CHANGE AND GOVERNANCE AT THE UNIVERSITY OF CALIFORNIA:
Comparative Case Studies

November 2014

C. Judson King
University of California, Berkeley

ABSTRACT

Five case studies are presented covering actual and potential substantial changes made at the University of California and its Berkeley campus. The roles of university governance, including roles of faculty and shared governance, in those changes are emphasized. Four of the five cases (closure of the School of Criminology, consideration of closure or major modifications to the School of Education, reorganization of the biological sciences, and the closure of the School of Library and Information Studies coupled with the creation of a School of Information) deal with academic program and structure. The fifth case (changes in admissions policy and a large expansion of academic outreach efforts) stemmed from a policy change imposed by action of the Regents of the university and a state ballot initiative. Aspects of the cases are compared and contrasted, with attention to the abilities of research universities to respond to present and future forces of change.

Keywords: University Governance, shared governance, Academic Senate, Organizational Behavior

INTRODUCTION

The accomplishment of change at universities, and particularly research universities, is a subject that is much discussed and often maligned. The review and decision-making processes that would lead to change are usually complex and involve multiple layers, consultation, and checks and balances. The inherent conservatism of the faculty—their usual preference to keep doing what they have been doing—is frequently cited as a limitation. The fact that consensus-building processes can be drawn out has also been noted as a factor inhibiting change. Anything that is threatened will have its supporters, and those supporters will generally have ways to influence the decision process. Administrators, from department chairs to higher-level university leaders, often abate conflicts by finding avenues that cause the least collective unhappiness. As a consequence of these factors, change that adds functions is much easier than change that deletes functions from universities. Smelser (2013) has examined this latter situation at length and has given the resultant phenomenon of seeming continual growth of university functions the name "accretion." Kennedy (1993) has stated succinctly that, "in universities, sunset is an hour that almost never arrives" (p. 139).

A well-known statement from Clark Kerr (2001) addresses change in universities:

About eighty-five institutions in the Western world established by 1520 still exist in recognizable forms, with similar functions and with unbroken histories, including the Catholic church, the Parliaments of the Isle of Man, of Iceland, and of Great Britain, several Swiss cantons, and seventy universities. Kings that rule, feudal lords with vassals, and guilds with monopolies are all gone. The seventy universities, however, are still in the same locations with some of the same buildings, with professors and students doing much the same things, and with governance carried on in much the same ways. There have been many intervening variations on ancient themes, it is true, but the eternal themes of teaching, scholarship, and service, in one combination or another, continue. Looked at from within, universities have changed enormously in the emphases on their several functions and in their guiding spirits, but looked at from without and comparatively, they are among the least changed of institutions (p. 115).

Elaborating on the durability of "the eternal themes of teaching, scholarship, and service," Kerr then observes that research universities are the least fundamentally changed portion of higher education over what is now almost 150 years since Daniel Coit Gilman built Johns Hopkins on the German model.

Kerr's statements and his surrounding analysis (2001) can be read as a manifestation of the difficulty of accomplishing change in universities (pp. 114–120). But they can also be read to indicate that universities have been sufficiently successful in changing through evolution over the years and centuries so that they survive as prominent institutions over such long times without being replaced by entirely new and/or different institutions.

There are those who postulate that universities are now subject to "disruptive innovation" (Christensen & Eyring, 2011), where if they do not change to a large enough and sufficiently rapid degree they will be put out of the market. Another version of this viewpoint has been stated by Duderstadt (2001), who observed that "the glacial pace of university decision making and academic change simply may not be sufficiently responsive to allow the university to control its own destiny" (p. 41).

Are research universities in a period of such disruptive innovation? To what extent and rate can research universities change by evolution? Are there particular types of change that occur more readily than other types? As a start toward addressing these and similar questions, it is useful to dig down into the specifics of actual case studies, which can reveal what has actually enabled and restricted substantial changes in the research university setting. The purpose of this paper is to present five cases of actual and potential significant change within the University of California and the Berkeley campus, and to explore the roles of university governance in those changes. Of particular interest are the roles of faculty and of the Academic Senate. None of the changes in these cases are as dramatic as are some of the predictions of disruptive innovation, but they do provide insights into adaptability and governance.

GOVERNANCE OF THE UNIVERSITY OF CALIFORNIA

The University of California (UC) is overseen by a single Board of Regents (Regents) that has been given a large degree of autonomy by the state constitution. Under the Regents, there are two distinctive mechanisms of governance. One is a tiered and now highly decentralized structure of administrative governance, dividing functions between the university-wide administration and the administrations of the ten campuses. The other is a very structured and influential form of shared governance, whereby the faculty, through the Academic Senate, participate actively in governance along with the administration. Campuses have full determination and oversight of their own academic programs, although certain major actions, such as formation of new schools and colleges, require approval by the Regents. The concepts and history underlying the division of administrative responsibilities between university-wide and campus administrations are described and analyzed by Pelfrey (2012, Chapter 11) and King (2013c).

Shared Governance

Shared governance at UC exists through the Academic Senate (King, 2013b). The Academic Senate resides both at the all-university level and also as Divisions on each campus. The main body at the all-university level is the Academic Council, composed of the chairs of each of the campus Divisions, chairs of major university-wide Senate committees, and an elected chair and vice chair (incoming chair) of the Academic Council itself. In addition to presiding over the Academic Council, the chair and vice chair have seats at the meeting table of the Regents, engage fully in discussions, and can present Senate views. They are not, however, voting members of the Regents. Bodies similar to the Academic Council exist for each of the ten campus Divisions of the Academic Senate. The ultimate university-wide policy-approval body for the Senate is the Assembly of the Academic Senate, comprised of elected representatives from the campuses along with the campus Division chairs and the university-wide Senate officers. In a sense, the Academic Council is the executive arm corresponding to that legislative body. Both the Academic Council and the Divisions have large numbers of committees on various subjects, ranging from planning, to academic personnel, to libraries. At present, the Berkeley campus Division of the Academic Senate has 29 committees (University of California, Berkeley, Academic Senate, 2014). All ladder (tenure-track) faculty members are members of the Academic Senate. At the campus level, typically but not at all campuses, two elections are held annually—one for the Committee on Committees (the nominating committee) and the other for some of the members of the Division Council, which is the campus analog of the university-wide Academic Council. Otherwise positions are filled *ex officio* by officers of the Senate or are filled by the Committee on Committees. The system is designed to discourage undue influence of any one or few people on the outcomes of Senate deliberation processes.

The Regents have formally delegated certain matters to the Academic Senate of the university. Among these are the conditions for admission, certificates and degrees, courses and curricula, and determination of the Academic Senate's own membership

and organization (Regents of the University of California, 2014). In practice, the administration brings virtually all major matters pertaining to the administration of the University to the Academic Senate for its advice. Although it is not explicitly stated, the Academic Senate has the primary role in the continual review of tenure-track faculty members for promotion and advancement throughout their careers (Switkes, 1995), with the advice of the pertinent Senate committee in that regard nearly always being followed by the administration. Advice in other areas is taken seriously but is nowhere nearly as controlling as it is in the area of promotion and advancement of faculty. The intense and continual review of faculty members is a prime reason for the distinction that has been gained by the University of California over the years.

Fuller descriptions of shared governance at UC and the roles of the Academic Senate are provided by Douglass (1998) and Simmons (1995). Taylor (1998) describes the history of the development of shared governance for UC and analyzes the roles of shared governance in a number of crisis periods during 1949–1974.

Program Reviews
The Berkeley campus carries out program reviews at intervals of approximately eight years for its roughly 65 academic departments and 80 Organized Research Units (subject-oriented research organizations, which are mostly multidisciplinary). The programs to be reviewed each year are selected jointly by the Academic Senate and the administration. At the time of the reviews considered in the cases analyzed here, the campus review committee was composed of faculty from other departments, chosen by the administration with input from the Academic Senate. An external review committee could also be chosen and utilized. The review process began with the unit assembling information, followed by visits by the external review committee (if used) and the campus review committee, then a report from the external committee that would be input to the campus committee, then a report from the campus committee, then reviews of that report by committees of the Academic Senate, and then advice from the Senate committees to the administration, who would determine the path of action. The process at present is different in detail and is described elsewhere (University of California, Berkeley, 2014e).

UNIVERSITY GOVERNANCE ROLES IN CASES OF CHANGE
The purpose of the analyses presented here is to examine the roles of shared governance, and governance in general, in several instances of change (or, in one case, proposed change) within the University of California.[1] In four of these, the ongoing program review process was a critical element in initiating the consideration of change. The outcomes differ among those four cases. One led to a large reorganization of structures and locations. For another, a professional school was closed. In the third, a professional school was discontinued and another was started with a more modern scope. In the last, a professional school was assessed at length and a decision made to continue it, seeking a more professional bent. The fifth case was substantially different, in that an action of the Regents and a subsequent successful state-wide ballot initiative created the need for change.

A common denominator for the first, second and fourth of these examples (the Schools of Criminology, Education, and Library and Information Studies), is the tension that exists in professional schools between training practitioners, on the one hand, and carrying out research of a sort that will carry its intellectual weight in a distinguished university, on the other hand. I have addressed that subject elsewhere (King, 2013a) as well; it is a fundamental challenge to many professional schools in major research universities.

Closure of the School of Criminology at Berkeley (1972–1976)
The Berkeley campus had a lead role in launching criminology as an academic field. The history is told by Morn (1995). August Vollmer was police chief for the City of Berkeley and a leader for the United States in developing education for law enforcement, corrections, and forensics. He defined the needs and worked closely with the University of California to launch instruction in the form of summer-session courses in 1916. Vollmer led and developed a school of thought on criminology education that spread throughout the country through so-called "V-Men," who had been trained by Vollmer and/or believed strongly in college-level education for police and related professions. The University of California program at the Berkeley campus developed into a full curriculum and degree program over the years, and became a separate professional school in 1950. The program served to train law-enforcement professionals and conducted both instruction and research in law enforcement, corrections, and criminalistics.

Throughout its existence, the program and School were subject to a tension between needs for instruction for practicing professionals, on the one hand, and desires for pertinent, intellectually high-caliber research on the other. Initially, the School stressed training of professionals and did so through the deanship of O.W. Wilson (1950–1960). The relative absence of research, however, was continually noted by both the administration and the Academic Senate and was out of step with the

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[1] These cases occurred throughout my own career and, except for the case of Criminology, I have had some degree of personal involvement in them.

trends throughout the rest of the university, particularly after World War II. In 1961, in a deliberate move to increase the research roles of the School, the Berkeley campus appointed as dean Joseph D. Lohman, who was highly respected as both a professional and an academic. Lohman introduced a program of research in the School, but of a sort that was viewed, at least by some, as being more in the ʹjob shopʺ vein rather than addressing fundamental intellectual questions (Editors, 1976). Unfortunately, Lohman died unexpectedly in 1968.

There were two trends that affected the School of Criminology contemporaneously with the student unrest in the mid- to late-1960s and early 1970s. One was the growth particularly within the Berkeley School, of a field that came to be known as radical criminology. The field was and is much more concerned with social justice than with the classical elements of law enforcement, forensic science, and corrections. The growth of this field within the School created tensions between the school and its various supporters or potential supporters, substantially lessening the interests that the law enforcement and corrections communities had in the school. Matters came to a head with the unsuccessful 1969 tenure case of Anthony Platt, a Marxist radical criminologist (Schauffler, 1974; Bowker, 1996, pp. 16–17; Maslach, 2000, pp. 429–430). The denial of tenure to Platt and a subsequent denial to another radical-criminology scholar, Herman Schwendinger, in 1973 became celebrated causes.

A second major trend during the same period was a large shift in enrollment in the School from the graduate (professional) level to the undergraduate level. Would-be professional students saw the school as not meeting their needs well as a stepping stone towards professional jobs, while undergraduates saw the School as being in line with social concerns of the times and a path toward one of the easier degrees on campus. Enrollment in the school had become 68% undergraduate in 1969–70 and grew further to 82% by 1971–72 (Morn, 1995, p. 112).

Changes in deans for the school and the growth of related but competing interests on campus also became important. For three years after the death of Lohman, there were acting deans, the first of whom resigned during the 1968–69 year in sympathy with campus student strikers. Finally Sheldon Messinger was appointed Dean in 1971. Messinger was a respected sociologist with scholarly interests in aspects of social justice. He had been among those involved in the 1961 formation of the Center for Law and Society, an Organized Research Unit affiliated with the School of Law at Berkeley that took a more research- and discipline-based approach to social issues and the law (Skolnick, et al., 1992).

In the mid-1960s, the Berkeley campus, through the Dean of the Graduate Division working with the Academic Senate, devised and launched (Elberg, 1990, pp. 202–211) a regular program of reviews of academic departments and schools. This program had been ongoing for several years when the School of Criminology was selected, along with other units, for review in 1972. The review committee was formed in December 1972 and reported in June 1973. The committee recommended disestablishment of the School, with a primary reason being that it was ʺa professional school without a professional commitment or program, or without effective links to its professional constituenciesʺ (Morn, 1995, p. 113). The recommendation of the committee was reviewed and supported by the relevant Academic Senate committees, and passed on to the administration, which made the decision to close the school. The administrative decision process is described by Bowker (1996, pp. 17–19), Elberg (1990, pp. 209–211) and Maslach (2000, pp. 420–423, 428–420), who were Chancellor, Dean of the Graduate Division, and Provost – Professional Schools and Colleges, respectively, at the time. The School would admit no new students and would close when the last students graduated in 1976. Substantial demonstrations and a building occupancy by supporters of the School ensued, but the decision held.

No tenured faculty members were dismissed as a result of the closure. Several went to a new Jurisprudence and Social Policy Program within the School of Law, which was formed around them and which also offers an undergraduate degree within the College of Letters and Science. The law school has proven to be a good academic home for this program, and the program has provided an effective link from the law school to the scholarly work of the rest of the campus, supporting the Berkeley campus concept that the professional schools and academic departments are involved on equal bases in research, the Academic Senate, and the academic operation of the campus (King, 2013a). Those faculty members involved with criminalistics (forensic science) went to the School of Public Health and formed a small sub-program there. There were thereby no substantial budgetary savings associated with the closure.

Another way of looking at the fate of the School was provided by Sheldon Messinger in a memo to his faculty in 1973, indicating that the former programs of the School had been ʺ… displaced by the development of criminal justice programs in other institutions. The vocational program of the first years is now offered by police and other academies. The vocationally-oriented academic program that followed is now offered by the community colleges. The agency-oriented but more generalized academic

program that came later is now the staple of the state colleges[2] – and, if my guess is correct, the state colleges will be moving into the area of management education" (Morn, 1995, p. 111). In that sense, the closure of the Berkeley School of Criminology can also be regarded as a logical consequence of the formal distribution of missions among the sectors of public higher education occasioned by the California Master Plan for Higher Education of 1960.

Review, Evaluation, and Ultimate Retention of School of Education at Berkeley (1978–1982)
Schools of Education often have difficult situations within major research universities, for they are probably the academic unit most torn by the competing forces of professional instruction and incisive research of the highest intellectual caliber. The Berkeley School of Education is no exception. The histories of the UC Berkeley and UCLA Schools of Education are outlined and contrasted by Clifford and Guthrie (1988, Chapter 7).

In 1976, a series of events started that ended up putting the Berkeley School of Education under intense scrutiny with closure of the school being a distinct possibility and even probable. The process again started with a scheduled review, this time by a standing university-wide body known as the Academic Planning and Program Review Board (APPRB). This board, no longer in existence, carried out program views and academic planning on a university-wide basis. Although an administrative body, it included *ex officio* and other representatives from the Academic Senate among its members, along with academic administrators (University of California, Academic Senate, 1975). The review by the APPRB covered all Schools of Education within the University of California; the recommendations regarding the Berkeley School are reported by Smelser (2010, pp. 268–269). The APPRB report was followed in 1978 by one of the now-regular Berkeley campus program reviews. The recommendations of the report resulting from that review, which was both intensive and critical of the School in a number of ways, are also given by Smelser (2010, pp. 269–273). The review report was then analyzed and commented upon by three committees of the Academic Senate. By this time, the criticism of the School had become fundamental in many ways, and among the possibilities brought forward were reorganization of the School, integration of the School more intimately with the rest of the Berkeley campus, and closure of the School with distribution of key functions to the rest of the campus. At that point (1980–81), the Chancellor decided to request a study by a specially formed commission to examine "how the study of Education, both as a field of scholarship and an area of professional practice, should be pursued on the Berkeley campus" (Smelser, 2010, p. 235). The Commission, chaired by Neil Smelser, consisted of three distinguished faculty members and one graduate student, all from other areas of the campus but with knowledge of the School of Education.

Compounding the situation was the fact that, during the review period, the School had no permanent dean. The last such dean, Merle Borrowman, had to leave the position in 1977 as the result of a severe accident. There was an unsuccessful search for a new dean, following by a series of seven Acting Dean appointments as the matter was put on hold during the review and decision periods until a new Dean eventually arrived as of April 1983. There was also an erosion of regular faculty positions during this time, since recruitment authorizations were largely held back until the review issues were resolved.

Multiple problem areas were identified surrounding the School and are described by Smelser (2010, pp., 238–251), from the standpoint of a major reviewer, and by Clifford and Guthrie (1988, pp. 305–311), from the standpoint of two School faculty members at the time who were also among the Acting Deans. The issues included the following:

- **Ineffective Internal Governance; Internal Fragmentation by Divisions.** The leadership of the school was divided among a large number of subordinate administrative positions that did not work together well. The School was divided into five divisions, which were relatively autonomous and had substantial difficulty working together either for the common good or to identify and fulfill a common mission for the School. The divisions did not collectively cover the field in a comprehensive way, and the whole was, in that sense, less than the sum of the parts.
- **A Bifurcated Faculty**. Teacher education was not carried out by the professorial faculty members of the School, but instead by a separate set of Supervisors of Teacher Education. The professorial faculty members were thereby not concerned with the principal professional function, and the opportunity was missed for having a teacher education program closely informed by research. The situation was also beset by issues associated with a body of adjunct faculty who perceived themselves as second-class citizens in some respects.
- **Perceptions and Stature of Research**. By doing research more in the vein of what might be done in the social-science disciplines rather than on the profession itself, faculty members set themselves up for comparison in research with faculty from the social science departments, leading to perceptions of lower academic quality.

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[2] i. e., the California State University, which was formed from state colleges in the 1960 Master Plan for Higher Education, with a name change from California State Colleges to California State University in 1972 and 1974.

- **Relatively Low National Ranking**. The School was ranked No. 10 in the Ladd-Lipset survey of 1977, a relatively low ranking for a Berkeley campus academic unit (Smelser, 2010, pp. 239–240).
- **Role vis-à-vis the California State University**. The California State University has the dominant role of teacher education within the state of California. The School had not determined its own best roles in view of that fact.
- **Balance of EdD and PhD Degrees.** The EdD degree was developed and used early on at the Berkeley campus, and had been a focal point of the educational efforts of the School. Yet, with the removal of the foreign-language requirement for the PhD degree in 1966 and with what Clifford and Guthrie call the "prestige gradient" associated with the PhD, the balance of degrees awarded by the School swung heavily from the EdD to the PhD, with one result being only a hazy difference in content between the two degrees.
- **Diffusion of Education Research Outside the School.** The aforementioned APPRB report of 1976 found that 88% of education research on the Berkeley campus was done outside the School of Education (Clifford & Guthrie, p. 310). Yet there was relatively little interaction of the School with other professional schools or departments.

The report of the Commission on Education is available in its entirety (Smelser, 2010, Chapter 8). It offered a number of structural and organizational options, with discussion comparative among them. One theme was to find ways to foster ties throughout the campus. Closure of the School and redistribution of its more essential elements throughout the campus was presented as a serious option.

The chancellor throughout the period of the earlier reviews was Albert Bowker (1995), who later observed that he was inclined toward abolishment of the School (pp. 49–51). As of July 1980, however, the chancellor was Ira Michel Heyman, who chartered the commission, received its report and submitted it to the Academic Senate for review, and appointed an Acting Dean from outside the School who would also work with him to analyze the possibilities presented by the Commission. Despite the fact that the advice from the pertinent Academic Senate committees tended toward elimination of the School, Chancellor Heyman made the decision in January 1982 to retain the School and seek changes in its orientation so as to revitalize it. Much of the concern about primary and secondary education in the United States that was reflected soon thereafter in the report "A Nation at Risk" (Gardner, et al., 1983) was already in existence at that time. Heyman (2004) cited as his reasoning that he believed that the Berkeley campus "had an obligation to deal with problems besetting elementary and secondary education" and that "progress was more likely in the context of a school than in a number of disassociated departments" (pp. 64–65). In addition to the negative public image that would come from closure of the School, Heyman may also have been influenced by the stark difficulties associated with dismissal of tenured faculty members and/or placement of them in other departments (Clifford & Guthrie, 1988, p. 311). Heyman (2004) also indicated a belief in three missions for the School: "training new teachers, providing advanced education for those in the profession, and carrying on relevant research" (p. 65). He also emphasized two goals, "the provision of good teachers by enlarging the certificate program and recruiting within the student body at Berkeley" and "reorientation of the faculty to treat the school more as a professional school than as a pale mirror of departments in the College of Letters and Science" (p. 65).

A widespread search was carried out for a new dean who would reflect and implement these goals, with the eventual appointment of Bernard Gifford, who started in 1983. A PhD biophysicist, Gifford had been Deputy Chancellor of the New York City school system and at the Russell Sage Foundation before becoming Vice President and Professor of Public Policy at the University of Rochester. During his six years as Dean, Gifford did move in new directions, building a well-regarded program in STEM (Science, Technology, Engineering and Mathematics) education and, through that and other means, increasing considerably the amount of extramurally funded research in the School (Educom Staff, 1996).In later, long-term reflection, however, Heyman (2004) was more pessimistic, saying, "Unfortunately, my vision was not followed and I am sure that someday in the future the problems will be revisited" (p. 65).

Reorganization of the Biological Sciences at Berkeley (1978–1990)
The broad field of biological sciences underwent rapid advances and large changes in the 1970s, as advances on the molecular scale and in genetics, cloning, and recombinant DNA opened new and powerful knowledge and avenues for much deeper understanding and radical innovation. The intellectual affinities, methodology, and laboratory techniques for research at the forefront at that time related much more to scale (molecular, cell, whole organism, ecology or groups of organisms) than to the classical divisions by classes of species and by application (e. g., zoology, botany, physiology, entomology). At the beginning of this period, the Berkeley campus had pre-eminent ranking in the various fields of biology. These activities were divided among about twenty different departments, located primarily in the College of Letters and Science and the College of Natural Resources, the latter having been formed in 1974 by merger of the College of Agriculture and the School of Forestry. These departments were delineated in the classical way, by classes of species and applications.

As the revolution in biological research brought about change, UC Berkeley started slipping in the ratings. An external review in 1981 observed the slippage and attributed it to "a failure to develop strong faculty groups in newer subject areas" (Trow, 1999, p. 4). As well, laboratory facilities had deteriorated, were constrained, and were not well suited to the newer areas of biology where the greatest breakthroughs were likely to occur. The same 1981 external review observed substantial duplication in expertise among the existing departments as each tried in its own way to cover the new dimensions of biological research. The situation described by this review and some antecedent studies led to a major reexamination of the structure, affinities, and plans for development of the biological sciences at the Berkeley campus, leading eventually to rearrangement and consolidation of the twenty departments into four, along with modernized laboratory facilities in two new buildings and a thoroughly renovated third building. The challenge was how to bring the changes about, given the relatively entrenched interests of the existing departments and the possible, even likely, strong effect of those departmental concerns on deliberations in the Academic Senate. An article by Trow (1983) analyzes the origins, development, and leadership aspects of these changes up to 1983. A subsequent analysis by Trow (1999) provides additional details and evaluates the leadership issues involved and the outcomes of the reorganization. Park (2010) subsequently reflected on the process from the standpoint of his own close involvement in it. An oral history volume (Regional Oral History Office, 2003) on the subject of the reorganization contains recorded interviews with three principal participants, Daniel Koshland, Roderic Park, and Louise Taylor, who staffed the process.

As already noted, Ira Michael Heyman became Chancellor of the Berkeley campus in 1980, having previously been Vice Chancellor for Academic Affairs. He appointed as The Vice Chancellor, Roderic Park, who was a botanist, had molecular interests and a full appreciation for the rapid changes in biology, and had until then been serving effectively as Dean of the College of Letters and Science. Park and Heyman engaged the leadership of Dan Koshland (Schekman, 2007), an eminent biochemist who had large stature in research, was highly respected on the campus, and had a strong sense of intellectual leadership. After an initial inventory of biology faculty and their interests and expertise, the administration appointed in spring 1980 a special Internal Biological Sciences Review Committee of faculty members to evaluate "the programs in the biological sciences on the Berkeley campus" and analyze "the space needs of these sciences" (Trow, 1999, p. 7). This was an administrative committee, not a Senate committee; in other words, it was appointed by the administration. The committee recommended (August 1981) the creation of a Chancellor's Advisory Council on Biology (CACB) to point the way toward reshaping and upgrading biology on the Berkeley campus and to develop a comprehensive assessment of space needs.

The Chancellor created the CACB, composed of nine distinguished Berkeley campus biology faculty members with modern research interests, covering a spectrum of expertise, and with Koshland as the initial chair. The Council had several roles, which in effect expanded upon its initial charge, and ultimately advised on the nature of new faculty appointments and in what areas they were most needed, effectively named the members of the search committees for these appointments, and generated an overall space plan. That space plan became the basis for the first large capital campaign of the Berkeley campus[3], so as to obtain private monies to supplement state building funds and assure the priority of the three building projects within the overall University of California queue for state building funds. The role of the Council in faculty appointments effectively supplanted the usual department roles, since the Budget Committee of the Academic Senate and the provosts generally followed the advice of the CACB in reviewing and granting recruitment authorizations and in reviewing and approving appointments.[4] (The Budget Committee was less influenced than was the Academic Senate as a whole by the feelings of the existing departments.) It was important that CACB reported directly to the Chancellor and Vice Chancellor, since this gave them leverage with respect to the departments.

The role of the Academic Senate was a concern and the approaches taken with the Senate are reported in the aforementioned oral-history document. The process was not carried out in the traditional fashion of posing issues to the Senate for review and advice and then garnering the Senate comments before proceeding. The principals believed that the more usual processes with the Academic Senate would impede matters to such an extent that the reorganization would not be achieved. Instead, the process was led intellectually by the CACB. Documents and plans, as they came into existence, were then sent to the Academic Senate and their pertinent committees to keep them informed, and it was then incumbent upon the Senate to take the initiative if

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[3] Until 1983 the Berkeley campus had the modest fundraising activities then characteristic of public universities, although some units, notably Business, Law and Engineering, had launched significant private fundraising activities of their own. As a Vice Chancellor for Development was added in 1983, definition of an initial capital campaign became one of his earliest priorities. This campaign became at that time the largest ever undertaken by a public university.
[4] In addition to advising and usually thereby determining the ultimate decision on faculty promotions and advancement, the Committee on Budget and Interdepartmental Relations (Committee on Academic Personnel on other campuses) advises the Provost on the allocations of faculty positions for recruitment. All vacated faculty positions revert to the Chancellor's Office for evaluation and reassignment to units in an annual planning exercise that includes formal recruitment requests from departments. An exception is made for positions vacated by an Assistant Professor; these stay with the department so as to remove any concerns that the department could have during the tenure-evaluation process about the retention of the position if tenure were not to be granted.

they wanted to question actions or raise issues. A result is that the involvement of the Academic Senate was substantially less than it might otherwise have been.

Almost half of the biology-related efforts on campus were in the College of Natural Resources (CNR), stemming from previous College of Agriculture and School of Forestry functions. For several reasons, faculty members and departments in that College were much warier of the reorganization effort than were those faculty members who were in the College of Letters and Science. As faculty with applied research, many of them sensed that the ascendancy of molecular biology would lessen their roles and positions. Also the faculty members in CNR had very different situations from faculty elsewhere on campus, since they had year-round appointments, split between regular campus instructional and research (I&R) funds, on the one hand, and Agricultural Experiment Station (AES) funds, on the other hand. They also received sustained research support through the AES. That support and the year-round appointments obviated the need for extramural research grants to provide summer salary, and there was therefore little incentive for the CNR faculty to seek outside research funding. Since the AES funding was limited, this situation led to research programs of relatively modest size compared with those of the biology faculty members outside CNR. The stronger reluctance of the CNR faculty and their different situation brought about a decision on the part of the CACB and administration to leave them out of the initial round of reorganization, and to leave them largely out of the new facilities, as well. The one exception was Plant Biology or Botany, for which there had been two separate departments, one in each of the two Colleges. In the initial round, those two departments were combined into one, located in CNR with a new building of its own.

The development of the space plan and the definition of the building projects preceded decisions on the specifics of departmental organization. The rationale was to let the space plan define natural affinity groups for co-location in the new facilities, based upon the nature of laboratory needs and desirable working adjacencies, and then to use the desirability of the new space as a wherewithal to mobilize faculty interest in the new affinities. The new departmental organization followed the establishment of affinities and the space plan, and resulted in the collapse of the biology departments into three large departments: Molecular and Cell Biology within the College of Letters and Science, Integrative Biology within the College of Letters and Science, and Plant Biology within the College of Natural Resources.

The assignment of faculty members with departments went through four iterations. Each iteration consisted of a proposed set of assignments devised by the CACB, followed by both a town hall meeting for affected faculty and an opportunity for submission of written comments. The initial plan met with much concern and strong objections, including feelings on the part of many Integrative Biology faculty members that the molecular biologists were "taking over." But over the course of the iterations and a few adjustments made by the CACB, the amount of objection diminished and there was widespread acceptance of the final plan. The new space markedly helped this process.

It should be noted that this entire reorganization process did have strong faculty guidance, but from a special faculty council developed by the administration, with concurrence from the Academic Senate that was often tacit, in the form of not challenging or offering substantial additional input on the various decisions that were made.

A subsequent reorganization was made by the College of Natural Resources, in recognition of the worth of what had been done in the other areas of biological sciences. A number of smaller departments (Plant Pathology, Entomology, Forestry, Soil Science, Conservation and Resource Studies) were merged to form a large Department of Environmental Science, Policy and Management (ESPM). This process was also contentious, but was facilitated for the dean by the visible success of the biology reorganization and now by a greater involvement of the Academic Senate, which became a positive force in the reorganization. Emulating the new structure of the biological sciences, the ESPM department has three Divisions based upon scale: Ecosystem Sciences, Organisms and Environment, and Society and Environment.

From Librarianship to Information Management and Systems at Berkeley (1989–1995)
In 1918, the Berkeley campus established within the College of Letters and Science a Department of Library Science, which became a professional School of Librarianship in 1926 and then was renamed the School of Library and Information Studies in 1976 (University of California, Berkeley, 2014c). Although the "Information Studies" component of the name connoted information systems beyond libraries themselves, the school's main concerns remained the education of professional librarians and research related to libraries.

An essay accompanying a Berkeley campus accreditation report (University of California, Berkeley, 2014b) identifies the steps that led to the closing of the School of Library and Information Studies and to the opening of a new professional School of Information Management and Systems in 1994.[5]

A regular Academic Senate/administration program review occurred for the School of Library and Information Studies in 1989–90. The report observed some troubling signs in the school and in the profession as a whole. Among the points raised were e relatively few linkages with the rest of the campus, the direction of the tenure-track faculty members mainly toward the doctorate program leaving the professional MLS to the non-tenure-track faculty, the relatively low support from extramural grants, and the lack of a compelling academic plan or vision for the scope and future of the professional field. The report recommended the hiring of a permanent dean. (There had been an interim dean for several years, who was primarily a member of the law faculty and functioned also as Law Librarian.) With a new dean, the School should assess the future directions of the field and develop a well-reasoned academic plan.

Up to this point, the process was normal for a program review. Beyond this point, the process was designed *ad hoc* for the situation at hand. This design and oversight of the process were created by the Provost Professional Schools and Colleges (PS&C)[6] in consultation with the leadership of the Academic Senate.

Building upon advice from the Graduate Council and from the Academic Senate's considerations of the review report, the administration asked the school to proceed with the preparation of a vision statement before a dean search was considered. The rationale for such a request was that the vision statement and the review of it would be valuable in determining the qualities that would be sought in a dean.

The faculty of the school produced the vision statement in December 1991, which indicated desires to expand the attentions of the school to information systems beyond those of libraries, to increase the research base, and to enhance interactions with the rest of the campus. Again in consultation with the Senate regarding both purpose and membership, the Provost PS&C created a Special Evaluation Committee to review the vision statement from the School. The April 1992 report of that committee affirmed the importance of information studies for the Berkeley campus; indicated that the *status quo* was unacceptable; recommended the appointment of a new dean with a clear, well focused vision; and also recommended that if such leadership were not available "only then should [the School] be reexamined with serious consideration being given to its permanent closure" (University of California, Berkeley, 2014d). Senate review agreed that the *status quo* was unacceptable and indicated that "the preferred result is to rebuild the school along the lines recommended by the Evaluation Committee" (University of California, Berkeley, 2014d. Since rebuilding the school implied a substantial commitment of resources in a time of very constrained resources, the matter was referred to the then-relatively-new Academic Planning Board.

The Academic Planning Board (APB) had been established in spring 1992 as a joint Senate-administration group to enable the two bodies to work together to implement overall academic planning in response to a severe state budget crisis in the early 1990s. (Usually the Senate and the administration work separately from one another but, in particularly difficult or fast-moving times, joint groups have been formed to enable fuller interchange and more rapid progress.) The APB was composed of equal numbers of members from the Academic Senate leadership and the administration. Upon receiving the results of the reviews and the commentary, the APB chartered a Planning Group in March 1993 to develop a viable definition of the field to be served, identify and assess potential leadership, and assess external resources and support as part of determining whether the new direction would be economically feasible in a time of budgetary stress. The APB also suspended admissions to the existing school and determined that financial support to the existing school should be limited to its then-extant level. The resultant Planning Group was chaired by the Provost – PS&C, and had a diverse membership approved by the Academic Planning Board.

The December 1993 report of the Planning Group laid out a new professional School of Information Management and Systems, which would "advance, through teaching and research, the organization, management and use of information and information technology, and enhance our understanding of the impact of information upon individuals, institutions and society" (University of California, Berkeley, 2014d). The report also laid out the justification and drivers for such a school, the degrees that it would offer (MS and PhD), the desirable components of the faculty (highly multidisciplinary), likely students and their career opportunities,

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[5] The name of the new School was subsequently changed to School of Information in 2006, without any further change in its essential mission.
[6] From 1972 until 1994, the academic administration of the Berkeley campus consisted of a position denoted The Vice Chancellor, reporting to the Chancellor, and to whom reported two Provosts. One of these provosts was also Dean of the College of Letters and Science, to whom four area deans reported. The other provost was the Provost – Professional Schools and Colleges, to whom the deans of the four other colleges and nine professional schools reported. I have described and evaluated this structure elsewhere (King, 2013a). I held the position as Provost – Professional Schools and Colleges from 1987 to 1994.

and the alternatives to this path of action along with the reasons that they were not recommended. It delineated potential classes of employers, job functions, and research opportunities, as well as potential federal and private funding sources and an economic justification.

The recommendations of the Planning Group were adopted by the Academic Planning Board and the administration. The necessary actions were embedded in a resolution adopted by the Regents of the University of California in May 1995 that discontinued the School of Library and Information Studies and formed the new School of Information Management and Systems. The first dean for the new school, Hal Varian, a distinguished economist of information, was found through a comprehensive search and was appointed in July 1995. The new School was formally launched in fall 1995.

The plan envisioned that the faculty would grow to 10 FTE (full-time equivalent), including three carried forward from the old school. Other ladder faculty from the old school elected retirement, and one transferred to another department. The present ladder faculty number 16 (14 FTE), drawn from a diverse range of disciplines.

The venture to create the new school was also a case of recognizing the probable development of a new professional field, which has now been borne out. The result is that the Berkeley campus is well positioned to take full advantage of the opportunities afforded by the rapid development of capabilities and usages of information technology. To get to that point required the new start; a process of evolution in the old school would have been much slower and probably would not have progressed as far.

Some important components of the process leading to the end result were the strong cooperation and positive contributions of the interim Dean and then the succeeding Acting Dean of the School of Library and Information Studies, the quality of the program review process that flagged the issues in the first place, and the close working relationship of the Academic Senate and the campus administration. Finally, during the process, there was a large letter-writing campaign protesting closure from librarians in the state to government and university officials. Although there were a few contacts made by legislators to the university, no legislation was introduced that would affect the process or the result. One major reason why the state government took no greater role despite the letter-writing campaign is that the University of California formally has constitutional autonomy, such that the legislative process cannot set requirements for the university.[7]

Response to UC Regents' Resolution SP-1 and Statewide Proposition 209 (1995–2002)
On July 20, 1995, the Regents of the University of California adopted two resolutions barring any use of preferences by race, gender, national origin, etc., in university admissions and employment (University of California, Berkeley, 2014a; Pelfrey, 2012, pp. 173–175; Pusser, 2004, pp. 229–232). Sixteen months later, in November 1996, the voters of California adopted Proposition 209 (State of California, 2014), an Initiative Constitutional Amendment that incorporated essentially the same restrictions into the state constitution. The Regents' resolutions contained two other features as well. One was a change to increase the portion of the freshman class admitted on academic criteria alone (i.e., grades and test scores) from 40%–60% to 50%–75%. The remainder of an incoming freshman class could be admitted filling out the academic criteria with supplemental criteria, which still should not evidence any preference by race, etc. The second feature was a statement that there should be a task force formed to define programs of outreach that would increase the rates of eligibility of students identified by criteria of disadvantage defined in the resolution.

The process leading to the Regents' resolutions was highly political, occurring at the point in time when the Governor of California, Pete Wilson, was seeking the 1996 Republican nomination for President and when Affirmative Action was seen as a "wedge" issue. The events are described by Pusser (2004), Pelfrey (2012, Chapter 3) and Douglass (1997; 2007, Chapter 7). The events leading to Proposition 209 are described and analyzed by Chavez (1998).

From the standpoint of university governance, it is interesting to look at the roles of the three main parties—the Regents, the administration, and the Academic Senate—as the resolutions were developed and presented. The resolutions originated from within the Regents, specifically from Regent Ward Connerly. The President, Chancellors, and Vice Presidents explicitly opposed the resolutions. The Standing Orders of the Regents (Regents of the University of California, 2014) state, that "the Academic Senate, subject to the approval of the Board, shall determine the conditions for admission". The Regents, however, did not ask for Senate review of the resolution on admissions when it was introduced at the Board meeting, nor did the Academic Senate ask to do so. The President did make such a request, but only ten days before the Regents meeting at which the resolutions

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[7] The University of Minnesota and all the public universities of Michigan are the only other public universities to have such a status within their states.

were introduced and acted upon. Those governance issues involved in the resolutions themselves and in the generation of them are explored by Pelfrey (2012) and Douglass (1997).

The main purpose of the discussion here is to present the roles of governance in the difficult process of adjusting to the requirements of the resolutions and constitutional amendment once they had been enacted.

The Regents' resolutions and Proposition 209 attracted great public attention, and were the cause of heated politics within the California legislature, where there were a substantial number of legislators, including the Latino Caucus, who urged the university to find effective ways to maintain ethnically diverse admissions even in view of the limitations that had been imposed. Thus the entire follow-up to the resolutions and Proposition 209 played out in a very public arena with much concern and media coverage.

A short description of UC admissions criteria and concepts should help with understanding of the issues. Under the Master Plan for Higher Education in California, public high school graduates in the upper 12.5% by academic criteria are eligible to attend the University of California[8] and are guaranteed a place if they wish to come, albeit not necessarily at the campus or in the major of choice. The criteria for eligibility are defined by the University itself and, at the time, were determined solely by grades in pre-college high school courses (designated as the A–G courses) and test scores, on a sliding scale. A separate step of selection among eligible students (i.e., admission) is utilized by those campuses that cannot accommodate all eligible students who apply. This selection/admission step was carried out with different criteria and in different ways by the various campuses. As of 1998, there were six selective campuses, of which two (UC Berkeley and UCLA) were so highly selective that they could admit less than a quarter of all eligible applicants. Today, all campuses other than the newest campus in Merced are selective, and are selective to greater degrees than in 1998.

The restrictions applied in Regents' Resolution SP-1 and Proposition 209 did not affect eligibility, because there were no preferences used in the determination of eligibility. But they did affect the admissions processes of the selective campuses, which used preferences in ways that were believed to be legally compatible with the Bakke decision of the United States Supreme Court (Findlaw, 1978). Thus, the likely immediate consequences were expected to be a shift of underrepresented minorities (URM)[9] from the most selective campuses to the non-selective campuses, along with some amount of lesser enrollment overall of those underrepresented minority students who were UC-eligible because of the appearance of an unwelcoming atmosphere resulting from the Regents' resolution and then the state initiative. Results over time bore out these predictions.[10]

The steps taken by the University of California in response to these resolutions are summarized in a report from the UC Office of the President (Robinson, 2003). Pelfrey (2012, Chapters 5, 6 & 8) and Douglass (2007, Chapters 8 & 9) have also provided discussion of these actions. They are presented here with emphasis on the university-governance aspects.

As has already been noted, determination of the conditions of admissions is directly delegated by the Regents to the Academic Senate, subject to approval by the Regents. Nonetheless, the university-wide administration and the university-wide Academic Senate concluded that it would be best to work closely together in response to the new limitations. Reasons for this decision were the short time scale, the public attention, and the fact that the methods by which admissions were carried out operationally was also an integral part of the issue. The administration and Senate therefore promptly created a joint task force to review university admissions policies, determine how to place them in compliance, develop guidelines for campus admissions policies, and recommend avenues for fuller deliberation and improvement in the future. Among the avenues proposed for future consideration was "a more comprehensive approach to reviewing students' academic accomplishments and personal backgrounds" (Robinson, 2003, p. 8). The individual selective campuses were then charged with developing new admission criteria within the guidelines, which included eliminating consideration of race and ethnicity, increasing the portion of those students admitted chosen on the basis of academic criteria alone if needed to meet the larger overall target set by the Regents, and examining and developing supplemental criteria to be used for the remainder of admissions.

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[8] Eligibility is also granted to graduates from public high schools with academic records equivalent to those students from public high schools who are eligible.
[9] The term "underrepresented minority" students is used to connote students from ethic group achieving substantially less than the 12.5% rate of eligibility for the Univeristy of California that is prescribed by the California Master Plan for Higher Education. Those groups are African-American, American Indian, and Chicano/Latino.
[10] In Robinson (2003), the figure at the top of p. 15 shows applications, admissions and enrollments of URMs by year; Tables 3, 4 and 5 on pp. 17, 19 and 22 show applications, admission and enrollments, respectively, of URMs by campus and per year; and the figure at the top of p. 23 places these figures in the context of the demographic growth of URMs over the corresponding time period.

Until state funding for it was eliminated in 2011, the California Postsecondary Education Commission carried out reviews to determine whether the current eligibility criteria were, in fact, resulting in 12.5% of public high school graduates becoming eligible for UC (and 33% eligible for the California State University). UC deferred its development of major further changes until it had the results of such a study carried out in 1997. That study (California Postsecondary Education Commission, 1997) indicated an eligibility rate of 11.1%. Thus, alteration of criteria to enable a return to 12.5% eligibility could afford eligibility to additional students without making any currently eligible students ineligible. That fact was a considerable boon.

Outreach. As was chartered specifically in the Regents' Resolution SP-1 on admissions and eligibility, the University of California moved to create an Outreach Task Force, which would identify programs that could increase the eligibility and attendance in higher education of disadvantaged students in a race-neutral admissions context. The President and the Chair of the Regents determined that the Task Force would be co-chaired by the Provost of the University of California[11] and a prominent person from the private sector. Initially, one governance issue was whether the other co-chair and the members would be selected by the Regents on their own initiative or upon the recommendation of the President. After some initial explorations by Regents, these appointments were recommended by the President to the Regents. The co-chair selected was Richard Clarke, an ex-CEO of Pacific Gas and Electric Company. He proved to be an excellent choice, able to work well with people of all viewpoints.

The administration decided to recommend a relatively large Task Force of 36 members (Outreach Task Force, 1997, Appendix 3) that incorporated persons of many different backgrounds from within and outside the university. One reason for the large membership was to obtain trust and respect for the ultimate recommendations of the Task Force. Through consultation with the Chair of the Regents, four Regents were selected to be included on the Task Force. Two members were named by the Academic Council, but otherwise the Academic Senate for the most part stayed out of outreach matters, viewing them as largely administrative rather than internal academic matters.

Meetings of the Outreach Task Force were legally construed to be public meetings, with the result that several representatives of the media attended and wrote about the first several meetings. Attendance by the media tapered off after a few meetings. The internal dynamics of the Task Force proved to be challenging since, although the entire spectrum of views was present, most members had been opposed to the Regents action.

Because of sheer size and cost, it was not possible to have an effective outreach program that extended more or less equally to all school districts and all portions of the state. The deliberations of the Task Force and the underlying staff work by the Office of the President sought methods of targeting outreach that would reach the most essential sectors and yet be compatible with the Regents' resolutions and Proposition 209. Addressing this goal required considerable thought about the purposes of outreach and public education, and required the development of a method for targeting that would be acceptable to those with views across the spectrum. The Task Force ultimately decided to target outreach by measures of educational disadvantage, i.e., targeting the student populations of those schools with low values of various academic measures (enrollment rates in pre-college courses, SAT scores, percentage of graduates attending UC, etc.) (Outreach Task Force, 1997, p. 12).

Additional state funding of $60.55 million per year was recommended by the Task Force, with primary uses being for school-centered partnerships and student development programs. These two sorts of programs had political appeal to Republicans and Democrats, respectively. Rather than funding only one or neither of these two principal elements, the Democratic Legislature and Republican Governor chose to fund both, and to exceed the university's request considerably. Funding for all outreach prior to the report (1997) had been about $60 million per year. By 2001, funding had grown to $328 million per year, an increase of $268 million, which was over four times greater than the increase recommended by the Task Force.

A concern all along was that large outreach programs would create immediate expectations that could not be fulfilled, since development of schools and students through outreach is a long-term proposition, and term-limited politicians would not want to wait that long. That worry was borne out in practice and, unfortunately, before the new outreach programs could take root and yield substantial results, state budget problems hit again, and funding was cut back to a much lower level.

Eligibility in the Local Context. Following the enactment of the Regents' resolutions and Proposition 209, several elected officials in the state called on UC to utilize a plan extending admission to the top percentage of graduates from all public high schools, following the example of the "top 10%" plan implemented for the University of Texas as a response to the Hopwood decision (University of Texas at Austin, 2014). Staff at the Office of the President carried out simulations using a database

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[11] I held this position as of August 1995.

containing the admissions qualifications of UC applicants and the academic performance upon entering UC by those applicants who were admitted and enrolled. From these studies, it became apparent that GPAs in pre-college (i.e., A–G) courses were substantially better predictors of university performance and persistence than were scores on standardized tests. Hence, extending eligibility to those performing at top levels in A–G courses at all high schools, in addition to those eligible by current statewide criteria, which included test scores as well as GPAs, had the potential actually to enhance the performance at UC of those eligible students who would attend. These and various other analyses were made available to the Board on Admissions and Relations with Schools (BOARS), which is the committee of the university-wide Academic Senate charged with studying and recommending to the Regents the conditions for eligibility and admissions. The President met with BOARS to encourage the idea of extending eligibility to those students in the top 4% of their high school class by GPA in the A–G courses, which the simulations had shown would make an additional 1.4% of graduates from public high graduates eligible, thereby returning overall eligibility from 11.1% to 12.5%. BOARS was receptive and made the recommendation, which was then adopted by the Assembly of the Academic Senate for submission to the Regents, who then approved it. This program became known as Eligibility in the Local Context (ELC). Students to be admitted through ELC were then required to take the full set of A–G courses and the standardized tests required by the university, although the scores on those tests would not be used to calculate ELC eligibility.

Students who appeared to be eligible for ELC after their junior year of high school were sent a letter by the President of UC which indicated that they were on the track to ELC and urged them to complete the A–G courses, take the tests, and apply, which many of them did. An interesting result is that the test scores of nearly all the ELC students who were admitted were high enough to make them eligible by the statewide criteria. Thus, the existence of ELC and the President's letter served primarily to increase the applications from students who could become eligible by statewide criteria in the absence of ELC, but who would not otherwise have applied.

Comprehensive Review. The introduction of ELC served to expand eligibility back from 11.1% to 12.5%, but did not affect the selection among eligible students by selective campuses, which was what had been constrained by the Regents' Resolution SP-1 and Proposition 209. Several of the campuses had developed forms of more comprehensive review, in which factors in addition to grades and test scores were considered either quantitatively or holistically. As the composition of the Board of Regents started to change with new appointments following the election of a Democrat (Gray Davis) as Governor in 1998, there were prospects of repealing the Regents' resolutions. Despite the continued existence of the constitutional change made by Proposition 209, a repeal of the Regents' resolutions would have symbolic value and would eliminate the limitation of SP-1 that 50–75% of admissions should be made on the basis of grades and test scores only. President Richard Atkinson conceived the idea of combining the elimination of SP-1 with the institution of comprehensive review for all selective admissions by campuses. He reached agreement with BOARS on this approach, and BOARS established fourteen criteria (University of California, Admissions, 2014) that can be used in comprehensive review. In November 2001, the Regents adopted a resolution repealing SP-1 and instituting comprehensive review.

Testing Policies. President Atkinson's own professional expertise was in psychology and testing. He became concerned that the SAT-1[12] was a test that emphasized vague notions of academic potential, whereas it should more concerned with actual achievement in learning. He had particular concerns about the verbal analogy questions and the absence in the SAT of evaluation of the student's writing. In his Atwell Lecture (Atkinson, 2001) to the American Council on Education in February 2001, Atkinson expressed these ideas. He then turned to BOARS and recommended that UC change its testing policies and use the Achievement Tests (SAT-2) instead of SAT-1. Studies were carried out to assess whether the SAT-1 or the SAT-2 was the better predictor and showed an advantage to the achievement tests. BOARS then recommended the change in requirement from the SAT-1 to the SAT-2, noting also that the changed requirement would emphasize curriculum and learning in the high schools. This change was also enacted by the Assembly of the Academic Senate as a proposal for what then became approval by the Regents. Subsequently the College Board made changes to the SAT-1 tests dropping the verbal analogies and adding a writing test. UC then kept both the SAT-1 and the SAT-2.[13]

All three changes made for adaptation to Regents' Resolution SP-1 and Proposition 209—Eligibility in the Local Context, Comprehensive Review, and the shift to achievement testing—are cases of Presidential leadership carried out through logical and scholarly arguments, working in sufficient synergy with the Academic Senate so as to gain enactment by the Senate.

Finally, as in the case of the School of Library and Information Studies, the aftermath of the Regents' resolutions and Proposition 209 was a situation in which constitutional autonomy was particularly valuable to the University of California. Without

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[12] SAT-1 denotes the morning part of the SAT tests.
[13] BOARS subsequently dropped the SAT-2 requirement in 2009 and returned to the SAT-1, again with Regents approval.

constitutional autonomy, the legislature surely would have made strong efforts to prescribe eligibility and admissions policy and define the nature of outreach.

COMPARATIVE ANALYSIS AND CONCLUDING REMARKS
Programmatic and Structural Change
The five cases show that the system for change does work within the University of California for cases where programmatic or structural change is driven by considerations of academic quality or by imposed criteria and where the driving forces are advances in knowledge, new technological capabilities, and/or the social and economic environment. They also show that change is a deliberate and multifaceted process.

The role of the Academic Senate in programmatic change in the University of California is vital because it is, after all, the faculty who best know the program and programmatic needs. Because of the inherently conservative, or *status quo*, nature of most faculty members, the role of faculty can be viewed as an impediment as well. In the final analysis, however, the role of the Academic Senate gives a *gravitas* and even an *imprimatur* that establishes the validity of adopted changes and lessens opposition to them. The Senate is therefore a steadying and stabilizing force. Shared governance is a valuable tool that should operate and be used in the most constructive ways to address a situation at hand.

The roles of the Academic Senate and the ways in which the administration worked with, and designed the means of working with, the Academic Senate can be instructive to examine. For Criminology as well as Library and Information Studies, the process was built heavily around program reviews and Academic Senate evaluations of points raised in those reviews. The role of administration rested more in the design of the process and in the ultimate decision and implementation. The same can be said for the case of Education, except for the added dimension of a change along the way from a Chancellor who favored the process and would probably have made the ultimate decision to eliminate the School, to a new Chancellor who ultimately decided not to make a structural change. The case of Biological Sciences stands in contrast to these other three cases, and shows how the process can be guided or designed by the administration in different ways, using the Senate mechanism heavily when it leads toward a change that is perceived to be needed, while bringing in other forms of intellectual leadership when they are believed to be needed.

For cases of programmatic change, displacement of tenured faculty can be a dominant issue. It is probably not coincidental that the three cases that worked through to actual structural change (Criminology, Library, and Biological Sciences) did not ultimately require dismissals or relocations of tenured faculty members far outside their disciplines, whereas the one case that did not result in structural change (Education) would have faced large problems of that sort if the change had been made. The University of California has not yet chosen to dismiss tenured faculty members for programmatic reasons without providing relocation opportunities elsewhere on the campus or university-wide. Members of terminated departments or schools have been relocated on either the affected campus or on other campuses, such was the case when the nascent UC San Diego School of Architecture was terminated in the early 1990s. Even the initial faculty members for the newest Merced campus were told that they would have positions at other campuses if the Merced campus did not ultimately materialize.

The cases of Criminology, Library and Information Studies, and Education are instructive with regard to the effects of acting deanships and holding back faculty recruitment authorizations, both of which often align with situations of protracted or difficult review. Both steps are rational as holding actions until new directions are defined as a result of the review process. But they both serve to weaken the academic unit. Therefore, a decision to withhold dean searches and recruitment allocations should be regarded as tantamount to a decision that fundamental changes must and will be made in the unit.

Presidential, Provostial, and Intellectual Leadership
Presidents and provosts can sometimes feel frustrated by shared governance, requiring as it does that others be swung around to their point of view or that their views must be modified through Senate-administration interactions. It is striking to recognize, however, the role that President Atkinson had in defining and bringing about the changes in admissions policy that occurred after the Regents' resolutions and Proposition 209. In addition to the values of the approaches that he used, his effectiveness was considerably enhanced by the fact that he, himself, was a highly recognized scholar in fields relating to educational testing and research of the sort that would have to underlie the ultimate changes. The same value of proven intellectual leadership is exhibited by the roles of Daniel Koshland and the Chancellor's Advisory Council in the reorganization of the biological sciences.

Professional Schools
Professional schools in research universities must serve the needs of the profession effectively through both education programs and research and other creative endeavors. (Creative endeavors are most often exercised through research but can also take

other forms, such as architectural design and public policy studies.) The pressure to do outstanding research is strong and can be difficult to reconcile with the needs for professional education. This tension can lead to two undesirable situations: first, a bifurcation where teaching faculty are not ladder faculty who also do research and/or, second, a misalignment where ladder faculty pursue research that is more in line with research done by academic departments than meeting the research needs of the profession. The former situation loses what should be an advantage of research universities, namely education for the profession being done by research-informed faculty, and the latter easily leads to a situation where the research of the faculty in the professional school is regarded as second-rate by the academic departments. Elements of these factors are found in the cases of Education, Library and Information Studies, and Criminology. Among the other professions, engineering, medicine, and law seem to be less affected by these tensions.

Adaptation of Research Universities to Major Forces of Change
Can research universities adapt with sufficient speed to the forces generated by advances in information technology and globalization, by new market competition, and by financial stresses that include diminished state funding for public higher education? Four of the five cases examined here deal with programmatic restructuring. None, however, resulted in substantial overall downsizing. Do other types of change, in particular those that lead to downsizing, have characteristics that make change more difficult, or even impossible, to achieve? Changes in academic program and structure are among the most complicated to achieve because they heavily involve the faculty. Changes in many other aspects of universities can be handled through mechanisms that are more typical of corporate management. For example, a more managerial methodology has been the approach in the recent movements toward shared administrative services at Yale, UC Berkeley, the University of Michigan, the University of Texas at Austin, and a number of other universities (Proenza & Church, 2011; Gideon, 2012; Rivard, 2013). The worth and desirability of the shared-services concept are still open to debate, but it is clear that the change can be made if university leadership chooses that direction and faculty concerns are solicited and attended to during the change process.

The cases of change analyzed in this paper are all situations of change through evolution. They leave unanswered the question of how effectively research universities could change by revolution, i.e., by fundamental and rapid enough change in the basic model, if that is needed. Concerns that entirely new or heavily restructured and refocused institutions may be needed underlie the disruptive-innovation discussion, and are manifest, for example, in the decision in the mid-1990s by the Olin Foundation to approach changes in engineering education through creating an entirely new institution, the Olin College of Engineering (Olin, 2014), rather than through modifications within existing institutions. The effects of the information age and globalization, coupled with stringencies of public funding for higher education, are viewed by some in that way. But the case can also be made that the needs and opportunities presented by those forces can be addressed effectively through a succession of evolutionary changes.

In the end, and perhaps not surprisingly for a lifelong University of California person, I find myself in agreement with Clark Kerr, who in his final (2001) preface to *The Uses of the University,* concluded "that new knowledge still makes the world go round and that the university is still its main source" and that "the research university in America still has a long way to go" (p. 140). In other words, it will endure for a long time. Research universities synergistically combine education with active research, continual critical thinking, and creativity. Faculty members are chosen and evaluated on the bases of those criteria of creativity and critical thinking. Research leads teaching. Methods of research continually change as faculty members individually determine the best paths ahead. Some examples are use of online methodologies in research, increasing collaboration among researchers worldwide, and honing research results through working papers, preliminary communications, and online feedback (Harley, et al., 2010). There is a continual feedback from research into teaching. It is no surprise that educational innovations such as Coursera and EdX have come out of research universities. By contrast, education that is more directly oriented toward vocations and careers and less aligned with research does not have these paths toward continual innovation and improvement and may be more subject to the forces of disruptive innovation.

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