

America needs a college-educated workforce. We need it to compete in the world economy, and to pay wages that sustain a broad domestic middle class. We need many more graduates with Bachelor's degrees, and we will need ever more in the future. Some colleges are threatened with closing down because of declining enrollments. Elsewhere, especially at community colleges, plenty of Freshmen are enrolling but they are dropping out after starting. The problem is that too many high school graduates are unprepared for what's required in college. Although it's a national problem, California is a prime example.

Presidential speeches and local school policies invoke "college readiness" as a guiding principle in efforts to help struggling students and underachieving schools. Social, economic, and demographic shifts have transformed all educational institutions, from Happy Days Preschool to Harvard University. Colleges have to adapt. State colleges and open-admission community colleges are especially hard-hit, needing to maintain high academic standards while enrolling low performing students. Too often, "high expectations" seem like wishful thinking.

Graduation rates are now the primary metric for judging high school and college performance. These rates also affect where money goes, be it state funding or tuition. Bad schools can close, educators can lose jobs.

People with a lot to lose are incentivized to game the system. Per Campbell's Law, "The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor." Graduation rates can be manipulated, by slowly lowering standards, or just cheating.

It isn't useful to compare a school district's graduation rate over decades, because graduation has been redefined to include Special Education accommodations, English Learners' accommodations, alternative schools, charter schools, online courses, home schooling, Adult Education, and GEDs. Independent Study has become popular, where turning in a weekly packet can be counted as equivalent to a week of physical attendance and completed assignments. And funded accordingly. Also, it was common practice to mislabel a dropout as someone who moved to another (imaginary) school, so they didn't count against the graduation rate. Students who still show up but whose years of failure make graduation impossible are offloaded to alternative county schools, at least until they turn 18 and are no longer governed by California's compulsory attendance law. A January 2018 Federal audit conducted by the U.S. Education Department's Office of Inspector General criticized California's self-reported graduation rates because they were inflated by "alternative" diplomas [13].

Unprepared college enrollees become unsalvageable college dropouts, left burdened with unproductive debt and the opportunity cost of wasted years. Colleges bear the cost of wasted resources by trying to compensate for unprepared students.

To improve college graduation rates we need to start with a sober assessment of what's wrong. Vague platitudes about reforms promise higher standards but somehow, after time, result in lower standards. At every level, from the White House to the classroom, changes were enacted, good things happened, but progress was spotty and far short of goals. Getting millions of people through high school and college is a non-trivial undertaking.

President Bush and a bipartisan Congress imposed the No Child Left Behind program in 2002, which promised to get all — repeat, *all* — high schoolers up to grade level proficiency by 2014. As the deadline approached thousands of schools found they were in serious trouble, subject to the law's punitive sanctions and potentially disastrous graduation rates. So "waivers" were granted and the program fizzled out.

Los Angeles Unified School District, second largest in the country after New York City, imposed graduation requirements in 2013 that incorporated the University of California and California State University admission requirements. When the class of 2017 was clearly headed for a disastrous percent of non-graduates, the policy was instantly revised. The passing grade went from C to D-, no longer meeting the UC or CSU requirement. Teachers, under pressure to pass all students, could more readily elevate an F to a D-. Thousands of students repeated courses they'd failed with accelerated online "Credit Recovery" programs. The graduation rate rapidly recovered.

Before 1999 California employers complained that high school graduates were under-educated and incapable of performing basic employee tasks. In response, students of the class of 2004 and thereafter were required to pass

an Exit Exam to demonstrate 10th-grade math and English proficiency, including a short written essay about a given prompt. If necessary, a student was afforded seven attempts. After administering the high-stakes test twice a year in all high schools in the state for 14 years, the test was abandoned in 2015 and diplomas awarded retroactively to 32,000 test failers [1][2].

For decades, the 114 open-admission California community colleges have been administering math and English placement tests for all newly-enrolling students. Depending on the particular campus, around 60 to over 90 percent were deemed "unprepared" and placed into non-credit remedial courses, frequently both subjects. They had to spend time and money for "college" while actually repeating high school. Many never passed these courses, so they never qualified for college level courses. Even if they completed all other course requirements, they reached a dead end. By 2010 only 30% of California community college students earned an Associate's degree or transferred to begin their Junior year within six years [3]. By 2017, the six-year rate improved to 48%, comprising Associate's degrees, transfers, and also certificates [4]. For those who do attain the Associate's degree, it takes an average of four years.[5] Although community colleges were intended to be a two-year stepping stone to a four-year college, only 4 percent transfer as beginning Juniors after only two years [6].

To alleviate the drop-out rate, this year community colleges are discontinuing remedial English and math courses, placing students into "corequisite" or "accelerated" courses. They are also dropping the College Algebra requirement, offering an arguably more accessible Statistics alternative for non-STEM majors [7] [14]. The CSU system has agreed to accept this, but the UC campuses may not.

Since 1960 the California Master Plan has provided for the top eighth of high schoolers to enroll in the University of California system, and the top third to enroll in the California State University system. As of 2015, nearly half of CSU Freshmen were rated "unprepared" after getting unacceptable scores on placement tests and were required to pass remedial courses prior to starting regular classes [8]. This, despite increased selectivity because there are 31,000 more "top third" qualified applicants than spots in the 23 CSU campuses. CSU hopes to make room by getting students graduated more quickly. They are adopting the same strategy as the community colleges, discontinuing remedial math and English courses in fall 2018 and placing all students into college-level courses. Instructors are expected to pass everyone, regardless of ability. Not all faculty are OK with that [9].

Meanwhile, taxpayers contribute less for higher education, states reduce funding, and tuition rises. Colleges compete for full-freight students, increasingly from another state or country, using the much higher tuition charges to subsidize aid for the majority of students who need it. Fewer students would mean empty seats, cancelled courses, reduced staff. Some small private colleges, facing shrinking enrollments, are fighting to stay open.

Nationally, student debt now exceeds that for cars and credit cards. It is second only to housing [10]. It's a massive burden on entire generations of students, inspiring political campaign promises of free college for all. Despite the real burden on millions of current and recent students, it's also true that California community colleges are super cheap, at \$46 per unit. Furthermore, about 40 percent of community college students have their fees waived anyway [11]. At Cal State, over 60 percent have their tuition fully covered by grants and waivers [12].

Historically, the value of a college education could be perceived in terms of personal enlightenment, but now the value is more practical, a sort of cost:benefit ratio, a form of career training where the assumed debt is rationalized by higher lifetime earnings. This is mostly true, for those with degrees. The big problem is that so many students drop out but are stuck with unaffordable debt. And no career training.

The purpose of this essay is to describe what's wrong — why students fail in college — and then to list specific factors that determine individual academic success or failure. It's a checklist to diagnose an individual's strengths and weaknesses. Knowing what to expect is the essential first step in preparation. College Freshmen commonly experience shock, confusion, and frustration. This checklist is a sort of ramp, to more gradually get up to a higher level. The skills and ideas will make sense and become familiar, and be a strong foundation for understanding more complex curriculum.

So here's the deal. This costs nothing but an investment of time. Anyone, anywhere, can use it to gain essential knowledge, to prepare for college or real life. A half an hour at a time, when convenient, to learn what's needed to function at a higher level. Most people, not just college students, don't know these things. People who do have a huge advantage. These basic concepts are profoundly important, yet easy to learn. Use the Internet or ask someone to explain. The knowledge is permanent and can be applied everywhere, every day, lifelong.

- [1] <http://www.latimes.com/politics/la-me-pc-high-school-exit-exam-20151007-story.html>
- [2] <http://www.latimes.com/politics/essential/la-pol-ca-essential-politics-updates-california-s-high-school-exit-exam-is-1507672851-htmlstory.html>
- [3] <http://articles.latimes.com/2010/oct/20/local/la-me-1020-community-colleges-20101020>
- [4] <https://edsource.org/2017/californias-community-colleges-seek-to-improve-their-graduation-and-transfer-rates/584844>
- [5] <http://www.latimes.com/local/education/la-me-college-study-20140701-story.html>
- [6] <https://edsource.org/2017/transfer-maze-awaits-california-community-college-students-advocacy-group-says/587074>
- [7] <http://edsource.org/2014/reworking-remedial-education/69786#.VGQQ7oeuQ7B>
- [8] <http://edsource.org/2015/summer-remedial-courses-now-required-for-nearly-half-of-csu-freshman/84160>
- [9] <http://www.sfchronicle.com/education/article/California-State-University-maxes-out-turns-away-12485749.php>
- [10] <https://college-education.procon.org/view.resource.php?resourceID=005459>
- [11] <http://articles.latimes.com/2014/jan/13/local/la-me-ln-college-waivers-20140113>
- [12] <http://www.latimes.com/local/lanow/la-me-cal-state-tuition-20170322-story.html>
- [13] <http://www.latimes.com/local/education/la-me-edu-california-graduation-audit-20180117-story.html>

[14] Highly recommended: If a just-starting freshman is certain to take pre-enrollment placement tests for math and English, he needs to be aware of the potentially life-altering high stakes involved, and not approach it as a routine task to be dispensed with before officially embarking on his Collegiate Path to Glory. Most students have no premonition that they are about to fail a test of math concepts they may not have seen since they were sophomores or juniors in high school. They will pay a huge price for this oversight. Any time spent reviewing and practicing math beforehand can make the difference between getting stuck in a no-credit (but full-time and full-price) remedial class and the college-credit class that their major requires and which will keep them on track to graduation.

College Readiness Checklist

Luck

IQ above 110

family can self-finance tuition, housing, living expenses, emergency reserves

Character:

ambitious, hard-working, persistent

does not condone cheating or plagiarizing

curious to sample a wide range of subjects and opinions

aware of demographic patterns: age, sex, generation, race, ethnicity

can work in quiet solitude or in a collaborative group

Skills:

has work experience: babysitting, odd jobs, retail clerk, cookie sales, EBay

has a driver's license

has a checking account in a bank or credit union

Tools:

can use notebook paper: blank, lined, graph

can use both ends of a pencil, plus a ruler, compass, and protractor

can memorize facts using mnemonic devices: numeric pegs, "memory palace," sketches

can memorize information using the test effect, flash cards

can memorize information by reinforcing at progressively longer intervals

Support:

can understand the full costs and risks of non-dischargeable student debt

can access college information, advice, counseling, help, tutoring

can be certain all community college credits count towards Bachelor's degree requirements after transferring to a specific four-year university

can show up for classes: has transportation and housing

can access routine and critical health care

Grit:

can use trial-and-error, iteration, incremental improvement

can learn from mistakes, accept failures as part of the learning process

can cope with difficulties and unexpected problems

can be flexible and switch to Plan B

can self-discipline and self-motivate

can overcome procrastination and start projects on time

can use deliberate practice to learn a skill

can prioritize achievement over entertainment, socializing, drugs & alcohol

can balance school demands with job, family, relationships

can maintain physical health with diet, sleep, breaks, exercise

can think independently and deflect peer pressure

can see both sides of an argument

can disagree calmly and civilly, without resorting to angry name-calling

Communication:

can pass a 10th-grade level high school English exit exam

can score above remedial level on a college Freshman English placement test

can read college-level English fluently

can print the alphabet without mixing up lower and upper case letters

can correctly spell the most commonly misspelled words

can parse unfamiliar words by knowing common Greek & Latin roots

can write a sentence, paragraph, or essay with parallel construction

can write and revise drafts, from a rough outline to a mistake-free essay

can write analytical or persuasive essays with supporting logic and facts

can relate a new idea by using a metaphor, simile, analogy, parable, map, model
can structure an essay or speech by relating historical context, present state, and future possibility
can use a word processor for laying out and typing a term paper
can use fonts, special characters, and basic keyboard symbols
can use the Internet for research

Math:

can add, subtract, and multiply single digit numerals from memory
can do long division with a two or three digit divisor
can use graphs: circle, bar, line, scatter, normal distribution
can use fractions, decimals, percents, and convert one to another
can use ratios & proportions, including setting up a percent problem as a proportion
can set up a basic probability equation, e.g.: $P(A, B, C)$
can factor polynomials and graph linear equations
can use order of operations (PEMDAS) in multi-step equations
can use right triangles: Pythagorean Theorem, sine-cosine-tangent
can use pi to calculate the diameter of a circle, area and volume of a sphere

Physical Science:

can relate Big Bang, galaxy, star, planet, moon
can identify four forces: strong, weak, electromagnetic, gravity
can parse the electromagnetic spectrum: R—M—IR—ROYGBV—UV—X—C
can explain how elements are identified by their unique light spectrum
can explain the law of conservation of energy; transform, not create
can explain how the inverse square law applies to sound, light, gravity
can relate high speed to exponentially-increased drag and braking distances
can explain what the Periodic Table of Elements represents
can sketch a carbon atom and water molecule, including electrons in shells, protons, and neutrons
can imagine atom proportions: Stadium = electron shell, marble = nucleus, period = electron
can define ionic, covalent, and metallic bonds
can define a crystal by describing its atomic-level geometry
can explain conductor, superconductor, semiconductor, and insulator

Biology:

can sketch the plant-animal photosynthesis cycle: $H_2O + CO_2 = CHO + O_2$
can sketch the water cycle
can sketch the nitrogen cycle; air = 78% N, human = 3% N (proteins, DNA)
can distinguish an animal cell from a cellulose-membrane plant cell
can explain a semi-permeable membrane
can relate evolution to species and environment

Geography:

can label a blank world map: continents, oceans, rivers, major countries,
can relate geographical locations to ecology, history, news, culture
can relate tectonic plates to continents, earthquakes, volcanoes

Economics & Political Science:

can distinguish correlation from causation
can explain profit motive
can explain how compound interest, over time, will increase wealth (e.g. stocks) or pile on debt (e.g. credit cards)
can explain Opportunity Cost, Return On Investment, Cost:Benefit ratio, and Risk:Reward ratio
can explain the meanings of marginal utility and diminishing returns
can explain what a share of stock is and what the stock market does
can explain the Pareto Principle of 80:20
can explain the Constitutional balance of powers: three branches of government
can list the five rights included in the first amendment
can identify and contact government representatives, from city council to Senator
can compare capitalism, democracy, federalism, socialism, communism, fascism