track their progress beyond ESL coursework. Of the campuses responding to the survey, 75 percent of CSUs and 88 percent of UCs designate incoming freshmen as ESL learners; for students who transfer in, only 27 percent of CSUs and 14 percent of UCs make an ESL designation.

Survey responses identified significant issues in the areas of assessment and placement. While writing theory and research support the use of writing samples for assessment and placement into writing courses, fewer than 40 percent of community colleges employ a writing sample, citing the expenditure of money and time needed to evaluate the samples. Validation of tests is also an issue due to the lack of support for research functions. While ESL courses often serve as the prerequisites for enrollment in English, the community colleges do not impose a time frame within which ESL coursework must be completed. In addition, of the three-quarters of CCC respondents who indicated the existence of prerequisites, a large majority (83 percent) indicated that students could challenge the prerequisite for a course.

Within the CSU system, entering freshmen take the English Placement Test (EPT) as an assessment of their language ability. This test is taken by all students and makes no accommodation for non-

native English learners. Only 27 percent of respondents indicated that an additional placement test specifically for second-language learners of English is employed in the assessment process. With the implementation of regulations governing remediation, students who achieve low scores on the EPT have one year to remediate before being redirected to a community college to complete remediation in English before being readmitted to a CSU. For students transferring from a community college, the assumption at most CSUs is that fulfillment of general education (GE) breadth or an inter-segmental general education transfer curriculum (IGETC) pattern indicates that a student has achieved the academic writing proficiency needed for upper-division work. However, results on campus-specific junior-level writing proficiency exams may indicate that a student continues to manifest significant second-language writing problems.

Community college transfers to UCs are assumed to have the academic writing proficiency needed for upper-division work.

At UCs, each individual campus has a placement process for students who have received “E” designations on the AWPE. The “E” designation is given to non-passing essays when non-native English features have contributed to the non-passing score. On five of the eight campuses, ESL or writing program faculty re-read the “E”-designated examinations to make placement decisions into either ESL or mainstream courses. Respondents indicate that many “E”-designations are now for generation 1.5 students, who have received most or all of their education in the United States. UC campuses typically afford students one or two years to successfully complete the Entry Level Writing Requirement (ELWR). Those identified on writing tests as needing ESL instruction are usually given additional time to allow enrollment in ESL courses to develop their writing proficiency. Community college transfers to UCs are assumed to have the academic writing proficiency needed for upper-division work.

ESL Courses and Programs

A second major area for which the survey collected extensive data across the three systems concerned the range and types of courses and programs designed for ESL learners as well as respondents’ perceived needs for courses or programs not being currently offered. The survey also sought to determine where courses and programs for ESL learners were housed and the extent to which courses were credit-bearing.

Of those campuses who responded, almost all CCC campuses (98 percent) report having ESL classes. Most of the CSU campuses responding (83 percent) report having such courses. However, since only half of the CSU campuses responded to the survey, it should not be assumed that the majority of CSU campuses have ESL courses. In fact, many of the CSU campuses do not offer ESL courses. All of the UC campuses that completed the survey report offering ESL classes. CCC respondents report offering ESL courses through diverse departments and programs; most frequently through ESL departments (47) followed by English departments (14). On CSU campuses, English departments are the most common academic home for ESL courses. At UC campuses, writing programs are the departments or programs most frequently offering the ESL courses.

UC ESL courses are generally targeted to freshmen, while the CSUs have ESL courses that serve both freshmen and upper-division students. It should also be noted that for at least some CSUs, the populations served by the ESL classes are mainly international students and not immigrant ESL learners. While all three segments offer a broad range of levels of writing courses, only CCCs offer a wide range of levels in the other skill areas, including reading, listening, speaking, grammar, and multi-skills. CCCs report offering from one to six or more levels of ESL writing instruction; CSUs report offering from two to four levels of ESL writing instruction including upper division ESL writing; and UCs report offering from one to five levels of ESL writing instruction but with more than half of UCs reporting offering only one level of ESL writing.

Among CSU respondents, half report that all ESL courses are credit-bearing, 40 percent report that some are credit-bearing and 10 percent report that none are credit-bearing. Among UC respondents, 71 percent state that all ESL courses are credit-bearing and 29 percent report that none are credit-bearing. Eighty-four of the 109 community colleges report offering ESL courses for credit, but credit may or may not be applicable towards the Associate's degree. Community colleges also offer noncredit ESL courses. The majority of CCC and CSU respondents and some UC respondents report that additional ESL courses are needed on their campuses to meet ESL learners' needs. Many community colleges report needing additional sections of classes already offered. The need for additional sections of existing classes is less pronounced at CSU and UC campuses.

The survey also asked respondents to comment on program evaluation methods. CCC, CSU, and UC campuses report a variety of ways to engage in program evaluation. At UC campuses, it is fairly common to have an outside evaluator participate in the evaluation, while at CSU and CCC it is much more common for a program to undergo a self-evaluation.

Support Services for ESL Learners

The third broad area for which this report collected information was that of support services designated especially for ESL learners. These services included orientation and advising, counseling, tutoring, outreach, assistance to disabled ESL learners, job placement, and career services. While the survey did not distinguish between international and resident ESL learners when looking at programs and information about courses, this distinction proved important when surveying support services for these two populations.



The majority of respondents report that additional ESL courses are needed on their campuses.

Orientation and initial advising are viewed as extremely important services to support ESL learners. In CCCs, where the number of international students varies greatly, orientation and initial advising are offered about as frequently for international learners as other ESL learners. However, in the CSU and UC systems, specially tailored orientation and initial advising are offered more frequently for international students than for other ESL learners. This is most pronounced in CSUs, where most of the campuses offer these types of services to international students but less than a third to other ESL learners. The overall rating for these orientation services for ESL learners (both resident/immigrant and international) is generally positive in the UCs and CCCs with 60 percent of the respondents rating them good or excellent and less positive for CSUs, with only 22 percent rating them as good or excellent.

Ongoing counseling is regarded as another important support area to promote retention and assist “at-risk” learners, among other purposes. The findings of the survey indicate that international students, to a much greater extent than immigrant students, have counseling services available to meet their special needs. Sixty percent of CCCs offer ESL counseling to international students, but fewer than half report such a service for immigrant/resident students, many of whom could use it. Whereas over half the reporting CSUs provide counseling for international students, very few have ESL counseling for immigrants/residents.

Counseling directed specifically to ESL students is offered to international students on only two UC campuses, one of which also provides counseling to immigrant/resident ESL students. Fewer than 50 percent of the respondents in all three segments indicated that specific services for “at-risk” ESL learners are provided. The frequency of services seems to be greater in the CSUs (46 percent) than either the CCCs (33 percent) or the UCs (25 percent).

Tutoring has long been considered one of the most important support services on college and university campuses for second-language learners, as evidenced by the considerable research and pedagogy devoted to this area in the field of Teaching English as a Second Language (TESL)

and Applied Linguistics. All three systems provide tutoring targeted specifically for ESL learners, both immigrant/resident and international. Tutoring services are provided more frequently for international students at the CSU than at other levels. However, 86 percent of the UC campuses provide tutoring services for immigrant/resident ESL learners, exceeding the other two systems by more than 15 percent. All three systems provide a range of tutoring services with some specialized tutors. The overall perceived effectiveness of such learning centers is mixed. Comments point out significant problems with tutoring services, among them the inadequacy of tutor training; insufficient pedagogical grammar knowledge on the part of tutors, which is essential for ESL writing tutoring; and a high turnover rate once tutors are trained. Scheduling of tutors is sometimes not effective because there are insufficient numbers of tutors later in the semester when they are most needed. Finally, there is insufficient funding for the tutoring/learning centers as a whole.

Respondents to this survey from all segments report that they are not aware of outreach services to ESL high school learners.

While the need for outreach to secondary schools from the postsecondary systems has been widely discussed and programs implemented by many campuses, respondents to this survey from all segments report that, for the most part, they are not aware of outreach services to ESL high school learners. In the case of both outreach efforts and transfer services, it is clear that more transfer counseling specifically directed toward ESL students and more sharing and/or collaboration among programs regarding outreach are needed to improve the flow of students between segments.

Responses to survey questions about other support services for ESL learners, such as disabled student services, financial aid, and job placement/career services, indicate such specialized services meeting ESL students' needs are offered only by a small number of institutions.

➤ Recommendations

The task force concludes with the following recommendations:

1. Our public higher education systems should work with legislators toward the goal of developing a statewide system for identifying ESL learners and tracking their progress through the higher educational segments.
2. Campuses should review current assessment and placement instruments and, where needed, develop more accurate instruments and appropriate placement procedures for ESL students.
3. Campuses should provide ESL instruction and related support services to entering and transfer students, including generation 1.5 students.
4. Campuses should review the adequacy of current ESL instruction. Issues examined might include the following: skill areas and number of levels, appropriate class size, number of course sections, degree applicability of courses, course repeatability, and program evaluation.
5. Campuses should encourage ESL learners to address their academic language needs in an appropriate and timely manner.
6. Campuses should coordinate and improve support services specifically designed to meet ESL learners' needs, keeping in mind the different populations (international students, immigrants, both long-term and recently arrived, and generation 1.5).
7. ESL professionals should be called on as resources in all areas of student support for working with ESL students.
8. Campuses should improve the identification of ESL students with learning disabilities and develop ways to meet their special needs.

9. Through inter-segmental collaboration, a higher education website should be developed for ESL professionals from all three segments of public higher education in California. This could include such features as a directory of California public college and university ESL professionals, a searchable annotated bibliography of studies, program profiles, and reports that specifically focus on current ESL practices and issues in higher education, and links to these reports.
10. Each higher education system should institute a formal organization of ESL coordinators to develop ways to serve ESL students more effectively.

REVIEW OF

References on Neuroscience and Brain-Based Learning

Various Sources

Historically, relatively little was known about the inner machinations of the brain. In the last few decades, brain research has exploded, with possibly its greatest ascent coming in the 1990s. In fact, the 1990s were declared “officially” as the “Decade of the Brain” by a United States House of Representatives Joint Resolution in 1989, signed into law by President George H. W. Bush (House Resolution #174, July 1989).


By most accounts, translation of the findings of the key brain research fields of cognitive science and neuroscience into practical education applications has been slow. The reasons for this are myriad; Jensen (2005) suggests that much of the answer is grounded in the differences between brain research and traditional educational research. Brain research tends to utilize paradigms of basic research and clinical research, while educational research tends toward more applied or action research.

Basic and clinical researchers are often hesitant to proclaim bold conclusions, couching their findings (correctly) as limited by the research design, the controlled nature of the study, and a myriad of other factors. Educators, however, are often looking for “answers” that they can immediately apply to the classroom. This structural tension has certainly contributed to the adoption curve of potentially relevant cognitive and neuroscience research findings. Wolfe (2001) also notes that educators are wary of fads and the newest “breakthrough,” which may also contribute to the lack of early adoption.

The National Research Council’s Commission on Behavioral and Social Sciences and Education 2000 volume *How People Learn* (Bransford and Brown, 2000) has been hailed as a critical step in formulating an all-encompassing connection between previously unattainable primary research in neuroscience, social psychology, cognitive psychology, developmental biology and psychology, and more practical application in the field of education. This volume traces the development of the science of learning and summarizes a wide range of research into how learning occurs and the effect of teaching and teachers on learning, formulating specific key findings and principles. Much of this volume is focused on how children learn, but the authors specifically suggest that the implications are analogous for adults. This would seem to especially true in the domain of developmental education in the college environment.

The volume elevates three findings that are supported by a wide range of research as “key findings:”

1. Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for the purpose of a test but revert to their preconceptions outside the classroom.



Brain research tends to utilize paradigms of basic and clinical research, which educational research tends toward more applied or action research.

2. To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge; (b) understand facts and ideas in the context of a conceptual framework; and (c) organize knowledge in ways that facilitate retrieval and applications.
3. A “metacognitive” approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them.

These three findings are then extended to suggestions for teaching:

1. Faculty must draw out and work with the preexisting understandings that their students bring with them.

- This requires that faculty create environments where students share their previously established thinking and then utilize this as the foundation for further comprehension and expansion upon the subject matter.
- Another key implication of this suggestion is that assessment must measure understanding and make thinking visible, rather than focusing on testing that requires mere recitation of facts or performance of isolated skills. This shift to assessment rather than testing also implies that the assessment will be both formative and iterative, helping drive future learning and curriculum.

Attention must be given to what is taught, why it is taught, and what competence or mastery looks like.



2. Faculty must teach some subject matter in depth, providing many examples in which the same concept is at work and providing a firm foundation of factual knowledge.

- A clear implication of this suggestion is that “coverage” cannot be a primary goal of education; while important to an extent, deep understanding is critical to future application of learning.

3. The teaching of metacognitive skills should be integrated into the curriculum in a variety of subject areas.

- The document cites numerous studies demonstrating that explicitly including a reflective, metacognitive focus on the stages of the learning process result in increased levels of learning.

The authors then delineate four key attributes of learning environments that should be applied to optimize learning:

1. Schools and classrooms must be learner-centered.
2. To provide a knowledge-centered classroom environment, attention must be given to what is taught (information, subject matter), why it is taught (understanding), and what competence or mastery looks like.
3. Formative assessments—ongoing assessments designed to make students’ thinking visible to both teachers and students—are essential. They permit the faculty to grasp the students’ preconceptions, understand where the students are in the “developmental corridor” from informal to formal thinking, and design instruction accordingly.
4. Learning is influenced in fundamental ways by the context in which it takes place. A community-centered approach requires the development of norms for the classroom and school, as well as connections to the outside world, that support core learning values.

To summarize, learning environments should attempt to juxtapose four approaches: learner-centered, knowledge-centered, assessment-centered, and community-centered. The volume extends these key findings into a number of domains, with selected chapters reviewed that explore each of the following areas. Key findings are identified from the research in each area:

How Experts Differ From Novices

- The problem-solving strategies of experts are quite different than those of novices. Experts have an exponentially increased ability to see the “larger picture” and understand the framework, context, and patterns evident in a situation. Novices, conversely, tend to operate at a surface level, attempting (often erroneously) to apply rote strategies to a given problem.
- The authors suggest six implications of the analysis of the learning and problem solving skills of experts:
 - Experts have varying levels of flexibility in their approach to new situations.

Learning and Transfer

- The ability to transfer learning to new situations is a key assessment metric of the entire educational process. Student motivation to learn has been identified as a key factor that leads to increased ability to transfer; this motivation can be increased by using instructional techniques that encourage relevant problem solving.
- Time on task is necessary but not sufficient for optimal transfer of learning. Further, a distinction is drawn between time on task focusing on memorizing and time on task focused on increasing understanding. The former may lead to the ability to recall/recite facts, and the latter is more likely to lead to the ability to flexibly solve problems outside the classroom in real-world environments.
- A metacognitive approach is emphasized, encouraging students to understand the context and applicability of their learning.

Formative assessment provides students with critical feedback and direction necessary to strengthen learning.

The Design of Learning Environments

- Learning environments need to attend to the degree to which they are student-centered, knowledge-centered, assessment-centered, and community-centered.
- Learner-centered environments work on the principle that students use their previously existing knowledge in combination with the “new” knowledge that they are exposed to in the educational system. Students filter new information through their unique lenses, and instructional practices that formalize connections for students between their previous beliefs and new information result in stronger and deeper learning.
- This doesn’t mean, however, that facts aren’t important. To the contrary, it is critical that students thoroughly learn facts and skills, but they need to learn them with a context for understanding their relation to each other and other bodies of knowledge. One key implication of this is that the “coverage” approach often taken in our schools works against this principle, hindering students from achieving more than a surface-level understanding of any given topic, much less the relationships between the topics being taught.
- The authors draw a strong distinction between the need for formative assessment and the more historically present method of summative assessment. Formative assessment provides students with critical feedback and direction necessary to strengthen learning; few students “get it right” the first time. Further, and notably, “If the goal is to enhance understanding, it is not sufficient to provide assessments that focus primarily on memory for facts and formulas” (National Research Council, 2000).
- It is also noted that students spend relatively little of their lives in the classroom. As such, connections from the classroom to the larger community are critical, especially when it is in these settings that the “outputs” of student learning are most commonly demonstrated.

- The authors also note that there is certainly overlap between these four perspectives, and it is important to attempt to align them as we design learning environments.

Numerous authors have applied the findings of brain research to different aspects of teaching and learning, with varied levels of direct reliance upon scientific research and a varying range of interpretations. It is interesting to note the similarities between these approaches; two have been included in this review. They are not intended to be “representative” of the massive work in this area, but it is interesting that they are rather consistent with the work of *How People Learn* cited above.

Caine & Caine (2006) identify “Twelve Principles of Brain/Mind Learning,” including a suggested application for each:

Principle	Suggestion
1. All learning engages the physiology.	All students learn more effectively when involved in experiences that naturally call on the use of their senses.
2. The brain/mind is social.	All students learn more effectively when their social nature and need for relationships are engaged and honored.
3. The search for meaning is innate.	All students can learn more effectively when their interests and ideas are engaged and honored.
4. The search for meaning occurs through patterning.	All students increase learning when new patterns are linked to what they already understand.
5. Emotions are critical to patterning.	All students can learn more effectively when appropriate emotions are elicited by their experiences.
6. The brain/mind processes parts and wholes simultaneously.	All students can learn more effectively when their experience gives them a sense of the whole that links the details (facts and information).
7. Learning involves both focused attention and peripheral perception.	All students can learn more effectively when their attention is deepened and multiple layers of context are used to support learning.
8. Learning is both conscious and unconscious.	All students can learn more effectively when given time to reflect and acknowledge their own learning.
9. There are at least two approaches to memory.	All students can learn more effectively when taught through experiences that engage multiple ways to remember.
10. Learning is developmental.	All students can learn more effectively if individual differences in maturation and development are taken into consideration.
11. Complex learning is enhanced by challenge and inhibited by threat associated with helplessness and fatigue.	All students can learn more effectively in a supportive, empowering, and challenging environment.
12. Each brain is uniquely organized.	All students can learn more effectively when their unique, individual talents, abilities, and capacities are engaged.

Jensen (2006) also cites “Principles of Brain-Based Learning,” which include:

- Memories are malleable.
- The brain seeks and creates understanding.
- The brain rarely gets complex learning right the first time; it creates a rough draft which can be upgraded to improve meaning and accuracy.
- Perception influences experience and does so uniquely for each individual.
- The brain changes physiologically every day and is influenced by our thinking and experience.
- Emotional and body states influence attention, memory, learning, meaning, and behavior.

In the end, the movement to more stridently incorporate brain research, cognitive science, and neuroscience into education is still in its infancy. There is much to consider, and we would recommend taking a scientific approach to the application of this knowledge – that is, test the new ideas and their proposed applications in our community college learning environments, and use assessment techniques to investigate any changes in student learning. It is also vital that, as practitioners evaluate these approaches in their local environments, knowledge is shared in a systematic way. The ongoing development of accessible mechanisms for this dissemination of practices and results would leverage any benefits produced to empower wider progress across the system as a whole.

Summary of Example Programs for Basic Skills in the California Community Colleges

Efforts to address the needs of basic skills students in California community colleges have been advancing for some time. While some early efforts may have derived from local experimentation, many current practices are well-grounded in the available literature documenting what works for basic skills students. In this section, we describe a variety of example programs and practices that connect well with the effective practices identified in this literature review.

The examples of basic skills programs that follow represent a combined and integrated version of the case studies posted on the Center for Student Success (CSS) Web site and the examples included in the 2003 Statewide Academic Senate Study. As of December 1, 2006, CSS's web site featured 31 examples of programs or strategies related to effective practices in basic skills across the California community college system. Some of these examples were also included in the 2003 study of the statewide Academic Senate. While during the research phase, when these examples were compiled for inclusion in the CSS web site, there was not actual evidence of positive impact on student success for some of the case studies, the 2003 Academic Senate study refers to such evidence. For the purpose of this summary, evidence of positive impact is drawn either from the CSS Web site or from the 2003 Academic Senate study. The degree of detail and information available for each example is uneven. Although by no means exhaustive, these examples provide a good overview of the universe of approaches related to basic skills utilized in California community colleges. Most of the examples combine a number of different approaches; in order to provide a structure, they are grouped under the same major categories of the literature review section:

Many current practices are well-grounded in the available literature documenting what works for basic skills students.

- A. Organizational and Administrative Practices (equivalent to the Program Structures section in the 2003 Academic Senate study)
- B. Program Components/Instructional Practices (equivalent to Instructional Interventions and Academic Support Services section in the 2003 Academic Senate study)
- C. Staff Development (equivalent to Faculty and Staff Development section in the 2003 Academic Senate study)

Additional information about the examples provided can be found on the CSS Web site (<http://css.rpgroup.org/>) and in the 2003 Academic Senate study available at <http://www.academicssenate.cc.ca.us/Publications/Papers/BasicSkillsEffective.htm#apC>.



A. Organizational and Administrative Practices


1. Centralized vs. Decentralized

- Contra Costa College maintains an Academic Skills department with the same status as other academic departments.
- Los Medanos College employs a decentralized but highly coordinated model, which has proven very effective. At Los Medanos, the Teaching and Learning Center Advisory Committee includes representatives from all disciplines and services that contribute to basic skills instruction.

2. Learning Communities

- **Mt. San Antonio College's Bridge Program** is a learning community designed to increase student's academic and personal success through the structuring of the learning environment. Bridge students share particular educational goals, common interests, and similar backgrounds. Students participating in Bridge are enrolled in linked or clustered classes that are taught in a cooperative environment between instructors. In addition, students are supported by Bridge Program staff and counselors, financial aid advisers, and transfer and advising specialists. As part of the Bridge Program, students can choose to be part of Summer Academy (SA) and/or Freshman Experience. There are 15 counselors dedicated to this program. The annual cost is \$35,000 to \$40,000 (supported by a Title V grant).

The program expanded to include additional learning communities such as the Math Academy, a math-only community providing students the opportunity to complete elementary and intermediate algebra in one semester as well as a combined learning community of developmental English, math, and a counseling course. Students participating have basic skills course completion rates higher than total college population rates and higher persistence through the sequence of math and English courses. The Math Academy students have higher success and retention rates compared to students not participating in the Academy.



Formative assessment provides students with critical feedback and direction necessary to strengthen learning.

- **Santa Ana College (SAC)'s Freshman Experience Program (FEP)** consists of learning communities created by linking courses through thematic content, skill development, or a combination of these methods. SAC offers 14 pairs of linked classes to freshman students. The courses include counseling (Career/Life Planning and Personal Exploration), math (elementary algebra to statistics), and English (from one level below freshman English to literature and composition). Teachers and counselors of FEP work as a team, coordinating assignments, exams, and other class activities of the specified courses. Paired teachers are present in both classes to ensure continuity of course materials. Students also become a team, joining together as a "cohort" to take these linked classes. This program targets a cohort of approximately 300-500 incoming freshmen each year.

Within one semester, students engage in at least one pair of linked classes (usually six units), participate in various workshops (topics include study skills, financial aid, transfer process, career exploration, and leadership training), a counseling session, and additional instructional assistance, if needed. On average, a student engages in approximately eight hours per week of activity (this includes class meetings, counseling sessions, and participation in workshops). Students are highly encouraged to attend all events and activities that the program offers. The program's annual operating cost is approximately \$180,000.

- **Fullerton College has a Transfer Achievement Program (TAP)** which began as a Title III project aimed at increasing the success in basic skills courses in English and math as well as promoting student persistence and eventual degree completion and transfer. TAP is now a mature program at the college, with participation of faculty from a wide variety of disciplines, mainly in the Humanities, Social Science, and Natural Science. TAP is essentially a learning community, with cohorts of students moving through a series of courses. TAP students are guaranteed enrollment in the courses. The program relies on supplemental instruction provided by peer tutors who are students who have been successful in the courses. Counselors work directly with faculty in classes.

Participation is required in core supplemental instruction and counseling aspects of TAP. Students commit to one additional hour per week for each TAP class and sign a learning contract. There is strong faculty participation. An awards luncheon is held each semester, well-attended by senior administration. Students must attend a mandatory meeting with a TAP counselor each semester to review their progress. Many additional activities are available but not mandatory.

Participants in TAP exceed college benchmarks in all areas: high student satisfaction, high faculty evaluations, high faculty satisfaction. TAP students have higher course retention and success rates (higher than college average, higher than average in comparable courses); higher term to term persistence; and higher graduation and transfer rates.

- **De Anza's College's Math Performance Success (MPS)** offers students a team approach to math success, particularly for those who have had difficulty in previous math courses. Instructors, counselors and tutor/mentors collaborate to help students complete their math requirements. Students take elementary algebra in the fall, intermediate algebra in the winter, and a college transferable math class in the spring. Starting in the Fall 2006 Quarter, MPS will be expanding to include sections that start with pre-algebra and trigonometry. The program is staffed by one half-time coordinator/counselor, math instructors, and math tutor/mentors.

The success students experience in their math courses ultimately helps improve student retention, graduation, and transfer.

The overall goal of the program is to help students succeed in their math courses and complete their math requirements. The success students experience in their math courses ultimately helps improve student retention, graduation, and transfer.

MPS Program students commit to 10 hours of instruction per week, a structured learning environment that emphasizes group collaboration, tutoring support, and proactive counseling support. Over the past five years, the success rates of students in the MPS Program have been much higher than students in non-MPS classes. The annual cost of the program is \$19,000 for instruction, \$36,000 for counseling, and \$6,000 for tutoring.

- **Grossmont College's Project Success**, began in 1989 with one pair of linked basic skills classes, English Fundamentals and College Reading, and a small cohort of students. The college has expanded this program to include as many as 15 pairs of classes, including such courses as humanities, speech, history, and philosophy for students beyond the basic skills levels.
- **Cuyamaca College** offers "bridge" classes. A cohort of entering students assessed as needing basic skills reading and writing enroll in an English class and a paired reading class. The English class includes an "extra" hour for student-teacher workshop activities.
- **Cerritos College** has been implementing learning communities since 1995, when they were awarded a Title III grant specifically for that purpose (1995-2000). The college established two tracks: basic skills and transfer. Over 15 learning communities are offered each semester.
- **College of the Sequoias** uses a learning communities approach in a unique way by linking an ethnic studies class with a half-semester basic skills English class followed by a half-semester transfer-level English composition class. Mexican American, African American, Asian American, and Native American learning communities have been conducted.

- **Fresno City College** adds a guidance/counseling class to its math, English, and ESL paired classes to create three-class learning communities. A typical clustering is basic skills reading, basic skills writing, and counseling. Instruction is supplemented by trips to museums, historical landmarks, and events relevant to the subject matter of the class's work.
- **Solano Community College**, building on the success of its learning communities that include English, math, and counseling classes, plans to institute two new learning communities: one consisting of 8.5 units and the other 10.5 units. "Cultures and Computers," for lower-level students, will include a basic skills reading and writing class (two levels below transfer-level English composition), a study skills class, a one-unit guidance/counseling class, and a one-half-unit fast-track introduction to computers class. The reading and writing class requires an hour of reading lab and an hour of writing lab work.
- **The Watsonville Digital Bridge Academy at Cabrillo College** is aimed at young, underprepared students who are traditionally at high risk for college attrition. It offers a sequenced program of academic and career-oriented courses with extended support services and a focus on increasing learner motivation, self-knowledge, and self-discipline. Students begin as a cohort with a two- to three-week motivational foundation program in which they gain awareness of their own learning and interaction styles as well as those of their classmates. They practice teamwork and group problem-solving skills, and develop close ties with program peers and faculty. Following this initial period, the students enter an accelerated bridge semester, culminating with presentations of in-depth study projects in which the students define a problem, collect and analyze data, draw conclusions, and present their recommendations. Students complete six classes in their first semester in the program.

A comparison of the success rates for these two groups revealed a significantly high rate for those who visited the Writing Center.

Participants in early pilots of the program were largely Latino, with more than 80 percent non-native English speakers, 80 percent children of migrant parents, about 90 percent low-income, and 63 percent first-generation college students. Up to 65 percent had "high risk" factors including failure to complete high school, pregnancy, or responsibilities for parenthood while enrolled. In its initial offering, all students completed the foundation program and 83 percent of the original cohort successfully completed the 19.5-unit bridge semester. A subsequent semester yielded a 79 percent completion rate. As of January 2006, the program had served a total of 125 students, and was being examined for replication at other Bay Area colleges.

3. Integrated Reading and Writing Programs

- **Grossmont College's Writing Center (WC)** is a multi-modal center offering individualized college writing instruction by a certificated instructor, peer tutoring for reading with reading and/or writing assignments, and computer-assisted learning. Under the purview of the English Department and Learning Skills Coordinator, the Lab Specialist oversees tutors and work-study aides and assists the English Writing Centers' instructors. Tutoring services cost \$111,000 per year.

An examination of students enrolled in pre-collegiate English courses from Fall 1999 through Spring 2002 (excluding summers and ESL courses) compared students who visited the WC with students who did not visit the WC. A comparison of the enrollment success rates for these two groups revealed a significantly higher success rate for those students who visited the WC in comparison with the success rate of those not visiting the WC (66.1 percent vs. 53.1 percent, respectively).

- A number of colleges including **City College of San Francisco** as well as **Chabot, De Anza, and Los Medanos Colleges** have moved to integrated reading and writing courses as an alternative to traditional separate courses for reading and composition. These courses, ranging between four and seven units, were initiated over the last five to eight years and were developed in response to research supporting the efficacy of this integration and the practical observation that students often bypassed reading instruction in favor of composition courses. Faculty perceived this as a problem because the lack of a deep comprehension and analysis of text was clearly a barrier to students' success in their composition courses. One consideration for colleges choosing an integrated model is training English faculty to teach reading.

The lack of a deep comprehension and analysis of a text was clearly a barrier to students' success.

This has been accomplished in a number of ways, but one possibility is through taking advantage of the training offered in the Reading Apprenticeship Model (see description on page 58) by the Strategic Literacy Initiative of West Ed as several of these colleges did. There are also postsecondary certificates in the teaching of reading offered by San Francisco State University and online at CSU Fullerton.

- **Butte's Reading and Writing Center** uses CSU Chico interns and permanent, part-time Instructional Aides to support basic skills development in classrooms and reading and writing across the curriculum on a drop-in basis. Critical Skills workshops are scheduled throughout the semester and are held in the lab in the Center for Academic Success (see description below). These faculty-taught, subject-specific sessions cover topics in five areas or threads: reading, writing, math, computer skills, and study skills. Faculty may require, recommend, or offer extra credit for attendance. Students may earn 0.5 unit in the Critical Skills Study Hour course by attending eight workshops and meeting with Critical Skills faculty. Student participation in overall services is about 4,500 to 5,000 students per semester, both referred and voluntary.

The staff is composed of two full-time faculty, a coordinator, and a learning resource specialist (both with Master's degrees specific to adult education, one with a focus in reading and one an ESL focus). The center also has one full-time support staff member and an administrative secretary. There are six part-time instructional aides, six to 10 interns per semester, and 75 to 100 peer tutors per semester.

District funding, including all positions listed above, is \$385,000 per year. Vocational Education funding is \$64,000 per year (student tutors and interns). Other funds for training are most often funded via on-campus grants (\$4,000 to \$6,000 per year).

- **Chabot College's Writing and Reading Across the Curriculum (WRAC)** is a center with peer tutors, computer-assisted instruction with instructional assistants, and instructors who provide assistance in reading and writing skills to students in classes at all levels across the curriculum to help them succeed and persist in their courses. All activities are voluntary. The level of participation ranges from drop-in tutoring to enrolling in a course that uses the WRAC Center. Success rates of participants are higher than students who did not use WRAC, and student satisfaction rates are 89 percent or higher.
- Many other colleges have writing, reading or student success centers and are featured on the CSS web site (e.g., Los Angeles Valley College, El Camino College, and Pasadena City College).



B. Program Components/Instructional Practices

1. Tutoring

- **Butte's Center for Academic Success** offers subject-specific tutoring which uses faculty-recommended and trained peer tutors to support student success in math, sciences, foreign languages, accounting, and economics. (See above for more details.)

In addition, the college implemented a Math Success program for EOPS and DSPS students. The staff is composed of a coordinator and eight tutors. Tutors sit in the math class, meet with the students right after class, and use the same methodology and direction as the math instructor in that class. Tutoring comprises three hours per week and is mandatory for EOPS students. The cost is \$89,000 per year and is funded from EOPS funds. The participants in this project had higher completion rates and GPAs than the non-participants.

The success of this program is attributed to a well-designed tutor training program.

- **Foothill's "Pass the Torch"** is a highly structured study team system for students in math, basic skills English, and ESL courses in order to help them succeed in their courses. Participants, called team members, are matched with a student, called a team leader, who earned an A in the course or a higher level course. The team leader provides structured training in study strategies to master the course material; the team member takes a study skills course; and the team leader is trained and supervised by the English and mathematics instructors regarding how to convey the study skills.

Participation is as follows:

- Study teams: matched by times available with a minimum of two hours weekly
- Leaders: Leader training meets three to four times per week, with each leader going at least one.
- Members: Two self-paced classes: 1) Competitive Student class, and 2) Study Skills class (45 skills/tasks, including meet with a counselor and instructor)

The staffing for this program is composed of one full-time Outreach Coordinator; two teachers reassigned for two classes each and a part-time director/counselor for one day a week. The cost of the program is \$160,000 per year. Participants in this program have, on average, 79 percent success rates in the courses they take and 82 percent retention.

- **San Jose City College** reports great success for its Writing Tutors Program, which uses mostly lower-division peer tutors but also some upper-division or graduate-level tutors from nearby four-year institutions. The success of this program is attributed to a well-designed tutor-training program.
- **North Orange County Community College District's** non-credit program offers a literacy program designed to improve reading and writing skills. After students in this program are assessed, tutors provide them with individualized instruction in reading, writing, spelling, vocabulary, and basic math skills.
- **Alan Hancock, American River, Contra Costa, De Anza and San Joaquin Delta Colleges** report great success using the California Reading and Learning Association (CRLA) tutor-training program, which includes a curriculum and tutor assessment instruments. Alan Hancock offers this course as an eight-week, one-unit credit course.
- **Monterey Peninsula College** serves about 1,500 students in its English Study Skills Center for students who have been assessed two or three levels below transfer-level

English. This center includes one online reading lab, and activities include summary and response exercises. The lab is staffed by instructors and peer tutors. Two hours per week of this lab are required for a four-hour-per-week writing class. A mathematics lab is available to students in basic mathematics classes.

- **Chaffey College** provides an extensive tutoring program in its discipline-specific College Success Centers: math, reading/ESL, and writing. These three centers target students in basic skills classes, although students in more advanced courses are also welcomed.
- **Sierra College's Student Success Program** is a combination of courses and support services that help developmental students succeed and prepare them for college-level coursework. Both courses and support services are included in the program. Three specific areas—common final exam, tutoring, and prerequisites—show significant improvement in success rates.

The success rates of students in the Gateway Program are significantly higher than those of students in regular sections of the same courses.

Student participation per semester consists of approximately 63 students in English A, 43 students in Math A, and 530 developmental students receiving tutoring. English A includes 27 sections per semester, and Math A includes 23 sections per semester. The Tutor Center is staffed by a Coordinator, two full-time classified staff, one part-time faculty, approximately 35 student tutors per semester, and approximately six to eight student office assistants per semester.

The English A common final is given on the Saturday before the last week of classes and is coordinated by two faculty, both with 20 percent release time. All English A students take the final together in the cafeteria in either a morning session or afternoon session. Grading is holistically completed by all English A faculty on the following Monday and Tuesday. Scores are returned to instructors, who can then share results with students before the end of the semester.

- Many other colleges indicate using tutoring in various ways and are featured on the CSS web site (e.g., Saddleback College).

2. Supplemental Instruction


- **Santa Barbara City College's Gateway Program** was designed on the concept of triangulated supplementary instruction that builds a strong and complimentary relationship between the instructor, instructional aide, and each student participating in Gateway. The faculty members who attended the Gateway Training Institute in June 2001 incorporated certain student success strategies into their class and the instructional aide (trained each semester in the Tutor Training 199 class) learned strategies that they would subsequently use with each of the Gateway students.

The instructional aide met regularly with the instructor and in some cases attended the professor's Gateway class section. Together they identified students who could benefit from the supplementary instruction, discussed the content of the instruction, and the aide worked with the students as a group at least once a week outside of class and also met with each student individually. The challenges of each individual student were assessed and the instructional aide, in consultation with the faculty member, found solutions to the barriers to success for each student. The success rates of students in the Gateway Program are significantly higher than those of students in regular sections of the same courses.

Currently there are approximately 25 faculty, 25 instructional aides, and one administrative director. The current budget is \$65,665 per year. Most of this funding

is for the student instructional aides. Other line items are for supplies, printing and duplicating, and an annual Gateway luncheon for Gateway faculty and students.

- **Riverside College** uses instructors and graduate-level students in its reading and writing centers. Since instituting required lab hours for English composition and reading classes, Riverside College has noted consistently higher success rates than before requiring visits to its reading and writing centers.
- At **DeAnza College**, half-unit small group instructional support classes are paired with five-unit classes in writing, reading, and ESL as part of the College Readiness Program, which serves approximately 7,000 students per year. Skills instructors teach these small study skills classes using group collaborative instruction and individualized lab modules. Skills covered include time management, textbook reading, note taking, and test-taking strategies.
- **Fullerton College Transfer Achievement Program:** please see description above.



The student success advisors are individuals who understand the demands of being a student.

3. Technology

- **College of the Sequoias** uses Calibrated Peer Review (CPR) to assess learning. Writing instructors may be skeptical about using a free online writing tool, CPR. Instructors may also be apprehensive about delegating grading to students. The CPR grading structure helps students to become more autonomous writers, readers, and thinkers. Data show increased student success rates and positive student attitudes about learning through CPR. These data have been collected over three semesters and supported by a grant from the Carnegie Foundation for the Advancement of Teaching.
- **Cabrillo College** reported using computers to supplement basic skills English instruction. Cabrillo's English 290 course includes use of a Web site that provides students with information about study skills and adapting to college culture.
- **Butte College** integrates online experiences at all levels of basic skills reading and writing. Included are uses of the Internet and email applications, instruction in Microsoft Word, and classes offered through Web CT.

4. Student Services

- **Crafton Hills College's Student Success Program** was created to help students connect with the resources and support they need to remain in school and be successful. The student success advisors are individuals who have successfully completed their educational goals and understand the demands of being a student. Currently, there are three full-time student success advisors. Collectively, they share the experiences of the returning student, the single parent, and the student directly out of high school.

Each of these paraprofessionals is provided with a list of all first-semester students who have enrolled in basic skills classes. They phone all students on their lists to remind them when their classes begin and to find out whether they need help with any problems such as finding childcare, getting to and from campus, finding help for a medical problem, or overcoming learning deficiencies. The student success advisors also help in the college's student orientation classes. The Student Success Program also helps students make the

most of their college years by offering support beyond what they typically receive from their academic counselor. Student participation varies from one session to multiple visits. The direct cost of the program is \$58,000 per year.

The overall goal is to increase student retention by enhancing students' awareness of their learning patterns.

- **Evergreen Valley College's FasTrack** is a federally funded program by a TRIO grant from the U.S. Department of Education. This program provides academic advising, tutoring, study skills, financial aid workshops and information, to first generation, low-income, and disabled students in order to assist them in graduating and/or transferring. There is one full-time counselor dedicated to this program. Participating students see the counselor twice per term, complete one personal support activity, and three academic support activities. The evidence in terms of impact is moderate improvement in terms of graduation and transfer.
- **Los Medanos College** introduces counseling and advising support in a different way. Counselors make two presentations in basic skills English classes (two levels below transfer-level) and math classes (pre-algebra), one presentation near the beginning of the semester and another near the end.

5. Evaluation

- The most complete effort of data collection and analysis was found at **Chaffey College**. Before implementing its “Basic Skills Transformation” program, researchers at Chaffey College developed a research methodology that includes data collection and tracking mechanisms, operational definitions, identification of experimental and control groups and baseline periods, and tangible measurable outcomes. From this assessment data, faculty, staff, and administrators could evaluate the effectiveness of parts of the program.
- **Copper Mountain College** has initiated a “Student Success Hour” as a means to bring faculty and administrators together to review data, discuss program effectiveness, and plan for improvement.



C. Staff Development

- **Foothill College's Interactive Learning Model Project (ILM)** is a program that focuses on training faculty to recognize their own learning patterns so that they can apply this knowledge in their teaching in order to increase their students' success. The program trains at least five to 10 faculty each year, focusing on how the learning patterns can be used in the classroom to assess and enhance student learning. The overall goal is to increase student retention by enhancing students' awareness of their learning patterns and by teaching students to develop strategies to increase their learning in all classroom settings. The cost of the training is \$5,000 per year for materials.

Data gathered over the past four years indicates that students have an increased sense of self as a result of exposure to the ILM. This sense of self has been documented to have a positive effect on student retention and persistence. Student participants also acknowledge an increased awareness of the need to work collaboratively with class members. Again, such cooperative learning environments are shown to enhance a student's sense of belonging, at both the classroom and the institutional levels.

Selected Out-of-State Example Programs for Basic Skills Identified From Literature Sources

The following examples have previously been cited by various literature sources as typifying effective practices for basic skills education (citations are noted for each institution). We have ordered them here in alignment with the three general categories of practices used in the prior section.



A. Organizational and Administrative Practices

Massachusetts Bay Community College, MA

Developmental coursework is an explicit part of the Massachusetts Community College's mission statement. The college does not offer a stand-alone reading curriculum or any self-paced, lab-based courses (i.e., computer-assisted instruction). The college has taken a strong stand in favor of *holistic or integrated instruction that relies on combining reading and writing activities* in order to build competent college students who can handle complex texts and thoughtful analysis of diverse perspectives. In the writing program, for example, *developmental courses are integrated into the sequence of writing classes*. A *portfolio-assessment* process allows students to move forward according to their mastery of skills and competencies rather than lock step in the sequence of courses. Outside the classroom, students have the opportunity to work with professional learning specialists in writing, math, and science, as well as to learn from peer tutors in the *Academic Achievement Center*. Learning specialists also teach college-skills courses (The Chronicle of Higher Education, October 27, 2006).

Community College of Denver (CCD), CO

CCD is one of the pioneer community colleges in development and implementation of student learning outcomes and assessment. All courses at CCD are *competency-based*. Developmental courses and support services are evaluated by staff within each unit of the *Division of Education and Academic Services*, one of CCD's six instructional departments and home to the developmental program. All data used to *assess program performance* are shared with faculty, students, and leaders in the community. CCD keeps an eye on "what is possible" with vision statements about desirable outcomes and related plans. The results are impressive in terms of student success, retention, and transition into college-level work (Roueche and Roueche, 1999).

Greenville Technical College (GTC), SC

In February 1997, GTC entered into a partnership with Kaplan Learning Services and established three partnerships goals:

- Provide a more "user-friendly" assessment experience for prospective students.
- Improve the image of developmental studies by adding relevant content and faster results in helping students progress into their program of choice, including fast-track or flexible entry points to accept students and exit them at different points in the term.
- Improve enrollment through better retention.

GTC worked with Kaplan to implement test review workshops to familiarize students with the COMPASS and ASSET entry assessment. A six-hour workshop, College Success Skills, provides instruction of two hours each in reading, writing and mathematics for students who have either failed their first attempt at the test or who are anxious about how well they will perform on their first effort. The sessions are taught by GTC employees and have alleviated many students' anxieties about the assessment process, potential developmental work, and going to college.

In August 1997, GTC implemented new courses in reading, writing and mathematics after a Kaplan-facilitated process to “reinvent” GTC’s developmental courses. During Spring 1998, the departments asked the administration to consider having all courses and all faculty involved in the Kaplan partnership. As a result of faculty input, beginning in Fall 1998, all classes in basic and advanced reading, writing, and mathematics in the developmental studies area implemented the Kaplan-partnered course materials and teaching strategies.

The continuity from course-to-course is critical to producing results overall. **Faculty are part of a team** in which all instructors are using the same text, and there is considerable dialogue among instructors and Kaplan staff to make refinements, suggestions, and continuous improvement as teachers interact with students and use the new materials. **Professional development has focused on the text, software, group and writing activities, and grading.** In math, all faculty are using equivalent chapter tests as well as final exams, so there is better opportunity to measure the readiness of all students for their next math course (Roueche and Roueche, 1999).



B. Program Components/Instructional Practices

Massachusetts Bay Community College, MA (see description above)

Greenville Technical College (GTC), SC (see description above)

Metropolitan College, NE

After pilot-testing a learning community for high-risk development students for approximately one year, reports are that retention and student success rates have increased significantly. In addition, the development of **interdisciplinary curriculum** and the opportunity for **faculty to develop professionally** have been positive, unanticipated outcomes (Roueche and Roueche, 1999).

Normandale Community College (NCC), Bloomington, MN

Normandale offers increasing levels of attention and intervention for students placing into College Readiness course work. Students who place into one developmental course in reading, writing, or mathematics can take a college-preparatory course within the context of the traditional college schedule of class offerings. For example, the **Math Center open classroom** offers learning options inclusive of **computer-assisted instruction, tutorials, and group lectures** for students in pre-college algebra courses. Students who place into any two developmental courses enroll in the **College Success Program**, in which students engage in their studies and attend a one-credit “**Pathways to College Success**” course. For students who place into two or three developmental courses, the college offers a **New Student House, learning communities of coordinated courses in reading, writing, communication, and “Pathways to College Success.”** By providing access to increasing levels of support for at-risk students, NCC works to maximize opportunities for completion of college-preparatory coursework so that students may pursue their goals in higher education (The Chronicle of Higher Education, October 27, 2006).

Queensborough Community College, NY

In addition to remedial courses, the college offers remedial opportunities, starting with LEAP (**Learn Early Achievement Program**), comprising four weeks of summer immersion in reading, writing, and mathematics for those students who have not passed the college entrance exam (ACT). After taking remedial courses, students must retake and pass the ACT (The Chronicle of Higher Education, October 27, 2006).

Schoolcraft College, MI

In the **Peer Assisted Learning (PAL)** program, faculty identify students who completed their courses successfully. The student is paid to retake the class, serve as a faculty assistant, and assist with facilitating study groups. The program coordinator collects attendance and grades to evaluate program effectiveness. In **Writing Fellows**, faculty identify students who are excellent writers. These students are hired to serve as peer reviewers in courses requesting a Writing Fellow. The program, modeled after the Writing Fellows Program at Brown University, has been extremely successful. In **Paired Reading Courses (learning communities)**, reading and study skills courses are linked to content courses. Students learn how to read specific textbooks and how to take lecture notes in the linked courses. Faculty in both courses work closely together to ensure effectiveness. The content of the linked course is used heavily in the reading/study skills course (Roueche and Roueche, 1999).

Valencia Community College, FL

The most effective programmatic boost to the college preparatory program is to enroll the student in the **Student Success course and college preparatory courses simultaneously**. Another boost is the development of **new faculty training programs to infuse active learning into college preparatory courses** (Roueche and Roueche, 1999).



C. Staff Development

Greenville Technical College (GTC), SC (see description above)

Valencia Community College, FL (see description above)

The Kellogg Institute, Appalachian State University, NC

The Kellogg Institute for the Training and Certification of Developmental Educators is the oldest continuous advanced training program for developmental educators and learning skills specialists in the United States. It is intended to assist practitioners in expanding their knowledge of the field and in improving their programs. The program includes both an intensive, four-week summer residency program as well as a follow-up practicum requirement conducted at the participant's home campus. Topics covered during the summer seminars include assessment and placement, designing learning environments, leadership and academic support services relating to developmental education, outcomes assessment, and program evaluation. Since its start in 1980, the Kellogg Institute has graduated approximately 1,200 participants from both two- and four-year colleges. Successful completion of both the residency program and the supervised practicum project leads to certification as a Developmental Education Specialist.

Since its start in 1980, the Kellogg Institute has graduated approximately 1,200 participants from both two- and four-year colleges.

To date, the Institute has not compiled program assessment data to document its impact on direct student outcomes at its participants' home institutions. Because each participant designs and conducts an independent practicum at his or her college, measures of success for each project are variable and difficult to examine in aggregate form. However, each participant is required to provide validation of practicum project impact via a letter from his or her dean or department chair. In this sense, the Kellogg Institute may be considered an effective model for staff development since it leads to accomplishment of goals and outcomes deemed important by individual practitioners and the basic skills programs they represent.

Additional Resources

Journals and Publications

Journal of Developmental Education (formerly *Journal of Developmental & Remedial Education*), three issues per year

Research in Developmental Education

Journal of College Reading and Learning

Research and Teaching in Developmental Education

Centers and Professional Organizations

National Association of Developmental Educators (NADE)

2447 Tiffin Avenue #207

Findlay, OH 45840

Phone: 877-233-9455

Fax: 567-202-4385

Web site: www.nade.net

National Center for Developmental Education

Hunter S. Boylan, Director

Appalachian State University

Boone, NC 28608

Phone: 828-262-305

Fax: 828-262-7183

Web site: www.ncde.appstate.edu/contact.htm

College Reading and Learning Association (CRLA)

Sharon Taylor, President

Western Wyoming Community College

2500 College Drive - 664A

Rock Springs, WY 82901

Phone: 307-382-1725

Fax: 307-382-1714

Web site: www.crla.net

Center for Research on Developmental Education and Urban Literacy

General College – University of Minnesota

128 Pleasant St. SE

Minneapolis, MN 55455

Phone: 612-625-6411

Fax: 612-625-0709

Web site: www.education.umn.edu/CRDEUL/about.html

New York College Learning Skills Association

Donald Frament, President

Hudson Valley Community College

Troy, NY 12180

Phone: 518-629-7569

Web site: www.nycls.org (View online articles in *Research and Teaching in Developmental Education*, current and back issues.)

National Center on Adult Literacy (NCAL)

University of Pennsylvania Graduate School of Education

3700 Walnut Street

Philadelphia, PA 19104-66216

Phone: 877-736-6473

Web site: www.literacyonline.org/ncal.html

National Center for the Study of Adult Learning and Literacy

World Education

44 Farnsworth Street

Boston, MA 02210

Phone: 617-482-9485

Web site: www.ncsall.net/?id=1

Teachers of English to Speakers of Other Languages (TESOL)

700 South Washington Street, Suite 200

Alexandria, Virginia 22314

Phone: 888-891-0041

Web site: www.tesol.org

Supplemental Instruction Home Page

Center for Academic Development

University of Missouri, Kansas City

Kansas City, MO 64110

Phone: 816-235-1166

Web site: www.umkc.edu/cad/SI/Index.htm

References Cited

- Abdal-Haqq, I. (1994). *Culturally Responsive Curriculum: ERIC Digest*. ERIC Clearinghouse on Teaching and Teacher Education, Washington, D.C. [ED370936]
- Academic Senate for California Community Colleges. (April 2000). *The State of Basic Skills Instruction in California Community Colleges*.
- Academic Senate for California Community Colleges. (Spring 2000). *Faculty Development: A Senate Issue*.
- Academic Senate for California Community Colleges. (2003). *A Survey of Effective Practices in Basic Skills*.
- Academic Senate for California Community Colleges. (Fall 2004). *Issues in Basic Skills Assessment and Placement in the California Community Colleges*.
- Adelman, C. (2004). *Principal Indicators of Student Academic Histories in Postsecondary Education, 1972-2000*. Washington DC: U.S. Department of Education, Institute of Educational Sciences.
- American Educational Research Association. (2006). Review of Educational Research—Submissions Update, as of July 1, 2006. Retrieved December 19, 2006 from <http://www.aera.net/publications/?id=505>.
- American Educational Research Association. (2004). English Language Learners: Boosting Academic Achievement. *Research Points 2 (1)*, 1-4.
- American Mathematical Association of Two-Year Colleges (AMATC). (2006). *Beyond Crossroads: Implementing Mathematics Standards in the First Two Years of College*. Memphis, TN. Retrieved December 20, 2006 from <http://www.bc.amatyc.org/index.html>.
- Angelo, T A. (June 1994). From faculty development to academic development. *AAHE Bulletin*.
- Angelo, T. A. (Summer 1991). Classroom research: Early lessons for success. Introduction and overview: From classroom assessment to classroom research. *New Directions for Teaching and Learning*, 46, 7-16.
- Arendale, D. (1997a). "Bridging the Gap of Teaching and Learning." Speech given at the annual conference of the National Association for Developmental Education.
- Arendale, D. Learning and Teaching in the 21st Century: Seven Habits of Highly Effective Developmental Educators. Retrieved October 14, 2006 from <http://www.nade.net/D8a.%20sevenhabits.htm>.
- Arendale, D. (1997b). Supplemental Instruction (SI): Review of Research Concerning the Effectiveness of SI from the University of Missouri-Kansas City and Other Institutions from Across the United States. In *Proceedings of the 17th and 18th Annual Institutes for Learning Assistance Professionals: 1996 and 1997*, (pp. 1-25). Tucson, AZ: University Learning Center.
- http://www.pvc.maricopa.edu/%7Elsche/proceedings/967_proc_arendale.htm.
- Armington, T. C. (2003). Environmental Barriers to Student Success. In T. Armington (Ed.), *Best Practices in Developmental Mathematics, 2nd Edition*. NADE Mathematics Special Professional Interest Network. Retrieved December 20, 2006 from <http://www.etsu.edu/devstudy/spin/bestpractices.htm>.
- Ashwin, P. (2003). Peer Support: Relations Between the Context, Process, and Outcomes for the Students Who Are Supported. *Instructional Science*, 31, 159-173.
- Astin, A. W. (1985). Involvement: The Cornerstone of Excellence. *Change* 17(4), 35-39.
- Baker, L. (1989). Metacognition, comprehension monitoring, and the adult reader. *Educational Psychology Review*, 1, 3-38.
- Banks, J. A. (ed.). (2004). *Handbook of Research on Multicultural Education, 2nd edition*. San Francisco, CA: Jossey-Bass Publishers.
- Banks, J. A. (1998). *Multiethnic Education: Theory and Practice, 2nd edition*. Boston, MA: Allyn and Bacon, Inc.
- Banks, J. A., B. McGee, & A. Cherry. (2001). *Multicultural Education and Perspectives, 4th edition*. New York, NY: John Wiley & Sons, Inc.
- Barkley, E. F., Cross, K. P., & Major, C.H. (2005). *Collaborative Learning Techniques: A Handbook for College Faculty*. San Francisco, CA: Jossey-Bass Publishers.
- Baron, W. (1997). *The problem of student retention: The Bronx community college solution—the freshman year initiative program*, 1-32. Retrieved November 19, 2006 from ERIC.
- Belcher, J., & Glycer-Culver, B. (1998). *Trends in teaching and learning innovation*. Sacramento, CA: Los Rios Community College District [ED 414988].
- Beno, B, Smith, C., DeVol, M., & Stetson, N. (1993, rev. 2003). *Evaluating staff and Organization Development*. California Community Council for Staff & Organization Development and Community College League of California. [ED363381]
- Berlin, L. N. (2005). *Contextualizing College ESL Praxis—A Participatory Approach to Effective Instruction*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Berquist, W. H., & Philips, S. R. (1975). Components of an effective faculty development program. *Journal of Higher Education*, 46, 177-211.
- Bettinger, E. P., & Long, B.T. (2005). Remediation at the Community College: Student Participation and Outcomes. *New Directions for Community Colleges*, 129, 17-26.
- Bickley, S. G., Morris D. D., & Anderson, D. (2001). The Relationship Between Developmental Reading and Subsequent Academic Success. *Research in Developmental Education*, 16(3).
- Biggs, J. (1994). Student Learning Research and Theory—Where Do We Currently Stand? In G. Gibbs, (Ed.), *Improving Student Learning—Theory and Practice*. Oxford: Oxford Centre for Staff Development. Retrieved October 15, 2006 from <http://www.city.londonmet.ac.uk/deliberations/ocsd-pubs/isltip-biggs.html>.
- Blackburn, R.T., Boberg, A., O'Connel, C., & Pellino, G. (1980). Project for faculty development program evaluation: Final report. Ann Arbor, MI: Center for the Study of Higher Education, University of Michigan. [ED208767]
- Bland, R.G., & Schmitz, C. C. (1990). An overview of research on faculty and institutional vitality. In J.H. Schuster, D.W. Wheeler, & Associates, *Enhancing Faculty Careers: Strategies for Development and Renewal*. San Francisco, CA: Jossey-Bass Publishers.
- Boaler, J. (1998). Alternative Approaches to Teaching. Learning and Assessing Mathematics. *Evaluation and Program Planning*, 21, 129-141.

- Board of Governors, California Community Colleges. (September 2002). *Basic Skills: A Report 6.2*.
- Board of Governors, California Community Colleges. (January 2005). *Non-Credit Instruction—A Portal to the Future: A Report 7.1*.
- Board of Governors, California Community Colleges. (November 2006). *The Report of the Non-Credit Alignment Project: A Learner-Centered Curriculum for All Students*. Information Item 4.2, presented by Carole Bogue-Feinour, Vice Chancellor, Academic Affairs.
- Bond, L. (2004). *Using Contextual Instruction to Make Abstract Learning Concrete*. Techniques: Connecting Education and Careers. Association for Career and Technical Education. Retrieved January 13, 2007 from http://www.acteonline.org/members/techniques/jan04_feature4.cfm.
- Bosworth, K. (1994). Developing Collaborative Skills in College Students. In K. Bosworth and S. Hamilton (Eds.), *Collaborative Learning: Underlying Processes and Effective Techniques*. San Francisco, CA: Jossey-Bass Publishers.
- Bothern, T.S., & Wambach, C. A. (Winter, 2004). Refocusing Developmental Education. *Journal of Developmental Education*, 28, 2.
- Bowles, T. J. & Jones, J. (2003). An Analysis of the Effectiveness of Supplemental Instruction: The Problem of Selection Bias and Limited Dependent Variables. *Journal of College Student Retention* 5(2), 235-243.
- Boyer, E. L. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.
- Boylan, H. R. (2002). *What Works: Research-Based Best Practices in Developmental Education*. Continuous Quality Improvement Network/National Center for Developmental Education.
- Boylan, H. R. (1999). Exploring Alternatives to Remediation. *Journal of Developmental Education* 22, 3 (Spring 1999). Retrieved October 12, 2006 from http://ncde.appstate.edu/reserve_reading/V22-3alternatives_to_remediation.htm.
- Boylan, H. R. (1997). Learning Assistance and Developmental Education. *Proceedings of the 13th and 14th Annual Institutes for Learning Assistance Professionals, 1992 and 1993*. University Learning Center, University of Arizona. Retrieved September 28, 2006 from www.pvc.maricopa.edu/proceedings/923proc_boylan.htm
- Boylan, H. R. (1997). Criteria for Program Evaluation in Developmental Education. *Research in Developmental Education*, 14(1).
- Boylan, H. R. (1995). The Scope of Developmental Education: Some Basic Information on the Field. *Research in Developmental Education*, 12(4).
- Boylan, H. R. (1983). Is Developmental Education Working? An Analysis of Research (ERIC Document Reproduction Service No. ED 238 471).
- Boylan, H. R., and Barbara S. Bonham. (1992). The Impact of Developmental Education Programs. *Review of Research in Developmental Education*, 9(5).
- Boylan, H. R., Bonham, B.S., & Bliss, L.B. (1994). *National Study of Developmental Education: Characteristics of faculty and staff*. Paper presented at the National Association for Developmental Education Conference, Washington DC.
- Boylan, H. R., Bonham, B.S., Claxton, C., & Bliss, L. B. (1992). *The State of the Art in Developmental Education: Report of a National Study*. Paper presented at the First National Conference on Research in Developmental Education, Charlotte, NC.
- Boylan, H. R., Bliss, L. B. & Bonham, B. S. (1997). Program Components and Their Relationship to Student Performance. *Journal of Developmental Education*, 20(3).
- Boylan, H. R., Bonham, B. S., White, R. & George, A. (2000). Evaluation of College Reading and Study Strategies Programs. In R. Flippo & D. Caverly (Eds.), *Handbook of College Reading and Study Strategy Research* (pp. 365-402). Mahwah, NJ: Lawrence Erlbaum & Associates.
- Boylan, H. R., and Saxon, D. P. (2002). *What Works in Remediation: Lessons from 30 Years of Research*. Prepared for the League for Innovation in the Community College. Retrieved October 10, 2006 from http://www.ncde.appstate.edu/reserve_reading/what_works.htm.
- Boylan, H. R., & Saxon, D. P. (1998). *An Evaluation of Developmental Education in Texas Colleges and Universities*. Austin, TX: Texas Higher Education Coordinating Board.
- Bransford, J. & Brown, A.L. (2000). *How People Learn: Brain, Mind, Experience, and School: Expanded Edition*. National Research Council Committee on Learning Research and Educational Practice.
- Brawer, F. B. (Summer 1990). Faculty development: The literature. *Community College Review*, 18(1).
- Braxton, J. M. (June 2006). *Faculty professional choices in teaching that foster student success*. National Postsecondary Education Cooperative. Draft paper presented at annual meeting.
- Braxton, J. M., Sullivan, A.S., & Johnson, R. T. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research, Volume 12*, (pp. 107-158). New York, NY: Agathon.
- Breneman, D. W. & Haarlow, W. (1998). *Remediation in Higher Education*. Washington, DC: The Thomas B. Fordham Foundation.
- Britzman, D. P. (1991). *Practice Makes Practice: A Critical Study of Learning to Teach*. Albany, NY: State University of New York Press.
- Brock, T. & Richburg-Hayes, L. (2006). Paying for Persistence: Early Results of a Louisiana Scholarship Program for Low-Income Parents Attending Community College. MDRC Opening Doors Project. Retrieved December 19, 2006 from <http://www.mdrc.org/publications/429/overview.html>.
- Brookfield, S. D. (Summer 2002). Using the lenses of critically reflective teaching in the community college classroom. *New Directions for Community Colleges*, 118, 31-38.
- Bruch, P. L., Jehangir, R. R., Jacobs, W. R., & Ghore, D. L. (Spring 2004). Enabling access: Toward multicultural developmental curricula. *Journal of Developmental Education*, 27(3), 12-19.
- Bruch, P. L. & Higbee, J. L. (Fall 2002). Reflections on multiculturalism in developmental education. *Journal of College Reading and Learning*, 33(1), 77.
- Burns, M. (2006). A Study to Formulate a Learning Assistance Model for the California Community College. *Learning Support Centers in Higher Education*. Retrieved October 3, 2006 from http://www.pvc.maricopa.edu/~lsche/proceedings/923_proc/923proc_burns.htm#top.
- Caffey, D. L. (1979). Full-time faculty on faculty development: Their perceptions of what is and what should be. *Community/Junior College Research Quarterly* 3, 311-323.

- Caine, R. & Caine, G. (2006). *What is Brain / Mind Learning?* Web resource: <http://cainelearning.com/principles.html>.
- California Postsecondary Education Commission. (1998). *State policy for faculty development in higher education: A report to governor and legislature in response to supplemental language in the 1986 budget act*. Report 88-17. [ED 297665]
- California Teachers of English to Speakers of Other Languages. (2000). *California Pathways—The Second Language Student in Public High Schools, Colleges, and Universities*. Retrieved January 6, 2007 from www.catesol.org/pathways/pdf.
- Carbone, G. J. (1987). Academic Support Service for the Developmental and High-Risk Student. In K. M. Ahrendt (Ed.), *Teaching the Developmental Education Student* (pp. 23-31). San Francisco, CA: Jossey-Bass Publishers.
- Carino, P. (1995). What Do We Talk About When We Talk About Our Metaphors: A Cultural Critique of Clinic, Lab, and Center. In C. Murphy and J. Law (Eds.), *Landmark Essays on Writing Centers* (pp. 37-46). Davis, CA: Hermagoras.
- Casazza, M. E. (1996). Confirming a Professional Identity and a Philosophy for Practice. *Research and Teaching in Developmental Education*, 12(2).
- Casazza, M. E. (Winter 1998). Strengthening Practice with Theory. *Journal of Developmental Education* 22(2). Retrieved October 13, 2006 from http://www.ncde.appstate.edu/reserve_reading/V222casazza_strengthening.htm.
- Casazza, M. E. & Silverman, S. (1996). *Learning Assistance and Developmental Education: A Guide for Effective Practice*. San Francisco, CA: Jossey-Bass Publishers.
- Castator, M. M. & Tollefson, N. (1996). Underprepared Students and the College Curriculum: Identifying High-Risk Courses. *Journal of Applied Research in Community College*, 3(2), 179-200.
- Caverly, D. C. (1994). Technology and the learning assistance center. In S. Mioduski and G. Enright (Eds.), *Proceedings of the 15th and 16th Annual Institutes for Learning Assistance Professionals*. Tuscon, AZ: University Learning Center, University of Arizona. Retrieved January 12, 2007 from www.pvc.maricopa.edu/~lsche/proceedings/945_proce/945proc_caverly.htm.
- Centra, J. A. (Mar-April, 1978). Types of Faculty Development Programs. *The Journal of Higher Education*, 49(2), 151-162.
- Chaffee, J. (1997). *Thinking Critically*. Boston, MA: Houghton Mifflin.
- Chickering, A. W. & Gamson, Z., Eds. (1991). *Applying the Seven Principles for Good Practice in Undergraduate Education*. San Francisco, CA: Jossey-Bass Publishers.
- Choitz, V. & Widom, R. (July 2003). *Money Matters: How Financial Aid Affects Nontraditional Students in Community Colleges*. MDRC Publications. Retrieved December 16, 2006 from <http://www.mdrc.org/publications/348/abstract.html>
- Chung, C. J. (Spring, 2005). Theory, Practice, and the Future of Developmental Education. *Journal of Developmental Education*. 28(3), 2-33.
- Chung, C. J. (2001). Approaching theory in developmental education. In D. B. Lundell & J. L. Higbee (Eds.), *Theoretical Perspectives for Developmental Education*. [Monograph] Center for Research, Developmental Education and Urban Literacy, General College, University of Minnesota. [ED459871].
- Christ, F. L. (1971). Systems for Learning Assistance: Learners, Learning Facilitators, and Learning Centers. *Learning Support Centers in Higher Education*. Retrieved October 7, 2006 from [www.pvc.maricopa.edu/ percent7Elsche/resrouces/articles/lss.htm](http://www.pvc.maricopa.edu/percent7Elsche/resrouces/articles/lss.htm).
- Chronicle of Higher Education, Forum. (2006). The Challenges of Remedial Education: Views of 3 Presidents. <http://chronicle.com>, Section: Community Colleges. Volume 53, Issue 10, Page B33. October 27, 2006.
- Clark, S.M., Corcoran, M. E., & Lewis, D. R. (1989). Faculty renewal and change. In G.G. Lozier & M.J. Dooris (Eds.), *Managing faculty resources. New Directions for Institutional Research*, 16 (pp. 19-32). San Francisco, CA: Jossey-Bass Publishers.
- Collay, M., Dunlap, D., Enloe, W. & Gagnon, G. W. (1998). *Learning Circles: Creating Conditions for Professional Development*. Thousand Oaks, CA: Corwin Press.
- Community College Survey of Student Engagement (CCSSE). (2006) *Act on Fact: Using Data to Improve Student Success*. National report of results. Retrieved January 2, 2007 from <http://www.ccsse.org>.
- Condelli, L. (2004). *Effective Instruction for Adult ESL Literacy Students—Findings From the What Works Study*. American Institute for Research, Washington, DC. Retrieved January 2007 from http://www.nrdc.org.uk/uploads/documents/doc_54.pdf.
- Condelli, L. & Wrigley, H. S. (2004). *Instruction, Language and Literacy—What Works Study for Adult ESL Literacy Students*. American Institute for Research, Washington, DC.
- Condruvy, J. C. (1995). Learning Together: An Interactive Approach to Tutor Training. In M. Maxwell (Ed.), *From Access to Success: A Book of Readings on College Developmental Education and Learning Assistance Programs* (pp. 77-79). Clearwater, Florida: H & H Publishing.
- Cooper, L. (1979). An Interview with Terry O'Banion. *Journal of Developmental & Remedial Education*, 3(2), 14-15.
- Cronen, S., Silver-Pacuilla, H., & Condelli, L. (2004). *Conducting Large-Scale Research in Adult ESL: Challenges and Approaches for the Explicit Literacy Impact Study*. American Institutes for Research, Washington, DC.
- Cross, K. P. *Teaching and learning in the next century*. Retrieved November 19, 2006 from <http://www.ntlf.com/html/sf/teaching.htm>.
- Cross, K. P. (2005). *What do we know about students' learning and how do we know it?* Center for Studies in Higher Education. Retrieved November 19, 2006 from <http://repositories.cdlib.org/cshe/CSHE-7-05>.
- Cross, K. P. (2003). Techniques for Promoting Active Learning. *The Cross Papers* 7. Phoenix, AZ: League for Innovation in the Community College.
- Cross, K. P. (2001). Motivation: Er... Will that Be on the Test? *The Cross Papers* 5. Phoenix, AZ: League for Innovation in the Community College.
- Cross, K. P. (1976). *Accent on Learning*. San Francisco, CA: Jossey-Bass Publishers.
- Cross, K. P. & Angelo, T. A. (1998). *Classroom Assessment Techniques*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.
- Cross, K. P. & Angelo, T. A. (1993). *Classroom Assessment Techniques: A Handbook for College Teachers, 2nd Edition*. San Francisco, CA: Jossey-Bass Publishers.

- Cross, K. P. & Steadman, M. H. (1996). *Classroom Research: Implementing the Scholarship of Teaching*. San Francisco, CA: Jossey-Bass Publishers.
- Damashek, R. (1999). Reflections on the Future of Developmental Education Part II. *Journal of Developmental Education Winter 1999*. Retrieved October 12, 2006 from www.ncde.appstate.edu/reserve_reading/V23dmashek_reflections.htm
- DePree, J. (1998). Small-Group Instruction: Impact on Basic Algebra Students. *Journal Of Developmental Education 22(1)*, 2-4.
- Donovan, M. S., Bransford, J., & Pellegrino, J. W. (2000). *How People Learn: Bridging Research and Practice*. Committee on Developments in the Science of Learning, National Research Council.
- Donovan, S., Bransford, J., & Donovan, M. S. (2005). *How Students Learn: History, Mathematics and Science in the Classroom*. Washington, DC: National Academies Press.
- Dorlac, A. (1994). *Implementing Holistic Approaches in the Community College Reading Center*. Fountains of Opportunity, National Association for Developmental Education Annual Conference Proceedings. Kansas City, Missouri, March 2-6, pp. 6-8.
- Eble, K. E. & McKeachie, W. J. (1985). *Improving Undergraduate Education Through Faculty Development*. San Francisco, CA: Jossey-Bass Publishers.
- Elbow, P. (1999). Using the Collage for Collaborative Writing. In J. Bernstein, (Ed.), *Teaching Developmental Writing* (pp. 250-257). New York, NY: St. Martin's Press.
- Elbow, P. (2004) *First: Putting Writing before Reading is an Effective Approach to Teaching and Learning*, pp. 8-13. Educational Leadership. Association for Supervision and Curriculum Development.
- Ferren, A.S. (1996). Achieving effectiveness and efficiency. In J. G. Gaff, J. L. Ratcliff and Associates, *Handbook of Undergraduate Curriculum* (pp. 533-557). San Francisco, CA: Jossey-Bass Publishers.
- Florida Department of Education. (2006). *Taking Student Life Skills Courses Increases Academic Success*. Data Trend #31, November 2006. Office of the Chancellor, Florida Community Colleges and Workforce Education. www.flboe.org/cc.
- Forget, M., Spear, M., & Rienhart-Clark, K. (2003) *Getting all Teachers to Use Reading/Writing to Help Students Learn Subject Matter*. Paper presented at the annual meeting of the International Reading Association, Orlando, FL, May 4-8.
- Gaff, Jerry G. (1975). *Toward Faculty Renewal*. San Francisco, CA: Jossey-Bass Publishers.
- Gale, C. (2001). *Going it Alone: Supporting Writing Across the Curriculum (WAC) When There is No WAC Program*. Presented at the National Writing Across the Curriculum Conference, Bloomington, IN, May 31-June 2.
- Gay, G. (2000). *Culturally Responsive Teaching: Theory, Research & Practice*. New York, NY: Teachers College Press.
- Gerald, D. and Haycock, K. (2006). Engines of Inequality: Diminishing Equity in the Nation's Premier Public Universities. The Education Trust, supported by the Lumina Foundation. Retrieved December 16, 2006 from <http://www2.edtrust.org/EdTrust/Press+Room/Engines+of+Inequality.htm>.
- Gier, T. and Hancock, K. (1994). Tutor Training: An Examination of Community College Tutor Training Programs in the United States and Canada. *Learning Support Centers in Higher Education*. Retrieved October 5, 2006 from http://www.pvc.maricopa.edu/~lsche/proceedings/923_proc/923proc_gier.htm.
- Gordon, E. W., & Hammons, J. O. (Winter 2002). Professional development: Setting the context. *New Directions for Community Colleges, 120*, 5-10.
- Gottshall, D. B. (1993). *The History and Nature of the National Great Teachers Movement*. Glen Ellyn, IL: College of DuPage.
- Gourgey, A. (1994). Tutoring Practices that Promote Cognitive and Affective Development. In M. Maxwell (Ed.), *From Access to Success: A Book of Readings on College Developmental Education and Learning Assistance Programs*. Clearwater, FL: H & H Publishing.
- Grant, C. A. (Ed.). (1992). *Research and Multicultural Education: From the Margins to the Mainstream*. Washington, DC: The Falmer Press.
- Grant, M. R., & Keim, M. C. (2002). Faculty development in publicly supported two-year colleges. *Community College Journal of Research and Practice, 26*, 793-807.
- Greenleaf, C. L., Schoenbach, R., Cziko, C., & Mueller, F. L. (Spring, 2001). Apprenticing adolescent readers to academic literacy. *Harvard Educational Review, 71(1)*, 79-129.
- Grosso de Leon, A. (2002). *The Urban High School's Challenge: Ensuring Literacy for Every Child*. Carnegie Challenge paper. New York, NY: Carnegie Corporation of New York. www.carnegie.org.
- Grubb, W. N. (2001). *Basic Principles for Basic Skills: Criteria for Exemplary Approaches in Community Colleges*. Berkeley, CA: Community College Cooperative, University of California, Berkeley.
- Grubb, W. N. (1999). *Honored but Invisible: An inside look at teaching community colleges*. New York, NY: Routledge.
- Grubb, W. N. & Cox, R. D. (2005). Pedagogical Alignment and Curricular Consistency: The Challenges for Developmental Education. In C. A. Kozeracki (Ed.), *New Directions for Community Colleges, 129*, 93-103, Wiley Periodicals, Inc.
- Grubb, W. N. & Webb, E. (1999). The Institutional Influences on Teaching. In W. N. Grubb (Ed.) *Honored but Invisible: An Inside Look at Teaching in Community Colleges*. New York, NY: Routledge.
- Gusky, T. R. (April 2005). Formative Classroom Assessment and Benjamin S. Bloom: Theory, Research, and Implications. Paper Presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.
- Gusky, T. R. (April 1994). Outcome-Based Education and Mastery Learning: Clarifying the Differences. Paper Presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana.
- Haehl, M. (2003). Reading? In a Math Class? In T. Armington, (Ed.), *Best Practices in Developmental Mathematics, 2nd Edition* (pp. 31-33). NADE Mathematics Special Professional Interest Network. Retrieved December 20, 2006 from <http://www.etsu.edu/devstudy/spin/bestpractices.htm>.
- Hallinan, M. (2003). Ability Grouping and Student Learning. Brookings Papers on Education Policy (2003): 95-124. Retrieved October 27, 2006 from http://muse.jhu.edu/journals/brookings_papers_on_education_policy/v2003/2003.1hallinan.html.
- Halpern, D. F. (1994). *Changing College Classrooms: New Teaching and Learning Strategies for an Increasingly Complex World*. San Francisco, CA: Jossey-Bass Publishers.

- Harnish, C.A., & Creamer, D. G. (1986). Faculty stagnation and diminished job involvement. *Community College Review*, 13(3), 33-39.
- Hartman, H. J. (1993). *Intelligent Tutoring*. Clearwater, FL: H & H Publishing Co.
- Haviland, C. P., Frye, C., & Colby, R. (2001). The Politics of Administrative and Physical Location. In J. Nelson and K. Evertz (Eds.), *The Politics of Writing Centers* (pp. 15-22). Portsmouth, NH: Boynton/Cook Publishers.
- Hensen, K. A. & Shelley, M. C. (2003). The Impact of Supplemental Instruction: Results from a Large, Public, Midwestern University. *Journal of College Student Development*, 44, 250-259.
- Higbee, J. L. (1995). *Defining Developmental Education: A Commentary*. Ohio Association for Developmental Education Research.
- Higbee, J. L., Arendale, D. R., & Lundell, D. B. (2005). Using Theory and Research to Improve Access and Retention in Developmental Education. *New Directions for Community Colleges*, 129, 5-15.
- Higbee, J. L. & Thomas, P. V. (1999). Affective and Cognitive Factors Related to Mathematics Achievement. *Journal of Developmental Education* 23(1), 8-14.
- Hill, L. (2004). Changing Minds: Developmental Education for Conceptual Change. *Journal of Adult Development* 11(1), 29-39.
- Hirshfield, C. (1984). The classroom quality circle: A widening role for students. *Innovation Abstracts*. 6 (12), 1-2. [ED 256383]
- Huber, M T., and Sherwyn, P. M., Eds. (2002). *Disciplinary Styles in the Scholarship of Teaching and Learning: Exploring Common Ground*. Washington, DC: American Association for Higher Education and The Carnegie Foundation for the Advancement of Teaching.
- Hutchings, P., Ed. (2000). *Opening Lines: Approaches to the Scholarship of Teaching and Learning*. Menlo Park, CA: The Carnegie Foundation for the Advancement of Teaching.
- Hutchings, P., & Shulman, L. S. (1999). The scholarship of teaching: New elaborations, new developments. *Change*, 31, 10-15.
- Ignash, Jan. M. (Ed.). (Winter, 1997). Implementing Effective Policies for Remedial and Developmental Education. *New Directions for Communities Colleges*, 100.
- Intersegmental Committee of the Academic Senates (ICAS) for California Community Colleges, the California State University System, and the University of California. (Spring 2002). *Academic Literacy: A Statement of Competencies Expected of Students Entering California's Public Colleges and Universities*. Sacramento, CA.
- Irwin, D. E. (1980). Effects on peer tutoring on academic achievement and affective adjustment. In G. Enright (Ed.), *Proceedings of the Thirteenth Annual Conference of the Western College Reading Association* (pp. 42-45).
- Jacoby, D. (2006). Effects of Part-time Faculty Employment on Community College Graduation Rates. *The Journal of Higher Education* 77(6), 1081-1103.
- Jarvis, P. (1999). *The Practitioner-Researcher*. San Francisco, CA: Jossey-Bass Publishers.
- Jensen, E. (2006). *Principles of Brain-Based Learning*. Web resource: <http://www.jclbrain.com/BBlearn/principles.asp>.
- Jensen, E. (2005). *Teaching with the Brain in Mind, 2nd Edition*. Alexandria, VA: Association for Supervision & Curriculum Development.
- Jordan, M. & Schoenbach, R. (2003). Breaking through the literacy ceiling. *Leadership*, December, pp. 8-13.
- Kerka, S. (2003). *Does Adult Educator Professional Development Make a Difference?* ERIC Clearinghouse on Adult, Career, and Vocational Education, 28.
- Kezar, A. (2000). Understanding the research-to-practice gap: A national study of researchers and practitioners' perspectives. *New Directions for Higher Education* 110, 9-19.
- Kiemig, R. (1983). *Raising Academic Standards: A Guide to Learning Improvement* (ASHE/ERIC Research Report #1). Washington, DC: Association for the Study of Higher Education.
- King, P. M. & VanHecke, J. R. (2006). Making Connections: Using Skill Theory to Recognize How Students Build and Rebuild Understanding. *About Campus* 11(1), 10-16.
- Kirkpatrick, D. L. (1998). *Evaluating training programs: The four levels*. San Francisco, CA: Berrett-Koehler Publisher, Inc.
- Kleinbeck, U., Quast, H., & Schwarz, R. (1989). Volitional Effects on Performance: Conceptual Considerations and Results from Dual-Task Studies. In P. Kanfer, L. Ackerman, & R. Cudeck (Eds.), *Abilities, Motivation, and Methodology: The Minnesota Symposium on Learning and Individual Differences*. Hillsdale, NJ: Erlbaum.
- Knowledgeloop. (2006). *Culturally Responsive Teaching*. The Education Alliance: Brown University. <http://knowledgeloop.org>.
- Koeler, L. (1987). *Helping students to succeed: A report on tutoring and attrition at the University of Cincinnati*. ERIC Document Reproduction No. ED 290 30.
- Kozeracki, C. A. (2002). ERIC Review: Issues in Developmental Education. *Community College Review*, 29(4), 83-100.
- Kozeracki, C. A. (2005). Preparing Faculty to Meet the Needs of Developmental Students. *New Directions for Community Colleges*, 129, 39-49.
- Kuh, G. D., Kinzie, J., Buckley, J., Bridges, B., & Hayek, J. (2006a). What Matters to Student Success: A Review of Literature. Commissioned Report for the National Symposium on Postsecondary Student Success. National Postsecondary Education Cooperative. Retrieved January 2, 2007 from <http://nces.ed.gov/npec/papers.asp>
- Kuh, G. D., Kinzie, J., Cruce, T., Shoup, R., & Gonyea, R.M. (2006b). *Connecting the Dots: Multi-Faceted Analysis of the Relationships Between Student Engagement Results from the NSSE, and the Institutional Practices and Conditions that Foster Students Success*. Lumina Foundation for Education Grant #2518. Bloomington, IN: Center for Postsecondary Research.
- Kulik, C. C. & Kulik, J. A. (1991). Effectiveness of Computer-based Instruction: An Updated Analysis. *Computers in Human Behavior*, 7, 75-94.
- Kulik, C. C., Kulik, J. A., & Schwalb. (1983). College Programs for High-Risk and Disadvantaged Students: A Meta-analysis of Findings. *Review of Educational Research*, 53(3), 397-414.
- Laine, M. (1997-8). A Qualitative Study of College Developmental Students' Perceptions of the Reading and Writing Relationships in a Co-Taught

- Paired Reading Course. In E. Paulson, S. Biggs, M. Laine, & T. Bullock (Eds.), *College Reading Research and Practice: Articles from the Journal of College Literacy and Learning*. Newark, DE: International Reading Association.
- Lenze, L. F. (August 1996). Instructional development: What works. *NEA Update*, 2(4).
- Levinson-Rose, J., & Menges, R. J. (1981). Improving college teaching: A critical review of research. *Review of Educational Research*, 51, 403-434.
- Los Medanos College. (1998). Developmental Education Task Force Report to the Academic Senate.
- Long, B.T. (2005). The Remediation Debate: Are We Serving the Needs of Underprepared College Students? *National Cross Talk, Fall 2005*. The National Center for Public Policy and Higher Education. Retrieved February 1, 2007 from <http://www.highereducation.org/crosstalk/ct0405/voices0405-long.shtml>.
- Lumina Foundation, Achieving the Dream. (July/August 2006). *Data Notes: Keeping Informed About Achieving the Dream Data*, 1(6). www.achievingthedream.org
- MacGregor, J. (1990). Collaborative Learning: Shared Inquiry as a Process of Reform. In M.D. Svinicki, (Ed.), *The Changing Face of College Teaching*. San Francisco, CA: Jossey-Bass Publishers.
- Maitland, L. (2000). Ideas in Practice: Self-Regulation and Metacognition in the Reading Lab. *Journal of Developmental Education* 24(2), 26-36.
- Malinowski, P., Bader, C., Boylan, H., Casazza, M., & Higbee, J. (1995). *Defining Developmental Education as a Profession: Students, Programs, and Services*. National Association for Developmental Education.
- Malnarich, G. (2005). Learning Communities and Curricular Reform: "Academic Apprenticeships" for Developmental Students. *New Directions for Community Colleges*, 129, 51-62.
- Martin, D. C. & Blanc, R. A. (1994). VSI: A Pathway to Mastery and Persistence. In D. C. Martin and D. R. Arendale (Eds.), *Supplemental Instruction: Increasing Achievement and Retention* (pp. 83-93). San Francisco, CA: Jossey-Bass Publishers.
- Maxwell, M. (1995). Does Tutoring Help? In M. Maxwell, (Ed.), *From Access to Success: A Book of Readings on College Developmental Education and Learning Assistance Programs*, (pp. 109-117). Clearwater, FL: H & H Publishing.
- Maxwell, M. (1997a). *What are the Functions of a College Learning Assistance Center?* ERIC ED 413 031.
- Maxwell, M. (1997b). *The Role of Counseling in a Comprehensive Developmental Program for Postsecondary Students*. ERIC ED 415 932.
- Maxwell, M. (1997c). *Improving student learning skills*. Clearwater, FL: H & H Publishing Company
- Maxwell, W. E. & Kazlauskas, E.J. (1992). Which faculty development methods really work in community college?: A review of research. *Community/Junior College Quarterly*, 16, 351-360.
- Maxwell, W. (1998). Supplemental Instruction, Learning Communities, and Students Studying. *Community College Review* 26(2), 1-18.
- McCabe, R. H. (2001). Developmental Education: A Policy Primer. *Leadership Abstracts, League for Innovation in the Community College*, 14(1).
- McCabe, R. H. (2000). *No One to Waste: A Report to Public Decision-Makers and Community College Leaders*. The National Study of Community College Remedial Education, Community College Press.
- McCabe, R. H., & Day, Philip R., Eds. (June 1998). *Developmental Education: A Twenty-First Century Social and Economic Imperative*. League for Innovation in the Community College.
- McCabe, R. H., and Day, Philip R. (1998). The Case for Developmental Education in the Twenty-first Century. In *Developmental Education: A Twenty-First Century Social and Economic Imperative*. League for Innovation in the Community College.
- McCabe, R. H., and Day, P. R. (1998). What Works in Developmental Education. In *Developmental Education: A Twenty-First Century Social and Economic Imperative*. League for Innovation in the Community College.
- McCarty, T. L., Lynch, R. H., Wallace, S., & Benally, A. (1991). Classroom Inquiry and Navajo Learning Styles: A Call for Reassessment. *Anthropology & Education Quarterly*, 22(1), 42-59.
- McClenney, K. (2006) Senior Associate, Achieving the Dream: Community Colleges Count. Personal communication, November 7, 2006.
- McCusker, M. (1997). ERIC Review: Effective Elements of Developmental Reading and Writing Programs. *Community College Review*, 27(2), 93-105.
- McKinney, K. J. (Winter, 1997). Sources and Information About Remedial/Developmental Education Programs. *New Directions for Community Colleges*, 100, 87-94.
- McPhail, C. J., & Costner, K. L. (2004). Seven principles for training a culturally responsive faculty. *League for Innovation in Community Colleges: Learning Abstracts*, 7(12).
- McQueeny, P. (2001). What's in a Name? In J. Nelson and K. Evertz (Eds.) *The Politics of Writing Centers* (pp. 15-22). Portsmouth, NH: Boynton/Cook Publishers.
- Medrich, E., Calderon, S., & Hoachlander, G. (2002). *Contextual Teaching and Learning Strategies in High Schools: Developing a Vision for Support and Evaluation*. Berkeley, CA: MPR Associates.
- Mezirow, J. (2000). Learning to Think Like an Adult. In J. Mezirow (Ed.), *Learning As Transformation*. San Francisco, CA: Jossey-Bass Publishers.
- Moss, D. & Ross-Feldman, L. (2003). *Second Language Acquisition in Adults: From Research to Practice*. Retrieved January 6, 2007 from http://www.cal.org/caela/esl_resources/digets/SLA.html.
- Moyer, P. & Jones, M. (2004). Controlling Choice: Teachers, Students, and Manipulatives in Mathematics Classrooms. *School Science and Mathematics*, 104(1), 16-31.
- Muraskin, L. (1998). "Best practices" in student support services: a study of five exemplary sites. Follow-up study of student support services programs [Electronic version]. *National Study of Student Support Services*, pp. 1-79.
- Murray, J. P. (Winter 1999). Faculty development in a national sample of community colleges. *Community College Review*, 27(3), 47-65.
- Murray, J. P. (2001). Faculty development in publicly supported 2-year colleges. *Community College Journal of Research and Practice*, 25, 487-502.

- Murray, J. P. (Spring 2002). Faculty development in SACS-accredited community colleges, *Community College Review*, 29(4).
- Murray, J. P. (2002). The Current State of Faculty Development in Two-year Colleges. *New Directions for Community Colleges*, 118, 89-97.
- National Literacy Act. (1991). Public Law 102-73, section 3. July 25, 1991. Retrieved November 10, 2006 from <http://www.nifl.gov/public-law.html>.
- National Research Council. (2000). *How People Learn: Brain, Mind, Experience, and School*. Washington, DC: National Academy Press.
- Neuberger, J. (1999). *Executive Board Position Paper: Research Recommendations for Developmental Education and/or Learning Assistance Programs in the State of New York*. Research and Teaching in Developmental Education, New York State College Learning Skills Association.
- Nist, S. & Hynd, C. (January 1985) The college reading lab: An old story with a New twist. In M. Maxwell (Ed.), *From Access to Success: A Book of Readings on College Developmental Education and Learning Assistance Program* (pp. 171-173). Clearwater, FL: H & H Publishing.
- Nwagwu, E.C. (1998). How community college administrators can improve teaching effectiveness. *Community College Journal of Research and Practice*, 22, 11-19.
- O'Banion, T. (1997). *A Learning College for the 21st Century*. Phoenix, AZ: Oryx Press.
- Ogden, P., Thompson, D., Russell, A., & Simons, C. (2003). Supplemental Instruction: Short and Long-Term Impact. *Journal of Developmental Education*, 26(3), 2-8.
- Ohio State University. (1999). Contextual Teaching and Learning Project. Retrieved January 13, 2007 from <http://www.ed.gov/inits/teachers/exemplarypractices/c-3.html>.
- Owen, R. T. (2002). Self-Directed Learning in Adulthood: A Literature Review. *Information Analysis*, pp. 1-57.
- Palinscar, A. S. & Brown, A. L. (1985). Reciprocal Teaching: Activities to Promote Reading with Your Mind. In T.L Harris and E.J. Cooper (Eds.), *Reading, Thinking and Concept Development: Strategies for the Classroom*. New York, NY: The College Board.
- Palinscar, A. S., & Brown, A. L. (1984). Reciprocal Teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1(2), 117- 172.
- Paris, K. & Huske, L. (1998). *Critical Issue: Developing an Applied and Integrated Curriculum*. Retrieved January 13, 2007 from <http://www.ncrel.org/sdrs/areas/issues/envrmnt/stw/sw100.htm>
- Paulson, M. B. & Feldman, K. A. (1995). Taking teaching seriously: Meeting the challenges of instructional improvement. *ASHE-ERIC Higher Education Report No. 2*. Washington, DC: The George Washington University.
- Paulson, M. B. & Feldman, K. A. (2006). Exploring the dimensions of scholarship of teaching and learning: Analytics for an emerging literature. *New Directions for Institutional Research*, 129, 21-36.
- Perin, D. (2006). Can Community Colleges Protect Both Access and Standards? The Problem of Remediation. *Teacher's College Record*, 108(3).
- Perin, D. (Spring, 2005). Institutional Decision Making for Increasing Academic Preparedness in Community Colleges. *New Directions for Community Colleges*, 129, 27-38.
- Perin, D. (2004). Remediation Beyond Developmental Education: The Use of Learning Assistance Centers to Increase Academic Preparedness in Community Colleges. *Community College Journal of Research and Practice*, 28, 559-582.
- Perin, D. (April 2002). The Organization of Developmental Education: In or Out of Academic Departments? *Community College Research Center, Teachers College, Columbia University*, 14.
- Peterman, D. S. (2002). Faculty development in community colleges: An ERIC review. *Community College Journal of Research and Practice*, 26, 457-461.
- Philips, J. J. (1997). *Handbook of training evaluation and measurement methods*. Houston, TX: Gulf Publishing Company.
- Pintrich, P. R. (1995). Understanding Self-Regulated Learning. In P. R. Pintrich (Ed.), *Understanding Self-Regulated Learning*. San Francisco, CA: Jossey-Bass Publishers.
- Prince, H. (April 2005). *Standardization vs. Flexibility: State Policy Options on Placement Testing for Development Education in Community Colleges*. Achieving the Dream Project Policy Brief.
- Quirk, K. E. (2005). A Comprehensive Approach to Developmental Education. *New Directions for Community Colleges*, 129, 83-92.
- RP Group/Center for Student Success. (2005). *Environmental Scan: A Summary of Key Issues Facing California Community Colleges Pertinent to the Strategic Planning Process*. Sacramento, CA. <http://rpgroup.org/Projects/CCC-StrategicPlan/EvScanCCC-StrategicPln-RPCSS-07-05.pdf>
- Raftery, S. (2005). Developmental Learning Communities at Metropolitan Community College. *New Directions for Community Colleges*, 129, 63-72.
- Richardson, R. & Moore, W. (1987). Faculty development and evaluation in Texas community colleges. *Community/Junior College Quarterly*, 11, 19-32.
- Richardson, R. C. & Wolverton, M. (1994). Leadership Strategies. In A. M. Cohen and F. B. Brawer (Eds.), *Managing Community Colleges: A Handbook for Effective Practice*. San Francisco, CA: Jossey-Bass Publishers.
- Rinehart, S., and Platt, J. (1984). Metacognitive Awareness and Monitoring In Adult and College Readers. *Forum for Reading*, 15(2), 54-62.
- Ritze, N. (2005). The Evolution of Developmental Education at the City University of New York and Bronx Community College. *New Directions for Community Colleges*, 129, 73-81.
- Rossini, C. (2002). *My Place or Yours: Theorizing Eclectic Writing Centers*. Paper Presented at the Annual Meeting of the Conference on College Composition and Communication Chicago, Illinois, March 20-23.
- Roueche, J. E. & Baker, G. A. (1987). *Access and Excellence*. Washington, DC: Community College Press.
- Roueche, R. E. & Roueche, S. D. (1999). *High Stakes, High Performance: Making Remedial Education Work*. Washington, DC: Community College Press.
- Roueche, J. E. (1973). *A Modest Proposal: Students Can Learn*. San Francisco, CA: Jossey-Bass Publishers.

- Roueche, J. E. & Snow, J. (1977). *Overcoming Learning Problems*. San Francisco, CA: Jossey-Bass Publishers.
- Roueche, J. E., Ely, E. E., & Roueche, S. D. (2001). *In Pursuit of Excellence: The Community College of Denver*. Washington, DC: Community College Press
- Rouseff-Baker, F. (Winter 2002). Leading change through faculty development. *New Directions for Community Colleges*, 120, 35-42.
- Schmidt, W., Houang, R., & Cogan, L. (2002). A Coherent Curriculum: The Case of Mathematics. *American Educator*. American Federation of Teachers.
- Schoenbach, R., Greenleaf, C. L., Cziko, C., & Hurwitz L. (2000). *Reading for Understanding: A Guide to Improving Reading in Middle and High School Classrooms*. San Francisco, CA: Jossey-Bass Publishers.
- Sheldon, C. Q. (2002). *Building an Instructional Framework for Effective Community College Developmental Education*. ERIC Digest, ED 477 909.
- Shulock, N. & Moore, C. (2007). *Rules of the Game: How State Policy Creates Barriers to Degree Completion and Impedes Student Success in the California Community Colleges*. Sacramento, CA :Institute for Higher Education Leadership and Policy, California State University.
- Shults, C. (2000). *Remedial Education: Practices and Policies in Community Colleges*. Research Brief, American Association of Community Colleges, AACCC-RB-00-2.
- Singer, S. R. (Fall 2002). Learning and teaching center: Hubs of educational reform. *New Directions for Higher Education*, 119, 59-64.
- Smittle, P. (2003). Principles of effective teaching in developmental education. *Journal of Developmental Education*, 26(3), 10-16.
- Speer, M.B., Seymour, E., & McGarth, D. (1992). The new problem of staff development. *New Directions for Community Colleges*, 79, 21 -28. San Francisco, CA: Jossey-Bass.
- Stoic, J. H. (2001). Technology's role in collaboration. *Community College Journal of Research and Practice*, 25, 37-46.
- Stolzenberb, E. B. (Winter 2002). Sources and information: Professional development in community colleges. *New Directions for Community Colleges*, 120, 85-95.
- Svinicki, M. D. (1999). New Directions in Learning and Motivation. In M. D. Svinicki (Ed.), *Teaching and Learning on the Edge of the Millennium: Building on What We Have Learned*. San Francisco, CA: Jossey-Bass Publishers.
- Svinicki, M. D., Ed. (1990). The changing face of college teaching. *New Directions for Teaching and Learning*, 42.
- Sydow, D. (2000). Long-term investment in professional development: Real dividends in teaching and learning. *Community College Journal of Research and Practice*, 24, 383-397.
- Teachers of English to Speakers of Other Languages (TESOL). (2000). *Adult ESL Language and Literacy Instruction: A Vision and Action Agenda for the 21st Century*.
http://www.cal.org/caela/esl_resources/books_and_reports.html.
- Tei, E., and Stewart, O. (1985) Effective Studying from Text: Applying Metacognitive Strategies. *Forum for Reading*, 16(2), 46-55.
- Tierney, W. G., Ahern, B., & Kidwell, C. S. (Winter 1996). Enhancing faculty development at tribal colleges. *Tribal Colleges Journal*, 36-39.
- Tinto, V. (2003). *Promoting Student Retention Through Classroom Practice*. Presented at Enhancing Student Retention: Using International Policy and Practice, November 5.
- Tinto, V. (1997a). *Learning Communities and the Reconstruction of Remedial Education in Higher Education*.
<http://soeweb.syr.edu/Faculty/Vtinto/Files/DevEdLC.pdf>
- Tinto, V. (1997b). Classrooms as Communities: Exploring the Educational Character of Student Persistence. *Journal of Higher Education*, 68(6), 599-623.
- Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition, 2nd Edition*. Chicago, IL: University of Chicago Press.
- Torgerson, C., Brooks, G., Porthouse, J., Burton, M., Robinson, A., Wright, K., & Watt, I. (2004). *Adult Literacy and Numeracy Interventions and Outcomes: A Review of Controlled Trials*. London, England: National Research and Development Center for Adult Literacy and Numeracy. www.nrdc.org.uk
- Travis, J. E. (1995). Models for improving college teaching: A faculty resource. ASHE-ERIC: Higher education report No. 6 [HE 029 856].
- Trawick, L. & Corno, L. (1995). Expanding the Volitional Resources of Urban Community College Students. In P. R. Pintrich (Ed.), *Understanding Self-Regulated Learning*. San Francisco, CA: Jossey-Bass Publishers.
- United States Department of Education. (2005). Strengthening Mathematics Skills at the Postsecondary Level: Literature Review and Analysis. Washington, DC: Office of Vocational and Adult Education, Division of Adult education and Literacy.
- United States House of Representatives Resolution #174, July 1989.
- Villegas, A. M. (1991). Culturally Responsive Pedagogy for the 1990s and Beyond. *Trends and Issues Paper No. 6*. ERIC Publication. [ED339698].
- Vincent, V. C. (1983). *Impact of a college learning assistance center on the achievement and retention of disadvantaged students*. ERIC Document Reproduction No. ED 283 438.
- Vineyard, E. E. (1994). The administrator's role in staff management. In A. M. Cohen and F. Brawer (Eds.), *Managing Community Colleges: A Handbook of Effective Practice*. San Francisco, CA: Jossey-Bass Publishers.
- Washington State Board for Community and Technical Colleges. (2005). *Integrated Basic Education and Skills Training Program (I-BEST) Executive Summary*. Research Report 05-2.
<http://www.sbctc.ctc.edu/Data/rsrchrpts/Resh05-2-I-BEST.pdf>
- Waycaster, P. (2001a). Community College Collaborative on Developmental Mathematics. Presented at the NADE 25th Annual Conference, Louisville, Kentucky, March 17.
- Waycaster, P. (2001b). Factors impacting success in community college developmental mathematics courses and subsequent courses. *Community College Journal of Research and Practice*, 25, 5-6.

- Weimer, M. and Lenze, L. F. (1991). Instructional interventions: A review of the literature on efforts to improve instruction. In J.C. Smart (Ed.), *Higher Education Handbook of Theory and Research, Volume 7* (pp. 294-333). New York, NY: Agathon Press.
- Weimer, M. (1990). *Improving College Teaching: Strategies for Developing Instructional Effectiveness*. San Francisco, CA: Jossey-Bass Publishers.
- Weinbaum, A. & Rogers, A.M. (1995). *Contextual Learning: A Critical Aspect of School-to-Work Transition Programs*. ERIC No. 381666. Washington, DC: Office of Educational Research and Improvement.
- Weinstein, C. E. & Meyer, D. (1991). Cognitive Strategies and College Teaching. In R. J. Menges and M. D. Svinicki (Eds.) *College Teaching: From Theory to Practice*. San Francisco, CA: Jossey-Bass Publishers.
- Weissman, J., Bulakowski, C., & Jumisko, M. K. (1997). Using Research to Evaluate Developmental Education Programs and Policies. *New Directions for Community Colleges 100*, 73-80. ERIC EJ558593.
- WestEd (2004). *1997-2000: A study of teacher learning and student reading outcomes in SLI professional development network*. WestEd: Strategic Learning Initiative. www.wested.org/cs/sli/print/docs/sli/teacherdev.htm.
- WestEd (2004). *2001-2004: Reading Apprenticeship classroom student linking professional development for teachers to outcomes for students in diverse subject-area classrooms*. WestEd: Strategic Learning Initiative. www.wested.org/cs/sli/print/docs/sli/classroomstudy.htm.
- Wisely, W. C. (2006). *Annotated Bibliography: Developmental Education: Current Knowledge and Practice*. Submitted for graduate program requirements, University of the Pacific.
- Wlodkowski, R.J. & Ginsberg, M. B. (1995). *Diversity and Motivation: Culturally Responsive Teaching*. San Francisco, CA: Jossey-Bass Publishers.
- Wolfe, P. (2001). *Brain Research and Education: Fad or Foundation?* Web resource: http://www.brainconnection.com/content/160_1.
- Yamasaki, E. (1998). *Effective Policies of Remedial Education*, ERIC Digest, ED416940, 1998-03-00.
- Zhang, J. (2000-2001). In Defense of College Developmental Reading Education. *The Journal of College Literacy and Learning*. In E. Paulson, S. Biggs, M. Laine, & Bullock, T. (Eds.), *College Reading Research and Practice: Articles from the Journal of College Literacy and Learning* (pp. 43-49). Newark, DE: International Reading Association.

PART 2

Assessment Tool for Effective Practices in Basic Skills

Introduction to the Self-Assessment Tool

The self-assessment tool comprises:

- A matrix of baseline measures which will provide the institution with an initial, quantitative overview of its developmental education programs
- Four broad sections, mirroring the structure of the literature review
- Twenty-six effective practices related to basic skills, as described in the literature review
- Suggested strategies for accomplishing each effective practice, drawn from the literature review
- A series of prompts which assist institutions with evaluating their current relationship to each effective practice.
- A culminating planning matrix for each section which allows an institution to develop a plan for changes, enhancements, or modifications

What is the Purpose of the Self-Assessment?

The purpose of the self-assessment tool is to allow colleges to reflect on how their current practices fit with and reflect the findings from the literature regarding effective practices for basic skills students. The reflection encourages institutions to examine the scope and efficacy of current practices. Based upon this internal review, an institution may determine which augmentations, changes, or new initiatives might be beneficial and plan for how those augmentations, changes, or new initiatives can occur. In addition, the self-assessment can serve as a baseline measure, allowing an institution to identify its practices and priorities as of a particular point in time.

How is the Self-Assessment Related to the Literature Review?

The self-assessment is directly related to the literature review in Part 1. The self-assessment tool consists of four broad sections—**organizational and administrative practices, program components, staff development, and instructional**

practices—which mirror the structure of the literature review. *We strongly suggest that participants in the self-assessment process read the literature review prior to beginning the self-assessment. In addition, we suggest that the literature review is frequently consulted during the self-assessment process.* Each item in the self-assessment is drawn directly from the literature review, and the literature review describes each item in more detail than is feasible within the self-assessment tool.

Who Should Participate in the Self-Assessment?

The reflection and planning processes should incorporate a variety of college constituents who will need to meet to discuss the various effective practices included in the tool. Open exploration of how various areas of the college can contribute to and improve success rates of developmental students is essential, and these meetings are a crucial venue for an inclusive discovery process. Responses to the assessment tool should flow directly from these meetings. Each section begins with a list of suggested participants. Upon completion of each section, the college should identify who contributed to that portion of the college’s self-assessment.

What Information is the College Asked to Provide?

The self-assessment tool is organized into three distinct components: baseline measures, the self-assessment of effective practices and related strategies, and planning matrices. Prior to or during the inception of its self-assessment, each institution should collect and report developmental education baseline data. This process is detailed on pages 5-8. Directions for completing the self-assessment of effective practices and planning matrices are described in detail below.

Strategy Analysis

For each strategy associated with an effective practice, the college is asked to indicate whether the strategy occurs at the institution. If the strategy is in use, the college is asked to enumerate all the levels at which the strategy occurs (institution-wide, specific programs, and/or specific departments). In this way, the college can identify at a glance which strategies it currently employs and where these strategies are embedded within the organization. **This process is meant to guide but not restrict the self-assessment analysis. Therefore, as appropriate, colleges are encouraged to also indicate any significant additional strategies not listed in the self-assessment tool but which the college employs and strongly feels contribute to its ability to implement the effective practice.** *To the extent possible, these additions should be presented with some evidence as to their efficacy. It is not expected that every institution will engage in every strategy.*

Open exploration of how the college can contribute to and improve success rates of developmental students is essential.

Example: Each effective practice is associated with a matrix like the one below. The institution is asked to complete the “Where Strategies Occur” section of the matrix.

(The example below is based on *Effective Practice A.5: A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.*)

	Strategies Related to Effective Practice	Where Strategies Occur
A.5	Peers and /or faculty provide mentoring to developmental students	<ul style="list-style-type: none"> • Mathematics (all developmental math courses encourage use of peer mentoring services) • English (peer mentoring encouraged for developmental writing) • Currently no other developmental education- specific mentoring

Effective Practice Analysis

Upon completing the initial analysis of strategies in which the college currently engages, the self-assessment proceeds to the effective practice level. Participants are asked to reflect in more detail on the effective practice as a whole by responding to the following prompts which culminate in an analysis of priorities for change:

- 1. Describe how this practice occurs/exists at your institution.** Using the initial analysis of strategies as a basis, describe how the effective practice occurs at your college. Consider beginning your description with a statement which indicates one of the following:
 - A. We have experience/strength in this area which we can build on and extend.
 - B. This is an area which is emerging/shows promise.
 - C. Results in this area have been mixed.
 - D. This practice has not been addressed.
- 2. Identify what evidence exists to support the efficacy of this practice.** Evidence is a measurable outcome that validates the effectiveness of the practice. Evidence might be found in the form of improved student persistence, for example. Indicate whether your college has such evidence for this practice. To the extent possible, include an indication not only that such evidence exists, but also where it is located and how it is shared/distributed within the college.
- 3. Identify barriers/limitations that exist to implementing or enhancing this practice.** Barriers/limitations might be related to availability of resources, but they also might be more intangible, such as institutional culture. What barriers exist at the department level, or at other levels, such as interdepartmental, programmatic, institutional, regional, or statewide? Is the barrier related to lack of staffing, staff development, data, institutional commitment, money, or other capacity issues? What would be required to remove or substantially decrease the barrier?
- 4. Describe how this practice might be advanced or expanded upon in the future.** List the actions (augmentations, changes, or new initiatives) which the institution believes will advance the efficacy or expand the delivery of the effective practice. Briefly indicate the specific problem(s) the action is expected to remedy: what will it fix and how will it work? What sorts of results are expected? What evidence can be used to verify results?

Section Planning Matrices

At the conclusion of each of the four sections, there is a planning matrix. Each matrix contains a number of elements, including Planned Action, Start Date, Current Measure of Effectiveness (i.e. Baseline), Projected Measure (i.e. Benchmark), and Date for Projected Measure. The first step in filling out the matrix is identifying which actions the college wants to prioritize/include.

For example, the first matrix concludes the first section; therefore, it should include those actions which relate to the strategies and effective practices identified within Organizational and Administrative Practices. The college must select from and prioritize among all the actions identified under the fourth prompt (“How might this practice be advanced or expanded upon in the future?”) for each effective practice in the section. The college should prioritize these actions based on local perceptions of relative importance, potential for impact, necessary fiscal outlay, quickest turnaround, and other considerations. The planning timeframe is at the discretion of each institution. College are encouraged to use the tool provided in Part 3 (“Where Should We Put Basic Skills Funds: A Tool to Estimate Costs/Downstream Revenue”) to enhance the discussion.


The primary purpose of the matrix is to assist in planning and implementation at the local level. An important secondary purpose is to obtain a clearer, more comprehensive statewide view of the current state of basic skills education within the system. For example, if specific priorities appear

to be widely shared among colleges, the system could consider direct support for implementations which would benefit from economies of scale. Therefore, while collection of baseline data and the self-assessment of effective practices and related strategies have been designed to facilitate local developmental education efforts, the planning matrices serve a broader systemic purpose and will be shared publicly.

Baseline Measures

MEASURES (Baseline, Additional Recommended, Locally-Determined)

Prior to or during the inception of its self-assessment, each institution should collect and report on baseline data (see following pages) for developmental education. **Baseline measures** are intended to provide a broad overview of developmental education at each college. Baseline measures have been operationally defined and should prove relatively easy for most institutions to identify using current reporting mechanisms, such as Management Information System (MIS) referential files, Chancellor's Office Data Mart, and Fall Staff Report. **Additional recommended measures** are also listed. While the recommended measures might be more difficult to identify, it is anticipated that these additional measures will promote more meaningful internal discussion. The recommended measures are offered as a suggestion; an individual institution may identify other local data which it believes will promote fruitful discussion.



Colleges should include any locally completed research which assists in better understanding developmental education students.

When considering **local measures**, colleges may wish to refer to Effective Practice B.2 listed in the literature review on page X. In addition to any “new” measures which the college wishes to employ based on the literature review, colleges should also include any locally completed research which assists in better understanding developmental education students and/or courses. These items should be referenced and/or attached along with the baseline measures so that institutional representatives completing the self-assessment can refer to and use the information as appropriate. Also, while not suggested specifically in the literature review, an understanding of local grading variability may assist colleges in correctly interpreting student success data.

LEVELS OF MEASUREMENT (Data for All Development Education, Discipline-Specific Data, Course-Specific Data)

At a minimum, colleges should report aggregate data on all developmental education students, course offerings, and staffing. However, an exploration of data at the discipline level (math, English, and others) would augment the data's usefulness. The matrix on the following page allows for the inclusion of this optional level of measurement. While strongly encouraged, the breadth and depth of exploration is left to the discretion of each institution.

Institutions might consider an even more refined course-level reporting for some selected measures. For example, “Student Success Rate in Developmental Education Courses” is likely to vary between disciplines, but it will also vary by course level. A course which is four levels below college-level, for example, is likely to have a success rate which is different from a course which is one level below college-level. While this level of detail is not required for the self-assessment process, the more informed the college is about how it is currently serving students, the more meaningful the self-assessment process will be. This data can also serve in the future when an institution reflects on the progress it has made toward helping students in developmental education achieve their goals.

Data for Developmental Education

Baseline Measures for Developmental Education (DEV) For Selected Fall Term Indicate Term: _____	Levels of Measurement						
	All Developmental Education	Optional, Discipline-Specific Developmental Education (DEV) Data					
		Math (DEV)	English (DEV)	Reading (DEV)	Writing (DEV)	ESL (DEV)	Study Skills (DEV)
Percentage of New Students Assessed into Developmental Education Courses							
Number of Developmental Education Sections Offered							
Percentage of Section Offerings that are Developmental Education							
Unduplicated Number of Students Enrolled in Developmental Education							
Student Success Rate in Developmental Education Courses							
Student Retention Rate in Developmental Education Courses							
Student Course Repetition Rate in Developmental Education Courses							
Fall-to-Fall Persistence Rate of Developmental Education Students							
Percentage of Developmental Ed. Sections Taught by Full-Time Faculty							
Additional Recommended Measures							
Percentage of Developmental Education Students who Subsequently Enroll in Transfer-Level Courses							
Success Rate of Developmental Education Students in Transfer-Level Courses							
Percentage of Students who Successfully Completed a Developmental Education Course and Earned a Degree or Certificate							
Percentage of Students who Successfully Completed a Developmental Education Course and Subsequently Transferred							
Locally-Determined Measures							
Your measure here							

Please add any other relevant, locally-determined measures on a separate page.

All measures are intended solely for the use of the institution in its self-assessment. Measures will not be made public except at the discretion of the individual institution or in the case where such measures (e.g., student success rates) are already public.

Baseline Measure Operational Definitions

The following definitions use MIS data elements. MIS Data Element CB08 is particularly critical since it is used to identify basic skills or pre-collegiate basic skills course sections. Before using the MIS data, please ensure that the data and related codes are accurate and complete.

- **Percentage of New Students Assessed into Developmental Education Courses:**
 - New Student: MIS Data Element SB15 = “1” (New Student).
 - Assessed into Developmental Education: Using the institution’s assessment instruments, students enrolled during a fall term who were recommended to enroll in developmental education courses, MIS Data Element CB08 code of “P” (Pre-collegiate Basic Skill) or “B” (Basic Skill), divided by the total number of new students receiving assessment, multiplied by 100.
- **Unduplicated Number of Students Enrolled in Developmental Education:** Number of students enrolled in at least one development education course, counted only once if enrolled in multiple developmental education courses. A student is defined as follows:
- **Student:** (MIS Data Element STD7 = “A” *and* MIS Data Element SX04 = “A”, “B”, “C”, “D”, “F”, “CR”, “NC”, “I”, “FW”, or “W”) *or* (MIS Data Element STD7 = “B”, “C”, or “F”).
- **Number of Developmental Education Sections Offered:** Number of sections with an MIS Data Element CB08 code of “P” (Pre-collegiate Basic Skill) or “B” (Basic Skill).
- **Percentage of Section Offerings that are Developmental Education:** Number of sections coded as “B” or “P”, divided by the total number of section offerings (MIS Data Element CB08 = “P”, “B”, or “N”), multiplied by 100.
- **Student Success Rate:** MIS Data Element SX04; number of “A”, “B”, “C”, and “CR” grades divided by the number of all grades, multiplied by 100. To calculate all grades, include “A”, “B”, “C”, “D”, “F”, “CR”, “NC”, “I”, “FW”, and “W” grades; exclude “IP”, “RD”, “UD”, “UG”, “MW”, and “XX” grades.
- **Student Retention Rate:** MIS Data Element SX04; number of “A”, “B”, “C”, “D”, “F”, “CR”, “NC”, “I”, and “FW” grades divided by the number of all grades, multiplied by 100. See “Student Success Rate” definition for details on how to calculate all grades.
- **Student Course Repetition Rate:** Number of students who earned a non-successful grade (MIS Data Element SX04 = “D”, “F”, “FW”, “NC”, “I”, or “W”) in developmental education courses who subsequently re-enrolled in the same developmental education course (MIS Data Element CB01), multiplied by 100.
- **Fall-to-Fall Persistence Rate of Developmental Education Students:** Number of developmental education students in a particular fall semester who were counted as a student the following fall semester, divided by total number of developmental education students in the initial fall semester, multiplied by 100.
- **Percentage of Developmental Education Sections Taught by Full-Time Faculty:** Number of developmental education sections taught by full-time faculty (regular staff not on overload assignment as identified by MIS Data Element XE01 = 3), divided by total number of developmental education sections, multiplied by 100.

Additional Recommended Measure Operational Definitions

The following recommended measures require institutions to consistently define relevant student cohorts (e.g., new students in a fall semester who enroll in one or more developmental education courses). While it is anticipated that colleges might identify different cohort characteristics based upon intervening variables unique to their institutions, significant thought and discussion should occur that will result in the establishment of consistent cohort definitions over time (e.g., the same methodology should be employed to identify 2002, 2003, and 2004 cohorts, leading to an “apples-to-apples” comparison of identified cohort groups).

- **Percentage of Developmental Education Students who Subsequently Enrolled in Transfer-Level Courses:**
 - “A”: Identify a consistent cohort of students who successfully completed a developmental education course (e.g., by term or annual period; use baseline operational definitions to identify developmental education courses and successful completion).
 - “B”: Among group “A” students, identify how many of these students subsequently enrolled in a transfer-level course. A transfer-level course is defined as MIS Data Element CB09 code of “A” (transferable to both a UC and CSU) or “B” (transferable to a CSU only). Define consistent track-out period for students identified in “A” (e.g., three years, five years, or six years).
 - Divide “B” by “A”: multiply by 100.
 - **Example:** 345 students successfully completed a developmental education course in the Fall 2001 semester. Within a three-year period (i.e., by end of Spring 2004), 225 had enrolled in a transfer-level course. $225/345 \times 100 = 65.2\%$. Repeat for similar cohorts (e.g., Fall 2002 and Fall 2003, tracked through Spring 2005 and Spring 2006, respectively).
- **Success Rate of Developmental Education Students in Transfer-Level Courses:** Among students identified in group “B” above, use baseline operational definitions to identify the success rate of the population in transfer-level courses.
- **Percentage of Students who Successfully Completed a Developmental Education Course and Subsequently Earned a Degree and Certificate:** Among students identified in group “A” above, identify the number who earned a degree or certificate within a consistently defined period (e.g., three years, five years, or six years). Divide the number who earned a degree or certificate by all students in original cohort; multiply by 100.
- **Percentage of Students who Successfully Completed a Developmental Education Course and Subsequently Transferred:** Among students identified in group “A” above, identify the number who subsequently transferred to another postsecondary educational institution. Submit original cohort to National Student Clearinghouse (NSC) after a consistently defined period of time (e.g., three years, five years, or six years). Divide the number who transferred by all students in original cohort; multiply by 100.



Section A Organizational and Administrative Practices

Consider including these leaders in discussions related to Section A of the self-assessment, listed in no particular order:

- Provost/Chief Instructional Officer
- Public Information Officer
- Student Services Dean
- Matriculation Dean
- Counseling and Advising Dean
- Learning Assistance Center Director
- Faculty and/or Peer Mentoring Program(s) Director(s)
- Institutional Researcher
- Developmental Education operation-level administrator
- Lead faculty members in Developmental Education programs, including the following:
 - Reading
 - Writing
 - Mathematics
 - ESL
 - College Success/Study Skills
 - Counseling
- Lead faculty members who teach college-level courses in English and mathematics
- Other college-level faculty who do not teach English or mathematics
- A student who recently matriculated and assessed into developmental education
- Others as appropriate (e.g., CEO, CFO, Academic Senate Reps)

Upon completion of this section, please verify who participated by name and job title:

- 1.
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Effective Practice A.1

Developmental education is a clearly stated institutional priority.

Various studies have cited institution-wide commitment to developmental education as a characteristic of exemplary developmental education programs.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
A 1.1	Clear references exist that developmental education is an institutional priority; references are public, prominent, and clear.	
A 1.2	Institutional leadership demonstrates a commitment to developmental education.	
A 1.3	Developmental educators are systemically included in broader college planning activities.	
A 1.4	Developmental education is adequately funded and staffed.	
A 1.5	Institutional commitment is reflected in the level of comprehensiveness and the extent to which developmental education is integrated into the institution.	

As applicable, briefly describe how this practice occurs/exists at your institution:

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.2

A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program. Clearly specified goals and objectives are established for developmental courses and programs.

Subscribing to an overarching, articulated philosophy of developmental education that is shared among all institutional stakeholders is an acknowledged best practice according to a variety of literature sources.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
A.2.1	A detailed statement of the mission for developmental education is clearly articulated.	
A.2.2	Diverse institutional stakeholders are involved in developing the developmental education mission, philosophy, goals, and objectives.	
A.2.3	Developmental education mission, philosophy, goals, and objectives are reviewed and updated on a regular basis.	
A.2.4	Developmental education goals and objectives are clearly communicated across the institution.	

As applicable, briefly describe how this practice occurs/exists at your institution:

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.3

The developmental education program is centralized or highly coordinated.

Regardless of whether the institution conducts developmental education in a centralized or “mainstreamed” model, the importance of a clearly defined institutional structure is cited in literature as an effective practice.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
A.3.1	A clear institutional decision exists regarding the structure of developmental education (centralized or decentralized, but highly coordinated).	
A.3.2	Based upon the institutional structure, a dedicated administrator or lead faculty is/are clearly identified and accorded responsibility for college-wide coordination of basic skills program(s).	
A.3.3	A designated budget allocation exists for developmental education.	
A.3.4	Formal mechanisms exist to facilitate communication/ coordination between faculty and staff in different developmental disciplines as well as with student services.	
A.3.5	Formal mechanisms exist to facilitate communication/ coordination between pre-collegiate and college-level faculty within disciplines.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.4

Institutional policies facilitate student completion of necessary developmental coursework as early as possible in the educational sequence.

Research studies support institutional monitoring of prerequisites as well as concurrent enrollment in developmental and other content courses. This research informs policy decisions.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
A.4.1	Students are required to receive early assessment and advisement for sound educational planning.	
A.4.2	Students are advised and encouraged to enroll only in college-level courses consistent with their basic skills preparation.	
A.4.3	Mechanisms/cultures exist to alleviate potential marginalization or stigma associated with isolation of basic skills students.	
A.4.4	Outcomes for basic skills students concurrently enrolled in college-level and basic skills courses are carefully monitored; data are used to adjust policies and/or recommendations to students.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.5

A comprehensive system of support services exists and is characterized by a high degree of integration among academic and student support services.

The majority of acknowledged studies of effective practices in developmental education call for the offering of comprehensive support services for developmental education students.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
A.5.1	Course-related learning assistance (e.g., supplemental instruction, course-based tutoring) exists.	
A.5.2	Comprehensive learning systems (e.g., learning communities, course-embedded counseling, team teaching) exist and include developmental education students.	
A.5.3	A comprehensive learning assistance center provides support to developmental education students.	
A.5.4	Peers and/or faculty provide mentoring to developmental education students.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.6

Faculty who are both knowledgeable and enthusiastic about developmental education are recruited and hired to teach in the program.

Literature suggests that the pivotal role of faculty in developmental education programs underscores the need to insure that these key personnel are knowledgeable, experienced, and motivated to work with developmental learners.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
A.6.1	Recruitment and hiring processes for faculty/staff in basic skills programs emphasize expertise and/or experience in developmental education.	
A.6.2	Specific training in developmental education instructional strategies is provided to faculty teaching developmental education courses.	
A.6.3	Faculty choose to teach developmental education courses as opposed to being assigned to developmental education courses.	
A.4.4	A sufficient portion of developmental education course sections are taught by full-time faculty and the full-time to part-time ratio for basic skills is similar to the ratio for college-level classes and disciplines.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice A.7

Institutions manage faculty and student expectations regarding developmental education.

Literature suggests that the communication of explicit expectations for both students and program providers enhances the effectiveness of developmental education programs.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
A.7.1	A clearly defined and widely shared definition of “successful developmental education” exists.	
A.7.2	Faculty new to the developmental program receive an orientation to convey to them the goals and expectations of the program.	
A.7.3	Faculty and other program personnel know/understand their individual roles and accept responsibility for the developmental program.	
A.7.4	Formal mechanisms exist to facilitate accurate communication of institutional values and expectations for developmental students.	
A.7.5	Faculty/staff communicate clear expectations for student behaviors/performance in developmental courses and programs.	
A.7.6	Communication of expectations to students occurs early and often and is the shared responsibility of all developmental program providers.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Planning Matrix for Section A Organizational and Administrative Practices

For each planned action, indicate which effective practice and strategy it is related to; if the strategy is a local one not identified in the literature, then indicate the effective practice's number followed by "local." Indicate whether the action is new, a change (substantially altering a program or practice in order to be more effective), or an expansion (expanding an existing program or practice to meet the needs of a greater number of students and/or employees).

Planned Action	Effective Practice and Strategy	New, Change, or Expansion	Start Date	Current Measure of Effectiveness (Baseline)	Projected Measure (Benchmark)	Date for Projected Measure	Responsibility	Budget Request	Priority
Initiate an annual electronic newsletter addressing the current goals and objectives of the departments developmental education.	A.2.4 Communicate developmental education goals and objectives.	New	Sept. 2007	No current effort in place	Half of college employees access annual newsletter as indicated by "hits" to newsletter website.	Jan. 2008	Public Information	Less than \$500	



Section B Program Components

Consider including these leaders in discussions related to Section B of the self-assessment, listed in no particular order:

- Provost/Chief Instructional Officer
- Public Information Officer
- Matriculation Dean
- Counseling and Advising Dean
- Financial Aid Officer
- Member of the Program Review Committee
- Institutional Researcher
- Developmental Education faculty member serving on the College Curriculum Committee
- Developmental Educational operation-level administrator
- Lead faculty members in Developmental Education programs, including the following:
 - Reading
 - Writing
 - Mathematics
 - ESL
 - College Success/Study Skills
 - Counseling
- Lead faculty members who teach college-level courses in English and mathematics
- Other college-level faculty who do not teach English or mathematics
- A student who recently matriculated and assessed into developmental education
- Others as appropriate (e.g., Academic Senate and College Curriculum Committee Representatives)

Upon completion of this section, please verify who participated by name and job title:

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Effective Practice B.1

Orientation, assessment, and placement are mandatory for all new students.

There is widespread agreement in the literature regarding the benefits of mandatory orientation, assessment, and placement for developmental education students.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide.". If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
B.1.1	Mandatory orientation exists for all new students.	
B.1.2	Mandatory assessment exists for all new students.	
B.1.3	Mandatory placement exists for students assessed at developmental levels.	
B.1.4	Expanded pre-enrollment activities exist for students placed into developmental education courses.	
B.1.5	Diverse institutional stakeholders engage in routine review of the relationship between assessment instruments and student success in courses.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice B.2

Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.

Various studies provide evidence that comprehensive and systematic program evaluation is a hallmark of successful development education programs.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
B.2.1	Developmental education course content and entry/exit skills are regularly reviewed and revised as needed.	
B.2.2	Formative program evaluation activities occur on a regular basis.	
B.2.3	Summative program evaluation activities occur on a regular basis.	
B.2.4	Multiple indices exist to evaluate the efficacy of developmental education courses and programs.	
B.2.5	Data obtained from course/program evaluation are disseminated and used for future planning and continuous improvement.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice B.3

Counseling support provided is substantial, accessible, and integrated with academic courses/programs.

According to the literature, a strong counseling component is characteristic of successful developmental education programs.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
B.3.1	A proactive counseling/advising structure that includes intensive monitoring and advising serves students placed into developmental education courses.	
B.3.2	Counseling and instruction are integrated into the developmental education program.	
B.3.3	Counseling staff are specifically trained to address the academic, social, and emotional needs of developmental education students.	
B.3.4	Counseling of developmental education students occurs early in the semester/quarter.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice B.4

Financial aid is disseminated to support developmental students. Mechanisms exist to ensure that students are aware of such opportunities and are provided with assistance to apply for and acquire financial aid.

Studies have correlated provision of financial aid with increased student success. Financial aid allows developmental students to focus more purposefully on their academic work.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
B.4.1	Outreach and proactive mechanisms exist to educate developmental students about various opportunities to acquire financial aid.	
B.4.2	Developmental students receive timely assistance in identifying and applying for appropriate sources of financial aid.	
B.4.3	The institution actively solicits additional aid sources in support of developmental students (e.g. potential scholarship donors or textbook grants).	
B.4.4	The institution creates incentive programs that financially reward students who achieve/persist in developmental programs.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Planning Matrix for Section B Program Components

For each planned action, indicate which effective practice and strategy it is related to; if the strategy is a local one not identified in the literature, then indicate the effective practice's number followed by "local." Indicate whether the action is new, a change (substantially altering a program or practice in order to be more effective), or an expansion (expanding an existing program or practice to meet the needs of a greater number of students and/or employees).

Planned Action	Effective Practice and Strategy	New, Change, or Expansion	Start Date	Current Measure of Effectiveness (Baseline)	Projected Measure (Benchmark)	Date for Projected Measure	Responsibility	Budget Request	Priority
Ensure that all developmental education students receive counseling services within the first three weeks of the semester.	B.3.4 Counseling of dev. ed. students occurs early in the semester.	Expansion	Spring 2008	Currently, 75% of dev. ed. students are seen by a counselor within the first three weeks.	H100% of dev. ed. students will be seen by a counselor within the first three weeks.	Fall 2009	PCounseling Department Chair	One additional FTE counselor	



Section C Staff Development

Consider including these leaders in discussions related to Section 3 of the self-assessment, listed in no particular order:

- Staff Development Coordinator
- Provost/Chief Instructional Officer
- Counseling and Advising staff
- Institutional Researcher
- Developmental Educational operation-level administrator
- Lead faculty members in Developmental Education programs, including the following:
 - Reading
 - Writing
 - Mathematics
 - ESL
 - College Success/Study Skills
 - Counseling
- Lead faculty members who teach college-level courses in English and mathematics
- Other college-level faculty who do not teach English or mathematics
- Others as appropriate (e.g., CEO and CFO, representatives of Collective Bargaining Units, Academic Senate representatives)

Upon completion of this section, please verify who participated by name and job title:

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Effective Practice C.1

Administrators support and encourage faculty development in basic skills, and the improvement of teaching and learning is connected to the institutional mission.

The research and analytical literature consistently points to the relationship of high-level administrative support to the success of faculty in developmental programs and services.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
C.1.1	Department, program, and/or institutional goals related to the improvement of developmental education are established.	
C.1.2	Professional development activities for developmental education faculty and staff are actively supported by senior administration.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice C.2

The faculty play a primary role in needs assessment, planning, and implementation of staff development programs and activities in support of developmental education programs.

Contemporary literature on staff development theory and practice supports the assertion that staff development activities should be designed by faculty who know their needs, can develop forums geared toward teaching excellence, and can design sustained and collective efforts.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
C.2.1	Developmental education faculty are involved in the design, planning, and implementation of staff development activities related to developmental education.	
C.2.2	Developmental education staff development activities address both educational theory and practice.	
C.2.3	Staff development activities are widely attended and viewed as valuable by developmental education faculty and staff.	
C.2.4	The staff development program for developmental educators is regularly evaluated by participants, and data collected are used for continuous improvement.	
C.2.5	New faculty are provided staff development activities that assist them in transitioning into the community college academic environment.	
C.2.6	Staff development activities promote interactions among instructors.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice C.3

Staff development programs are structured and appropriately supported to sustain them as ongoing efforts related to institutional goals for the improvement of teaching and learning.

Clearly articulated goals linked to systematic sets of programs and activities are a key factor in successful staff development.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
C.3.1	Developmental education staff development activities are clearly linked to department, program, and/or institutional goals.	
C.3.2	Developmental education staff development activities are not based around "one-shot" workshops; rather, staff development activities are comprehensive and ongoing.	
C.3.3	Staff development activities are adequately funded, funding is ongoing, and development activities are coordinated by specific designated staff as part of their core responsibilities.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice C.4

Staff development opportunities are flexible, varied, and responsive to developmental needs of individual faculty, diverse student populations, and coordinated programs/services.

Literature and research on faculty development contains a broad spectrum of theoretical frameworks and specific programmatic activities that can support the improvement of developmental education teaching and learning.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
C.4.1	Peer Mentoring	
C.4.2	Instructional Consultation	
C.4.3	Reflective Teaching	
C.4.4	Scholarship of Teaching & Learning	
C.4.5	Classroom Assessment Techniques	
C.4.6	Great Teacher Seminars	
C.4.7	Academic Alliances (e.g., K-16 Inter-Segmental Partnerships)	
	Other (specify activity:)	
	Other (specify activity:)	
	Other (specify activity:)	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice C.5

Faculty development is connected to intrinsic and extrinsic faculty reward structures.

Research suggests that staff development efforts are most successful when connected to both intrinsic and extrinsic rewards for participants.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
C.5.1	A structure that provides faculty who participate in staff development with intrinsic rewards (e.g., praise, support, or peer recognition) is promoted.	
C.5.2	Opportunities exist for colleagues across disciplines to engage in interchanges that foster a “culture of teaching,” which in turn develops a “community of scholars.”	
C.5.3	The institution expresses value for staff development activities through provision of extrinsic rewards where appropriate (e.g., funding, time, salary advancement, or formal recognition of achievement).	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Planning Matrix for Section C Staff Development

For each planned action, indicate which effective practice and strategy it is related to; if the strategy is a local one not identified in the literature, then indicate the effective practice's number followed by "local." Indicate whether the action is new, a change (substantially altering a program or practice in order to be more effective), or an expansion (expanding an existing program or practice to meet the needs of a greater number of students and/or employees).

Planned Action	Effective Practice and Strategy	New, Change, or Expansion	Start Date	Current Measure of Effectiveness (Baseline)	Projected Measure (Benchmark)	Date for Projected Measure	Responsibility	Budget Request	Priority
Include at least two developmental education faculty members on the staff development planning committee.	C.2.1 Developmental education faculty are involved in the planning staff development.	New	Aug. 2007	Currently there is no provision for the express inclusion of dev. ed. faculty; while faculty assist in other ways, none currently serve in this capacity.	At least two faculty members serve on the staff development planning committee.	Sept. 2007	Staff	N/A	



Section D Instructional Practices

Consider including these leaders in discussions related to Section 4 of the self-assessment, listed in no particular order:

- Provost/Chief Instructional Officer
- Student Services Dean
- Matriculation Dean
- Counseling and Advising Dean
- Learning Assistance Center Director
- Faculty and/or Peer Mentoring Program(s) Director(s)
- Institutional Researcher
- Developmental Education faculty member serving on the College Curriculum Committee
- Developmental Educational operation-level administrator
- Lead faculty members in Developmental Education programs, including the following:
 - Reading
 - Writing
 - Mathematics
 - ESL
 - College Success/Study Skills
 - Counseling
- Lead faculty members who teach college-level courses in English and mathematics
- Other college-level faculty who do not teach English or mathematics
- A student who successfully completed developmental education coursework
- Others as appropriate

Upon completion of this section, please verify who participated by name and job title:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.



Effective Practice D.1

Sound principles of learning theory are applied in the design and delivery of courses in the developmental program.

Research indicates that active learning methodologies correlate with unique strategies that are effective for adult learners.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.1.1	Developmental education focuses on self-directed learning, with students engaged in actively assessing and monitoring their own motivation and learning.	
D.1.2	Problem-solving and critical-thinking skills are integrated into developmental education curriculum.	
D.1.3	Developmental education curriculum recognizes and emphasizes the cognitive development of students (e.g., contextual learning, metacognitive skill development, and constructivism).	

As applicable, briefly describe how this practice occurs/exists at your institution:

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.2

Curricula and practices that have proven to be effective in specific disciplines are employed.

Just as ongoing research informs the development of theory and practice for effective teaching and learning in general, similar work continues to advance recommendations for discipline-specific curriculum and pedagogical approaches that work for developmental learners.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.2.1	Developmental courses/programs implement effective curricula and practices for English (e.g., reading/writing integration, writing across the curriculum, and use of writing labs).	
D.2.2	Developmental courses/programs implement effective curricula and practices for mathematics (e.g., addressing environmental factors, problem-based learning, small group instruction, contextual learning, appropriate use of technology, and learning labs)..	
D.2.3	Developmental courses/programs implement effective curricula and practices for ESL	
D.2.4	Developmental courses/programs implement effective curricula and practices for development of study skills.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.3

The developmental education program addresses the holistic development of all aspects of the student. Attention is paid to the social and emotional development of students, as well as to their cognitive growth.

According to the literature, effective developmental education programs address the holistic development of the student.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.3.1	In classroom teaching/learning, attention is paid to students’ attitudes and emotions (e.g., self-concept and self-efficacy development) as well as to teaching basic subject skills.	
D.3.2	Student support services exist to address the external needs (e.g., child care, financial assistance, and transportation) of developmental education students.	
D.3.3	Timely interventions occur with students to address emotional, social, or non-academic obstacles that arise, and to prevent student attrition resulting from such circumstances.	
D.3.4	Formal mechanisms in developmental courses and programs enhance student motivation and engagement to promote learning.	
D.3.5	College programs promote basic skills students’ social integration into and identification with the college environment.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.4

Culturally Responsive Teaching theory and practices are applied to all aspects of the developmental instructional programs and services.

Culturally Responsive Teaching theory and practice articulates basic principles and pedagogical strategies designed to enhance learning among all students, regardless of the students' ethnic, socioeconomic, or educational backgrounds.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate "institution-wide." If the strategy is not currently employed by your institution, simply indicate "does not occur."

	Strategies Related to Effective Practice	Where Strategies Occur
D.4.1	Instructional content and pedagogy capitalize on perspectives and life experiences of students from diverse backgrounds.	
D.4.2	Developmental instruction communicates high expectations, engages students in critical dialogue regarding cultural conflicts, and establishes compatible sociocultural contexts for group learning.	
D.4.3	Developmental instruction reflects cultural sensitivity and culturally mediated instruction, (e.g., the way communication and learning takes place in students' cultures).	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.5

A high degree of structure is provided in developmental education courses.

Research notes the effects of structured learning environment—at the program level as well as at the course level—in developmental education programs.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.5.1	A well-planned, step-by-step sequence of developmental education course offerings exists.	
D.5.2	Well-planned, sequential courses possess a corresponding proactive academic support component.	
D.5.3	Individual courses (particularly those taken earliest in the developmental sequence) engage students in highly structured learning experiences designed to progressively build their skills and knowledge.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.6

Developmental education faculty employ a variety of instructional approaches to accommodate student diversity.

Recent literature and research focuses on active learning strategies (“learner-centered”) rather than passive learning strategies (“teacher-centered”).

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.6.1	Instructors in developmental education courses assess, employ, and incorporate a variety of active learning strategies (e.g., student engagement, collaborative learning, learning communities, supplemental instruction, and service learning).	
D.6.2	Developmental education promotes individualized student learning, focusing on learner-centeredness rather than teacher-centeredness.	
D.6.3	The academic and campus climate supports active learning strategies and connects developmental education students to the institution, faculty, staff, and other students.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.7

Programs align entry/exit skills among levels and link course content to college-level performance requirements.

Research confirms that developmental education courses are most effective when regular efforts are made to insure consistency between developmental education course exit standards and college-level course entry standards.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.7.1	Developmental education course entry/exit standards are regularly reviewed and revised as needed.	
D.7.2	The entire trajectory of developmental course sequences (including entry by placement instruments) is periodically reviewed and aligned to ensure appropriate student progression through sequential levels.	
D.7.3	A systemic approach exists within disciplines to align developmental education course content and pedagogy to degree-applicable and transfer-level course content.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.8

Developmental education faculty routinely share instructional strategies.

Highly effective developmental education programs are characterized by formal, embedded mechanisms to facilitate sharing of effective teaching practices and strategies.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.7.1	Formal processes exist that facilitate and promote the exchange of effective instructional strategies among faculty within disciplines.	
D.7.2	Formal processes exist that facilitate and promote the exchange of effective instructional strategies among faculty across disciplines.	
D.7.3	Formal processes exist that facilitate and promote the exchange of effective instructional strategies between faculty in general and developmental education programs.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.9

Faculty and advisors closely monitor student performance.

Research indicates that instructional techniques that provide immediate and regular feedback to developmental learners are a highly effective practice.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.9.1	Mechanisms exist to frequently and consistently provide course performance feedback to students.	
D.9.2	Faculty and advising staff provide early intervention and support to students experiencing academic and/or personal difficulties.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Effective Practice D.10

Programs provide comprehensive academic support mechanisms, including the use of trained tutors.

In concert with active learning strategies, research suggests that developmental learners positively benefit from exposure to a variety of academic support services.

The following strategies were cited in the literature review as promoting this effective practice. Determine the extent to which your institution uses these strategies by completing the table below. Specify ALL levels at which the strategy exists/occurs by listing the programs and/or departments which employ the strategy. If the strategy is employed consistently throughout the institution, indicate “institution-wide.” If the strategy is not currently employed by your institution, simply indicate “does not occur.”

	Strategies Related to Effective Practice	Where Strategies Occur
D.10.1	Learning support services emphasize an interrelationship between all levels of course offerings (developmental, degree-applicable, transferable, and others.).	
D.10.2	Learning support services are visible and centrally located, minimizing marginalization and isolation.	
D.10.3	Various learning support services provide active learning experiences (e.g., Supplemental Instruction, workshops, and study groups).	
D.10.4	A formal referral system exists between academic and student support services.	
D.10.5	Tutoring is available and accessible in response to student needs/desires.	
D.10.6	All tutors receive formal training in both subject matter and effective pedagogy for the discipline	
D.10.7	An academic support center provides diverse and active learning experiences such as workshops, study groups, self-paced instruction via video or software, and experiential learning.	

As applicable, briefly describe how this practice occurs/exists at your institution.

What evidence exists to support the efficacy of this practice?

What barriers/limitations exist to implementing or enhancing this practice?

How might this practice be advanced or expanded upon in the future?



Planning Matrix for Section D Instructional Practices

For each planned action, indicate which effective practice and strategy it is related to; if the strategy is a local one not identified in the literature, then indicate the effective practice's number followed by "local." Indicate whether the action is new, a change (substantially altering a program or practice in order to be more effective), or an expansion (expanding an existing program or practice to meet the needs of a greater number of students and/or employees).

Planned Action	Effective Practice and Strategy	New, Change, or Expansion	Start Date	Current Measure of Effectiveness (Baseline)	Projected Measure (Benchmark)	Date for Projected Measure	Responsibility	Budget Request	Priority
Evaluate the most effective mathematics software to use in the tutoring lab; procure software for 10 computers; incorporate tool into tutoring services.	Academic support mechanisms (local strategy; not from literature review).	Possible Change	Fall 2007	Effectiveness of mathematics tutoring shows that students who participate have 3% higher GPAs than students who do not receive tutoring.	With this additional tool used in the tutoring lab, the college hopes to improve the rate from 3% higher to 5% higher.	Spring 2008	Student tutoring	\$2,000 or more	

PART 3

Where to Put the New Basic Skills Funds: A Tool to Estimate Costs & Downstream Revenue

Introduction

As referenced in numerous places in this document, research has fairly consistently demonstrated that the historical “one instructor, one classroom, limited suite of support services” model to developmental education is not particularly effective. However, it is still the prevalent model offered to the vast majority of our California community college students. Many of the effective practices identified in the literature review can be found interspersed on campuses throughout California, most commonly with relatively small programs addressing limited numbers of students. There are many reasons for the fairly restricted occurrence and scope of these programs, including:

- limited awareness about the literature and its findings;
- a need for paradigm shifts in the thinking of campus administrators, faculty, and staff;
- a concomitant need for organizational change;
- a lack of historically detailed institutional research to provide hard data evaluating program results; and
- a desire to pilot programs to determine effectiveness, often without sufficient institutional commitment to evaluate potential efficacy.

On the flip side, as is noted in the literature review, a significant amount of data exists which suggests that these alternative approaches are successful. In addition to the national literature, more locally, the Center for Student Success Web site summarizes a wide range of these programs, many of which have hard data indicating success. Further, after noting the largely depressing data on the effectiveness of the traditional model of developmental education in seven California community colleges, Johnstone (2003) also summarized a number of innovative alternate approaches in place at these seven colleges, each of which had hard data indicating increased achievement of student outcomes.

In addition to the reasons cited above for the relative dearth of reach of alternate approaches, arguably the most critical factor historically limiting them has been their perceived cost to the

campuses. Against a backdrop of limited resources that exists in the California Community College system, both in an absolute sense and relative to other state systems, the cost of deviating from the traditional model of providing developmental education is a significant concern. Thus, as the literature and local data lead us to investigate the need for colleges to “do things differently” in terms of developmental education, we are drawn to a discussion of the cost to individual colleges of these alternate approaches.

The goal of this section is to provide a different way of thinking about the cost of colleges of these alternate programs.

Aside from the numerous moral/ethical responses to this concern and the greater economic payback to society cited elsewhere in this document, there are real, college-level economic reasons that alternate approaches to basic skills at the very least go a long way toward paying for themselves, and in many cases may very well result in a net economic benefit to the college.

What follows is an investigation of this incremental revenue approach to considering the cost of these programs, including a description of a simple modeling tool that we have developed using Microsoft Excel to look at the potential additional revenue these alternate programs may generate. The goal of this section is to provide a different way of thinking about the cost to colleges of these alternate developmental education

programs. This approach is not without its parameters and caveats, but as colleges look to potentially expand small programs to more systemically improve developmental student outcomes, we feel that this different perspective is very important.

The Incremental Revenue Approach

For the purposes of this approach, we will assume that the traditional model of one instructor in one classroom for a standard class time is the benchmark against which we can measure the costs and incremental revenue associated with alternate programs such as learning communities, supplemental instruction, structurally required tutoring, dedicated counseling support, and the like. The overall idea, then, is to estimate and account for the incremental or additional annual costs and revenue associated with a given program that are incurred because the approach is different from the traditional model. There tends not to be much controversy about associating costs with the alternate programs; it is really in associating revenue that there has been little attention devoted.

If these alternate developmental education programs are successful, they produce not only higher rates of success in individual courses but also increased retention, persistence, progression to college-level coursework, and degree/transfer rates. Clearly, these outcomes are desirable from the standpoint of the mission of the college and the entire system, but there are also tangible economic benefits to be realized for the individual campuses. Specifically, these more successful and persisting students would produce downstream Full-Time Equivalent Students (FTES) that accrue as they progress through their developmental education work successfully, persist, achieve college-level work, and graduate/achieve transfer readiness at higher rates. This additional FTES generates additional apportionment revenue to the college at the rate of roughly \$4,361 per FTES, which may very well offset much if not all of the incremental costs of some of these programs. As will be noted below, this revenue is not unencumbered by costs, but some significant portion of the revenue would be able to offset program costs.

It should be noted that this approach to calculating apportionment revenue from successful special developmental education program students is not without its caveats. A primary concern is that this analysis is somewhat problematic if a college is near or above its enrollment cap. A couple of years ago, when most of the colleges in the system were at or above their targets, this concern would have been much more immediate than it is now. In fact, at the moment, expanding these alternate developmental education programs might very well help colleges address their declining enrollments by increasing persistence and college-level achievement rates. However, if these

programs are extremely successful and applied to a larger cadre of students, the problem of caps would again become real. While this would be a good problem to have, as it would be caused by students being more successful, persisting, and achieving their educational goals, the system would need to account for this increase in FTES.

As an observation, however, we would hesitate to identify successful developmental education programs as the reason a college exceeded a cap number, with the myriad of segments that make up enrollment at our colleges. Additionally, we would observe that in a sense, current enrollment caps are at least partially based on our historical failures as a system at fostering the progression of developmental education students to college-level work and eventually to graduation and/or transfer. These rates of achieving college-level success are commonly less than 10 percent for students at the lowest levels and in the 30-40 percent range for students in the middle/upper levels. If we transform our system and become much better at improving these rates, we will need to address the cap issue that will emerge from this success.

Another important observation is that we are in no way claiming that the current level of funding for the standard suite of instruction and services is adequate. We are comparing costs and downstream revenue from these non-traditional basic skills programs to the standard programs; however, a team led by John Spevak and Hoke Simpson on the Real Cost Project (2003) has noted that the “real cost” of providing instruction and services in California for each FTES under the traditional model is actually over \$9,000. Given that the colleges are currently reimbursed at \$4,361 per FTES, there is clearly a structural problem that results in students not receiving the full suite of even the standard services. This becomes more critical as we think about expanding special programs to a wider audience.



Excel Model Instructions

To illustrate this line of thinking, we have created a model in Microsoft Excel that can be fairly easily applied to any alternate basic skills program. Users have the opportunity to assign personnel and fixed costs to the program. Then, with a small amount of institutional research on incremental FTES associated with the program, potential revenue generated by the more successful students with higher retention rates that emerges from the alternate program can be estimated. In the end, these models can be utilized to help college decision-makers understand the potential cost/benefit implications of expanding existing programs or developing new ones.

.....

SECTION 1 Enter the number of students served in the program annually.

.....

SECTION 2 Enter the Position Title (A), % FTE (B) and Salary (C) for any incremental personnel associated with the program over and above what a traditional program would incur. The Prorated Salary (D), Benefits (E), and Cost (F) will be calculated automatically. If you wish to use a separate benefit ratio, you can change the formulas in (E) to reflect a figure other than 35%.

.....

SECTION 3 Enter any costs of incremental hourly personnel associated with the program over and above what a traditional program would incur, including student and/or professional tutors. You can enter data for Number of Employees (B), Hourly Rate (C), and Annual Hours per Employee (D), and the model will calculate the cost in (E) automatically. As an alternate approach, if you have a yearly budget or line item cost and don't have cost amounts broken out this way, simply enter the total directly into (E), overriding the formula.

.....

SECTION 4 Enter a description of any incremental fixed-cost items associated with the program (A) and their annual cost (B) over and above what a traditional program would incur. This may include equipment, supplies, and facilities. We would suggest amortizing any equipment costs such as computers purchased every four years to an annual figure in whatever manner you see fit.

We also acknowledge that estimating facility costs may be somewhat complex. In the end, we would emphasize that this type of approach attempts to estimate costs of these alternate programs relative to the traditional model. That is, is any space utilized by this program creating a cost elsewhere on the campus by “displacing” a separate program/office? We could conceive of situations where there is ample space on campus and operationally there is no cost to providing a learning community program with office space. On the flip side, on campuses with serious space constraints, there may be a very real facilities cost to such a dedicated office or student meeting space. In the end, it is up to each campus to determine whether they wish to associate facility costs to these programs.

.....

SECTION 5 In this cost summary, the costs from Sections 2, 3, and 4 are summarized and totaled here, providing an annual cost of the program.

.....

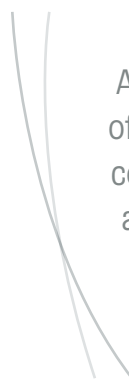
SECTION 6 This is the pivotal section for the revenue side of the analysis. If these alternate programs are successful, students will have increased levels of course success in the initial developmental course, increased rates of persistence to future developmental and other coursework, a greater developmental coursework completion rates, increased readiness for college-level work, and finally increased success and persistence in their college-level coursework. From a revenue standpoint, each of these increases would result in increased Weighted Student Credit Hour (WSCH) for each student, which would translate into increased revenue through FTES reimbursement.

.....

For the model, then, the key metric is to enter actual or estimated downstream subsequent WSCH from both students in the alternate program and students in a control group under the traditional model. Clearly, it would be ideal to enter actual figures, and we would expect that most Institutional Research offices would be able to provide these figures. If you do not have this data, you can still use this section; see below for advice on how to estimate these figures. If you do have access to this data, you will need to enter four data points in this section, with four calculated automatically:

1. Students served in the program annually: the same as in Section 1.
2. Subsequent WSCH from students in the program: the WSCH generated from students in the program *in the semester/quarter they start the program and subsequent semesters/quarters*. This is a critical distinction; you do not want to include lifetime WSCH for students in semesters/quarters before they enter the program. We would suggest tracking forward as far as you can go, but at least three years would be ideal.
3. Students in the control group: a control group needs to be formed for the tracking of subsequent WSCH as well. Many approaches could be taken to forming this control group. Using an English basic skills learning community that pairs English 100 with a Counseling course as the example, the simplest approach would be to form the control group by taking all students in English 100 in the given quarter/semester who are **not** in the basic skills learning community program. A more complex route would be to match students in a control group to students entering the learning community on demographic variables, units taken, or other factors. Aside from concern from a statistical standpoint about extremely small groups, the size of the control group doesn't matter; the model will account for this in its calculations.

4. Subsequent WSCH from students in the control group: the same as in #2, but for the control group.
5. Incremental WSCH from students in program: calculated automatically, with an adjustment for the relative sizes of the control group and the program group.
Thus, if the control group and program group are the same size, this figure is simply the difference in WSCH between #2 and #4. In cases where the control group size and the program group size are different, the figure calculated in this cell indicates the theoretical difference if the control group were the same size as the program group.
6. Percentage increase in WSCH from the program: calculated automatically and adjusted to the number of students in the control group.
7. Incremental FTES from students in the program: translates WSCH to FTES automatically.
8. Potential revenue from FTES: calculated automatically.



A significant portion of this FTES revenue could be conceived as available to offset program costs.

If you don't have the data available for #2 and #4, or if you want to compute "what if" scenarios with various WSCH increases, you can simply enter the number of students in the program in #1, enter the same number of students for a control group in #3, and then enter estimates for #2 and #4. By doing so, you can manipulate the size of the increase to determine the potential effect on FTES and revenue. Note that it is the **absolute** difference between #2 and #4 that determines the incremental WSCH (#5) and thus the incremental FTES (#7) and potential revenue (#8), while the **relative** sizes of #2 and #4 as well as the absolute difference will determine the percentage increase (#6).

These latter three figures in Section 6 (#6 through #8) are the keys to this analysis, and in many cases will reveal that supposedly expensive programs either go a long way towards recovering their costs or in fact fully recover costs and create additional revenue.

Regarding potential revenue from FTES (#8), it should be noted that this potential revenue is not free and clear from a cost standpoint. First, there will likely be additional instructional costs for students who are successfully retained and made ready for college-level courses. Certainly this is a good "problem" to have. Many if not most of these students may very well fill non-full classrooms, but there certainly will be a need to open some additional sections, which then incurs instructional costs. Ironically, these costs will be relatively higher at more efficient schools, where a higher majority of classes are full or nearly full. Conversely, many of these successful basic skills students will likely funnel into highly productive programs in the general education sequence (i.e., large lecture courses), so the cost may not be as high as it would be in other domains of the curriculum.

Secondly, as with all revenue generated from FTES, there is an associated overhead cost. Estimating this overhead is very complex, especially for "incremental" FTES that may or may not increase a college's infrastructure. Different campuses would estimate this figure with quite different methods; as such, we have not attempted to designate a methodology to investigate this overhead cost. We would argue, however, that a significant portion of this FTES revenue could be conceived as available to offset program costs. In our internal discussions and conversations with various observers, estimates for the percentage of this FTES revenue that can be referred to as "profit" available to offset program costs ranged from 40 percent to 75 percent.

Real-World Examples of Excel Models

In Appendix I for this section, we have included real-world examples of the models with real data from four campuses to demonstrate how this framework can be implemented for different types of alternate basic skills approaches. The samples are included to provide examples of the types of costs and incremental FTES that a campus might encounter in these types of programs; each campus's program might vary widely both in cost and effect on students success. The ultimate value in this approach is to customize these models for the existing or proposed programs on each campus with real costs and incremental WSCH/success rates.

The colleges and programs included are:

- Cerritos College's Learning Communities Program
- Chaffey College's Service Learning Program
- De Anza College's Math Performance Success Program (Dedicated Counselor, Increased Time on Task)
- Foothill College's Pass the Torch Program (Supplemental Instruction)

These models should not be used to compare programs across colleges.



AN IMPORTANT NOTE: Given that individual colleges will have different methodologies for computing metrics and as well as different approaches to estimating the various parameters in the model, these models should not be used to compare programs across colleges. Ultimately, the value of this tool is that colleges can internally

use it in a customized fashion to explore the cost/revenue relationships of the various programs within their college.

Final Thoughts

So where does this leave us? The bottom line, in our opinion, is that for many of our special basic skills programs, this type of analysis demonstrates that these programs are nowhere near as large a financial burden as is commonly conceived. In fact, in the case of some particularly efficient alternate programs, they very well may have a net financial benefit to the college. Although we certainly wouldn't suggest that a single approach will work for our diverse student populations, we would expect that a mix of programs would have the benefit of both matching student needs and potentially blending more cost-effective alternate approaches with more expensive approaches.

Finally, given what the research has told us about the success of the traditional model and that of many of these alternate approaches, and for the moral, ethical, and societal reasons mentioned previously, we feel that the individual colleges as well as the Community College System as a whole should attempt to investigate strategies to institutionalize these alternate approaches. Certainly there are a range of issues that enter the picture as we talk about institutionalizing these alternate programs, including the issue that larger programs will undoubtedly experience at least some decrease in incremental success rates. However, it seems as if this direction of inquiry is valuable for the wide range of reasons cited in this report, and we are hopeful that this angle of analysis can spur additional consideration for these programs.

Appendix: Sample Models with Actual Data

Model 1: Learning Communities at Cerritos College

Section 1: Students Served in Program 424

Section 2: Incremental Salaried Personnel Costs of Program

A. Position Title	B. FTE	C. Salary	D. Prorated Salary	E. Benefits @ 35%	F. Cost
1.	0.00	\$0	\$0	\$0	\$0
2.	0.00	\$0	\$0	\$0	\$0
3.	0.00	\$0	\$0	\$0	\$0
4.	0.00	\$0	\$0	\$0	\$0
5.	0.00	\$0	\$0	\$0	\$0
6.					
7.					
Total Salaried Personnel Costs:					\$0

Section 3: Incremental Hourly Personnel Costs

A. Type of Hourly Personnel	B. No. of Hourly Employees	C. Hourly Rate	D. Annual Hours Per Employee	E. Cost
1. Faculty Stipends				\$7,250
2. Adult Hourly				\$2,667
3.				
4.				
5.				
Total Hourly Personnel Costs:				\$9,917

Section 4: Incremental Fixed Costs

A. Item	B. Annual Cost/Budget	
1. Instructional Supplies	\$2,460	
2. Non-Instructional Supplies	\$4,000	
3. Contract Services	\$1,540	
4. Consultation Services	\$1,900	
5. Travel and Conference	\$2,800	
Total Fixed Costs:		\$12,700

Section 5: Incremental Cost Summary

A. Item	B. Annual Cost/Budget	
1 Salaried Personnel Costs	\$0	
2 Hourly Personnel Costs	\$9,917	
3 Fixed Costs	\$12,700	
Total Program Costs:		\$22,617

Section 6: Incremental WSCH from Program

Description	Value
1. Students in Program Annually	424
2. Subsequent WSCH from Students in Program	357,459
3. Students in Control Group	2,279
4. Subsequent WSCH from Students in Control Group	1,805,681
5. Incremental WSCH from Students in Program (N-adjusted to Program size)	21,519
6. Percentage Increase in WSCH from Program	6%
7. Incremental FTES from Students in Program	41.0
8. Potential Revenue from FTES @ \$4,361/FTES	\$178,748

Model 2: Service Learning (Developmental Education Courses) at Chaffey College

Section 1: Students Served in Program

416

Section 2: Incremental Salaried Personnel Costs of Program

A. Position Title	B. FTE	C. Salary	D. Prorated Salary	E. Benefits @ 35%	F. Cost
1.	0.00	\$0	\$0	\$0	\$0
2.	0.00	\$0	\$0	\$0	\$0
3.	0.00	\$0	\$0	\$0	\$0
4.	0.00	\$0	\$0	\$0	\$0
5.	0.00	\$0	\$0	\$0	\$0
6.					
7.					
Total Salaried Personnel Costs:					\$0

Section 3: Incremental Hourly Personnel Costs

A. Type of Hourly Personnel	B. No. of Hourly Employees	C. Hourly Rate	D. Annual Hours Per Employee	E. Cost
1. Instructor Stipends	14	\$43.42	10	\$6,079
2. Student Tutors	9	\$7.75	96.33	\$6,719
3. Student Tutors	3	\$8.44	62.67	\$1,587
4. Student Tutor	1	\$9.21	60	\$553
5. Student Tutor	1	\$10.17	58.5	\$595
6.				\$0
Total Hourly Personnel Costs:				\$15,532

Section 4: Incremental Fixed Costs

A. Item	B. Annual Cost/Budget	
1. Equipment	\$12,141	
2. Supplies	\$20,290	
3. Facilities	\$0	
4.		
5.		
Total Fixed Costs:		\$32,431

Section 5: Incremental Cost Summary

A. Item	B. Annual Cost/Budget	
1. Salaried Personnel Costs	\$0	
2. Hourly Personnel Costs	\$15,532	
3. Fixed Costs	\$32,431	
Total Program Costs:		\$47,963

Section 6: Incremental WSCH from Program

Description	Value
1. Students in Program (Fall 2002)	416
2. Subsequent WSCH from Students in Program	399,001
3. Students in Control Group (Fall 2002)	281
4. Subsequent WSCH from Students in Control Group	228,558
5. Incremental WSCH from Students in Program (N-adjusted to Program size)	60,638
6. Percentage Increase in WSCH from Program	18%
7. Incremental FTES from Students in Program	115.5
8. Potential Revenue from FTES @ \$4,361/FTES	\$503,696

Model 3: Counseling and Time on Task at De Anza College's MPS Program

Section 1: Students Served in Program

75

Section 2: Incremental Salaried Personnel Costs of Program

A. Position Title	B. FTE	C. Salary	D. Prorated Salary	E. Benefits @ 35%	F. Cost
1. MPS Counselor	0.43	\$70,000	\$29,995	\$10,498	\$40,493
2. Math FTE for Double Load	0.33	\$70,000	\$23,331	\$8,166	\$31,497
3.					
4.					
5.					
6.					
7.					
Total Salaried Personnel Costs:					\$71,990

Section 3: Incremental Hourly Personnel Costs

A. Type of Hourly Personnel	B. No. of Hourly Employees	C. Hourly Rate	D. Annual Hours Per Employee	E. Cost
1. Student Tutors (Annual Budget)	---	---	---	\$10,000
2.				
3.				
4.				
5.				
Total Hourly Personnel Costs:				\$10,000

Section 4: Incremental Fixed Costs

A. Item	B. Annual Cost/Budget	
1. Equipment	\$0	
2. Supplies	\$0	
3. Facilities	\$0	
4.		
5.		
Total Fixed Costs:		\$0

Section 5: Incremental Cost Summary

A. Item	B. Annual Cost/Budget	
1. Salaried Personnel Costs	\$71,990	
2. Hourly Personnel Costs	\$10,000	
3. Fixed Costs	\$0	
Total Program Costs:		\$81,990

Section 6: Incremental WSCH from Program

Description	Value
1. Students in Program Annually	75
2. Subsequent WSCH from Students in Program	96,089
3. Students in Control Group	75
4. Subsequent WSCH from Students in Control Group	70,404
5. Incremental WSCH from Students in Program (N-adjusted to Program size)	25,685
6. Percentage Increase in WSCH from Program	36%
7. Incremental FTES from Students in Program	48.9
8. Potential Revenue from FTES @ \$4,361/FTES	\$213,357

Model 4: Supplemental Instruction at Foothill College's Pass the Torch Program

Section 1: Students Served in Program

110

Section 2: Incremental Salaried Personnel Costs of Program

A. Position Title	B. FTE	C. Salary	D. Prorated Salary	E. Benefits @ 35%	F. Cost
1. PTT Counselor	0.50	\$70,000	\$35,000	\$12,250	\$47,250
2. PTT Coordinator	1.00	\$70,000	\$70,000	\$24,500	\$94,500
3. English FTE for Trainer Course	0.33	\$70,000	\$23,331	\$8,166	\$31,497
4. Math FTE for Trainer Course	0.38	\$70,000	\$26,250	\$9,188	\$35,438
5. Classified Admin Assistant	1.00	\$45,000	\$45,000	\$15,750	\$60,750
6.					
7.					
Total Salaried Personnel Costs:					\$269,434

Section 3: Incremental Hourly Personnel Costs

A. Type of Hourly Personnel	B. No. of Hourly Employees	C. Hourly Rate	D. Annual Hours Per Employee	E. Cost
1. Student Tutors	110	\$10.00	72	\$79,200
2.				
3.				
4.				
5.				
Total				\$79,200

Section 4: Incremental Fixed Costs

A. Item	B. Annual Cost/Budget	
1. Equipment	\$3,000	
2. Supplies	\$2,000	
3. Facilities	\$0	
4.		
5.		
Total Fixed Costs:		\$5,000

Section 5: Incremental Cost Summary

A. Item	B. Annual Cost/Budget	
1. Salaried Personnel Costs	\$269,434	
2. Hourly Personnel Costs	\$79,200	
3. Fixed Costs	\$5,000	
Total Program Costs:		\$353,634

Section 6: Incremental WSCH from Program

Description	Value
1. Students in Program Annually	110
2. Subsequent WSCH from Students in Program	148,946
3. Students in Control Group	110
4. Subsequent WSCH from Students in Control Group	101,084
5. Incremental WSCH from Students in Program (N-adjusted to Program size)	47,862
6. Percentage Increase in WSCH from Program	47%
7. Incremental FTES from Students in Program	91.2
8. Potential Revenue from FTES @ \$4,361/FTES	\$397,574