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Community Colleges under Stress

Publicly funded two-year colleges are facing daunting challenges in dealing with surging enrollments of disadvantaged and unprepared students.

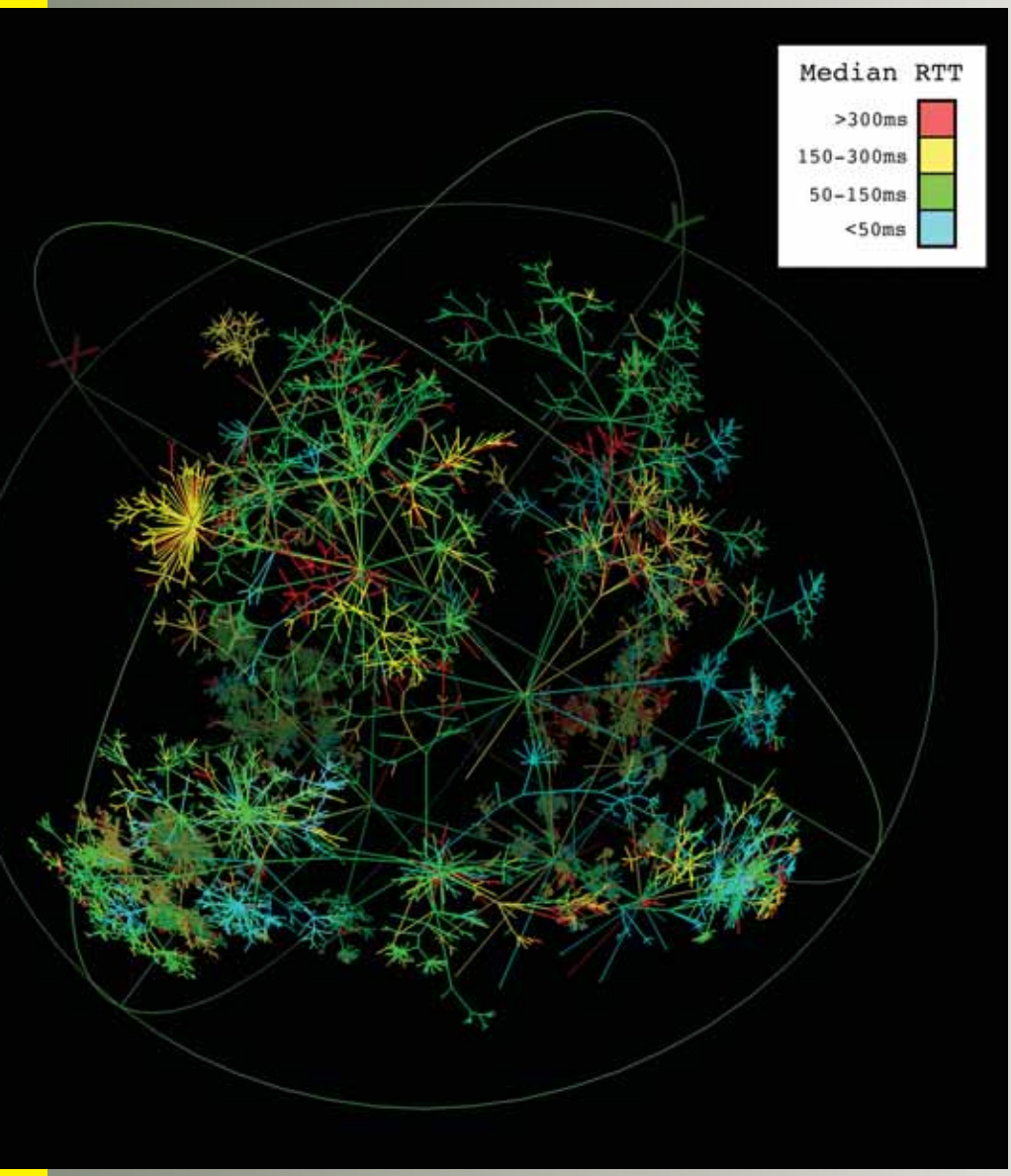
It is now generally recognized that a high-school degree is no longer sufficient to achieve a family-supporting income in today's society. Society is increasingly divided by income, and income is highly correlated with education, with higher earners having at least a four-year degree. Real hourly wages for those with only a high-school diploma fell slightly between 1973 and 2005, from $14.39 to $14.14. Wages for those with a college degree but no postgraduate training rose modestly during the same period, from $21 to $24.67. Those with postgraduate training did even better.

Individuals have increasingly recognized the benefits of more education, which has lead to big increases in applications to colleges at all levels. At the same time, higher education, especially a four-year college degree, is becoming more costly. As a result, more individuals are applying to two-year community colleges, which now enroll almost half of all college students, including disproportionate numbers of minority and immigrant students.

Many community colleges are finding it difficult to deal with this new enrollment onslaught. As publicly funded institutions with limited resources, community colleges must deal more than ever before with the challenge of educating students that are both more disadvantaged and less prepared for college work. They are often asked to fulfill numerous missions, including providing academic, vocational, noncredit, and enrichment courses to their communities, and playing a role in local economic development. Although the colleges differ considerably from one another in terms of the missions they are willing to undertake, there is a core mission shared by virtually all community colleges of enabling low-income students and those with relatively weak academic achievement to continue their education and acquire useful skills. They face three key challenges: unprepared students, financial stress, and high dropout rates.

The remedial education challenge

At most colleges, substantial numbers of incoming students are not prepared for college-level work in at least one of the basic subjects of mathematics, reading, and writing. Students who do not pass placement exams in math and English must first take a remedial class before beginning regular class work. Today, it is a rare institution that does not have a significant share of its student population enrolled in remedial courses, with community colleges bearing the brunt of the problem. In the fall of 2000, 42% of first-year students at two-year public schools enrolled in at least one remedial course, compared with 20% at public four-year schools and 12% at private four-year schools.



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In mathematics and computer science, a graph is a set of points or nodes connected by lines that can be considered equivalent in either direction (from A to B equals from B to A). In a directed graph, or digraph, each direction is considered distinct and called a direct arc or link. Digraph analysis has a wide set of applications as a deductive tool, especially in the social sciences, where points often stand for individuals and arcs for relationships between them. Walrus is a visualization tool that clearly illustrates the results of a digraph visualization analysis for particularly large amounts of data, optimally with a few hundred thousand nodes. Applied to the Internet, these visualizations allow us to appreciate the complex world of Internet connectivity and even the way viruses and worms spread.

Walrus graph visualization tool. Java and Java3D software, 2001–02.

Image by Young Hyun and Bradley Huffaker

Remedial courses are controversial for many reasons. Students don't like them, because they feel that having earned a high-school degree, they are ready for college work. They take time and money and postpone the earning of college credits and the attainment of degrees and certificates. Placement into remedial courses may result in some students leaving college earlier than they otherwise would have. The public complains that they are paying for students to retake subjects they should have mastered in high school. College faculty and administrators, blaming deficiencies in the K-12 system, are often frustrated by the difficulties of serving an unprepared student population.

There is some basis for student complaints, because placement tests are not a reliable predictor of success in remedial courses. In a 2007 study for the Connecticut Community College System, Davis Jenkins and I found only a weak correlation between placement test scores and success in remedial or "gatekeeper" courses (courses required to earn a degree or to continue on to higher study in a particular subject). Part of this is due to the inability of a single high-stakes test to accurately measure student skills and to predict future outcomes, and part is due to the inconsistency of the curriculum and grading of the same course across different instructors. This argues for greater standardization in curriculum and grading, as well as applying more care to student placement. More attention could be paid to individual students, their motivation, and their records in order to improve placement, but this would be costly.

Moreover, it is not clear that remedial instruction is effective. There has been little rigorous research on this topic. One study, by Eric Bettinger and Bridget Terry Long, of students in Ohio found that those who took remedial courses had better outcomes, including better levels of retention and degree completion. They noted, however, that remediation is costly: more than $1 billion annually for public colleges alone. In another study, Juan Carlos Calcagno found that remediation increased the likelihood that students would enroll in the subsequent fall term but made no difference in their chances of passing first college-level courses, in completing associate degrees, or of transferring to a four-year school.

It is unfortunate that so many students must take remedial courses. How could we reduce the number? In addition to improving the K-12 system, it appears that the best strategy is to improve coordination between high schools and colleges.

Today, it is rare to find much coordination between high schools and community colleges, despite the fact that they typically are located near one another. High schools and colleges operate in their own institutional silos, with limited communication. It would require substantial reform to better coordinate them. All we have currently are some programs that aim to give students a taste of college while still in high school. In the absence of a seamless system that aligns high-school curricula with those of colleges, such programs can at least give students an idea of what is needed for college-level work.

Traditionally, college-level work was restricted to top high-school students, who enrolled in advanced placement (AP) courses. Increasingly, students are taking dual-enrollment courses—college-level courses taken while a student is still in high school and count for both high-school and college credit. These courses, which are often offered to a broader spectrum of students than AP courses, can give students a better sense of what is required to succeed in college and may prompt them to improve their college preparation. They may also cause students to raise their aspirations. A 2007 study by Melinda Mechur Karp and her colleagues found evidence that dual enrollment can boost postsecondary outcomes in some contexts.

Another program currently being tried is the early-college program, in which students combine their work toward a high-school diploma with work toward an associate degree or two years of college-level credits to transfer to a four-year institution. The program aims to raise aspirations and expectations and to offer students who work hard in high school the rewards of reduced time in college and earlier entry to the workforce. The largest such initiative, the Early College High School initiative (www.earlycolleges.org), is funded by a number of large foundations and targets schools with high numbers of poor and minority students. Although these programs have the potential to boost high-school graduation rates in schools where they are relatively low, to improve college preparation, and to improve postsecondary outcomes, there is not yet any hard evidence that they are effective.

Another promising strategy that could potentially improve the efficacy of remediation is the "learning community," in which groups of students take a number of courses together, with faculty coordinating the teaching. In this arrangement, a remedial course can be coupled with a college-level subject course. A student might take a remedial English course in combination with college-level history and sociology courses. The reading and writing in the remedial course would use materials from the college-level course.

Learning as a group can create a sense of teamwork and connectedness that can improve student motivation and success. In addition, if students see a connection between remedial courses and college-level success, it may motivate them to work harder in the remedial courses. An experimen-

tal evaluation by Susan Scrivener and colleagues of learning communities at a community college in Brooklyn, New York, found some positive impacts of the program. Students in the learning community had better outcomes during the semester in which the learning community was implemented and completed the college's remedial English requirements faster.

Financial stress

Financial pressures are increasingly prompting states to direct more students to community colleges, where costs are far less than at four-year schools. Full-time community college teachers are paid substantially less than their counterparts at four-year colleges. In 2007, according to the *Chronicle of Higher Education*, the average salary for a full professor at a doctoral-level public university was $106,495, compared with $68,424 at a two-year institution, and $50,474 at a two-year institution without academic ranks. Community college teachers also typically have a much heavier teaching load.

Most community colleges, however, lack the funding to handle increasing enrollments, creating pressures for cost cutting. "Nonessential" services such as counseling are often the first to go. The number of part-time faculty members has been increasing, with more of these teachers working at more than one campus. Research indicates that student engagement with a campus can promote retention and positive outcomes; heavy use of part-time faculty who are unlikely to have attachment to any one campus is not likely to promote such engagement.

Community colleges get most of their funding from three sources: local property taxes, state allocations, and student tuition and fees. Revenue from the latter is limited because the cost of tuition and fees is so low, averaging about $2,400 annually compared to about $6,200 at public four-year colleges, according to the American Association of Community Colleges. (In contrast, tuition at elite colleges is much higher; for instance, it is $37,000 at my school, Columbia University, which allows for many more services to students.) State funding fluctuates as economic and political conditions change, and community college leaders increasingly complain that they are not receiving enough state support even to keep up with inflation and enrollment increases.

Unlike elite colleges, community colleges also have little in the way of endowment funds to draw on. The philanthropic community needs to recognize this inequality, although it is an uphill battle, given that much of the elite colleges' endowments are raised from wealthy alumni.

Major foundations, at least, have recognized the critical role of community colleges in serving less-advantaged populations. They have funded projects such as the Ford Foundation's Bridges to Opportunity program (www.communitycollegecentral.org), which focuses on state-level initiatives to help community colleges, with a particular focus on improving outcomes for low-income adults. With its grant, the community college system in the state of Washington developed a communications strategy aimed at marketing the system in order to demonstrate its value to key constituencies such as legislators, business leaders, and potential students, with an eye to increasing state support for the system. One result of this strategy was the creation by the state legislature of an "opportunity grant" program, which provides grants to low-income students to help them persist in college.

Poor student outcomes

For a variety of reasons, degree-completion rates at community colleges tend to be relatively low. Take, for instance, California, which, like most states, operates a stratified higher-education system, with the University of California (UC) on top, followed by the California State University (CSU) system, and finally the community college system. Many students have been shunted away from the first two systems and into community colleges, partially as a cost-cutting measure.

In a 2007 study, Nancy Shulock and Colleen Moore found that of public undergraduates in California, 73% attended a community college, 18% attended a CSU campus, and 9% attended a UC campus. Of the community college students, 60% were seeking a degree, with the remainder attending for reasons such as personal enrichment and obtaining job skills. Among all degree-seekers, only 24% were eventually able to transfer to a four-year school or obtain an associate degree or a certificate within a six-year period.

Students have high educational aspirations: Of high-school seniors who participated in the 2002 Education Longitudinal Study, 69% expected to earn a four-year degree or higher; another 18% expected to either earn a two-year degree or at least attend some college, according to the U.S. Department of Education. Actual degree-completion rates are much lower.

Bachelor's degree–completion rates for students who begin their careers at four-year colleges are relatively high. Three studies (one from 1992–2000, one from 1994–2000, and one from 1995–2001) found that these rates ranged from 60 to 70%, within a six-to-eight–year period. However, the results for community college students are much less positive. In a 2006 study, Thomas Bailey, Peter Crosta, and Davis Jenkins found a six-year graduation rate for

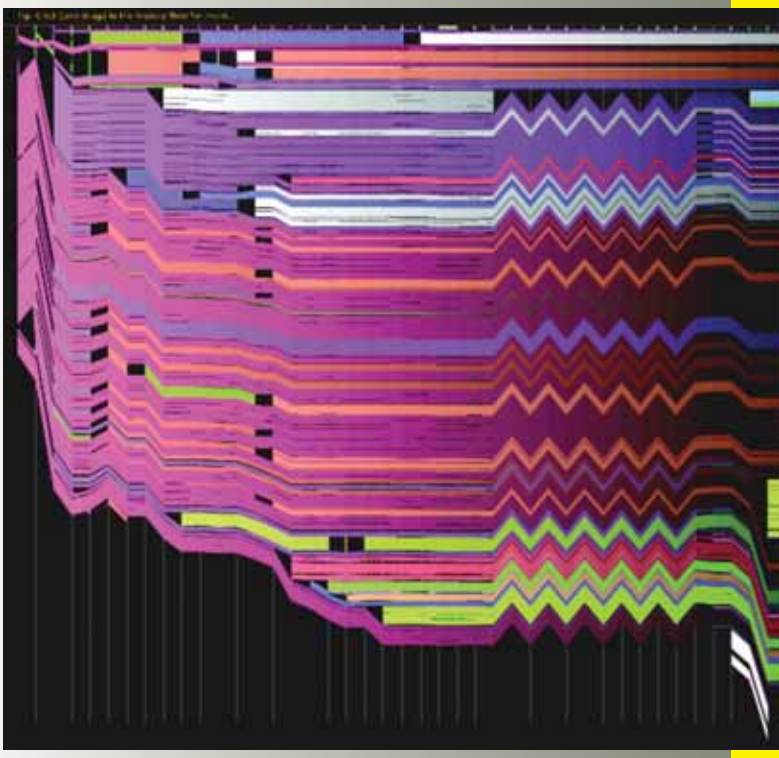
community college students of slightly less than 40%, for a cohort starting in fall of 1996. The graduation rate varies greatly from institution to institution because schools vary in many dimensions.

In addition to being unprepared for college work, community college students often lack knowledge of how to succeed in college. They often do not have adequate study skills. They may be the first in their families to attend college, so they have not learned much about college life from parents or peers. They may not know how to interact with faculty and how to make use of college resources such as the library, the counseling center, the computer lab, or the tutoring center. They may not be well briefed on their college's programs and how they are connected to careers, and they often do not know what they need to do in order to earn a degree or to transfer to a four-year institution. They often do not know how to balance their school, work, and personal lives. If they are given all of this information, they tend to become more engaged with the campus, which can lead to higher retention and greater student success.

As a result of the many difficulties students face in adjusting to college, many campuses have developed special courses that aim to improve student information. These courses go by various names, such as "student life skills" courses or "student success" courses. An initial examination of courses in Florida, which I conducted in 2007 with Juan Carlos Calcagno and Davis Jenkins, found a positive correlation between taking these courses and outcomes such as degree completion and transfer to a four-year institution, although a causal relationship was not established. Despite these positive results, most community colleges lack the incentive to provide such courses, in part because state funding is awarded on the basis of total enrollments rather on retention or successful outcomes.

Tracking students and measuring outcomes could help community colleges improve, because by doing so, the colleges could begin to evaluate their programs and engage in a process of continuous improvement, similar to the approach taken in the business world. Yet most institutions track their students only to the extent required for reporting to state agencies and the federal government. The foundation-funded Achieving the Dream (www.achievingthedream.org) project is a promising new program aimed at helping colleges begin the process of tracking students and measuring student outcomes, and then devise strategies for improving these outcomes

Some states have started performance-incentive programs for community colleges, rewarding them financially for improved student outcomes. These programs have been,



Fernanda Bertini Viégas and Martin Wattenberg

History Flow presents visualizations of the flow of editing that takes place on all Wikipedia entries. Taking advantage of Wikipedia's free access to the complex layers of every entry's contributing history, *History Flow* maps the entire sequence of versions of the same entry, providing a chronicle of a not always harmonious collaborative process. The example shown here is the history of the popular entry for chocolate, as of 2003. Each color corresponds to a different contributor. Each vertical line, called a "revision line," corresponds to the beginning of changed or updated text, and a line's length indicates the length of the text. The visualization thus concisely conveys the level of debate and controversy surrounding a topic.

History Flow, Java software, 2003. Image by Visual Communication Lab, IBM Research

to date, quite modest in magnitude and appear to have achieved only modest results, according to a 2006 study by Kevin Dougherty and Esther Hong. In order to see perhaps larger effects, one would need to put in place stronger incentives, but this is controversial, because community colleges argue that if they were given sufficient resources to do their job in the first place, they would be more successful. The state of Washington is currently putting in place a system with modest incentives, with plans to make them stronger over time.

The road ahead

A number of approaches have been taken to tackle the problems of unprepared students, financial stress, and high dropout rates, but a few stand out. Obviously, if the K-12 system did a better job of preparing students for college, the problem of unprepared students would greatly diminish. Better integration is needed between the K-12 and college systems; they should communicate continuously and increasingly function like a single system.

Limited finances are hobbling the ability of community colleges to fulfill their multiple missions. Although more money is not the solution to all problems, it is clear that it is better, all things being equal, to be less reliant on part-time faculty and to allocate money to support strategies such as tutoring and mentoring, supplemental instruction, individualized student counseling, and programs to assist students to succeed in college. More financial assistance to students, including help with travel and child care expenses, could help reduce dropout rates. Incentive programs may also be helpful. An experiment in Louisiana, according to a 2006 paper by Thomas Brock and Lawshawn Richburg-Hayes, found that scholarships that required students to maintain a certain level of enrollment and performance improved student outcomes.

Finally, more attention needs to be paid to improving student success in college. Performance incentives may be helpful, so that colleges are financed not just on the basis of enrollments but in terms of successful outcomes. Obviously, it would be better if such incentives were created with additional funds, instead of cutting into base funding, which is currently insufficient. Tracking of students must be improved, so that it can be determined which programs and which colleges within state systems produce the most favorable outcomes. As with all of the above, continued experimentation and rigorous evaluation of programs are needed to find solutions that work.

Recommended reading

Thomas Bailey, Peter M. Crosta, and Davis Jenkins, *What Can Student Right-to-Know Graduation Rates Tell Us About Community College Performance?* (New York, NY: Community College Research Center, Teachers College, Columbia University, 2006, Working Paper No. 6).

Eric P. Bettinger and Bridget Terry Long, *Addressing the Needs of Under-Prepared Students in Higher Education: Does College Remediation Work?* (Cambridge, MA: National Bureau of Economic Research, 2005, Working Paper 11325).

Thomas Brock and Lashawn Richburg-Hayes, *Paying for Persistence: Early Results of a Louisiana Scholarship Program for Low-Income Parents Attending Community College* (New York, NY: MDRC, 2006).

Juan Carlos Calcagno, *Evaluating the Impact of Developmental Education in Community Colleges: A Quasi-Experimental Regression-Discontinuity Design* (New York, NY: Teachers College, Columbia University, 2007, doctoral dissertation).

Kevin Dougherty and Esther Hong, "Performance Accountability as Imperfect Panacea: The Community College Experience" in *Defending the Community College Equity Agenda*, eds. Thomas Bailey and Vanessa Smith Morest (Baltimore, MD: Johns Hopkins University Press, 2006).

Davis Jenkins and Matthew Zeidenberg, *Developmental Education Placement Policies and Student Success in the Connecticut Community Colleges*. Research Report to the Connecticut Community Colleges System (New York, NY: Community College Research Center, Teachers College, Columbia University, 2007).

Melinda Mechur Karp, Juan Carlos Calcagno, Katherine L. Hughes, Dong Wook Jeong, and Thomas R. Bailey, *The Postsecondary Achievement of Participants in Dual Enrollment: An Analysis of Student Outcomes in Two States* (St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota, 2007).

Nancy Shulock and Colleen Moore, *Rules of the Game: How State Policy Creates Barriers to Degree Completion and Impedes Student Success in the California Community Colleges* (Sacramento, CA: California State University, Institute for Higher Education Leadership and Policy, 2007).

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