DOCUMENT RESUME

ED 362 123 HE 026 731

TITLE	K through 12 School Reform: Implications and Responsibilities for Higher Education.
INSTITUTION	Intersegmental Coordinating Council, Sacramento, CA.
PUB DATE	Jul 93
NOTE	62p.; "Executive Summary" (p1-7) also published separately.
AVAILABLE FROM	Intersegmental Coordinating Council, 621 J Street, Sacramento, CA 95814 (free).
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Change Strategies; College Preparation; College School Cooperation; Curriculum Development; *Educational Change; Educational Trends; *Elementary Secondary Education; Evaluation; Government Role; *Higher Education; Minority Group Teachers; Preschool Education; Professional Development; School Restructuring; Statewide Planning; Teacher Education; Trend Analysis; Vocational Education
IDENTIFIERS	*California

ABSTRACT

This document reviews elementary and secondary education reform movements in California in relation to student preparation for higher education, particularly whether movements now underway are substantive and convincing. The report reviews the national context for educational reform and California's role in that movement. Discussion of reforms in the State notes demographic and social changes, curricular reforms, competency statements, and statewide reform initiatives which have included preschool education, elementary education, and secondary education. Review of these movements includes case studies of two intersegmental programs. Technical and vocational preparation education are also examined. A look at school restructuring considers legislative action and business-education partnerships in Charter schools. Efforts on assessment include evaluation of the California Learning Assessment System and a case study of the Mathematics, Engineering, Science Achievement Program. A section on teacher preparation, induction, and professional development covers recruiting, retaining, and diversifying the pool of new teachers, two case studies on special programs, bilingual teacher training, and professional development. With each topic the document describes new developments, assesses their effectiveness, and relates the effort to higher education. A conclusion emphasizes that understanding and responding to the curricular and pedagogical reforms is a responsibility for all faculty in all educational institutions. (Contains 24 resources.) (JB)

The Intersegmental Coordinating Council is sponsored by the California Education Round Table. Funding is provided by the Association of Independent California Colleges and Universities, the California Community Colleges Chancellor's Office, the California State University Office of the Chancellor, and the University of California Office of the President. Additional support is provided by the Elementary and Secondary Education Act, Chapter 2, through the California Department of Education.

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July 1993

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Acknowledgments

This report was prepared by the School Improvement Committee of the Intersegmental Coordinating Council. The principal author was Lisa Ray. The Committee members extend their thanks to the following reviewers, who provided additional information, offered useful suggestions, and contributed to sections of this report: Linda Bond, Jan Chladek, Pamela Davis, Wendy Harris, Dave Jolly, Charlotte Kreuscher, Karen Lowrey, Dorothy Martinez-K, Mary Ann Overton, Nancy Sullivan, Glen Thomas, Alice Trather, and Laura Wagner.

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K-12 School Reform: Implications and Responsibilities for Higher Education

Executive Summary

Postsecondary faculty typically judge the effectiveness of K-12 education by the capabilities of the freshmen students in their classes and on their campuses. For more than two decades, college and university faculty have been openly critical of the public school system whose graduates require additional coursework (at the secondary level) before beginning the traditional postsecondary course sequence. This need for remediation has been particularly associated with writing ability, and mathematics and science preparation. Higher education's response has been to provide greater specificity of course requirements for admission and, in some disciplines, to determine course content expectations. Statements of specific course patterns have led more students, including those from underrepresented groups, to concentrate on courses which prepare them for college. Yet, it is doubtful that many educators would argue that the need for remediation for entering students is substantially less than it was.

Changes have been made and continue to be needed in the schools if students are to be prepared to move smoothly into a collegiate program. Further, according to business and government leaders, changes are needed to better prepare high school graduates to join the workforce upon graduation from high schools and to be prepared to learn throughout their lives.

How have schools responded, especially in California, to prepare young people for postsecondary education and the world of work? This paper explores what is going on today in the elementary, middle, and high schools, and suggests ways in which the reforms under way–of which there are many–will have an impact on the preparation of students entering postsecondary education in California and the expectations these students will have of their collegiate learning environment.

Over time, the schools have been swept into many "reform movements;" some have been influential and effective, some have not. So, it is legitimate to ask whether what is underway now is substantive and convincing. The information provided in this paper is designed to provoke discussions that can assist in addressing this question.

The National Context for Educational Reform

Most educators and policymakers point to the 1983 publication of *A Nation at Risk*, the report issued by the National Commission on Excellence in Education, as the onset of nationwide education reform. It led to a decade of sweeping and systemic reform at every level of the educational enterprise—with the greatest challenges presented to K-12 public education. Nevertheless, the consensus of discussion among the architects of that report at a recent seminar sponsored by UC Berkeley was that the pace of reform and its pervasiveness was much less than hoped for.

National reforms have drawn participants from multiple sources, many of whom had previously worked at cross purposes. The K-12 discipline-based community, including practitioners and subject-matter experts, university faculty, leaders in business and industry, professional organizations, and citizen's groups have been brought together by the need to address the reform of public education. Concerted action by these various constituencies has leveraged national and statewide changes in expectations about what is taught and how it is taught.

The widespread changes that are occurring in California's K-12 public education system reflect the national call for educational improvement. Indeed, despite severe budgetary limits, California is among the leaders in many of the aspects of reform. As these changes are implemented and filter through the school systems and across grade levels, students will enter higher education with a much different preparatory experience than they have today.

The Context of Reform in California

To reach today's students and enable the transition from secondary school to higher education and to the world of work to occur smoothly, changes are needed within each discipline, within each statewide system, and across them all. These kinds of changes have already begun to occur; the extent of ongoing change needed is under continued discussion and the challenge creates sizable demands.

The reforms must capture the interest and enthusiasm of an increasingly diverse student body: Nearly 30% of students new to the nation's schools are arriving in California's classrooms; by 2001, California public school enrollment will top seven million students; almost one hundred languages currently are represented in California schools.

The students themselves are also different:

- 20% of California's high school students are living in poverty.
- Approximately three out of four limited-English proficient children speak Spanish as their first language.
- Up to 60% of California's children may experience living in single-parent homes.

A higher percentage of students than ever before need to be prepared with a more meaningful and challenging education. Traditional educational approaches are failing the large majority of California students.

The current recession and state budget crisis have focused public attention on the educational and economic disparities in the state and have shown how education, economic prosperity, and social stability are interrelated. The educational success of California's students is of increasingly serious concern to most segments of society. Raising the educational achievement for all students and closing the achievement gap require a sustained and concerted effort on the part of the entire educational community.

Curricular Reforms

- **The new generation of California curriculum frameworks focuses on student understanding, student engagement, and student outcomes.**

- **The frameworks have several overarching concepts and instructional strategies in common. These include critical thinking and conceptual understanding; problem solving based on real-life problems; meaning-centered rather than memorization-oriented learning opportunities; active learning and activity-based instruction; contextualized learning which makes connections to students' experiences; collaborative learning in groups; and interdisciplinary learning.**

The new frameworks are considered crucial to the statewide reform movement because they provide significant benchmarks against which to measure curricular change and guide assessment and instructional change throughout the K-12 public school system. They represent a marked shift in direction and purpose from their predecessors. Previously, curriculum frameworks followed a prescriptive approach to identify the general subject matter objectives that students were expected to learn. The new California frameworks focus instead on student understanding, student engagement, and student outcomes.

To date, curriculum frameworks have been developed in history–social science, English–language arts, mathematics, science, the visual and performing arts, foreign language, health, and physical education. The content of each framework is intended to be responsive to research, professional judgment and practice, and university admissions requirements and expectations for entering freshmen. Frameworks are influenced by subject-area organizations and associations, individual content-area experts, and agencies such as the National Science Foundation.

Although each curriculum framework has benefited from the expertise offered by selected subject-matter specialists from universities, for the most part the higher education community is unaware of their existence. The curriculum frameworks are the principal influence on what is taught in California schools; they are also important resources to universities preparing prospective teachers in the various disciplines addressed by the frameworks. The questions are posed: To what extent do the new curriculum frameworks need to be articulated with existing higher education curriculum, assessment, and admission standards? Should higher education curriculum fit with the K-12 curriculum frameworks? Should they be aligned? How could higher education faculty play a greater role in developing and critiquing curriculum frameworks?

Competency Statements

- **Higher education has sought to guide high school curriculum through competency statements. While some competency statements have been very successful, they have also been sporadic. There has been little consistent follow through after the statements have been published; thus, their effectiveness has been limited.**

Since 1982, with the support of the California Education Round Table, the Academic Senates of the California Community Colleges, the California State University, and the University of California have worked together to develop competency statements in specific disciplines to provide secondary school faculty with clear and consistent information on the skills and knowledge which every entering college freshman should possess in order to succeed in higher education. These competency statements were developed with the assistance of K-12 faculty and in collaboration with the California Department of Education.

How can modification of admissions requirements, revision of the curriculum frameworks, and the development of competency statements be better integrated and sequenced to ensure that they reflect a coherent vision of educational planning? Is there, indeed, any longer a need for competency statements?

Statewide Reform Initiatives

- **The statewide reform initiatives are guided by the belief that the approaches to instruction which focus narrowly on the acquisition of discrete academic skills exclude the more challenging, thought-provoking aspects of education. Overall, reforms propose to enhance educational access for all K-12 students.**

- **The initiatives are a long-term reform effort. Some of the objectives may take as long as ten years to implement; some are already being considered by schools in California. These reforms mark a significant departure from the traditional and conventional course sequence.**

There are four statewide reform initiatives resulting from four separate, multi-year task forces, each of which produced a report. These reports, *Here They Come, Ready or Not; It's Elementary! Elementary Grades Task Force Report; Caught in the Middle: Educational Reform for Young Adolescents in California Public Schools;* and *Second to None: A Vision of the New California High School* were prepared with the help of teachers, administrators, parents, representatives of school boards and parent groups, and others in the educational community including limited university-level involvement. They present a rationale for substantive change in K-12 education and propose a series of recommendations to achieve those changes.

A fundamental goal of these reform initiatives is to shift the emphasis in K-12 education from a teacher-centered focus to a student-centered, experiential focus. This is intended to encourage students to become more actively engaged in their learning. Since teachers have the primary responsibility for what takes place in the classrooms, they will determine the overall success of these reforms. To what extent are university faculty aware of these reform initiatives? What are the implications of these initiatives for teacher-education programs? Are university faculty actively involved in professional development programs designed to assist teachers in shifting their teaching approaches?

Tech-Prep Education

- **Tech-prep programs combine vocational and academic program requirements for both high school and community college graduation and are intended to strengthen the connection for students between school and the world of work.**

Currently, tech-prep programs are four-year high school and community college programs for students seeking vocational education training. These programs combine vocational and academic program requirements for both high school and community college graduation and are intended to strengthen the connection for students between school and the world of work. The curriculum may fulfill lower division requirements for transfer to a university. Although tech-prep programs are designed for all students, they may be particularly well suited for students not initially interested in a college-prep program. Should these programs serve as models for school restructuring to reflect an integration of academic and vocational programs across affiliated high schools, community colleges, and four-year institutions?

School Restructuring

- **When fully implemented, the restructuring reforms will shift the learning environment from a factory model to a holistic one. This overhaul is expected to significantly impact higher education in several ways.**

"Restructuring" is the broad scale change in how teachers, principals, and school districts operate daily to improve student learning. In general, restructuring efforts are based on the belief that all students should be engaged in meaningful learning experiences, regardless of race, ethnic, linguistic, or socioeconomic background; and that all students deserve a challenging curriculum which empowers them to become life-long learners. Restructuring takes many forms. Currently, restructuring efforts are occurring across the state, but not yet statewide. Although many individual schools and school districts are engaged in local school reorganization, there is no single, statewide restructuring effort.

When fully implemented, restructuring reforms will shift the learning environment from a factory model to holistic one. This overhaul may impact higher education in several ways. First, the articulation and course approval process would be directly impacted by these reforms. For example, if a high school were to create a new series of courses entitled "Integrated Language Arts," would the student have met the requisite A-F requirement in English? How would a student's ability to take college preparation courses that meet the University of California's specific admission requirements be affected?

Business-Education Partnerships

- **Through their collaborative involvement with schools and colleges, private industry can have a significant impact on easing the transition from high school to postsecondary education.**

For almost ten years, California businesses and schools have experimented with various types of partnerships which are designed to improve the preparation of students for careers and higher education. Although partnerships between schools and businesses, and between schools and colleges, are quite common, partnerships which involve schools, businesses, and colleges are less common. These kinds of partnerships may have an important role to play in California's education reform agenda for the next decade. To date, partnerships have not, in most instances, led to substantive changes. Although projects such as LEARN in Los Angeles are a possible exception. In what ways should colleges and universities encourage such partnerships?

Assessment

- **The ongoing changes in the student assessment system will prompt changes in instruction.**

- **Since the new K-12 student assessment system is performance based and provides individual student scores, its implications for higher education ought to be considered.**

The drive to strengthen K-12 curriculum has been accompanied in the 1990s by proposals for student assessment beyond that which typically takes place in individual courses. New assessment systems were called for which challenge students to create products of value to themselves and others by asking them to write, speak, do research, work cooperatively, solve problems, create, and experiment. These measures of students' performance are being developed in California and nationally.

California is currently revising its student assessment system for K-12 public schools. This revision will develop an assessment system that is consistent with the new curriculum frameworks' goals and the grade-span initiatives. In the new system, the kind of items on which student scores are based will be changed, and there will be a corresponding transition to a multi-stage system that draws heavily from sources of data which come directly from the student's classroom and are gathered throughout the year: on-demand assessment, curriculum-embedded assessment, and student portfolios.

Since the new assessment system will be performance based and will provide individual student scores, the upcoming changes in the student assessment system and their implications for higher education ought to be considered. For example, what will the relationship between the new system and the college-sponsored assessments (i.e., English Equivalency Exam, Entry-Level Mathematics Examination, English Placement Test, Math Diagnostic Testing Program) be? It is anticipated that the changes in assessment will prompt changes in instruction. What role will the new student assessments play in affecting instructional change? In the future, will higher education faculty incorporate more performance-based assessments in their classrooms?

Teacher Preparation, Induction, and Professional Development

- **Universities can influence school reform most effectively through the preparation of teachers, educational specialists, and leaders. Although universities collaborate and share preparation responsibilities with the schools, the primary responsibility for preparation of education professionals belongs to the university.**

The K-12 reform initiatives rely heavily on the classroom teacher to carry out the day-to-day responsibilities of change. As these reforms in the student arena are occurring, so too are statewide changes in teacher preparation, induction into the teaching profession, and professional development. At the state and national levels, comprehensive, research-based reforms have been proposed in recruitment, retention, and diversification of the teaching pool.

The teacher force is not as diverse as the student population, which is nearly 54% minority. In 1989-90, about 15% of those receiving initial teaching credentials in California were African-American, Hispanic, or Asian. Although universities collaborate and share preparation responsibilities with the schools, the primary responsibility for preparation of education professionals belongs to the university. Given this responsibility, how can universities meet the challenge of recruiting a more diverse teacher population? How do university teacher credential programs prepare new teachers for restructured schools, new assessment approaches, and a different instructional approach to curriculum and subject-matter pedagogy?

Conclusion

The numbers of students moving into higher education who have experienced the full impact of reforms in K-12 is very small so far. But what is now a small stream will likely become a widening river. Based on current and projected patterns of college-going students, the large majority of these students will enter community colleges and many of them will then go on to four-year colleges and universities. Understanding and responding to curricular and pedagogical reforms is a responsibility for all faculty in all educational institutions.

What will students encounter when they enter our postsecondary institutions? Will higher education respond quickly enough to provide them with a smooth-flowing, coherent educational experience? What kinds of changes are we willing to make to ensure that students experience a seamless transition into higher education? The K-12 reforms that this paper summarizes are ongoing. This paper is intended to serve as one vehicle through which all teaching and school and university leaders engage in a critical discussion of the reforms now under way in the schools and their implications for students graduating from high school and moving on to college. At issue are a variety of wide-ranging matters which relate to curriculum articulation, admissions policies, assessment strategies, and subject-matter pedagogy.

The dialogues and outcomes which this paper serve to stimulate are several, ranging from awareness and understanding to actively shaping a new consensus. The need to improve the quality of California's schools and to provide quality education to a culturally, ethnically, and linguistically diverse student population demands a response from California's higher education community. This paper is intended to help shape that response.

K-12 School Reform : Implications and Responsibilities for Higher Education

Postsecondary faculty typically judge the effectiveness of K-12 education by the capabilities of the freshmen students in their classes and on their campuses. For more than two decades, college and university faculty have been openly critical of the public school system whose graduates require additional secondary-level coursework before beginning the traditional postsecondary course sequence. This need for remediation has been particularly associated with writing ability, and mathematics and science preparation. Higher education's response has been to provide greater specificity of course requirements for admission and, in some disciplines, to determine course content expectations. Statements of specific course patterns have led to more students, including those from underrepresented groups, to concentrate on courses which prepare them for college. Yet, it is doubtful that many educators would argue that the need for remediation for entering students is substantially less than it was.

Changes have been made and continue to be needed in the schools if students are to be prepared to move smoothly into a collegiate program. Further, according to business and government leaders, changes are needed to better prepare high school graduates to join the workforce upon graduation from high schools and to be prepared to learn throughout their lives.

How have schools responded, especially in California, to prepare young people for postsecondary education and the world of work? This paper explores what is going on today in the elementary, middle, and high schools, and suggests ways in which the reforms under way—of which there are many—will have an impact on the preparation of students entering postsecondary education in California and the expectations these students will have of their collegiate learning environment.

Over time, the schools have been swept into many "reform movements;" some have been influential and effective, some have not. So, it is legitimate to ask whether what is underway now is substantive and convincing. The information provided in this paper is designed to provoke discussions that can assist in addressing this question.

The National Context for K-12 Educational Reform

Most educators and policymakers point to the 1983 publication of *A Nation at Risk*, the report issued by the National Commission on Excellence in Education, as the onset of nationwide education reform. The report presented a grim assessment of student achievement, warned of a "rising tide of mediocrity," and summoned policymakers, citizens, parents, teachers, and students to action by proclaiming that learning is "the indispensable investment" for success in an information age (*Education Week*, February 10, 1993). It led to a decade of sweeping and systemic reform at every level of the educational enterprise—with the greatest challenges presented to K-12 public education. This effort is continuing at the national level with the Clinton Administration's *Goals 2000*.

Before *A Nation at Risk* was released, the National Academies of Sciences and Engineering (1982), the National Science Board (1983), and other groups, had begun to call attention to the urgency of strengthening the science and mathematics education for this nation's students. By the middle of the decade, the American Association for the Advancement of Science also had underway its ambitious multiyear undertaking, *Project 2061*. Similarly, the National Council of Teachers of Mathematics was beginning work on its *Curriculum and Evaluation Standards for School Mathematics*, released in 1989.

About this same time, three national reform commissions advocated revisions in state policies regarding teachers. The National Commission for Excellence in Teacher Education (1985), the Carnegie Forum on Education and the Economy (1986), and the Holmes Group (1986) all called attention to the preparation and quality of teachers, as well as the problems which beset the teaching profession.

These, and other, national reforms drew participants from multiple sources, many of whom had previously worked at cross purposes. The K-12 discipline-based community, including practitioners and subject-matter experts; university faculty; leaders in business and industry; professional organizations; and citizen's groups have been brought together by the need to address the reform of public education. Concerted action by these various constituencies have leveraged national changes in expectations about what is taught and how it is taught. Changing expectations have been prompted in many arenas, from admissions policies to the professional development of teachers.

Now, national projects, such as the *New Standards Project*, are adopting a set of national education standards and developing a performance-based assessment system to gauge student progress toward those standards, and the *National Board of Professional Teaching Standards*, whose mission is to establish high and rigorous standards for what accomplished teachers should know and be able to do, are moving ahead with the national reform agenda. These kinds of national reform efforts involve individual states' representatives to help develop their purposes and processes, as well as design state-by-state implementation strategies.

California's Response to the National Call for K-12 Educational Reform

The widespread changes in K-12 public education that are occurring in California reflect the national call for educational improvement. Reforms in California have been undertaken over the past ten years in response to the national call for K-12 educational reform and directly impact postsecondary education. Indeed, despite severe budgetary limits, California is among the leaders in many aspects of the reform. As these changes are implemented and filter through the school systems and across grade levels, students will enter higher education with a much different preparatory experience than they have today.

Students will have encountered a more integrated, interdisciplinary curriculum than that which has traditionally existed in higher education. For example, students in English classes will have been part of a literature-based program which integrates listening, speaking, reading, and writing. Biology, chemistry, and physics will not be taught as isolated subjects,

rather they will have been combined to reflect an integrated, thematic presentation of science concepts.

Similarly, students will have been exposed to many different kinds of instruction than the typical lecture-listen-test sequence. They will have participated in active learning in which they have taken part in cooperative groups, hands-on science investigations, and extensive writing across the curriculum. Their tests will have been performance based, not multiple choice. That is, they will have been required to demonstrate their knowledge by their performances on exemplary, open-ended tasks. The evaluations of their performances may no longer be reflected by a letter grade; instead, they would have received a "holistic" score, from 0 to 6, on their essays, and would have been asked to select their best work to include in their portfolio.

What happens when students reach "13th" grade? How will higher education respond quickly enough to reflect the kinds of broad-based changes in K-12 education across this state and nationally to provide students with a smooth-flowing, coherent educational experience? We need to find better ways to reach today's students and enable their transition from secondary school to higher education and to the world of work to occur smoothly. The changes needed to ensure students' success must occur within each discipline, within each statewide system, and across them all. These kinds of changes have already begun to occur; the extent of ongoing change needed is under debate and the challenge creates sizable demands for the entire education community.

The CSU provides an example of the kind of change needed. In the Fall of 1991, the chair of the CSU Trustees Committee on Educational Policy appointed a subcommittee to examine the role and mission of the California State University with respect to K-12 education and recommend ways in which relationships between the CSU and K-12 schools could be advanced. Based on background studies, special seminars, and testimony received, the Subcommittee on CSU's Relationship to the Schools is developing a policy framework. This framework is intended to strengthen and enhance the CSU's relationship with schools and it's role in the improvement of elementary and secondary education in California.

In the current climate of dramatic change, social needs and business community demands have outstripped the educational conditions which exist for preparing students. Students are different: 20% of California's high school students are living in poverty. Overall, the number of children living in poverty doubled between 1969 and 1987; if this trend continues until the end of the century, over 30% of the state's children will be living in poverty. Up to 60% of California's children may experience living in single-parent homes. The reforms discussed herein must help us capture the interest and enthusiasm of this increasingly diverse student body. Most educational leaders agree that traditional educational approaches are failing the large majority of California students. A higher percentage of students than ever before need to be prepared with a more meaningful and challenging education.

According to the 1993 PACE report, nearly 30% of students new to the nation's schools are arriving in California's classrooms. By 2001, California public school enrollment will top seven million students. Between 1985-1990, the growth in enrollment of language minority students

was four times that of the enrollment growth for the state as a whole (BW Associates, 1992, p. 1). Although most of these students are entering California schools in the early grades, substantial numbers of limited-English proficient students are entering the middle grades and high schools, presenting complex instructional needs (BW Associates, 1992, p. 1). Eighteen percent of California's high school students are limited-English proficient.

Although approximately three out of four limited-English proficient or "LEP" children speak Spanish as their first language, almost one hundred languages currently are represented in California schools (BW Associates, 1992, pp. 1-2). The following chart shows the projected growth rate for LEP students, based on an average growth rate of 80,000 students per year (the approximate annual growth rate over the past seven years).

Today	1992-1993	1,158,000
2 years	1994-1995	1,318,000
5 years	1997-1998	1,558,000
10 years	2002-2003	1,958,000

The state's economic and social conditions have implications for the educational attainment of the present student population and future student populations. The current recession and state budget crisis have focused public attention on the educational and economic disparities in the state and how education, economic prosperity, and social stability are interrelated. The educational success of California's students is of increasingly serious concern to most segments of society. Raising the educational achievement for all students and closing the achievement gap require a sustained and concerted effort on the part of the entire educational community.

This paper summarizes the elementary and secondary curricular reforms, statewide grade-span initiatives, performance-based student assessment, school restructuring, and changes in teacher preparation, induction into the teaching profession, and professional development which have far-reaching implications for the higher education community. It provides a brief background about each of the reforms mentioned above. After each section, several springboard questions are posed which are designed to initiate an ongoing discussion among groups from all segments of the academic community. The intent of these discussions is to engage the community in examining the underlying values, tensions, opportunities, priorities, and constraints implicit in the reforms, and their implications for intersegmental change.

Curricular Reforms

- The new generation of California curriculum frameworks focuses on student understanding, student engagement, and student outcomes.

- The new curriculum frameworks have several overarching concepts and instructional strategies in common. These include critical thinking and conceptual understanding; problem solving based on real-life problems; meaning-centered rather than memorization-oriented learning opportunities; active learning and activity-based instruction; contextualized learning which makes connections to students' experiences; collaborative learning in groups; and interdisciplinary learning.

- The curriculum frameworks are the principal influence on what is taught in California schools. The frameworks are also important resources to universities preparing prospective teachers in the various disciplines addressed by the frameworks.

Curriculum Frameworks

The primary building blocks of school reform are the curriculum frameworks. Since 1985, the California Department of Education has developed new State Board of Education-adopted curriculum frameworks that represent a marked shift in direction and purpose from their predecessors. Previously, curriculum frameworks followed a prescriptive approach to identify the general subject matter objectives that students were expected to learn (Curry and Temple, 1992.) The new generation of California frameworks focuses instead on student understanding, student engagement, and student outcomes (Thomas, 1992.) All of the new frameworks are designed to provide philosophical curricular, instructional, and assessment direction and perspectives in each subject-matter area. They are intended for use by classroom teachers, school administrators, curriculum planners, parents, and school board members for the education of all of our students. They also provide the basis on which state adoptions of textbooks and supplemental materials are made for K-8 and on which publishers develop new materials.

Revised every seven years, each California framework is developed as an instructional guide which emphasizes topics, goals, and objectives over time, and what students ought to know and be able to do at various points as they move through the system (Curry and Temple, 1992, p. 6). They serve as a guide to the rest of the curriculum to assess, evaluate, and revise curriculum and instruction; to serve as a resource for preservice and inservice education; to direct the development and review of instructional materials; and to provide information on curriculums for parents and the general public (Curry and Temple, 1992, p. 7; ETS Policy Information Center, 1992; Thomas, 1992, p. 9). The frameworks are accompanied by model curriculum guides (K-8) and model curriculum standards (grades 9-12) which are designed to assist teachers in leading discussions and designing activities.

The California Frameworks: Development and Impact

How Frameworks are Developed

Appointed by the State Board of Education, and under the direction of the Curriculum Commission, a Framework Committee is composed of practitioners and subject-matter experts

The framework is drafted and presented to the Curriculum Commission

The Curriculum Commission Subject Matter Committee conducts a field review

The Subject Matter Committee holds a public session and makes any necessary revisions; then it presents the framework to the Curriculum Commission

The Curriculum Commission deliberates and approves the framework

The State Board of Education holds a public hearing; it then deliberates and approves the framework

What Frameworks Influence

SB 813 Graduation Requirements
Model Curriculum Standards (grades 9-12)

Intersegmental Committee of the Academic Senate
Competency Statements

Development of Instructional Resources
State Instructional Resources Adoption
(grades K-8)

FRAMEWORKS

Model Curriculum Guides (grades K-8)

Professional Staff Development
New Teacher Induction Programs
Preservice Reform Efforts

Outcomes and Accountability Measures such as...
California Learning Assessment System
State Accountability Programs
Quality Indicators
School Performance Reports

The new curriculum frameworks have several overarching concepts and instructional strategies in common. These include critical thinking and conceptual understanding; problem solving based on real-life problems; meaning-centered rather than memorization-oriented learning opportunities; active learning and activity-based instruction; contextualized learning which makes connections to students' experiences; collaborative learning in groups; and interdisciplinary learning. Further, the frameworks encourage curriculum-embedded assessment that occurs in multiple settings and view instructional materials, especially the use of technology in the classroom, as instructional resources which have the potential to enhance (but not supplant) good instruction. Overall, each new framework describes the philosophy and nature of programs in each content area and provides guidance for efforts to shape the school curriculum for access by all students.

An outline of each new framework's characteristics is provided below.

History–Social Science Framework (1988).
This framework presents the knowledge and understanding that all students need to function intelligently now and in the future. It:

- is history centered, sequential, and integrated with geography;
- emphasizes the integration of literature;
- embodies the understanding that the national identity, the national heritage, and the national creed are pluralistic and that our national history is the complex story of many peoples and one nation;
- emphasizes depth over breadth; and
- acknowledges the importance of religion in history.

English–Language Arts Framework (1987).
The *English—Language Arts Framework*, currently under revision, is aligned with other CDE language-arts publications to promote a systematic, meaning-centered, literature based program for all students. It:

- emphasizes the integration of listening, speaking, reading, and writing and the direct instruction of skills in a meaningful context;
- encourages all students to read significant literary works;
- builds on students' interests, skills, prior knowledge, and experiences in a literature-based program;
- emphasizes reading in all content areas; and
- emphasizes writing across the curriculum.

Mathematics Framework (1992).
The new Mathematics Framework builds on its predecessor (1985) and the *Curriculum and Evaluation Standards for School Mathematics*, published by the National Council of Teachers of Mathematics in 1989. It elaborates on their concepts and recommendations, and extends them into a comprehensive vision for mathematics education that serves the larger purposes of schooling: (1) equipping students with the reasoning tools they need as good citizens; (2) preparing students for success at work; and (3) developing the capacities of students to enjoy

and appreciate mathematics (p. 2). The framework focuses on mathematical power for all students, performance, content, and assessment. It also:

- emphasizes that all students fully participate;
- includes analyzing, classifying, planning, comparing, investigating, designing, inferring and deducing, making hypotheses and mathematical models, and testing and verifying them as mathematical thinking;
- concentrates on mathematical ideas and unifying ideas in all of the traditional strands: functions, algebra, geometry, statistics and probability, discrete mathematics, measurement, number, and logic and language;
- encourages the use of a variety of tools and techniques, such as calculators and compasses, and figurative tools such as computational algorithms and making visual representations of data; and
- encourages students to work individually and together; to appreciate mathematics in history and society; and exhibit positive attitudes towards mathematics, working with confidence, persistence, and enthusiasm.

Science Framework (1990).
This framework calls for the thematic presentation of science concepts so that students appreciate the connections across science disciplines and learn how to relate science to other subjects. Specific recommendations are made for the teaching of science and the restructuring of science education in elementary schools, middle schools, and high schools. Suggestions are also given for attracting into science classes students who have been historically underrepresented in those classes. The framework:

- suggests using a thematic approach for presenting content and linking facts and ideas which makes connections among the scientific disciplines that have traditionally been taught as separate subjects;
- encourages active learning in which students take charge of learning through hands-on, experience-oriented activities;
- advocates using instructional materials which recognize cultural diversity and reflect strategies that are successful in meeting the needs of all students;
- incorporates assessment that is integrated within the science curriculum and is oriented toward solving problems; and
- presents themes of increasing breadth and complexity at appropriate intervals throughout the grade levels.

Visual and Performing Arts Framework (updated in 1989).
This framework integrates two approaches to teaching the four arts disciplines—dance, drama/theater, music, and the visual arts—into a comprehensive whole. The first approach views arts instruction as direct student involvement in the expressive modes, and the second approach views the arts as a means of acquiring cultural literacy. Overall, the framework:

- encourages aesthetic perception, creative expression, arts heritage, and aesthetic values;

- identifies commonalities among the four disciplines (dance, drama/theater, music, and the visual arts);
- provides a balance between discipline-based and performance-based instruction;
- emphasizes teaching the arts from a problem-solving and conceptual-understanding perspective that is compatible with the "discipline-based" approach advanced by the Getty Center for Education in the Arts and the National Arts Education Association;
- contributes to the appreciation of historical and multicultural understandings and the development of problem-solving ability.

Foreign Language Framework (1989).
The *Foreign Language Framework* promotes communication-based foreign language programs from kindergarten through high school. It describes the characteristics of a well-planned foreign language program and the role of the school. It also discusses educational reform issues, such as beginning second language instruction early and helping students who speak languages other than English to continue to develop their primary language skills. This framework:

- emphasizes a meaning-based curriculum;
- emphasizes an understanding of communication and culture; and
- links content to real-world experiences.

This framework also delineates the distinctive planning requirements for instruction in English as a second language. Effective instruction in English as a second language must provide content instruction that meshes with the overall school curriculum and, simultaneously, respects each student's primary language. Educators planning this kind of instruction should consider the needs and goals of instructional programs, the nature of instruction, the program structure, and the various roles of teachers, administrators, governing boards, and the local community.

Health Framework (approved by the State Board of Education, December, 1992).
The new *Health Framework* focuses on developing lifelong health-related attitudes and behaviors. It also calls for health instruction to be supported by a comprehensive schoolwide system to promote children's health that is developed and sustained by collaborative efforts among the school, parents, and the community. The Health Framework is organized around four unifying ideas that are critical to healthy living:

- acceptance of personal responsibility for lifelong health;
- respect for and promotion of the health of others;
- an understanding of the process of growth and development, including the importance of the universal aspects of physical, mental, emotional, and social growth and development as well as aspects that are unique to individuals; and
- informed use of health-related information, products, and services.

Physical Education Framework (1992).
The *Physical Education Framework* is aligned with the "Healthy Kids/Healthy California" initiative and takes a comprehensive approach to planning a physical fitness program. The

vision for the framework states, "The quality and productivity of each individual's life is enhanced through participation in a comprehensive, sequentially planned physical education program that promotes through movement the physical, mental, emotional, and social well-being of every individual in the pursuit of lifelong health." It goes on to describe the following three broad-based goals:

- movement skills and movement knowledge, including motor learning, biomechanics; exercise physiology and physical fitness;
- self-image, self-esteem, and self-realization, which encompass human growth and development, and psychology; and
- social development and social interaction, with a focus on the humanities, sociology and the historical perspectives in physical education.

The curriculum frameworks are the principal influence on what is taught in California schools. The content of each framework is intended to be responsive to research, professional judgment and practice, and university admissions requirements and expectations for entering freshmen; it is influenced by subject-area organizations and associations, individual content-area experts, and agencies such as the National Science Foundation. The frameworks are also important resources to universities preparing prospective teachers in the various disciplines addressed by the frameworks.

Discussion Issues: The new thinking/meaning-centered frameworks are considered crucial to the statewide reform movement because they provide significant benchmarks against which to measure curricular change and guide assessment and instructional change throughout the K-12 public school system. Although each framework has benefited from the expertise offered by selected subject-matter specialists in the higher education community, for the most part, the higher education community is unaware of their existence.

To what extent do the new curriculum frameworks need to be articulated with existing higher education curriculum, assessment, and admissions standards? Should higher education curriculum fit with the K-12 curriculum frameworks? Should they be aligned? How could higher education faculty play a greater role in developing and critiquing curriculum frameworks?

Overall, could structural changes in the postsecondary system facilitate the K-12 curricular reform? For example, the UC Irvine campus has an Academic Senate *Committee on Community Education* which is currently analyzing the State frameworks in various disciplines. Their charge is fourfold: (1) to recommend proposals to assure faculty awareness of UCI's current and potential relations and involvement with K-14 education; (2) to examine the possibility of reinstituting a Master of Arts in Teaching program and to develop other programs to assure effective continuing education of school personnel and to promote curriculum and instructional research and development; (3) to explore the possibility of creating an office for community education to implement the above; and (4) to review reports and recommendations intended to improve the quality of education at all levels; and to recommend appropriate actions that would involve UCI faculty and administration. What other approaches might be used to enhance postsecondary awareness of the K-12 frameworks?

Competency Statements

- Since 1982, with the support of the California Education Round Table, the Academic Senates of the California Community Colleges, the California State University, and the University of California have worked together to develop competency statements in specific disciplines to provide secondary school faculty with clear and consistent information on the skills and knowledge which every entering college freshman should possess in order to succeed in higher education.

- Some of the intersegmental activities based on the competency statements have been very successful; however, development of the competency statements has been sporadic. Responsibility for the activities has been so diffused among the educational systems, that there has been little consistent follow through after the statements have been published. Thus, their effectiveness has been limited.

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In 1986 the Intersegmental Committee of the Academic Senates, with the full participation of the California Department of Education, came to an agreement that every effort be made by committees to keep their work current and consistent with the cycle of framework documents prepared by the California Department of Education, and that the documents would, in a coordinated fashion, influence the writing of textbooks in the various fields (Intersegmental Committee of the Academic Senates, 1986). Although the competency statements addressed only the curriculum necessary for college bound students, the Academic Senates recognized that their competency statements would be much more effective if they were viewed as complementing the CDE frameworks and standards.

The CDE develops and updates model curriculum standards, which provide graduation requirements, while the Intersegmental Committee of the Academic Senates is responsible for developing competency statements for entering college freshmen. The model curriculum standards are written for courses that all students must take to graduate from high school and by analogy the competency statements are written for coursework that college bound students should enroll in. Taken together, the standards and the statements present the ideal curriculum for academic courses offered in California secondary schools.

The first competency statement to be published was the *Statement of Competencies in English and Mathematics Expected of Entering Freshmen* (1982). This was followed by statements on the

natural sciences (1986) and foreign languages (1988). Unfortunately, higher education could not develop a consensus during the development of the competency statements in history-social science, the visual and performing arts, or the humanities. In the future, only the areas of mathematics and science may have competency statements which are consistent with the new frameworks. In the area of mathematics the fit between frameworks and college courses may be difficult to achieve. As the statements are published, they are distributed primarily by the CDE, which tries to integrate their distribution with the dissemination of the new frameworks.

While some of the intersegmental activities based on the competency statements have been very successful, they have also been sporadic. Responsibility for the activities has been so diffused among the educational systems, that there has been little consistent follow through after the statements have been published. Thus, their effectiveness has been limited.

Discussion Issues: How can modification of admissions requirements, revision of the curriculum frameworks, and the development of competency statements be better integrated and sequenced to ensure that they reflect a coherent vision of educational planning? Are there changes which might make the competency statements more effective, or their relationships to the frameworks more apparent? Has the need for such intersegmentally-approved statements disappeared with the increased focus in K-12 on college preparation?

Statewide Reform Initiatives

- The statewide reform efforts are guided by the belief that the approaches to instruction which focus narrowly on the acquisition of discrete academic skills exclude the more challenging, thought-provoking aspects of education. Overall, reforms propose to enhance educational access for all K-12 students.

- The reform initiatives suggest a long-term effort. Some of the recommendations may take as long as ten years to implement; some are already being considered by schools in California. These reforms mark a significant departure from the traditional and conventional course sequence.

The direction of statewide reform efforts is presented in four seminal reports which cover the K-12 grade span. The statewide reform efforts are guided by the belief that the approaches to instruction which focus narrowly on the acquisition of discrete academic skills exclude the more challenging, thought-provoking aspects of education. Overall, reforms propose to enhance educational access for all students, thereby increasing the number of students who read, write, compute, communicate, and think at higher levels. The reforms rely heavily on the premise that students' real-world experiences, feelings, and interests provide the basis for a concept-driven curriculum. Phrases such as a "rich, meaning-centered, thinking curriculum," which refer to a curriculum that provides students' with opportunities to solve problems and develop an understanding of fundamental ideas and concepts in the context of their own experiences; and "powerful teaching and learning," which emphasize students' higher-order thinking skills, are used to redirect the movement away from the conventional linear, lockstep approaches.

Early Primary–Primary Education: *Here They Come, Ready or Not*

One of the earliest grade-span initiatives, *Here They Come, Ready or Not* focused on the need for substantial change in children's early primary and primary education. The 18-member School Readiness Task Force was convened in April, 1987 to explore kindergarten education and school readiness issues. Based on the belief that what happens during a child's first few years in school has a tremendous impact on the rest of that child's schooling, the task force recommended substantial changes in both the quality and quantity of education services offered to young children. Congruent with the sweeping changes recommended in later reform documents, *Here They Come, Ready or Not* advocated fundamental changes in the teaching techniques and curriculum presented in the state's preschools and kindergartens. In particular, the report recommended that a balance be made between child-centered activities and content-centered approaches to meet the needs of all students, including those who are culturally and linguistically diverse, and exceptional in other ways. And, in another, far-reaching recommendation, the report called for the provision of age- and individual-appropriate and integrated experiential learning with instruction in reading, writing, math, and language acquisition.

The Task Force argued that early, primary programs should address the needs of the whole child. When children leave kindergarten, they should be able to:

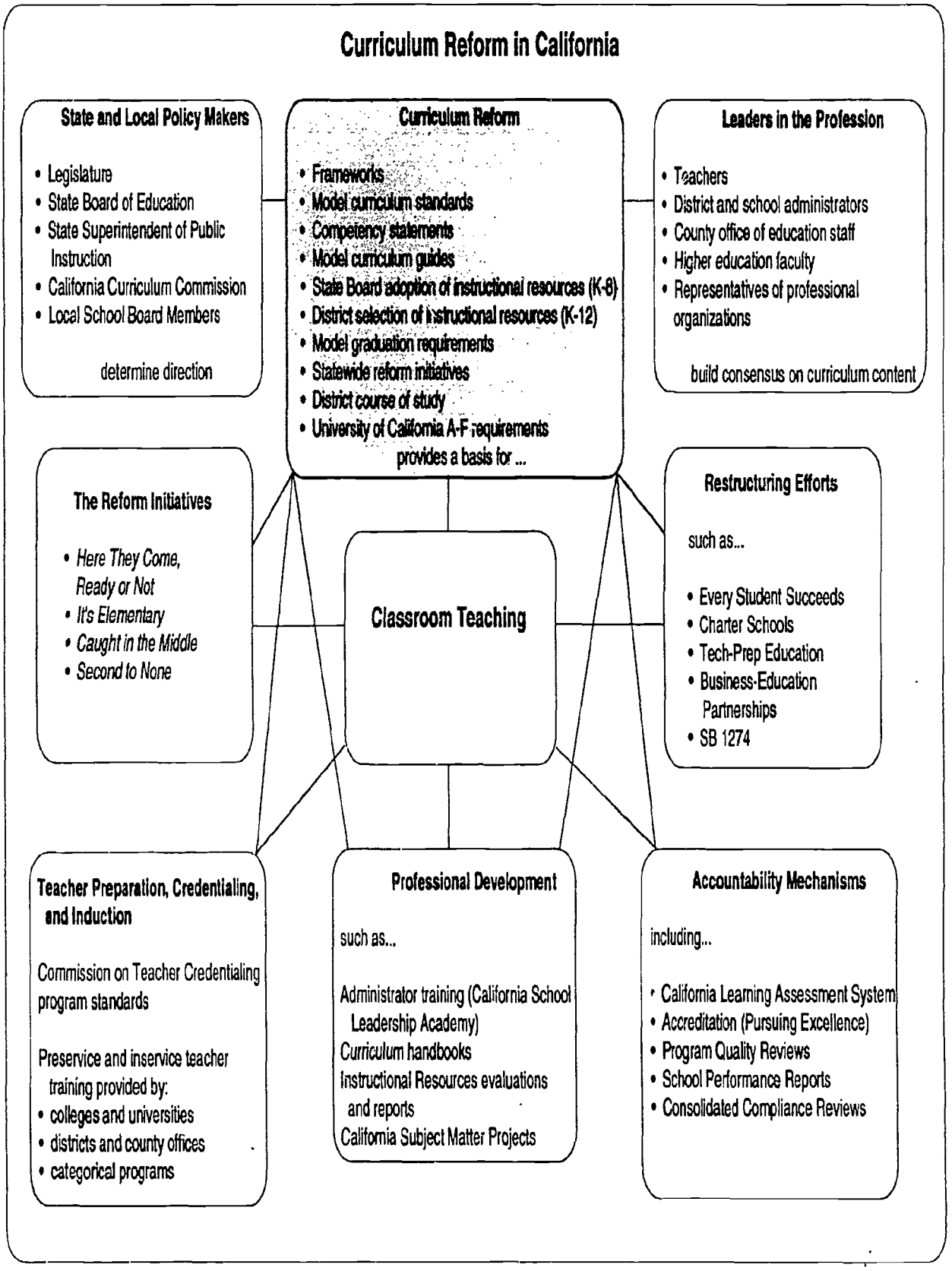
- use language for complex communication;
- recognize and use opportunities for learning through language, reading, social studies, science, and the arts;
- use problem-solving strategies and begin to understand mathematical concepts;
- play individually and with peers and function as a member of a group;
- demonstrate self-control and self-discipline;
- sustain interest in an activity and listen to adults and peers;
- be curious about and challenged by the world; and
- demonstrate fine and gross motor skills and coordination.

Discussion Issues: In setting the stage for the reforms that followed, this initiative suggested that schools be changed to meet the needs of students rather than continuing to try to change students to fit the schools they attend. By the year 2000, the majority of students in California's schools will be children of color. Many of these students will have acquired a language other than English as their first language; many of them are likely to have grown up in poverty and will attend schools in which primary language instruction introduces and facilitates learning, where English-language acquisition opportunities are imbedded in meaningful activities, and where classrooms are culturally diverse. How are the teacher-preparation programs providing beginning teachers with the kinds of experiences and skills which will enable them to meet the needs of this diverse group of students?

Elementary Education: *It's Elementary! Elementary Grades Task Force Report*

Building on *Here They Come, Ready or Not*, the report of the Elementary Grades Task Force, *It's Elementary! Elementary Grades Task Force Report*, was prepared with the help of teachers, administrators, parents, representatives of school boards and parent groups, and others in the educational community. Published in the fall of 1992, it presents a rationale for substantive change in the elementary grades, followed by a series of recommendations. This reform initiative is based on the premise that the most pervasive problem afflicting much elementary instruction in the past has been a narrow focus on the acquisition of discrete academic skills—to the exclusion of more thought-provoking content exploration. Consequently, this initiative advocates the implementation of a "thinking curriculum" which immerses students in a rich, meaning-centered learning environment for all students in all subject areas in the elementary grades. The basic tenet of the thinking curriculum is to move from "skills and drills" which generally lack depth, to more in-depth coverage of a single content area which will stimulate students' greater insight and complex problem solving.

The elementary grades initiative is consistent with the new California subject-matter frameworks, model curriculum guides, and ongoing revisions in student assessment. Qualitatively, it shifts the emphasis from a teacher-centered focus to a student-centered, experiential one; quantitatively it calls for a greater depth of understanding in a wider range of knowledge areas.



To carry out the reform advocated in *It's Elementary*, a California Alliance for Elementary Education has formed a coalition of schools and organizations to work together to improve elementary education in the state. Seventy partner organizations and the CDE are working with county offices of education and the California School Leadership Academy to designate regional coordinators who will regularly convene and facilitate regional chapters of the Alliance. Their charge is to recruit elementary schools, organize special projects, develop professional study groups, address statewide issues, and assist the Alliance schools in implementing the *It's Elementary* recommendations.

The overall reform strategy acknowledges the pivotal role that teachers have in accomplishing the espoused goals. In addition, steps have been taken to advocate and support change in the recruitment, preparation, and induction of new teachers. The California Elementary Alliance on Higher Education has formed a partnership among Alliance representatives and higher education faculty to (1) convey the messages contained in *It's Elementary* to those responsible for educator preparation and the development of preservice and inservice practitioners; and (2) assist in the implementation of concepts and principles in the document. Included as tasks for the future are: identifying issues related to elementary educator credentialing, preservice and inservice education, and retention; developing a strategy to encourage college and university faculty to use *It's Elementary* as a course guide; and developing ways to bridge the gap between school staff and university faculty.

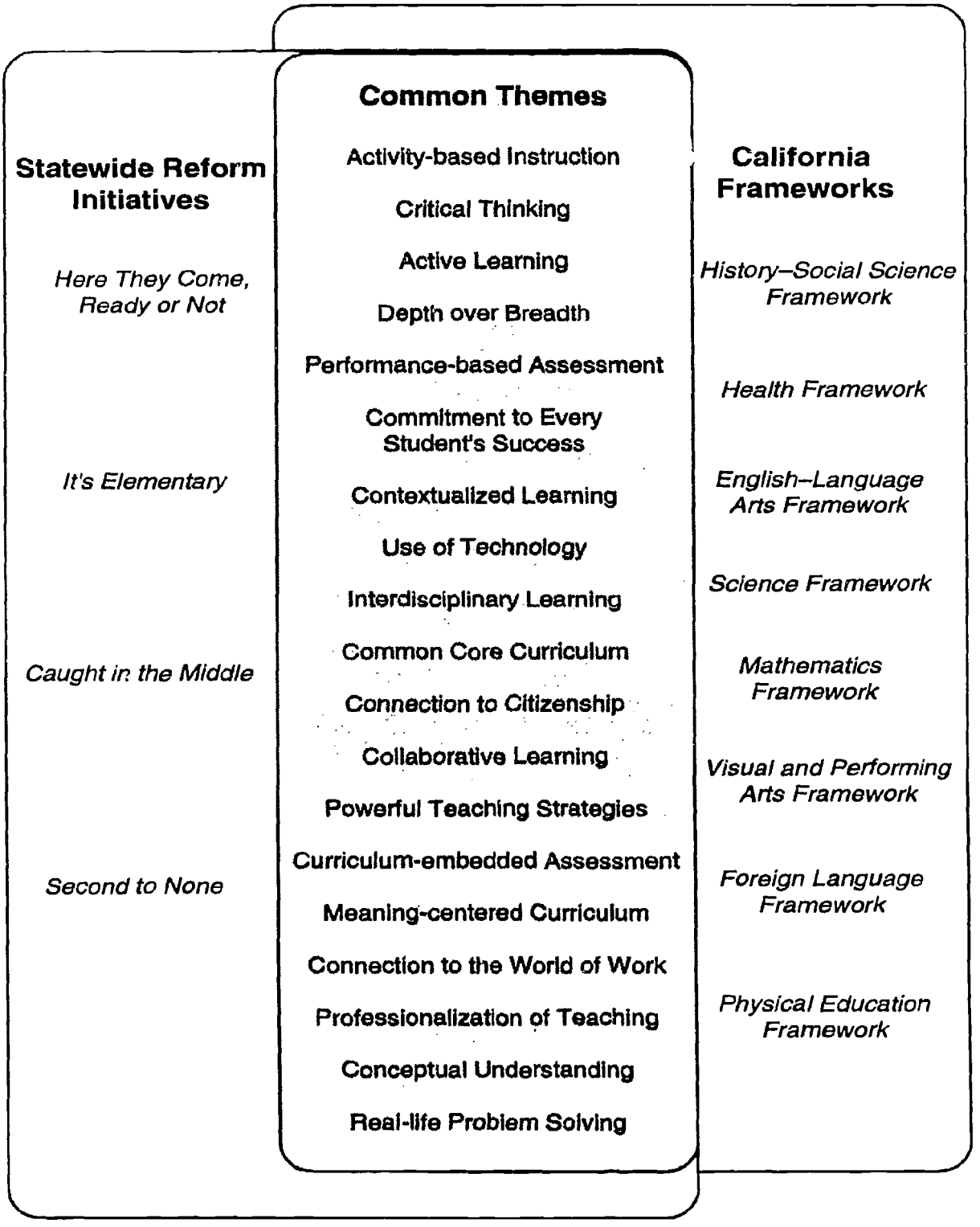
Discussion Issues: A fundamental goal of this reform initiative is to shift the emphasis in elementary education from a teacher-centered focus to a student-centered, experiential focus. This is intended to encourage students to become more actively engaged in their learning. Since teachers have the primary responsibility for what takes place in the elementary classrooms, they will determine the overall success of this reform. To what extent are university faculty aware of this reform initiative? What are the implications of this initiative for teacher-education programs? Are university faculty actively involved in professional development programs designed to assist elementary teachers in shifting their approach in the classroom?

Middle School Education: ***Caught in the Middle: Educational Reform for Young Adolescents in California Public Schools***

In 1986, the middle-grade reform was prompted by concern over California's dropout rate. A Middle Grade Task Force conducted public hearings and published its report, *Caught in the Middle: Educational Reform for Young Adolescents in California Public Schools*, which presents findings and recommendations about what makes effective schooling at the middle grade level. Through the presentation of 22 principles of middle grade education, the report makes the case for major education reform in grades 6, 7, and 8.

According to the report, all students should have access to a core curriculum which is designed to provide students with a broad academic foundation needed for success in high school. The core curriculum should be carried out by effective instructional practices which reflect the development characteristics of early adolescent students and emphasize active learning. Active learning strategies are recommended to address both the wide diversity of student learning styles as well as the individual strengths of teachers.

Education Reform Alignment



Adapted from SCORE for College, Orange County Department of Education

Realizing student potential addresses the need for all students, especially those at risk of dropping out of school and those from underrepresented groups, to have equal access to the broadest range of academic options and the most valued curriculum offered by the school. The responsibilities for creating these kinds of learning environments rest with the school principals, superintendents, counselors, and teachers. Part of the new learning environment includes making necessary structural changes, for example in course scheduling or the reallocation of existing resources; and establishing high standards of academic excellence and a system of accountability, both at the student and program level.

The professional preparation of middle grade teachers and principals should include specialized knowledge of the core curriculum, the acquisition of a broad repertoire of instructional strategies which relate to active learning and a comprehensive knowledge of the developmental characteristics of young adolescents. Similarly, ongoing staff development should have as its priority the core curriculum, the qualities of teaching excellence, and the characteristics of young adolescents through a comprehensive, well-planned, long range program which emphasizes professional collegiality.

Finally, the reform is dependent upon parents, local school boards, and community support to translate the ideals espoused into reality. The focus here is on involvement at the local level, cooperation and collaboration between parents, teachers, and principals, and local policy changes that facilitate the middle grade educational reform.

To implement the reform effort, the Middle Grades Support Services Office was created and authorized to form partnerships with schools. The 22 Partnership Regional Networks involve over 100,000 students, 5,000 educators, and 115 schools located throughout California. A minimum of 200 additional Partnership Schools are anticipated at the end of 1993; over the next 3-5 years all 1,400 schools which serve two or more middle grades will be involved in some aspect of the middle school reform.

A recent evaluation, "Twenty Selected Findings from the California Middle Grade Reform Model Implemented by Regional Networks of Partnership Schools," examined the implementation of the California Middle Grade Reform Model. The following three findings are excerpted from that report:

(1) The institutions of higher education and the Commission on Teacher Credentialing have an important part to play in assuring the long range success of education reforms at all levels of instruction. Preservice professional preparation is driven directly by the actions of the Commission on Teacher Credentialing. Building bridges between public schools and institutions of higher education has proved to be one of the toughest hurdles to leap, yet significant progress has occurred. There is a small yet vigorous cadre of professors who are participating in substantive ways to bring about education reforms consonant with the California reform agenda.

(2) The single most frequently implemented middle-grade reform recommendation is interdisciplinary teaming....Interdisciplinary teaming allows teachers to work with a much broader spectrum of learning abilities within the context of regular classes in the core curriculum thus markedly reducing the degree of tracking in some schools.

(3) Fully one-fourth of all principals report that enrollment by Hispanic students in classes leading to college and university preparatory courses and course sequences in high school has increased substantially during the preceding three years. One of the prime indicators behind this shift appears to be a new sense of hope gained through participation by these students in regular classes where upwardly mobile academic and vocational pursuits are clearly safe-guarded.

This effort is currently supported, in part, by the Carnegie Corporation and the W. K. Kellogg Foundation. As part of the Carnegie Corporation grant, funds were allocated for disseminating the findings of the project both within California and nationally. A series of videotapes is being developed and should be available in early 1993. Facilitators will be trained in each of the regional networks and the 58 county offices of education to assist other schools interested in using the findings to support their own reform efforts. In addition, funding was made available from W. K. Kellogg to conduct three dissemination conferences in the spring of 1993 which targeted the 45 schools of education in the United States which prepare the greatest numbers of teachers for middle-level teaching.

Discussion Issues: How could higher education be more directly involved in this reform? Could the audience for dissemination include higher education faculty engaged in preparing future teachers? Are there ways for teacher preparation involvement beyond sending student teachers to school sites? For example, this reform effort could be enhanced by exploring the extent to which beginning teachers are prepared to use the "effective instructional methods," such as active learning and sharing instructional management with students, that are advocated by this effort. Stronger ties could also be established between colleges, universities, and schools through joint research projects. For example, research on adolescent developmental characteristics and the practice of teaching adolescents could enhance education access and provide a valuable forum for the integration of this effort and higher education.

Secondary Education: ***Second to None: A Vision of the New California High School***

The California High School Task Force was convened in April, 1990, to provide policy direction for high school reform. To build upon the goals established during the California Education Summit in December 1989, leaders in education, business, professional, and citizen organizations were asked to help chart a course to raise secondary school students' overall performance levels and enhance their postgraduation success. The public school sector was represented by school boards, administrators, counselors, teachers, higher education faculty, and students. As a result of two years' work and a series of 17 regional hearings held throughout the state, the Task Force produced a report entitled *Second to None: A Vision of the New California High School* in the fall of 1992.

The report calls for a strong academic foundation in the first two years of high school and demanding, yet flexible, program majors for students in grades 11 and 12. It describes a vision of the new California high school and presents the components of comprehensive reform for each school based on the following themes:

Creating Curricular Paths to Success. The report recommends that most students in grades 9 and 10 continue with a sequence of courses begun in middle schools which lays a strong academic foundation in language arts, mathematics, history–social science, and science. In grades 11 and 12, students would choose a program major in which academic, applied academic, and field experiences are organized around a special focus. Program majors would be organized around career fields such as health, or integrated academic disciplines, such as humanities. Many program majors would be designed to prepare students to meet college entrance requirements, while also providing students with career-related technical and practical skills. Each program major would include learning opportunities that prepare students to enter directly into the workforce, continue education focused on technical preparation, or pursue advanced study at the college or university level.

The high school would subdivide into clusters or small groups of students and small teams of teachers. The teachers would be expected to work together to strengthen their own subject areas and to develop a more integrated curriculum. They would work as an interdisciplinary team with common preparation periods and would have the flexibility to arrange special learning opportunities that extend beyond the traditional class period, regroup students frequently for special interest projects, and facilitate interdisciplinary courses and units.

Students would continue to take a strong core curriculum. Every student would have a personal learning plan that serves as a kind of road map, or guide, through the academic foundation and program majors and on to postsecondary education or the workforce. Students *would not be tracked*, instead, they would select a program based on their own interests and learning styles. In addition, students would not be locked into a program but could move from one program to another if their goals change. Program majors are intended to provide a real-world context for the academic curriculum as well as the basis for partnerships between high schools, business and industry, higher education, and the community—all of which would contribute to the design and implementation of various majors.

Developing Powerful Teaching and Learning. The challenge for teachers is to encourage students' involvement in their own learning. Teachers would redesign traditional courses for higher level student work including more facilitation, inquiry, demonstration, and collaborative learning. They would be encouraged to use methods that help students to formulate and solve problems; criticize their own work; work in teams; communicate about what they are doing; and achieve mastery of a topic, skill, or craft.

Establishing a Comprehensive Accountability and Assessment System. This high school reform effort focuses on student performance—learning outcomes that reflect actual achievement and application of knowledge. Assessment at the high school level would

Intersegmental Case Study:
Pioneer High School

Although the program major model presented in *Second to None* is idealized, many high schools have begun to develop creative approaches to defining program majors. The following case study represents one approach to pursuing the school restructuring recommended in *Second to None*.

Beginning in the fall of 1992, the freshman class at Pioneer High School was organized into three clusters, each with a team of four teachers whose schedules guarantee the ability to work together on interdisciplinary curriculum. All students are block scheduled with their four cluster teachers into double periods of Agriculture/Biology and English/social studies. The core curriculum is organized across subjects by topics which relate to the school's new, broader focus on agricultural and environmental sciences. For example, all students spend approximately five weeks in studying heredity, focusing on cellular heredity in the biology class, animal reproduction in agriculture/environmental sciences, and the cultural contributions of various ethnic groups in social studies and English. The cluster system and focus on "A & E" will move through Pioneer with the freshman class so that by the 1995–96 school year, the entire school will be restructured.

Pioneer A & E has a design for the future which was developed both by staff at the school and by a National Design Team. The magnet school concept it represents fits within the school district's design for restructuring, a plan adopted by the Board of Education following a strategic planning process which involved all sectors of the community. This two-year process, supported by the American Electronics Association, involved hundreds of citizens. At the plan's center is the district's commitment to implement interdisciplinary curriculum by 1995, guided by the California Department of Education frameworks, at all schools.

The National Design Team is a partnership between Pioneer, the school district, higher education, and the private sector to promote a National Urban Center for Agricultural Literacy at Pioneer High over the next several years. The National Design Team includes key school district people, representatives from several higher education institutions with strong agriculture programs (e.g., UC Davis, CSU, Chico, and UC Cooperative Extension), and public and private sector interests in agriculture and environmental sciences.

emphasize performance and application of knowledge. The school would gather assessment information about each student and place it into a "graduation portfolio." It would contain various assessment measures, including work samples in all core disciplines, awards, a standardized high school transcript, a performance-based diploma, and statements about what the student has learned. The portfolio could be used in postsecondary job placement or to gain entry into programs for further education. Future employers or postsecondary educators could look at the student's transcript and get a good picture of the student's overall abilities.

Providing Comprehensive Support for All Students. The school is considered the hub of a coordinated network of community agencies; health services; youth and family support organizations; businesses; and the philanthropic sector. Integrated student support would be designed so that all students could gain the knowledge and skills to achieve in the rigorous curriculum. All students would receive support to surmount problems associated with physical, social, health, psychological, as well as academic needs. This kind of support would be proactive, not remedial, and it would be integrated into the regular coursework. Students would be connected to the school and thus to a wide range of integrated resources that could assist them in reaching their goals.

Restructuring the School. Schools would build their capacity to solve problems, improve quality, and make students feel connected academically, socially, and emotionally to other students and adults. For example, four or five teachers may be responsible for working closely with the same group of students, or students are grouped by "houses" or "clusters." A lower student-teacher ratio could be achieved by reorganizing schedules to allow teachers longer blocks of time with the same group of students, to share a core unit with other teachers, or to teach an integrated block like English and social science.

Creating New Professional Roles. Teachers and principals would have broader professional roles than they have now. For example, a math teacher would still teach math, but may also be a member of a team that is responsible for providing support to a group of students in a cluster or program major. In addition, the teacher would contribute to the organized effort to improve the school's quality. Decision making would become increasingly decentralized with the school staff accountable for results.

High school reform activities are being coordinated through regional partnerships among school and district teams, High School Task Force members, county offices of education, SB 1882 Resource Consortia, the California School Leadership Academy, the California Subject Matter Projects, and the CDE.

Discussion Issues: The recommendations made in *Second to None* are visionary and suggest a long-term reform effort. They have potentially significant implications for higher education. Some of the recommendations may take as long as ten years to implement; some are already being considered by selected high schools in California. The vision for this reform marks a significant departure from the traditional high schools and the conventional course sequence. How can higher education faculty best assist their colleagues in secondary school in their

Intersegmental Case Study:
The California Academic Partnership Program

The California Academic Partnership Program (CAPP), which represents one aspect of the educational reform movement in California, is designed to result in academic excellence and equal opportunities for the students in California. The mission of the CAPP is to foster and enable partnerships between California school districts and postsecondary institutions to create improved learning, academic preparation, and access opportunities for students in middle schools and high schools, so more students, especially those underrepresented on postsecondary campuses, can successfully complete baccalaureate degree programs. CAPP, which is administered by the Chancellor's Office of the CSU, in cooperation with California's other educational segments, received $1.5 million annually to fund projects around the state. CAPP provides stimulation for school reform by offering small grants to develop and test the effects of partnership models on improved curriculum and access issues, and providing grants that address assessment issues. Since its inception in 1984, CAPP has funded forty academic partnerships involving 145 separate educational institutions, more than 3,000 faculty and staff, and over 50,000 students. Recognizing that the problems facing California education have grown and changed since CAPP was conceived, the intersegmental advisory committee decided to seek participation of the private sector as a third partner in meeting these challenges. Beginning with the 1992-93 planning grants, CAPP will seek to involve business as an equal partner at both local- and program-planning levels.

efforts to strengthen curricula and improve students' success? How can the university faculty become more involved in the development of curriculum and program majors proposed by a restructuring school or district? How will the organization of students into program majors affect the transition into postsecondary programs? What are the implications for college admissions course patterns? For specialized programs such as Advanced Placement?

An entirely new cadre of teachers will be moving through the pipeline to teach in schools restructured in line with this vision. How will teacher preparation adequately prepare new teachers to work in this environment? For example, how will new teachers be prepared to work in interdisciplinary teams which cross traditional subject-matter boundaries? Will new teachers be prepared to work directly with community agencies to provide comprehensive support to their students? In the meantime, which institutions will be primarily responsible for preparing veteran teachers to work in restructured schools?

Tech-Prep Education

The impetus for tech-prep education came with the Carl D. Perkins Vocational and Applied Technology Education Act amendments of 1990. The amendments indicate that tech-prep education will provide technical education beyond high school and combine occupational and academic learning so that students will have the capacity to grow and change in the workplace. Specifically, a "tech-prep education program" is a combined secondary and postsecondary program which:

(a) leads to an associate degree or 2-year certificate;
(b) provides technical preparation in at least one field of engineering technology, applied science, or mechanical, industrial, or practical art or trade, or agriculture, health, or business;
(c) builds student competence in mathematics, science, and communications (including applied academics) through a sequential course of study; and
(d) leads to placement in employment. (SEC. 347.(3))

The predecessor to tech-prep programs was "2+2." The 2+2 projects combined secondary and postsecondary courses through a formal articulation agreement between community colleges and high schools. (The university segment, which created the 2+2+2 Articulated Career Education Programs, was later added to existing 2+2 career education programs.) In contrast to 2+2, tech-prep combines secondary and postsecondary programs through a formal articulation agreement. Currently, tech-prep programs combine high school and community college programs for students seeking vocational education training. These programs combine vocational and academic program requirements for both high school and community college graduation and are intended to strengthen the connection for students between school and the world of work. Instruction focuses on higher-order skills in mathematics, the sciences, English, communication, and critical thinking. The curriculum may fulfill lower division requirements for transfer to a university. Although tech-prep programs are designed for all students, they may be particularly well suited for students not initially interested in a college-prep program.

Sixty-five California community colleges have received federally-funded grants to establish consortia of high schools, businesses, regional occupational programs, and universities in the development and operation of tech-prep programs.

Discussion Issues: The 2+2 program may be affected by school restructuring. The 2+2+2 program currently reflects an integration of academic and vocational programs across affiliated high schools, community colleges, and four-year institutions. This program could continue to serve as a model for "Second to None" schools as they begin to create program majors intended to prepare students to meet college entrance requirements as well as provide career-related skills. Or, the 2+2+2 program could become subsumed under one of the restructuring efforts.

School Restructuring

- "Restructuring" is the broad scale change in how teachers, principals, and school districts operate daily to improve student learning. Although many individual schools and school districts are engaged in local school reorganization, there is no single, statewide restructuring effort.

- When fully implemented, these restructuring reforms will shift the learning environment from a factory model to a holistic one. This overhaul will have a considerable impact on higher education.

"Restructuring" is the broad scale change in how teachers, principals, and school districts operate daily to improve student learning. In general, restructuring efforts are based on the belief that all students should be engaged in meaningful learning experiences, regardless of race, ethnic, linguistic, or socioeconomic background; and that all students deserve a challenging curriculum which empowers them to become life-long learners.

In California, restructuring is generally characterized by:

- focusing on improving student learning as the end goal, not on process for process sake;
- developing a rich conception of learning and teaching;
- engaging all students in a "thinking curriculum";
- shifting away from a rule-based system of accountability to a performance-based system;
- re-thinking the structure of schools—organizing schools according to the need of students and the ways in which they actually learn;
- re-designing district infrastructures and services to support the school efforts—being flexible and responsive to emerging school level needs;
- sharing decision-making authority so that those responsible for carrying out decisions participate in making them;
- revising governance and management procedures so that increased flexibility and support is linked to increased accountability for results; and
- increasing meaningful participation of parents and the community in the fundamental change process.

Restructuring takes many forms. Currently, restructuring efforts are occurring across the state, but are not statewide. Although many individual schools and schools districts are engaged in local school reorganization, there is no single, statewide restructuring effort. What follows are examples of various restructuring projects, some of which represent intersegmental efforts.

SB 1274: Demonstration of Restructuring in Public Education

Initial efforts to encourage school restructuring began with Senate Bill 1274, Chapter 1556, Statues of 1990, which was authored by Senator Gary Hart, and sponsored by the California Business Round Table to establish a Demonstration of Restructuring in Public Education. The

demonstration is intended to be a five-year effort aimed at improving student learning. SB 1274 provides educators with an opportunity to consider radical changes in the way schools and districts operate in order to create a better environment for engaging all students in meaningful learning experiences and in a meaning-centered curriculum. Special emphasis is placed on encouraging participation of low-perfor ing schools and on district efforts to work with these schools to improve student achievement.

SB 1274 intended to encourage innovation and creativity in developing restructuring demonstrations. It was intended that school districts have maximum flexibility in developing and implementing the demonstration to implement local designs to support and improve student learning. SB 1274 further allows a participating school district to request waivers of any Education Code section or regulation if it can demonstrate that the waiver is necessary to implement the restructuring plan, does not jeopardize equal education opportunities for ethnic, linguistic minority, or handicapped students, and the collective bargaining representative for certificated employees concurs with the request.

During the planning grant phase of SB 1274, 212 schools were awarded grants to begin planning for the implementation of comprehensive restructuring efforts. The demonstration grant phases, however, are not limited to just those 212 schools that received planning grant funding. It is a separate, open competition to which any school may apply, regardless of whether or not it received a planning grant.

For the 1991-92 fiscal year, SB 1274 appropriated $6.8 million, of which $6.3 was available to school districts for a limited number of planning grants of up to $30 per pupil, with a minimum grant of $10,000. SB 1274 specified an intent to provide funding of up to $200 per pupil for each year of the four years of demonstration implementations. In the 1992-93 budget, $13 million was appropriated; $24.6 million is currently in the Governor's proposed budget for 1993-94.

Addressing Students At Risk: ***Every Student Succeeds: A California Initiative to Ensure Success for Students at Risk***

A companion initiative to the school restructuring effort is one which is designed to take responsibility for students who are at risk of failure in school. "At risk" students are students with whom the school is not currently successful or those students who appear likely to have problems in school in the near future. The *Every Student Succeeds* initiative is supported by the education community to assist state and local partnerships to develop, implement, and refine effective programs and services for students at risk. The initiative promotes an effective integration of all existing resources at a school and the development of an integrated total program for each student. *Every Student Succeeds* aims to remove the barriers between categorical and regular education programs to create a unified educational system in which all categorical programs and regular education staff can work together.

Six guiding elements provide the framework for this initiative:

- assure success for all students in learning a rich core curriculum;
- implement a preventive approach;
- incorporate an integrated total program for each student, including family and community linkages;
- participate in effective staff development;
- plan, implement, and evaluate the total school program; and
- whatever else it takes for "every student to succeed."

In addition, the initiative allows schools some flexibility to do whatever it takes legally, professionally, and ethically to help each student be successful academically, psychologically, and socially.

Currently, 41 schools in 11 districts are participating in the initiative. Some participating schools already have restructuring efforts under way, while others are just beginning to look at different strategies of achieving success for all students. The successful strategies developed by the partnerships will serve as models and resources for other districts.

Charter Schools

The most recent restructuring initiative, SB 1448 (Hart), was passed by the Legislature and signed by the Governor in September, 1992. SB 1448 is clearly linked with SB 1274 (discussed above) since both bills were sponsored by Senator Hart to provide increased flexibility for local school sites to improve learning outcomes for students. SB 1448 provides funding for 100 innovative school charters which will be held to a high standard of outcomes for students, but which will be exempt from State laws governing school districts. So, unlike other public schools, which operate under a myriad of State laws and local school district rules and regulations, a charter school operates under the terms and conditions delineated in its own charter.

The intent of SB 1448 is to provide opportunities for teachers, parents, students, and community members to establish and maintain schools that operate independently from the existing school district structure, as a method to accomplish all of the following: (a) improve student learning; (b) increase learning opportunities for all students, with special emphasis on expanded learning experiences for students who are identified as academically low achieving students; (c) encourage the use of different and innovative teaching methods; (d) create new professional opportunities for teachers, including the opportunity to be responsible for the learning program at the school site; (e) provide parents and students with expanded choices in the types of educational opportunities that are available within the public school system; and (f) hold the schools established under SB 1448 accountable for meeting measurable student outcomes, and provide the schools with a method to change from rule-based to performance-based accountability systems *(California State Board of Education memo January 13, 1993, Attachment B).*

Each local charter school community determines the specific goals of the charter school. SB 1448 envisions the creation of charter school goals for student achievement which are both ambitious and comprehensive. The curriculum of the schools should strive to meet these goals. In addition, charter schools will be required to administer the new statewide assessment (CLAS) and to meet the standards developed in conjunction with those assessments. Since the new assessments will be aligned with the State curriculum frameworks, charter school developers are encouraged to use the frameworks in developing their school's curriculum.

Discussion Issues: When fully implemented, restructuring reforms will shift the learning environment from a factory model to a holistic one. This overhaul may impact higher education in several ways. First, the articulation and course approval process would be impacted by this reform. How would a student's ability to take college preparation courses that meet the University of California's specific admission requirements be affected? For example, if a high school were to create a new series of courses entitled "Integrated Language Arts," would the student have met the requisite A-F requirement in English?

Restructuring efforts could benefit from new and intensified interdisciplinary studies. For instance, the latest cognitive research in learning and memory could be used to assist teachers in translating subject matter knowledge into professional practice. Similarly, postsecondary models exist for developing curricula which integrates several subject areas. For example, in the UCI Honors Program, nonmajors take a course in which mathematics is used as the quantitative basis for understanding selected concepts in physics and chemistry. Models such as this one could be used in secondary and middle schools. What other approaches might be used to bring together K-12 and higher education faculty?

Assessment

- New assessment systems are called for which challenge students to create products of value to themselves and others by asking them to write, speak, do research, work cooperatively, solve problems, create, and experiment.

- Since the new assessments will be performance based and provide individual student scores, the implications for higher education ought to be considered.

The drive to strengthen curriculum has been accompanied in the 1990s by proposals for student assessment beyond that which typically takes place in individual courses. New assessment systems were called for which challenge students to create products of value to themselves and others by asking them to write, speak, do research, work cooperatively, solve problems, create, and experiment. These more authentic measures of students' performance are being developed in California and nationally.

California Learning Assessment System

California is currently revising its student assessment system for K-12 public schools, in accordance with SB 662 (Hart, 1991). Formerly the California Assessment Program (CAP), the revised statewide assessment program is now the California Learning Assessment System (CLAS). This revision will develop an assessment system that is consistent with the new curriculum frameworks' goals and the grade-span initiatives. In addition to grade-level performance assessments, the new system also encompasses the Golden State Examination and the new Career-Technical Assessment Program.

In the new CLAS, the kind of items on which student scores are based will be changed, and there will be a corresponding transition to a multi-stage system that draws heavily from sources of data which come directly from the student's classroom and are gathered throughout the year: on-demand assessment, curriculum-embedded assessment, and student portfolios.

- The on-demand assessment is the most structured component because a student responds to a specific task within a particular time period. This assessment will include enhanced multiple-choice items; short answer and essay responses; investigations, experiments, and collaborative group work.

- The curriculum-embedded assessment will be composed of high-quality, teacher-designed tasks that have been field tested and made available to teachers statewide to integrate in their instructional program. They will be standardized in that the instructions, topics, scoring procedures and performance standards will be the same throughout the state. Curriculum-embedded tasks may include writing prompts, group work, and investigations (etc.), and may be very similar to the items found in the on-demand portion of the assessment system; however, unlike on-demand assessments, they will become a regular part of the curriculum.

- The portfolio assessment will encompass a wide range of student work and accomplishments, allowing liberal sampling from students' work over time and across the curriculum. It will focus on specific types of student work that schools throughout the state have agreed is important and feasible.

This spring, the most visible, statewide components of the new assessment system are the administration of a set of assessment tasks at grades 4, 8, and 10 (previously, the CAP tested students at grades 3, 6, 8 and 12) in reading, writing, and mathematics. Fifth-grade science and history–social science will be added in the spring of 1994. The CDE anticipates that these mandatory assessments will yield reliable average scores for all schools and serve as a transitional step toward individual student scores. Individual student scores will be available with the 1993-94 assessments.

Specifically, the Elementary Performance Assessment will test students in English–language arts (reading and writing) and mathematics in grade four, and history–social science in grade five. The Middle School Performance Assessment will assess eighth-grade students in all five content areas. The High School Performance Assessment will assess tenth grade students in the five content areas and, as in the other grade levels, will require students to demonstrate their abilities to think, solve problems, communicate, and work independently and in a group—skills which employers have identified as urgently needed in the world of work. In the future, students will have the opportunity to take the High School Performance Assessment again in the eleventh and twelfth grades to demonstrate the additional knowledge and skills they have acquired—thereby improving their score (*SB 662 A New Statewide Student Assessment System, Five-Year Cost and Implementation Plan: A Report to the Governor and Legislature, pp. 6-7).*

SB 662, the enabling legislation, also calls for a research and development effort focused specifically on the best methods of producing reliable individual scores which are useful to students and teachers. This effort will be focused in two areas. First, research is needed to determine the minimal amount of testing time required to provide reliable individual scores. The second focus is the role of classroom teachers in officially judging the quality of students' work as well as on administering the assessment. Although teachers have been traditionally involved in scoring the CAP writing assessments, their involvement has been only through state-organized and monitored scoring centers. The CDE is exploring arrangements which will allow classroom teachers to play a more central role in the scoring process and will conduct a series of pilot studies which yield individual scores for analysis and study. They will also look at different designs for locally and regionally coordinated scoring processes and different ways to ensure the comparability of the results.

Statewide, teachers will be coordinated to score the student work produced in the new CLAS performance-based assessments. The long-term plan is to carry out widescale scoring by teachers in all content areas. In 1993, scoring sites will be coordinated by the SB 1882 Regional Staff Development Consortia throughout the state. The California Subject Matter Projects will provide staff development to the teacher readers. Prior to the first statewide administration of

the new assessments, the CDE provided materials to school districts and schools which described the new assessments. Samples of the testing tasks and scoring guides were sent to district and county superintendents, and a series of telecasts on the new assessment system was launched through the Educational Telecommunication Network in Los Angeles.

The Golden State Examination program (GSE) offers end-of-course examinations in key academic subjects. Established by the Education Reform Act of 1983, and reaffirmed in 1991 by SB 662, the goals of the GSE are to provide individual students with the incentive to exert extra effort in key academic subjects and to receive public recognition for their achievements. All students enrolled in the courses for which GSEs are offered are eligible to take the exams and local school boards will have the option of requiring eligible students to take the GSEs. It is anticipated that students will want to take all of the specialized exams that are linked to their program major to show their readiness for college, as well as to demonstrate the career-related technical and practical skills they have attained.

In 1992 more that 223,000 students completed the GSEs. Tests in first-year algebra and geometry have been available since 1987. The U.S. history and economics examinations were introduced in 1990, and include essays. GSEs in biology and chemistry were first offered in 1991 and include open-ended items and laboratory tasks. Plans for this year include a pilot program to include portfolio components in biology and chemistry, pilot development of an integrated science exam, and field testing open-ended components for the first-year algebra and geometry exams. Test development in English composition is also beginning under the auspices of the ICC.

Career-Technical Certification Assessments. Based on the restructured high school model (see pp. 16-20), eleventh- and twelfth-grade students may select a program major in which academic, applied academic, and field experiences are organized around a particular focus. The revised student assessment system includes plans for developing career-technical certification assessment, initiated largely in response to urgings from the business community for authentic, real-world assessments designed to determine if students possess the knowledge and skills to be successful beyond high school. (*SB 662 A New Statewide Student Assessment System, Five-Year Cost and Implementation Plan: A Report to the Governor and Legislature, pp. 35-36*).

The purpose of the Career-Technical Assessment Project (C-TAP) is to plan, develop, field test, and implement an authentic student certification assessment system for vocational-technical education programs offered in California high schools, adult education programs, and regional occupational programs/centers. Certification is intended to indicate that students possess the knowledge and skills to be successful beyond high school–whether they continue their education or enter the work force.

All components of the C-TAP assess content, career-performance, and academic standards in an integrated format. To ensure that these standards are appropriate for a performance-based certification system, each discipline area (Agriculture, Business, Health Careers, Home Economics, and Industrial and Technology Education) has revised its model curriculum standards

Intersegmental Case Study:
The Mathematics, Engineering, Science Achievement Program

The Mathematics, Engineering, Science Achievement Program (MESA) was initiated in 1970 out of concern among educators about the small number of African Americans and Mexican Americans graduating with college degrees in engineering. The MESA pre-college program operates within an organized intersegmental structure with a variety of components that are intended to promote academic excellence, augment and improve existing resources and services, help link appropriate agencies with school district programs, and establish and maintain rigorous evaluation mechanisms. Effective pre-college programs involve a primary partnership between a MESA center and a school district. Most centers are located on a university campus and housed within a school of science or engineering.

Central to the MESA approach is the involvement of mathematicians, engineers, and scientists from the private sector and higher education. Successful programs also involve a series of structured activities inteneded to promote the realization of academic success. These include organized group study such as mathematics and science workshops, academic advising, summer enrichment activities and Saturday academies, scholarship incentive awards, family involvement and support, and career exploration and field trips to industry or univeristy sites.

A 1991 survey of MESA's pre-college students found that more often than not, MESA students are the first in their immediate families to attend college. Although student grades do not necessarily improve with participation in the program, MESA students continue to consciously accept the personal and academic challenges inherent in upper-division coursework. By taking part in the various program activities, a student's commitment to persevere and achieve emerges.

Because of its success in increasing the number of high school students from groups with low college participation rates who complete a rigorous college preparatory program and subsequently succeed in college, MESA has expanded throughout the state. In 1990-91, the program served 9,878 Latino, Black, and Native American students, a 27% increase over the previous year. This included 73 school districts, 129 high schools and 120 feeder elementary and middle schools, the State's two public universities, and four independent college and universities.

*Adapted from the California Postsecondary Education Commission's Final Report on the Effectiveness of Intersegmental Student Preparation Programs, January, 1992.

to consist of a cognitive and behavioral component. Two general categories of assessment are employed for all certifications: cumulative and administered. The cumulative assessment components include a supervised practical experience, an assessment project, and a structured portfolio; the administered assessments include a project presentation, a written scenario, and a career performance test.

Discussion Issues: Since the new CLAS will be performance based and will provide individual student scores, the upcoming changes in the student assessment system and their implications for higher education ought to be considered. For example, what will the relationship between the new CLAS and the college-sponsored assessments (i.e., English Equivalency Exam, Entry-Level Mathematics Examination, English Placement Test, Math Diagnostic Testing Program) be? Or, how will higher education make use of student portfolios for admission? It is anticipated that the changes in assessment will prompt changes in instruction. What role will the new student assessments play in affecting instructional change? In the future, will higher education faculty incorporate more performance-based assessments in their classrooms? Are there other ways that these changes may impact higher education?

Teacher Preparation, Induction, and Professional Development

- California must ensure an adequate supply of teachers and other educators for its schools. There are serious shortages of teachers for several specialized areas, including bilingual and English language development, special education, science, and mathematics; similarly, inner-city and rural schools continue to report shortages of teachers.

- The teacher force is not as diverse as the student population, which is nearly 54% minority. Currently, California has a highly diverse student population, that is growing in size, which is taught primarily by a monolingual, Caucasian, female population which is decreasing in size.

- The primary responsibility for the preparation of education professionals belongs to the university. Universities can influence K-12 school reform most effectively through the preparation of excellent teachers, subject-matter specialists, and educational leaders.

The reforms and initiatives discussed in the previous sections of this report rely heavily on the classroom teacher to carry out the day-to-day responsibilities of change. As the reforms in the student arena are occurring, so too are statewide changes in teacher preparation, induction into the teaching profession, and professional development.

At the state and national levels, comprehensive, research-based reforms have been proposed in recruitment, retention, and diversification of the teaching pool. In 1983, the California Education Round Table focused on the need to improve the California teaching profession in a statewide conference and report (*Improving the Attractiveness of the K-12 Teaching Profession, 1983).* In 1984, the Legislature established the California Commission on the Teaching Profession to investigate comprehensively ways to improve the quality of teaching in California. After a fifteen-month study this independent commission issued a report entitled *Who Will Teach Our Children: A Strategy for Improving California's Schools* (1985), which concluded that the teaching profession was beset with problems, including:

- low salaries and subordinate status within the schools;
- low public esteem for the work and those who perform it;
- large class sizes that make teachers' attention to individual students difficult, if not impossible, to achieve;
- inadequate facilities, supplies, and support materials;
- an increase in the complexity of the work and expanded responsibilities;
- isolation in the classroom, with rare opportunities or incentives for collegiality;
- increased conflict between teachers and administrators, inhibiting cooperation in school improvement;
- deficiencies in professional training and support;
- the absence of appropriate professional standards to encourage quality teaching and public confidence; and
- the lack of career choices within the profession.

In 1986 and 1987, the findings and recommendations of this legislatively-established commission were discussed extensively by policymakers in the legislative and executive branches of California government. In 1987, Governor George Deukmejian appointed a second commission, the California Commission on Educational Quality, to examine the needs of the schools. This Commission's *Report to the Governor* was completed in 1988.

Recruiting, Retaining, and Diversifying the Pool of New Teachers

Over the past ten years, California has made some significant strides toward ensuring a well-qualified teaching force. Currently, the CSU prepares 70% of the teachers educated in California. Beginning in the early 1980s, the CSU has undertaken several major initiatives to strengthen its teacher preparation programs, including setting rigorous standards for admission to and exit from teacher preparation. For example, teachers trained in the CSU have a bachelor's degree in one of the major academic disciplines, are certified competent in the subject matter by the major academic department, and then take a fifth-year postbaccalaureate teacher preparation program. Admissions requirements were raised, and early field experiences became essential for both admission and participation in teacher education and subject-matter pedagogy. Intersegmental programs, including Comprehensive Teacher Education Institutes (CTEI), were launched to strengthen the teacher preparation curriculum. In addition, the CSU system adopted teacher education as an all-university responsibility.

Teacher Supply and Demand. Since 1988, the CSU has maintained a fairly steady supply of teachers. Prior to the current budget crisis, it appeared that the production of new teachers, when coupled with the customary out-of-state recruitment by school districts, was adequate to meet the general demand; however, the full effect of the current budget crisis on the number of teachers prepared on CSU campuses is unknown. Many campuses are reporting informally that they are unable to accommodate all qualified teacher credential program applicants for the 1992-93 academic year. A decrease in teaching credential program enrollments will likely lead to a drop in the number of persons recommended for teaching credentials by CSU campuses; however, depressed state revenues and consequently meager school district budgets may curtail the demand for beginning teachers.

California must ensure an adequate supply of teachers and other educators for its schools. Approximately 15,000 teachers are hired annually in the state. Although the general shortage of teachers projected in the mid-1980's has not developed, there are serious shortages of teachers for several specialized areas, including bilingual and English language development, special education, science, and mathematics. Inner-city and rural schools also continue to report shortages of teachers. Attrition of new teachers has been severe enough to affect teacher supply and demand markedly; reports indicate that over 30% of new teachers leave teaching prior to their fifth year. In urban school districts, the problem of retaining new teachers is more acute.

Diversity of the Teacher Force. The teacher force has not been as diverse as the student population, which is close to 54% minority. In 1989-90, about 15% of those receiving initial teaching credentials in California were African-American, Hispanic, or Asian. The CSU has taken a leadership role in the development of programs to address this imbalance. Since the

Intersegmental Case Study:
The Comprehensive Teacher Education Institutes

The Comprehensive Teacher Education Institute (CTEI) strategy to improve teacher preparation was established by the CSU and the Department of Education in 1986/87 as a result of a successful intersegmental program change proposal. Through three-way partnerships involving schools of education, academic departments, and school districts, the institutes address core goals of critical importance to the improvement of teacher education, including decision making, articulation of program components, curriculum, and assessment.

Campuses were selected through a competitive process to establish institutes in conjunction with local school districts. The first two campuses, selected in 1986-87, were San Diego State University and Cal Poly, San Luis Obispo. These campuses have now concluded the four-year institute funding cycle. In the second phase, institutes were established at Fresno, Northridge, San Francisco, and the University of California at Riverside. Each institute sets its own goals and develops and implements change strategies within the broad parameters of the state goals.

Beginning in 1990/91, CSU funding for the CTEIs was withdrawn by the trustees to meet the unfunded CSU budget obligations, however, the CDE continues to administer and fund this exemplary collaborative strategy for strengthening teacher preparation.

inception of the CSU Teacher Diversity program in 1989-90, it has been expanded to involve every campus. Through Teacher Diversity projects, campuses support, assist, and recruit to teaching secondary, community college, and undergraduate minority students. Most campus projects have at least one component designed specifically to attract and support paraprofessionals, a group which is composed predominantly of ethnic minority persons who are interested and experienced in working in schools. The CSU Teacher Diversity Program, supported annually by $1.5 million in lottery funds, is the most comprehensive effort in the state to increase minority participation in teaching. It will be several years before adequate evaluative data are available, since it takes many years for students to progress through the pipeline from high school or community college to a teaching career; however, there is positive anecdotal evidence that campus Teacher Diversity projects are attracting many minority and bilingual candidates to teacher preparation programs.

Recently, CSU campuses have established specialized training programs to broaden recruitment into the teaching profession and to meet the needs for bilingual education and language development specialists. A variety of programs have been implemented to recruit a more diverse pool of prospective teachers, and collaboration with school districts throughout the state to develop and implement innovative programs to support and retain beginning teachers has increased.

Discussion Issues: Universities can influence school reform most effectively through the preparation of excellent teachers, educational specialists, and leaders. Although universities collaborate and share preparation responsibilities with the schools, the primary responsibility for preparation of education professionals belongs to the university. Unfortunately, work with the public schools is not highly regarded. Those who work closely with the public schools are seldom in tenure track positions. Further, on most campuses, action research is viewed as less important than empirical research.

The CSU has taken a leadership role in recruiting people of color into teaching. They also require early field experiences for prospective teachers and require them to have practice teaching experiences in diverse settings. What can be done to maintain and expand these efforts systemwide? What can be done to replicate some of the successful institution-wide approaches to teacher education now being piloted both in California and nationwide?

These and other similar issues will likely be raised and addressed as we embark on this new era of reform in the teaching profession. Another issue of continuing debate is, to what extent does or should teacher preparation in California focus on subject-matter knowledge and teaching strategies for reaching all students? And, has the focus on subject-matter competence in California worked to diminish the role of schools of education in fully preparing the prospective teacher for the complex teaching roles which they will undertake?

New Teacher Induction: *The Beginning Teacher Support and Assessment Program*

As demands of teaching have increased, and school revenues have decreased, the demands on beginning teachers have grown tremendously. It has become increasingly evident that current state policies do not sufficiently provide for a comprehensive and supportive entry into the profession. For example, current state policies for teacher credentialing assumed that beginning teachers who completed university courses and student teaching were fully prepared for teaching responsibilities. Preparation ended when employment began.

From 1988 through 1992, the California New Teacher Project was a pilot study of alternative methods of supporting and assessing teachers who were new to the classroom. The long-range purpose of the project was to develop a comprehensive statewide strategy for the professional induction and certification of beginning teachers. The CNTP funded thirty-seven local and regional pilot projects to explore alternative, innovative ways of supporting and assessing first-year and second-year teachers. More than 3,000 teachers in urban, metropolitan, suburban, and rural school districts received training and assistance, participated in innovative assessment activities, and were involved in complex research and evaluation activities.

As a result of the CNTP, the California Legislature and Governor enacted SB 1422 in 1992, which was authored by Senator Marion Bergeson (whose prior legislation commissioned the CNTP in 1988). This new statute required the CTC and CDE to jointly administer the Beginning Teacher Support and Assessment Program (BTSA). The State Budget for 1992-93 included approximately $4.9 million in funding to support the costs of the BTSA program. Continued funding after June 30, 1994, for 1993 grant recipients will depend on the state's fiscal situation and the inclusion of BTSA funds in the state budget for FY 1994-95.

Fifteen projects, which represent four different types of integrated support and assessment, have been funded for a 16-month period. Representing more than 1,100 teachers, 117 districts, 16 county offices of education, and 14 colleges and universities, each of the projects offers integrated programs of beginning teacher support guided by formative assessment. In making the selections, priority was given to local education agencies which proposed linking integrated support and assessment for new teachers with other reform initiatives; collaboration with teacher preparation institutions in integrating support and assessment in the *induction* of new teachers; and/or collaboration with teacher preparation institutions in integrating support and assessment in the *preparation and induction* of new teachers.

Preparing Teachers to Work with English-Language Learners: *Bilingual Teacher Training Program*

California is facing the challenge of educating one of the most diverse student bodies in the world. Currently, K-12 public schools are composed of 54% ethnic minority students. Hispanics account for about one-third of the school population. In the elementary schools, one out of every six students was born in another country. Almost 20% of today's students are classified as limited English proficient; 29% of the students entering kindergarten in California are learning English as a second language. Although the state has a variety of mechanisms to assist these students, we are unable to keep up with demand.

The *Bilingual Teacher Training Program* (BTTP) was initially funded in 1980 to prepare teachers to work with a language minority population of 325,000. Since that time, the student population has increased by 332%. Currently, more than one million K-12 public school students are learning English as their second language. Thirteen BTTP regional service sites are located statewide in areas with the largest number of students who require service and the greatest shortage of teachers prepared to serve them. Through coursework available in teaching methodologies, language, and culture, the BTTP prepares teachers for the Language Development Specialist Certificate and the Bilingual Certificate of Competence. In 1991-92, an average of 55 service hours per participant was provided to over 9,500 BTTP participants. Each dollar of BTTP funding is matched by district and other contributions.

California currently employs nearly 15,800 teachers with credentials to provide service to limited-English proficient (LEP) students. This represents about one-third of the total number of certificated teachers needed to provide basic program services. Each year the number of new LEP students increases this need. Modest projections set the LEP population at nearly 2 million within ten years. While the population represents great cultural diversity, more than 75% speak Spanish as their native language. Bilingual teacher preparation programs and certification-related inservice programs have made little progress in reducing the teacher shortage in part because of the high costs of university preparation, the absence of scholarships, and the disincentive system which encourages districts to hire teachers before they have completed their teacher preparation programs.

Although 41 of the 72 approved teacher education programs offer coursework leading to bilingual certification, only 5% of the teachers who receive bilingual certification are prepared through the college and university system. Many more are prepared through classes offered with BTTP funding.

In the last few years, there have been significant advances in the knowledge base related to the education of limited-English proficient students. Among the most important has been the realization that all teachers of LEP students, whether they are English language development teachers or bilingual teachers, need a common core of knowledge and skills related to language, language development, culture, and bilingual education as well as methodologies for English language development and specially-designed content instruction delivered in English. In an effort to streamline the certification process for bilingual teachers, the Commission on Teacher Credentialing is developing a new set of examinations which will incorporate this current knowledge base related to the education of LEP students. These examinations will replace the current Language Development Specialist and Bilingual Certificate of Competence examinations. The new examinations will be known as the (Bilingual) Crosscultural Language and Academic Development (CLAD/BCLAD) Examinations. Teachers who pass the new examinations (and meet any additional requirements that may be set) will be authorized to teach limited-English proficient students.

The content specifications for the CLAD/BCLAD Examinations are being developed by the Commission's Bilingual Crosscultural Advisory Panel, which consists of teachers and teacher educators from the fields of language development, cultural diversity, and bilingual education. Their goal is to articulate the language development and bilingual credentials, and refine

the certification process for Spanish speakers and those seeking certification in languages other than Spanish. The content specifications also will be congruent with the program standards that will guide the creation of new professional preparation programs at institutions of higher education for CLAD and BCLAD teachers.

Discussion Issues: The consideration of reforms in teacher preparation and induction raise concerns about the apparent lack of clarity about the responsibilities of educational institutions with overlapping roles. For example, what is the relationship between teacher preparation institutions (e.g., for student teachers) and districts (e.g., for beginning teachers)? More specifically, when do teacher education programs' responsibilities end and districts' begin? What can be done to strengthen the campus-wide commitment to preparing teachers at all levels? How could more professional development schools and field-based teacher preparation programs be promoted? These reforms, and the teaching profession overall, would be strengthened by integration of both professional and fiscal resources.

The critical concern regarding bilingual teacher recruitment and preparation must be addressed. Currently, California has a highly diverse student population, which is growing in size, that is taught primarily by a monolingual, Caucasian, female population which is decreasing in size. What can be done to ensure that traditionally underrepresented groups are recruited into teaching? What preparations might be necessary to strengthen and enlarge efforts in recruitment and preparation of teachers with language capabilities in languages not currently included in teacher preparation programs? And, what is being done to ensure that new teachers will be adequately prepared to address the diverse needs of all the state's public school students? What incentives can the system as a whole offer individuals and institutions to support bilingual teacher training?

Professional Development: SB 1882 Professional Development System

Professional development is critical to creating an environment in which teachers and students relish and realize that learning is the central goal of schools. Unfortunately, it is sometimes viewed as superfluous, as our society generally believes that teachers working with other teachers is of significantly less valuable than teachers' time with students. Nevertheless, several major policy shifts are occurring in professional development. First, rather than conceptualizing inservice as activities designed to remediate teachers, professional development is providing teachers with the definition, organization, and conduct of developmental activities as part of life-long learning. Second, individual teacher change does not occur in isolation, but rather occurs within a context and school culture which needs to be taken into account in conceptualizing professional development. The evolution of specialized professional development systems in California reflects these changes.

In response to a 1987 Far West Lab/PACE evaluation which found large scale investment in California's staff development for teachers, but little coherence in what teachers receive, Senator Rebecca Morgan authored SB 1882, which called for a three-dimensional professional development system. At one level, funds are provided for individual school investment in staff

Intersegmental Case Study: Bay Area Writing Project

Over the past thirteen years, the National Writing Project has evolved from a local project to improve the teaching of writing, the Bay Area Writing Project* in the School of Education at the University of California-Berkeley, into a network of 152 similar sites worldwide. At the 1984 National Conference on Higher Education sponsored by the American Association for Higher Education, the National Writing Project was one of four programs honored as models of university/school cooperative efforts to promote excellence in education, being cited "as an outstanding and nationally significant example of how schools and colleges can collaborate to improve American education."

Such collaboration was built into the Bay Area Writing Project program from the start. University staff and classroom teachers worked very closely during the two years of planning that led to the project's first annual summer institute. During these annual summer institutes, university staff and classroom teachers, released from their districts, were brought onto the staff as co-directors, and these staff positions were supported both by the university and the schools. From the beginning, the university and the schools have shared the costs of project programs, the university paying the cost of campus programs and the schools paying the cost of school site programs.

The Bay Area Writing Project is based on several key assumptions:

- The university and the schools must work together as cooperative partners.
- Successful teachers of writing can be identified, brought together during university summer institutes, and trained to teach other teachers in follow-up programs in the schools.
- Teachers are the best teachers of other teachers; successful practicing teachers have a credibility no outside consultant can match.
- The summer institutes must involve teachers from all levels of instruction, elementary school through university.
- The summer institutes must involve teachers from across the disciplines.
- Teachers of writing must also write; the process of writing can be understood best by engaging in that process at first hand.
- Real change in classroom practice happens over time; effective staff development programs are on-going and systematic programs make it possible for teachers to come together regularly throughout their careers to test and evaluate the best practices of other teachers and the continuing developments in the field.
- What is known about the teaching of writing comes not only from research but from the practice of those who teach writing.

The project is an organization of, by, and for teachers of writing at all grade levels, dedicated to improving the teaching and uses of writing through a variety of programs on the University campus and in the schools of the Bay Area.

* Adapted from "The Bay Area Writing Project Model of University-School Collaboration," by James Gray, former director of the Bay Area Writing Project.

development to help teachers improve their curricular knowledge and their subject-specific pedagogical expertise. In the second level, funds are allocated for regional resource agencies and consortia to help schools reflect on the change process and link teachers with curriculum-based teacher leaders and others to facilitate school-based change. The third dimension of the system is the California Subject Matter Projects (CSMP), a network of college and university-based projects in each of the discipline areas required for high school graduation. The developing infrastructure of the CSMPs is widely recognized as a key to providing teachers with access to current thinking about curriculum and instructional practices. The network of CSMPs is administered by the University of California with the concurrence of the Superintendent of Public Instruction and the Chancellor of the California State University and in consultation with the California Community Colleges, the California Postsecondary Education Commission, the Association of Independent California Colleges and Universities, and the Intersegmental Coordinating Council. This intersegmental endeavor strives to enhance content knowledge and instruction in California's public schools.

The CSMPs consist of a network of discipline-based Projects. Currently, there are nine Subject-Matter Projects in Arts (with 8 sites across the state), Foreign Language (9 sites), History–Social Science (9 sites), International Studies (9 sites), Literature (10 sites), Math (17 sites), Physical Education-Health (sites to be developed), Science (12 sites), and Writing (17 sites), totaling 91 sites among all Project in 1991-92. Nearly all sites are located on UC, CSU, and independent university campuses, where they operate summer and/or intersession institutes and organize other professional development activities and programs for teachers.

The CSMPs provide a forum for teachers to exchange ideas and insights about what constitutes the best instructional practice in a given area of the curriculum with a particular group of students. They also enable education leaders, policy makers, and researchers to tap into teacher expertise and gain the insights of experienced professionals who have first-hand knowledge and the ideas necessary to improve the quality of teaching in our schools. In each of the nine subject areas, teachers attend intensive, three-to-four week institutes that focus on the latest ideas in the discipline and their classroom applications. Using a "teachers-teaching-teachers" model, the institutes provide teachers with an environment in which they can demonstrate their own best practices and share classroom experiences, help teachers broaden and make more conscious the basis for their teaching through an examination of theory and research, give teachers an opportunity to commit themselves intensely and reflectively to the process of learning by engaging in hands-on learning activities themselves, and train a cadre of teachers who can effectively teach the approaches and processes of teaching to other teachers. The experiences at these institutes are then supported by follow-up meetings.

Discussion Issues: The CSMPs are the heart of the state's strategy to help teachers learn subject-matter pedagogy. Some would say that the CSMPs have reached more teachers directly and more students indirectly, and both groups more effectively than any other statewide professional development effort in the last twenty years. Recent research suggests that professional development needs to be context driven. In response, the CSMPs are striving to create a year-round presence, to embrace the challenges and opportunities provided by an increasingly diverse student population, and work with school faculties and departments as

K-12 School Reform: Responsibilities for Higher Education

By the time they reach higher education institutions, the students of California's elementary, middle, and secondary schools likely will have experienced:

- **activity-based instruction**
- **performance-based assessment**
- **increased use of technology**
- **collaborative learning**
- **real-life problem solving**
- **restructured schools**

To provide these students with a smooth-flowing, consistent educational experience, the responsibilities for the higher education community include:

CURRICULAR REFORMS

- participate more fully in developing and critiquing curriculum frameworks
- explore structural change in the postsecondary system to facilitate K-12 reform
- enhance faculty awareness of K-12 frameworks
- promote integrated curriculum across subject areas
- ensure consistency between higher-education-faculty developed competency statements in the various subject areas and the K-12 frameworks, and model curriculum standards and guides

TEACHER PREPARATION

- promote ethnic diversity in the teaching force
- promote more professional-development schools and field-based teacher preparation programs
- strengthen campuswide commitments to prepare teachers at all levels
- strengthen collaboration with public schools
- prepare new teachers to work with English language learners
- focus on subject-matter knowledge and teaching strategies for reaching all students

ADMISSIONS POLICIES

- examine CSU and UC admissions requirements to more clearly define their academic content
- create a process to evaluate alternative courses and course sequences
- consider a broader system for evaluating student achievement
- assist districts in interpreting the required course content and their corresponding bodies of knowledge
- re-examine admissions requirements as they apply to access for disadvantaged students

STATEWIDE REFORM INITIATIVES

- support faculty involvement in professional development programs
- establish stronger ties with schools through joint research projects
- become involved in proposed school and district restructuring efforts
- assist in preparing veteran teachers to work in restructured schools

INSTRUCTION AND ASSESSMENT

- initiate interdisciplinary faculty teams
- incorporate more performance-based assessments
- shift the emphasis from a teacher-centered focus to a student-centered focus
- encourage a holistic teaching philosophy
- improve accountability for student outcomes

a whole. How could universities encourage this new direction? How could CSMP teacher consultants be more directly involved in teacher education programs? Should CSMPs be encouraged to take on a more active role in curricular reform, school restructuring, and collaboration in teacher training programs?

The postsecondary segments have taken a leadership role in the CSMPs. As we move toward more site-based use of teacher consultants and focus increasingly on how to bring the contents of the core curricula to diverse students, it will become increasingly important for university faculty to work with and learn from their K-12 colleagues. What can be done to encourage, support, and organize this work?

Conclusion

The numbers of students moving into higher education who have experienced the full impact of reforms in K-12 is very small so far. But what is now a small stream will likely become a widening river. Based on current and projected patterns of college-going students, the large majority of these students will enter community colleges and many of them will then go on to four-year colleges and universities. Understanding and responding to curricular and pedagogical reforms is a responsibility for *all* faculty in *all* educational institutions.

What will students encounter when they enter our postsecondary institutions? Will higher education respond quickly enough to provide them with a smooth-flowing, coherent educational experience? What kinds of changes are we willing to make to ensure that students experience a seamless transition into higher education? The K-12 reforms that this paper summarizes are ongoing. This paper is intended to serve as one vehicle through which all teaching faculty and school and university leaders engage in a critical discussion of the reforms now under way in the schools and their implications for students graduating from high school and moving on to college. At issue are a variety of wide-ranging matters which relate to curriculum articulation, admissions policies, assessment strategies, and subject-matter pedagogy.

The outcomes and the dialogue which this paper serves to stimulate are several, ranging from awareness and understanding, to actively shaping a new consensus. The need to improve the quality of California's schools and to provide quality education to a culturally, ethnically, and linguistically diverse student population demands a response from California's higher education community. This paper is intended to help shape that response.

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