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in California Community Colleges,
Part I

**Short-Term Credentials and the California Community College Curriculum,
1993 – 2006**

A working paper for
The California Community College Collaborative (C4)

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Abstract

This report is the first part of a series that seeks to re-examine and re-imagine vocational education in the California Community College system. In this report, statewide curricular awards (associate degrees and vocational certificates) were analyzed over a fourteen year period. Data were organized descriptively and analyzed in order to identify long term trends. There is evidence of a trend toward increased training for short-term certificates and associate degrees in the California Community College curriculum, a trend that may emphasize credentials at the expense of the transfer mission and, ultimately, baccalaureate degree attainment for students. These curricular trends are analyzed in relation to their institutional implications, in particular to the movement for increased accountability and the push for greater numbers of community college degrees and certificates. This report recommends that the California Community College system review and assess its current programming priorities. Although sub-baccalaureate credentialing meets increased demands for institutional accountability, students' short-term interests, and the immediate needs of the labor market, it is imperative, both educationally and ethically, that the California community college system not lose sight of the higher economic and socio-cultural opportunities associated with the baccalaureate degree, and thus the continued importance of the transfer mission.

Short-Term Credentials and the California Community College Curriculum, 1993 – 2006

Introduction

The community college has straddled two domains over the past thirty years, and perhaps since its early 20th century roots (Frye, 1992). Arguably, its niche in the educational system is characterized as job training on one hand and further educational access on the other. A major component of the community college's educational access function is the transfer of students to four-year colleges and universities. Often, the tensions between these two functions—job training and further educational access—are framed as community college student outcomes: terminal credentials, such as certificates and associate degrees, and baccalaureate degree attainment (Brint & Karabel, 1989, Dougherty, 1994). This distinction is measured by student transfer rates and both the number of credentials attained by students (i.e., certificates and associate degrees) and the percentage of students who attain a credential. For both state legislators and accreditation agencies, measurements of student outcomes (which are often lumped together in one aggregate measure; see California Community Colleges Chancellor's Office, 2007) serve as proxies of institutional performance, yet credentials and transfer rates are actually inimical measures. Nonetheless, these measures are seldom viewed as competitors or as evidence of curricular alterations within individual community colleges or community college systems.

The purpose of this report is not to engage in a debate over the merits of institutional accountability or sub-baccalaureate credentials, but rather to provide one measure of a shift in the California community college curriculum from primarily academic and transfer-oriented coursework to that which is more focused on short-term credentials (certificates and associate degrees). Within the context of increased demand for institutional accountability, we use sub-baccalaureate credentials (vocational certificates and associate degrees) as our measure, and show that in increasing the awarding of these credentials over a fourteen year period, California's community colleges curriculum—in particular its curricular ends—has become skewed so that

vocational training has not only outpaced academically-oriented education, but it has also encroached on traditionally academic subject domains as well.

There are numerous conceptions of an educational curriculum (Schuyler, 1999), but a standard definition includes the organization of knowledge, skills, practices, and/or experiences so as to enable the context specific learning of a student (Tanner & Tanner, 1995). While the ends or outcomes of an educational curriculum in general (e.g., intellectual development, literacy, vocational skills, and credentials) are important parts of the whole process, educators rarely privilege them as the defining characteristics of a curriculum. However, the vocational curriculum is often characterized and defined by its ends; indeed, the longstanding debate over vocational education in the United States has been largely a debate over competing educational ends. John Dewey and David Snedden represent two ends of this debate.

John Dewey (1996), on the one hand, argued that all education, even vocationally oriented education, should produce practical, moral, and intellectual ends that allow a worker to choose a self-fulfilling and meaningful occupational “calling.” David Snedden (1920), on the other hand, reduced vocational education to mere “training,” which produces the basic skills required to perform a specific job. Dewey and Snedden’s competing conceptual curricular definitions can be applied to the diverse curricular ends of the American educational system, especially the community college.

The American community college frames its programs through two basic sub-baccalaureate credentials—the associate degree and the vocational or occupational certificate (Cohen & Brawer, 2003). Normatively, the associate degree frames a curriculum that addresses both practical and theoretical knowledge, and encompasses what is referred to as general education. It includes areas generally classified as occupational or university transfer, although the associate of science degree can also be used as a terminal vocational credential. The norms for the vocational certificate pertain to a narrower curriculum that addresses only the practical skills needed for a specific job. These two awards represent the two dominant aspects of the curricular function of the community college—one is an academic and transfer oriented function; the other, more specifically vocational.

There is also a combination of the vocational and academic curricular forms. We refer to this as a *hybrid curriculum* because it reflects inconsistent or incoherent ends of educational programs that are both vocationally and academically oriented (Kliebard, 2004). In hybrid programs, multiple and often opposing curricular visions have been intertwined institutionally into a single curriculum. Such a condition has been termed “new vocationalism,” and refers in part to the use of a customary academic curricular structure where instruction focuses on job or employment skills (Levin, 2001). One example of new vocationalism is an associate degree program in Environmental Sciences where instruction is tied to employment specifications rather than to those of academic disciplines.

In our climate of accountability, associate degrees and vocational certificates have arguably been the most highly regarded curricular ends by both community college administrators, policymakers, and the general public. They represent visible markers of student achievement and institutional success. But a focus on sub-baccalaureate credentials can overshadow other institutional missions, such as the transfer function, basic skills, English as a Second Language, and continuing education.

We investigated the overall curriculum of the California Community College system through a focus on its credentials. We have analyzed the ends of the California Community College curriculum (associate degrees, vocational certificates, and transfers) in order to understand and evaluate long-term curricular trends in relation to larger social, political, and economic developments.¹ In analyzing the institutional ends of the California Community College system—as opposed to the number or percentage of students or FTEs enrolled in different programs—we identify and chart changes in institutional priorities over time. Overall, we have found that the California Community College curriculum has become increasingly vocationalized, by which we mean that the curriculum has shifted toward a greater number and percentage of shorter-term sub-baccalaureate credentials instead of general education programs that lead to baccalaureate attainment. The shift is system wide, but a major shift toward vocationalization has occurred in traditional academic curricular areas. We find this trend problematic, with significant implications both for the long-term educational interests of students, and for a

¹ This will be the subject of a subsequent paper in this series based upon research.

state that is clambering for more highly educated employees (Baldessare & Harnak, 2005).

Educational Attainment

As a topic, the educational attainment of community college students has surfaced almost continually since the 1960s and often focuses on the relative merits of student credentials compared to those of student transfer. Indeed, a February 2007 report on state policy and student educational attainment in California (Shulock & Moore, 2007) stirred this longstanding controversy, arguing that student outcomes were woefully inadequate as a consequence of state policies. But research scholars and practitioners frequently disagree on the topic of attainment and these tensions are often a result of differing perspectives as well as differing purposes in their work (Cohen, 2005).

Furthermore, measures of educational attainment are disparate, and rates of university transfer and achievement of a credential are mere proxies for student and institutional performance. However, these proxy measures are commonly used in assessing (and in influencing the funding of) institutions. For example, Dougherty (1994) takes community colleges to task for low student attainment of baccalaureate degrees through the transfer processes, an issue that seems to surface again by implication in the Shulock and Moore (2007) report. In spite of a large body of literature that suggests that community colleges might impede student attainment, at the end of the day the issue is moot because community college students have little opportunity to attend other institutions (Cohen & Brawer, 2003). Furthermore, the effects of an institution on student attainment are significantly less than the effects of student background characteristics (Pascarella & Terenzini, 2005). Thus, the institution has limited control over how students perform; their social, economic, and educational backgrounds all affect the likelihood of attaining a degree or credential. Nonetheless, considerable effort by both research scholars and practitioners is devoted to examining student educational attainment at community colleges and subsequently attaching values to different levels of attainment.

Such efforts do not, however, endeavor to explain how some measures of attainment might impinge upon others. Historically, two sets of measures have been

examined—credential attainment and university transfer rates—but they have not been used together as either companion or confounding variables. Furthermore, credentials in and of themselves have been used as measures of educational attainment, but they have not been disaggregated to explain if they are companion or confounding variables. In other words, does one credential lead to another (certificate to associate degree or associate degree to baccalaureate degree) or does the attainment of one impede the attainment of a subsequent credential? Furthermore, trends in sub-baccalaureate credentials—if examined at all—are often reported in an aggregate measure of student educational attainment²; rarely are they seen as signifying institutional purposes. This is not the case in the current analysis. Indeed, we perceive the awarding of a particular degree or credential as a possible indication of an institutional behavior that favors one kind of curriculum over another.

Economic Outcomes

Although educational systems alone cannot solve labor market problems or produce economic growth (Grubb & Lazerson, 2004; Shaw, Goldrick-Rab, Mazzeo, & Jacobs, 2006), institutional practices can and do affect students' economic outcomes in several ways. First, college admissions practices can block potential students from entry and therefore deny the required education and training for specific jobs. Second, college placement policies can stream students into particular curricular areas and either deny or provide them access to specific jobs. Third, institutional systems can develop and promote certain curricular structures over others. For example, based upon its structure, a community college curriculum can prepare students for a particular kind of employment or can lead students toward further education (e.g., university transfer). Curricular emphases thus affect the types of jobs students can attain as well as the income they command from these jobs. Baccalaureate attainment, for example, has been equated with greater economic benefits to students than associate degree attainment, and considerably more than high school completion alone (Bailey, Keinzl, & Marcotte, 2004; Grubb &

²The California Community Colleges Chancellor's Office (2007) ARCC report—California's most recent community college accountability initiative—asks for certificate and associate degree completions to be reported as a combined figure; transfers and the number of students who have achieved “transfer-directed” or “transfer-prepared” status are also lumped into this figure.

Lazerson, 2004; Mishel et. al., 2007). Furthermore, specific fields command considerably higher salaries than others, and many of these fields require a bachelor's or higher degree (U.S. Department of Labor, 2006). It is clear that institutions affect students' economic outcomes, and this influence may stem from how institutions structure and promote various program options and credentials.

The Investigation

Data

The Management Information Services (MIS) unit of the California Community Colleges Chancellor's Office collects data from the 72 districts, 109 campuses, 64 approved educational centers, and 20 separately reported district offices of the California Community College system. Starting with the 1992-93 academic year, the MIS unit began posting statewide and institutional data on an online database called the Chancellor's Office Data Mart. This information can be accessed by the public through the Chancellor's Office web site. The database offers subject queries pertaining to California Community College demographics, awards, persistence and success rates, institutional services, and faculty.

This investigation focused specifically on the "Student Program Awards" query with some use of the "Student Demographics—Annual" and "Full Time Equivalent Students (FTES)" queries for longitudinal data on California Community College student populations. The "Student Programs Awards" query consists of both statewide and institutional data on vocational certificates and associate degrees in 23 curricular areas, which are further broken down into various program areas (for example, under the curricular area of Law are two program areas, General Law and Paralegal).

The California Community College System offers two types of awards. The first type is the associate degree (either an associate of arts or associate of science). Degree requirements vary by district, but the basic requirement calls for 60 credit units with an overall GPA of 2.0 in roughly five general education areas. An associate degree can be used by a student either as a terminal degree or as a mechanism for transfer to a four-year

college or university.³ The second type of award is the vocational certificate. Currently, vocational certificates can be earned in every curricular area and in most program areas. There are two basic types of vocational certificates, including the “locally approved” certificate (which ranges from 48 hours of instruction to 17 units of credit) and the “state approved” or “Chancellor's Office approved” certificate (which ranges from 18 units to more than 60 units of credit). Vocational certificates are specifically designed to be a marker of job training and are, therefore, awards for students who seek direct employment (although some credits of the Chancellor’s Office approved certificate could be used for transfer to a four-year institution). For example, the Riverside Community College District *Student Handbook* (2006-07) describes vocational certificates as “the best evidence” that a student has “specific, technical skills that an employer seeks,” and notes that “some employers actually require it as a condition of employment or for reclassification for higher pay” (p. 11).

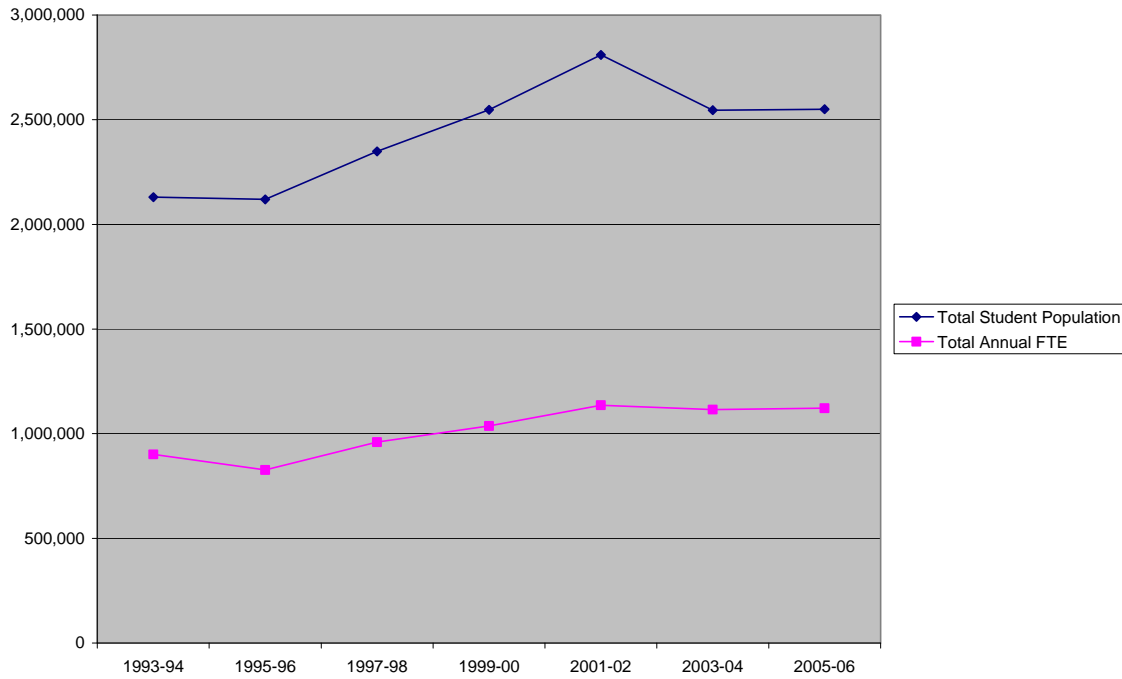
In this investigation, data collection consisted of collecting, organizing, charting, and analyzing “Student Programs Awards” query data on statewide degrees and vocational certificates. All 23 curricular areas (see Appendix 1) and their respective program areas were analyzed in two year increments from 1993 to 2006. This enabled us to chart trends over time. Data analysis was descriptive; data were converted into charts in order to establish longitudinal trends and to calculate growth rate trends. These trends are discussed in relation to educational and employment outcomes for students in a later section of this report.

Findings

Over the past fourteen years, both the number of actual students and full-time enrolled (FTE) students in California Community Colleges have increased. Figure 1 charts the growth of these populations. Between 1993 and 2006, the total number of students increased by 20%, growing from over 2.1 million in 1993-94 to over 2.5 million in 2005-06. The FTE population increased 24.5% over this same period, growing from over 900,000 to over 1.1 million.

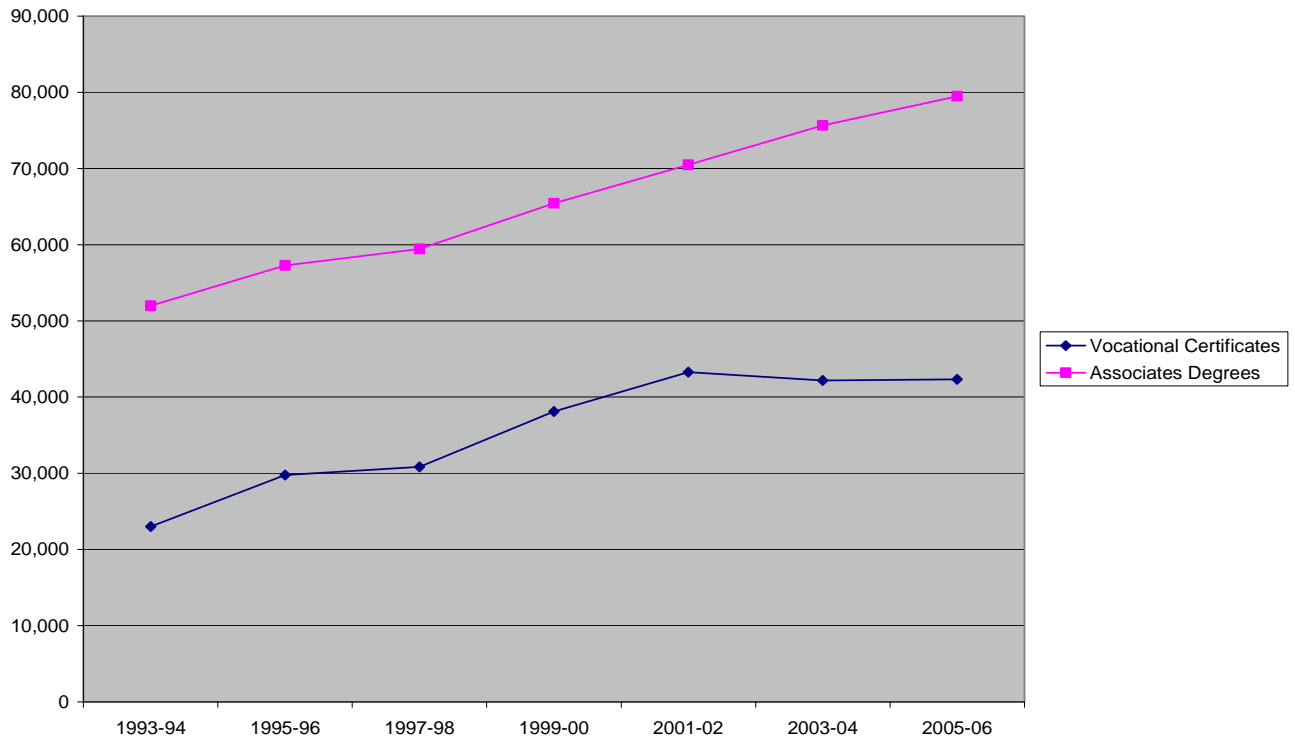
³ Associate degrees are not required for a student to transfer from a California Community College to a university, and many students transfer before completing their degree.

Figure 1: Total and FTE Student Population, 1993-2006



From 1993 to 2006, the total number of awards (both associate degrees and certificates) earned in California's community colleges also increased substantially. The 51,983 associate degrees awarded in 1993-94 grew to 79,467 in 2005-06. This was an increase of 53% (27,484 more degrees). Vocational certificates grew from 23,002 in 1993-94 to 42,321 in 2005-06 (an 84% increase and 19,319 more certificates). While the increase in attainment of both degrees and vocational certificates more than doubled the rate of population growth, vocational certificates have grown considerably more than degrees over this fourteen-year period.

Figure 2: California Statewide Awards, 1993 to 2006



The substantial increase of vocational certificates in relation to academic degrees suggests a changing California Community College curriculum. We thus analyzed the ratio between academically oriented awards (degrees) and vocationally-oriented awards (certificates) to measure changes in the overall ratio of awards granted per year. We categorized the major curricular areas of California Community Colleges into three basic orientations, using credentials awarded as our criterion. These categories were used to classify the 23 curricular areas based on the ratio of awards granted. If the majority of awards granted (>55%) in a curricular area were either degrees or certificates, the curriculum was classified as academic or vocational, respectively. If the ratio of degrees and certificates was less than 55% but greater than 45%, the curriculum was classified as hybrid, as the awarding of degrees and certificates is nearly equal. Figure 3 displays the three categories: academic, hybrid, and vocational.

Figure 3: Academic, Hybrid, and Vocational Curricula, 1993-2006

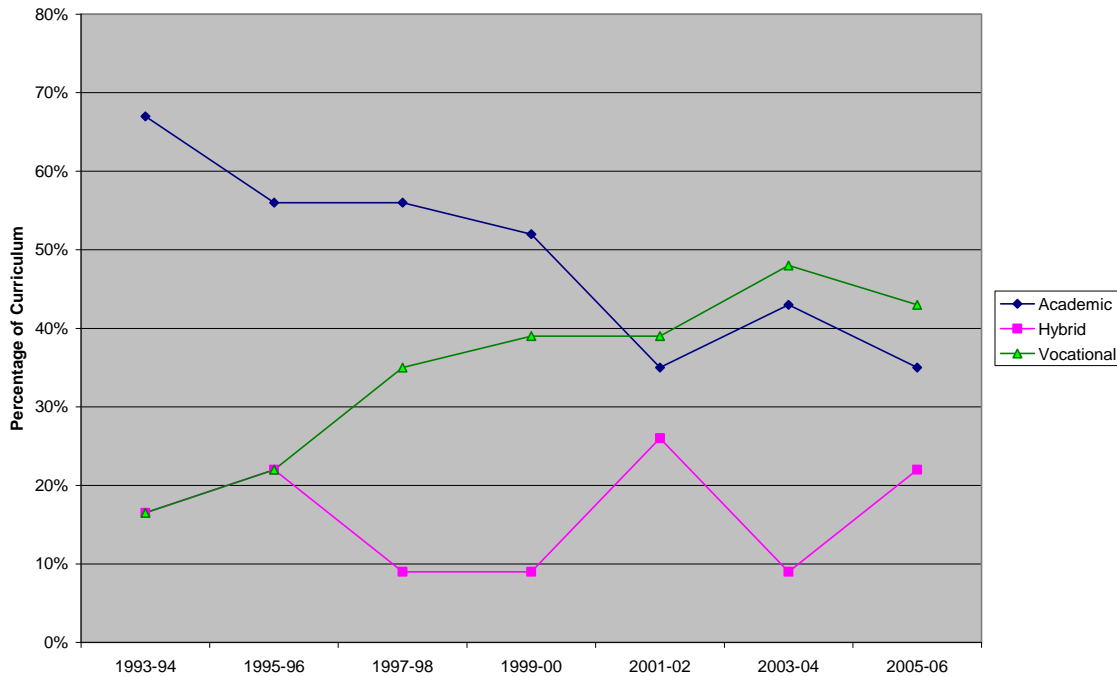
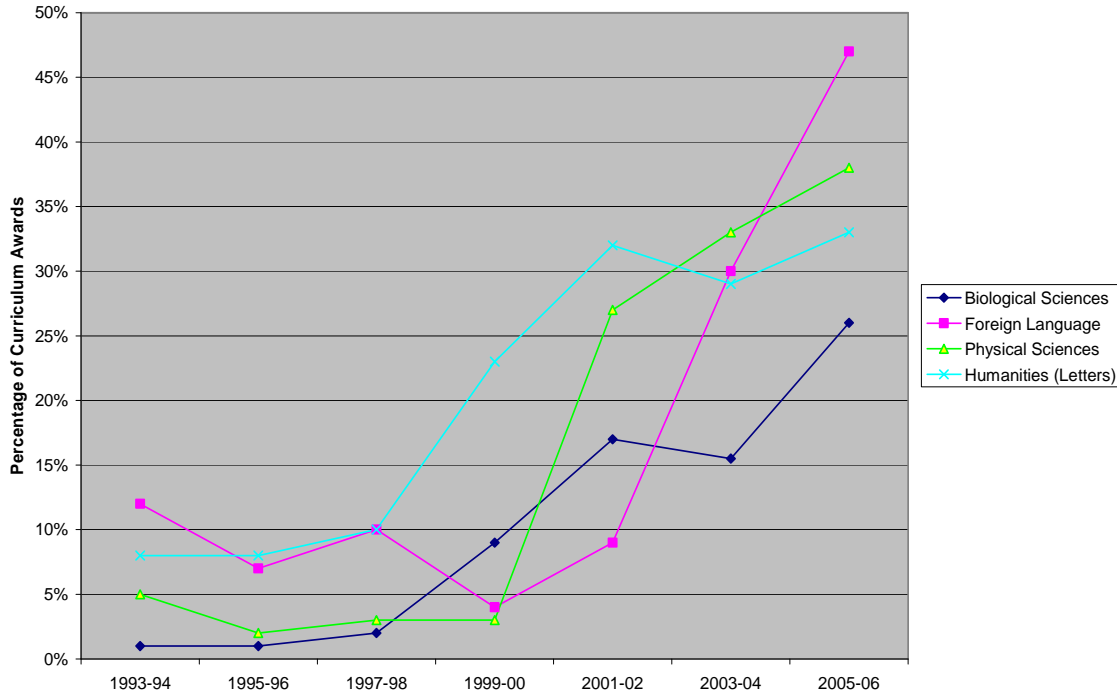


Figure 3 shows that in the 1993-94 academic year the statewide curriculum was overwhelmingly academic in orientation. Sixty-seven percent (67%) of the curricular areas awarded a majority of associate degrees, while only 16.5% of curricular areas awarded a majority of vocational certificates. However, there was a steady decline in academic orientation over the next fourteen years and a steady increase in vocational orientation. By the 2005-06 academic year, only 35% of curricular areas awarded a majority of associate degrees, while 43% of curricular areas awarded a majority of vocational certificates. The trend for hybrid curricular areas is not consistent, but its presence alone is significant, and may affect trends in the academic curriculum and the awarding of degrees—that is, hybrid curricular increases are likely at the expense of academic rather than vocational credentials.

This general trend also held in specific curriculum areas (see Appendix 1 for a list of curricular areas), although not all curricular areas were equally affected (see Appendices 2-4). Nonetheless, 91% of the curricular areas (21 of 23) saw an overall increase in vocational certificates between 1993 and 2006. In some curricular areas the

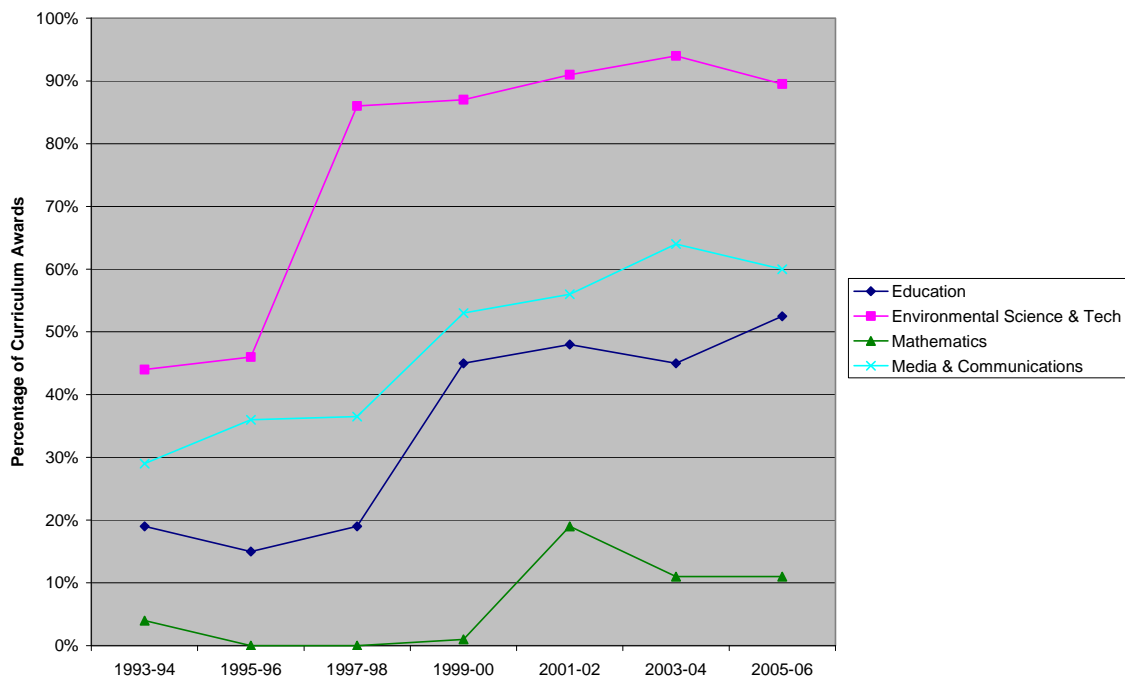
change was substantial, and many of the most dramatic increases took place in what are considered traditionally academic curricular fields (see Appendix 5). Figure 4 displays the percentage of vocational certificates in four traditional academic areas—biological sciences, foreign language, physical sciences, and humanities—between 1993-94 and 2005-06.

Figure 4: Vocationalization of the Traditionally Academic Curriculum, 1993-2006



For example, only 1% of total awards in the biological sciences was a vocational certificate in 1993-94, but reached 26% (one in four awards) by 2005-06. Similarly, vocational certificates grew from 5% to 38% in the physical sciences; from 12% to 40% in foreign language; and from 8% to 33% in humanities (roughly one in three awards in each of these areas).

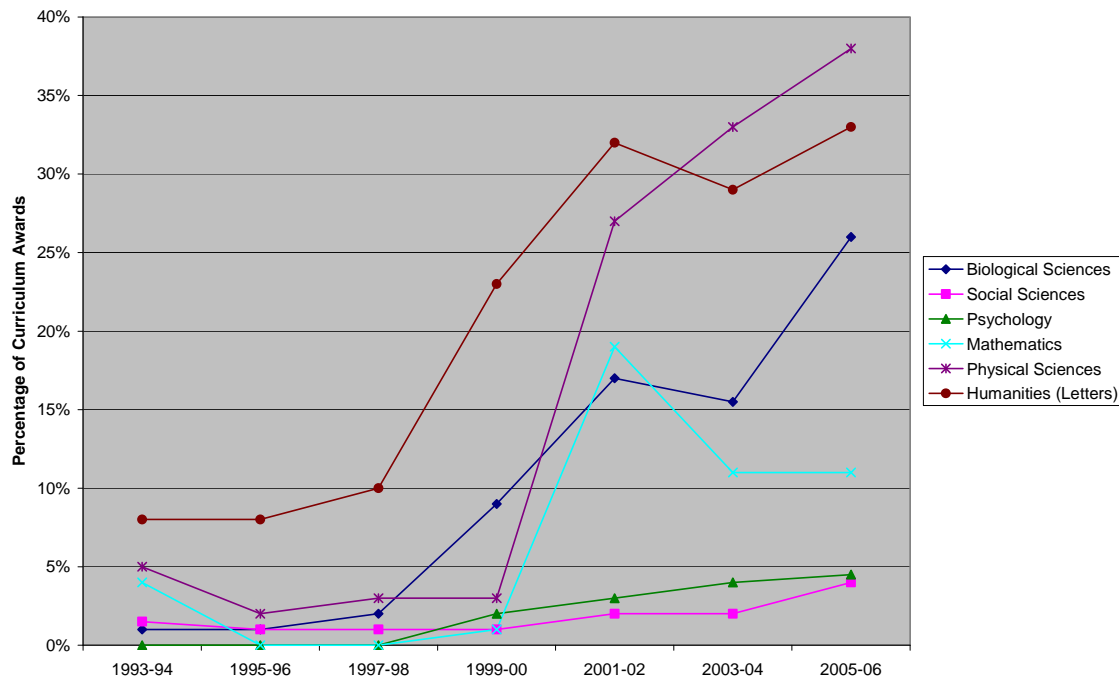
Figure 5: Vocationalization of the Curriculum
(continued)



Similarly, three applied science or social science fields (education, environmental science and technology, and media and communications) moved from awarding a majority of academic degrees to a majority of vocational certificates in this time period (see Figure 5). Vocational certificates rose from 29% of the total awards in media and communications (169 certificates) in 1993-94 to 60% of the total awards in this field (782 certificates) in 2005-06. This was more than a 360% increase. Vocational certificates increased 2,200% in environmental science and technology, rising from 44% of awards (11 certificates) in 1993-94 to 90% (253 certificates) in 2005-06. The percentage of vocational certificates in education grew from 19% to 53% during this time period, and these numbers are even more dramatic when one considers the 320% decrease in associate degree awards in education between 1993-94 and 2005-06 (a drop from 1,352 to 323 degrees).

The academic field of mathematics has also experienced a dramatic change. In one year (1995-96), mathematics awarded no vocational certificates, and even in 1997-98

Figure 6: Curriculum Below 10% Vocational in 1993



and 1999-2000 it awarded 5 or fewer (1%) vocational certificates. However, the percentage of vocational certificates in mathematics rose from 1% in 1999-2000 to 19% (76 certificates) in 2001-02 before leveling off at 11% (47 certificates) in 2005-06—a growth rate of 840%. Figure 6 displays six academic curricular areas (including mathematics) that awarded less than 10% vocational certificates during the 1993-94 academic year. All six areas have increased their awarding of vocational certificates substantially and most have decreased their associate degree awards.

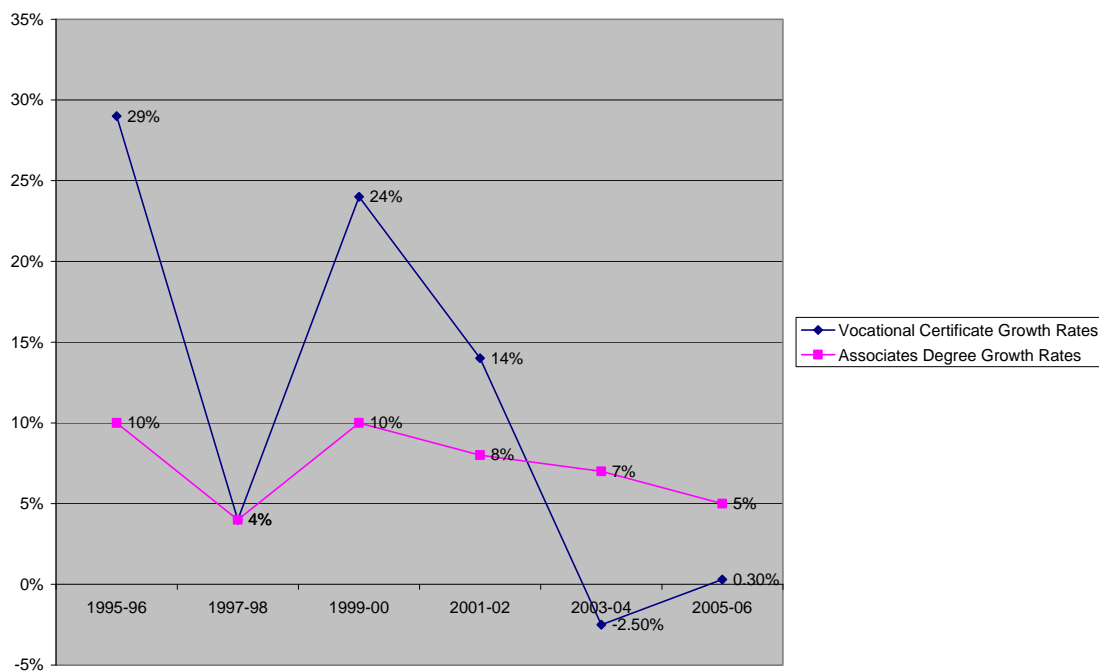
Discussion

There is a clear trend towards vocationalization in the California Community College curriculum, as demonstrated by a shift towards vocational certificates and away from associate degrees, particularly in traditional academic areas. But what have been the effects of this change? While the awarding of associate degrees has been steadily rising over the last fourteen years (see Figure 2), there has been a shift across the board toward more short term vocational certificates, and this trend has become more pronounced. Indeed, as a representative from the Chancellor’s Office of the California Community Colleges has pointed out (personal communication, Patrick Perry, August 17,

2008), some of the rise in the number of vocational certificates can be attributed to the fact that numerous colleges have broken down existing 60- and 18-unit vocational credentials into shorter term certificates (ranging from 48 hours of instruction to 17 units of credit), perhaps in an effort to report higher program completion rates in state accountability reports.

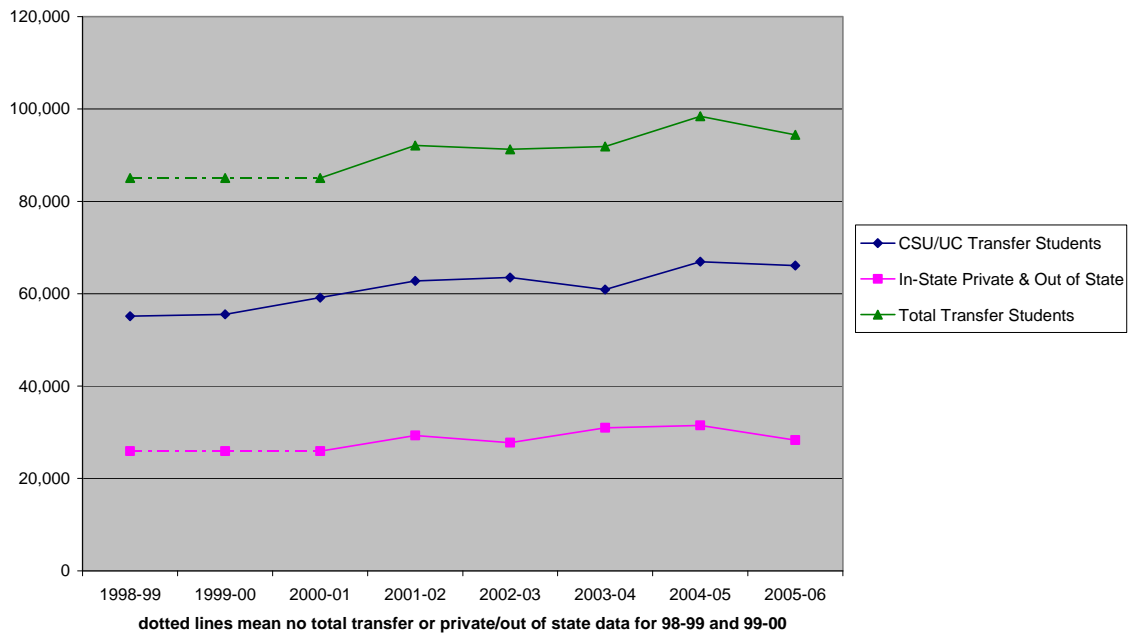
Has the increased awarding of more and shorter term vocational certificates negatively affected the attainment of associate degrees? While Figure 2 displays the overall trend of increased awards across the board, Figure 7 displays the rates of growth. Between 1995 and 2006, the average rate of associate degree growth was 7.3%, while the average growth rate of vocational certificates was 11.5%. However, Figure 7 shows that the most substantial growth in vocational certificates occurred between 1995 and 2002. After 2002, the growth rate of vocational certificates falls and begins to stagnate. Associate degrees, in contrast, show strong growth rates over the entire period, although growth rates have been declining steadily since 2000. Based upon the steady increase of associate degree attainment over the last fourteen years and the strong rates of growth for this award, the awarding of more and more vocational certificates may not have negatively affected the attainment of associate degrees.

Figure 7: Award Growth Rates, 1995-2006



Has the increased awarding of vocational certificates affected university transfer rates? According to transfer data compiled by the California Postsecondary Education Commission (2005) and the California Chancellor’s Office ARCC Report (2007), statewide transfer rates to four year colleges and universities from 1998-99 to 2004-05 increased, although the rate of growth is uneven and transfer numbers fell between 2004-05 and 2005-06. For example, 55,150 students transferred to California State University and University of California campuses during the 1998-99 academic year; 66,104 transferred in 2005-06 (20% growth). There were 25,920 transfers to in-state private and out of state institutions in 2000-01 and 28,314 in 2005-06 (9% growth). Overall the number of transfer students rose from 85,035 in 2000-01 to 94,418 in 2005-06 (11% growth), although there was a 4% drop in overall transfers between 2004-05 and 2005-06 (3,996 students). The average rate of growth in transfers from 2000-01 to 2005-06 was 2.2% (Figure 8).

Figure 8: California Community College Transfer Rates to CSU & UC, 1998-2006
 (Data Source: California Postsecondary Education Commission, 2005;
 Chancellor's Office California Community Colleges ARCC 2007 Report, 2007)



A comparison of this transfer data with student population growth rates (see Figure 1) indicates that the average rate of growth for transfer rates is slightly higher than the average rate of growth for the general student population, but the transfer growth rate falls behind average FTE population growth rates. It is reasonable to assume that the average community college transfer student takes three to five years to transfer, and thus it is also reasonable to offset a comparison between transfer rates and population rates. Therefore, population growth rates from 1998-99 to 2003-04 are compared to transfers between 2000-01 and 2005-06. During this later period, there was a 1.5% average rate of growth for the total California Community College student population (2000 to 2006), with a 10% drop in student enrollments in 2003-04, and a 2.6% average rate of growth for the FTE population. The average rate of growth for transfer was 2.2%; this percentage compares favorably to the 1.5% average growth for the general student population and the 2.6% average growth for the FTE population.⁴ Based on this evidence, there does not yet seem to be any decisive negative effect of the increased awarding of vocational certificates on transfer rates. The growth rate of transfers is comparable to the growth rate of the total student population, although it has not kept up with the growth rate of FTEs.

However, a comparison of the average growth rates of transfer students (2.2%) with the comparable average growth rates for vocational certificates (3.9%) and associate degrees (6.7%) indicates that growth in community college transfer lags behind growth in the awarding of both certificates and associate degrees. These data suggest that the outcomes of the California Community College curriculum reflect an emphasis on credentials, prizing short term certificates and associate degrees which may, over time and perhaps inadvertently, affect the transfer of students to four year institutions.

This may be a troubling trend. The socio-economic benefits of higher educational attainment vary considerably based on the type of credential, the social capital of the student, and local labor market conditions. There is also ample evidence that the ultimate

⁴ When we divide the average transfer rate from 2000-01 to 2005-06 (92,177) from the average FTE population from 1998-99 to 2003-04 (1,082,873), there is a transfer percentage of 8.5%, indicating that about 8.5% of FTE students between 1998-99 and 2003-04 transferred to a four year institution between 2000-01 and 2005-06. But based on Bradburn and Hurst's (2001) calculations, only about 40% of actual transfer students meet FTE status; therefore, FTE is not a completely reliable indicator for predicting transfer rates.

earning power of any credential is related to one's race and gender (Bailey, Keinzl, & Marcotte, 2004; Grubb & Lazerson, 2004; Mishel et al, 2007). Indeed, as Grubb and Lazerson (2004) show, the average man with some college earns \$35,704. With an associate degree he earns \$42,547, and with a bachelor's degree \$63,216. The average woman with some college earns \$21,276, with an associate degree earns \$25,590, and with a bachelor's degree \$35,083. Women make much less than men at all three of these levels of educational attainment (although this might be skewed by certain lower wage professions—such as teaching—that attract more women than men). However, average salaries at each level of educational attainment also vary by race, with Latina women earning the lowest amounts of all (according to Grubb and Lazerson, a Latina with some college earns, on average, \$19,865, with an associate degree earns \$22,959, and with a bachelor's degree \$33,283). Similarly, as Mishel et al. (2007) note, although wage increases are associated with higher levels of educational attainment for all students, white men experience the most substantial increases. As community colleges serve large and growing numbers of African American, Latino, Native American, and other students traditionally underrepresented in higher education—and are, based on our findings, awarding them with more and more short term vocational certificates—the trend toward sub-baccalaureate credentials in the California Community College curriculum may mean that community colleges are increasingly preparing these underprivileged groups for lower wage jobs, because real socio-economic advancement continues to come primarily with the attainment of a baccalaureate or higher degree.⁵

Furthermore, the fundamental assumption that more and more vocational certificates are needed in order to meet the demands of an increasingly technological workforce (see, for example, California Community Colleges Chancellor's Office, 2001) may be misguided. According to data from the U.S. Department of Labor, of the projected 30 fastest growing occupations between 2004 and 2014, fifteen require a bachelor's degree or higher credential. Eight of the 30 fastest growing occupations require an associate degree; only one requires a vocational certificate (Hecker, 2005). In

⁵ Although there is evidence to suggest that some types of sub-baccalaureate credentials, in areas such as physician's assistant or nursing, can be rewarding financially, other sub-baccalaureate credentials leave a single earner at or below the poverty level, and most sub-baccalaureate credentials would not garner a salary high enough to raise a family in the middle class (Liddicoat, 2006).

addition, in 2004 roughly 24% of jobs in America required a bachelor's or higher degree. However, between 2004 and 2014, 36% of the 18.9 million new jobs that are projected to arise will be filled with recipients of a bachelor's or higher degree. In contrast, in 2004 almost 29% of jobs required "some college," including an associate degree or certificate; this percentage is projected to remain the same over the 2004-2014 period (Hecker, 2005).

Of course, many community college practitioners and policymakers will respond to these data by noting that community colleges rarely decide to offer a particular course or program (especially short-term vocational programs that often cost more to provide than traditional academic programs); rather, they offer these programs in response to student and labor market demands and in order to bolster their FTE funding. The implication of this argument is that colleges should not be held responsible for their programmatic offerings or curricular ends; they are simply responding to local demands. Yet given the data reported in this report, we do not believe that students and local businesses should so heavily influence programmatic decisions; local labor market demands are by definition self-serving, and students frequently do not have enough information about the economic and social costs and benefits of different levels of degrees and certificates to make educated decisions about what credential or course of study will best serve them over their lifetime.

What course of action should the California Community College system take in order to provide for the long-term social and financial interests of its students? If the sub-baccalaureate labor market is projected to be stagnant with more jobs requiring a bachelor's or higher degree, is the current institutional emphasis on short term vocational certificates and associate degrees (even if they are primarily based on student demand) a responsible and far-sighted policy? While the California Community College system certainly has a responsibility to provide the types of programs and courses that students both want and need, does it also have an educational and ethical imperative to counsel those students about the benefits (both social and financial) of attaining a higher credential and/or ultimately transferring to a four-year institution? If so, a re-examination of current institutional accountability measures (i.e., aggregate measures of certificate completion, associate degree completion, and transfer or transfer-prepared status) may

reveal a conflict of interest between what does count as student success and what should count as institutional success.

Conclusions

As this investigation illustrates, several California Community College curricular areas have drastically shifted from an academic orientation to a more vocational one marked by a greater focus on short term certificates. The increasing vocational focus may not currently hinder the educational attainment of students, but over time an institutional focus on short term vocational certificates and associate degrees, as opposed to university transfer, may, indeed, have such an effect (Roksa, 2006). Furthermore, this vocational emphasis may be preparing more and more community college students for lower wage jobs in sectors where employment demand may not keep pace with supply.

Thus, researchers and policymakers in California should keep their eyes on two potentially troubling trends. First, while the increase of vocational certificates has not affected student attainment of associate degrees negatively across the board, in 39% of curricular areas there has been a marked decrease in associate degree attainment and a marked increase in vocational certificates. Further research could compare growth rates in associate degrees, vocational certificates, and university transfers by curricular area in order to examine this phenomenon more fully and identify its effects on student educational attainment. Second, the California Community College curriculum is clearly producing more short term vocational certificates and associate degrees than transfer students, based upon comparative growth rates for transfer students and community college awards. Indeed, if transfer rates level off, and certificate and associate degree rates continue to grow, an institutional focus on short term awards may affect the community college's role in the facilitation of student transfer in a negative way.

Institutional responsibility for students' educational attainment is both limited and complex, but institutional behaviors such as the provision of more and more short term credentials, especially in traditionally academic areas, may have unintended consequences. These may include reducing university transfer rates or increasing short term training for low wage jobs. While community colleges use measures such as credentials awarded and transfer rates (often in an aggregate measure of institutional

accountability) to highlight student educational attainment and to legitimize institutional outcomes, these measures need to be used with caution so that they do not obscure trends that show the unintended consequences of one kind of action (e.g., awarding of more and more short-term credentials). The unintended consequences of credentialing for low wage jobs (including possibly hindering the community college transfer function and preparing students for jobs in slow growth employment sectors) suggest that the California Community College system needs to review and assess its current programming priorities to ascertain ways in which trends in credentialing can be reconciled with a labor market and society that demands and rewards fewer low skill, low wage workers and greater numbers of bachelor's degree recipients.

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Appendix: Additional Charts & Graphs

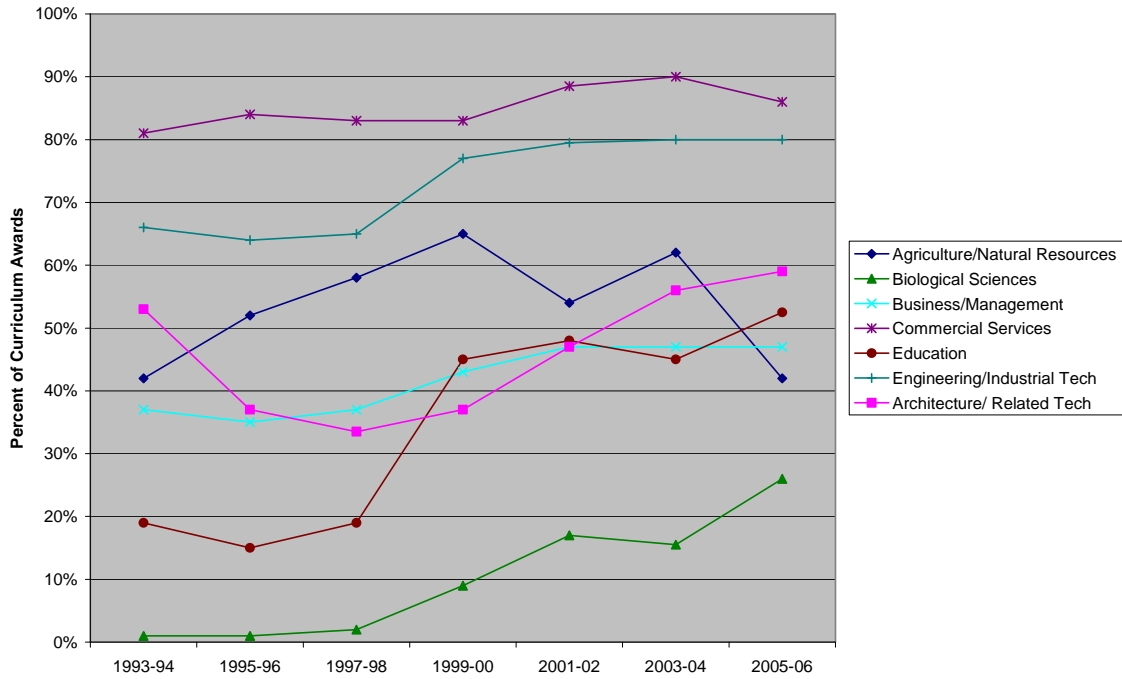
Appendix 1

California Community College Curricular Areas

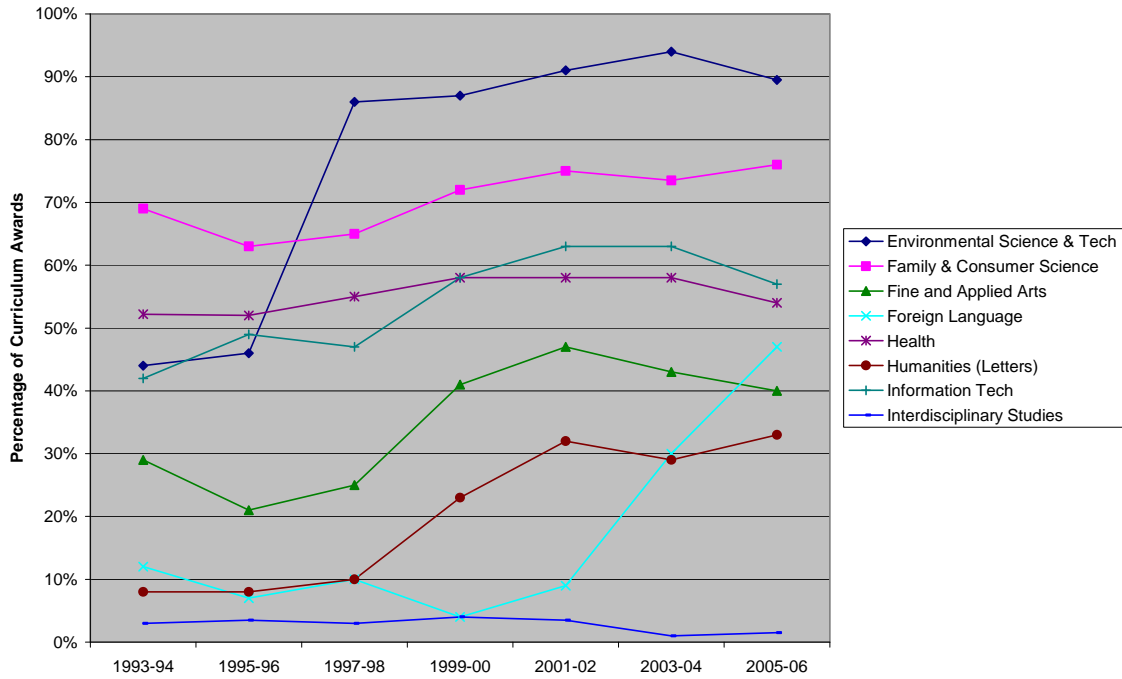
Agriculture/Natural Resources	Humanities (Letters)
Architecture/ Related Tech	Information Tech
Biological Sciences	Interdisciplinary Studies
Business/Management	Law
Commercial Services	Library Science
Education	Mathematics
Engineering/Industrial Tech	Media & Communications
Environmental Science & Tech	Physical Sciences
Family & Consumer Science	Psychology
Fine and Applied Arts	Public & Protective Services
Foreign Language	Social Sciences
Health	

Appendix 2

California Community College Vocationalization of the Curriculum, Part 1

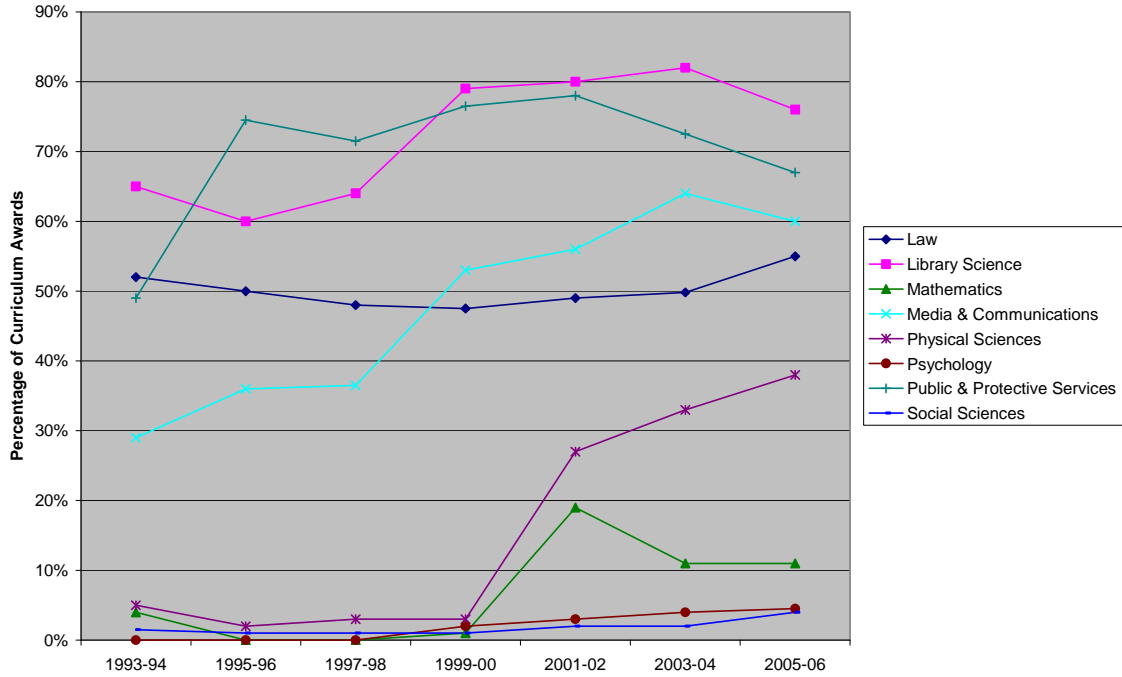


California Community College Vocationalization of the Curriculum, Part 2



Appendix 4

California Community College Vocationalization of the Curriculum, Part 3



Appendix 5

Vocationalization of the Curriculum, Part 4 (Largest Increases)

