HILT Conference: Interactivity
Friday, September 30, 2016
10:45am – 12pm Breakout Session

Slowing down learning and the benefits of frustration
James Engell (facilitator)

References and Resources

I. Time and Effort and Results


II. Time: Ways of Learning and Assessments


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Is college too easy? As study time falls, debate rises

Some critics say colleges and their students have grown lazy. Today's collegiate culture, they say, rewards students with high grades for minimal effort and distracts them with athletics, club and climbing walls on campuses that increasingly resemble resorts.

Academic leaders counter that students are as busy as ever but that their attention is consumed in part by jobs they take to help make ends meet.

Consider George Mason, Virginia's largest public university and a microcosm of modern academia. Some students care for dependents. Many commute to class. Seventy percent of seniors hold off-campus jobs.

George Mason students spend 14 hours, on average, in weekly study, close to the national average.

"It's not enough," said Peter Stearns, the George Mason provost. "And it's a figure that troubles us, not only at Mason but in higher education generally."

The university has responded by launching an honors college and an undergraduate research initiative in recent years — driven, Stearns said, by "the need to create a more challenging undergraduate environment."

Tradition suggests that college students should invest two hours in study for every hour of classes. The reality — that students miss that goal by half — emerged from the National Survey of Student Engagement, a research tool for colleges that examines the modern student in unprecedented detail.

The survey, first published in 2000, queries freshmen and seniors. It reveals that study time can vary widely by college and by major. Architecture majors, for example, study 24 hours a week, while marketing majors put in only 12.

Colleges are not required to publish survey results. The Washington Post asked prominent colleges in Maryland, Virginia and the District to disclose their survey data on study time. Only at Washington and Lee University, in Virginia, did students report as many as 20 hours of weekly study.

At Sweet Briar College, a private women's school in Virginia, students reported 19 hours of study in an average week. Weekly study among seniors averaged 18 hours at St. Mary's College of Maryland, 17 hours at the College of William and Mary, 16 at the universities of Maryland and Virginia and Catholic University, 15 at American University and 13 at Howard University.

The University of the District of Columbia declined to release data on study time. Georgetown and George Washington universities have not given the survey recently.

https://www.washingtonpost.com/local/education/is-college-too-easy-as-study-time-falls-d... 9/12/2016
Evidence of declining study was mostly ignored until 2010, when two University of California economists brought the issue to the fore in a paper titled "Leisure College, USA."

Philip Babcock and Mindy Marks unearthed previous research, part of a longitudinal study called Project Talent, that showed students of 1963 spent about 24 hours a week studying.

They calculated that those students spent another 16 hours in class time, or 40 hours in total weekly scholarship, giving college, for them, the feel of a full-time endeavor.

By contrast, the typical student today spends 27 hours a week in study and class time, roughly the same time commitment expected of students in a modern full-day kindergarten.

"This is an absolutely enormous change in postsecondary education, possibly as big as anything we've seen in the last 50 years," Babcock said.

The finding has led some critics to question whether college is delivering on its core mission: student learning. Sociologists Richard Arum and Josipa Roksa identified lack of study as a key failing of academia in their 2011 report "Academically Adrift," which found that 36 percent of students made no significant gains in critical-thinking skills in college. Arum's own research found that students study only 18 hours a week.

"What students are getting is four or five years of country club living," said Richard Vedder, an Ohio University researcher who studies the economics of higher education.

Some academics dispute the evidence of a downward trend in study time. They note that the findings are based on different surveys and on the fallible accounts of students. Babcock and Marks say their analysis accounts for those subtleties. The director of the student engagement survey, Alexander McCormick, concurs that the findings are sound.

By many accounts, students are far from lazy — it's just that things besides schoolwork are consuming more of their time.

"They're working full time and going to school full time, which I think is absurd," said Joe Schmoe, a sociology professor at George Mason. "I asked a class recently how many were working, and there were only two who weren't."

https://www.washingtonpost.com/local/education/is-college-too-easy-as-study-time-falls-d... 9/12/2016
Sweet Briar, on a rural campus outside Lynchburg, is a regional leader in study time. Yet, the school is only modestly selective. Four-fifths of applicants are admitted, and SAT scores average about 1,100 out of a maximum 1,600 points in reading and math.

What sets such schools apart? Pedro Pous, dean of academic life at DePauw, found class sprinkled across the student survey. DePauw students almost never work off campus, care for relatives or commute long distances. DePauw seniors are twice as likely as students at other schools to read at least 11 assigned books in an academic year. They write more than their peers.

"They're held accountable for how well they can speak, and how well they can draw upon evidence, and whether they know what they're talking about," Pous said.

Another key to study time is one's choice of major. McCormick, director of the student engagement survey, analyzed 85 majors and found a 13-hour spread in average weekly study. Architecture students studied the most, at 24 hours a week. Farther down the list, in descending order: physics (20 hours), music and biology (19), history (13), psychology (14), communications (13) and, at 11 hours, parks, recreation and leisure studies.

"Every one of these colleges has some students who are studying quite a bit," McCormick said. "And, to balance things out, some students who are studying very, very little."

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he's part of this mafia, Andy will vouch for the power of SOLEs. He was a Montessori kid for the earliest years of his schooling, and agrees completely with Larry Page that "part of that training [was] not following rules and orders, and being self-motivated, questioning what's going on in the world, doing things a little bit differently."12

Our recommendations about how people can remain valuable knowledge workers in the new machine age are straightforward: work to improve the skills of ideation, large-frame pattern recognition, and complex communication instead of just the three Rs. And whenever possible, take advantage of self-organizing learning environments, which have a track record of developing these skills in people.

Failing College

Of course, this is easier said than done. And it appears that it's not being done very well in many educational environments. One of the strongest bodies of evidence we've come across that suggests students aren't acquiring the right skills is the work of sociologists Richard Arum and Josipa Roksa and summarized in their book Academically Adrift: Limited Learning on College Campuses and subsequent research.13 Arum and Roksa made use of the Collegiate Learning Assessment (CLA), a recently developed test given to college students to assess their abilities in critical thinking, written communication, problem solving, and analytic reasoning. Although the CLA is administered via computer, it requires essays instead of multiple-choice answers. One of its main components is the 'performance task,' which presents students with a set of background documents and gives them ninety minutes to write an essay requiring them to extract information from the materials given and develop a point of view or recommendation. In short, the performance task is a good test of ideation, pattern recognition, and complex communication.

Arum, Roksa, and their colleagues tracked more than 2,300 stu-
Students enrolled full-time in four-year degree programs at a range of American colleges and universities. Their findings are alarming: 45 percent of students demonstrated no significant improvement on the CLA after two years of college, and 36 percent did not improve at all even after four years. The average improvement on the test after four years was quite small. Consider a student who scored at the fiftieth percentile as a freshman. If he experienced average improvement over four years of college, then went back and took the test again with another group of incoming freshmen, he would score only in the sixty-eighth percentile. The CLA is so new that we don’t know if these gains would have been bigger in the past, but previous research using other tests indicates that they were, and that only a few decades ago the average college student learned a great deal between freshman and senior years.

What accounts for these disappointing results? Arum, Roksa, and their colleagues document that college students today spend only 9 percent of their time studying (compared to 51 percent on “socializing, recreating, and other”), much less than in previous decades, and that only 42 percent reported having taken a class the previous semester that required them to read at least forty pages a week and write at least twenty pages total. They write that, “The portrayal of higher education emerging from [this research] is one of an institution focused more on social than academic experiences. Students spend very little time studying, and professors rarely demand much from them in terms of reading and writing.”

They also find, however, that at every college studied some students show great improvement on the CLA. In general, these are students who spent more time studying (especially studying alone), took courses with more required reading and writing, and had more demanding faculty. This pattern fits well into conclusions by education researchers Ernest Pascarella and Patrick Terenzini, who summarized more than twenty years of research in their book How College Affects Students. They write that “the impact of college is largely determined by individual effort and involvement in the academic, interpersonal, and extracurricular offerings on a campus.”

This work leads directly to our most fundamental recommendation to students and their parents: study hard, using technology and all other available resources to ‘fill up your toolkit’ and acquire skills and abilities that will be needed in the second machine age.

**Tools to Help You Stand Out**

Acquiring an excellent education is the best way to not be left behind as technology races ahead. The discouraging news is that today many students seem to be squandering at least some of their educational opportunities. The good news, though, is that technology is now providing more of these opportunities than ever before.

Motivated students and modern technologies are a formidable combination. The best educational resources available online allow users to create self-organized and self-paced learning environments—ones that allow them to spend as much time as they need with the material, and also to take tests that tell them if they mastered it. One of the best known of these resources is Khan Academy, which was started by then-hedge fund manager Salman Khan as a series of online doodles and YouTube video lectures intended to teach math to his young relatives. Their immense popularity led him to quit his job in 2009 and devote himself to creating online educational materials, freely available to all. By May 2013, Khan Academy included more than 4,100 videos, most no more than a few minutes long, on subjects ranging from arithmetic to calculus to physics to art history. These videos had been viewed more than 250 million times, and the Academy’s students had tackled more than one billion automatically generated problems.

Khan Academy was originally aimed at primary-school children, but similar tools and techniques have been also applied to higher education, where they’re known as massive online open courses,
or MOOCs. One of the most interesting experiments in this area came in 2011 when Sebastian Thrun, a top artificial intelligence researcher (and one of the main people behind Google's driverless car), announced with a single email that he would be teaching his graduate-level AI course not only to students at Stanford but also as a MOOC available for free over the Internet. Over 160,000 students signed up for the course. Tens of thousands of them completed all exercises, exams, and other requirements, and some of them did quite well. The top performer in the course at Stanford, in fact, was only the 411th best among all the online students. As Thrun put it, "We just found over 400 people in the world who outperformed the top Stanford student."16

In chapter 9, we described the growing gap in earnings between those with and without college degrees. Our MIT colleague David Autor summarizes the research by writing that "large payoffs from schooling are increasingly associated with the attainment of four-year and postcollege degrees. . . . Workers with less than a college education cluster relatively closer together in the earnings distribution while the most educated groups pull away."17 College graduates are also much less likely to be unemployed than the less educated. Economics reporter Catherine Rampell points out that college graduates are the only group that has seen employment growth since the start of the Great Recession in 2007, and in October of 2011 the unemployment rate for bachelor's degree holders, at 5.8 percent, was only about half that of those with associate's degrees (10.6 percent) and a third that of those who stopped after high school (16.2 percent).18

The college premium exists in part because so many types of raw data are getting dramatically cheaper, and as data get cheaper, the bottleneck increasingly is the ability to interpret and use data. This reflects the career advice that Google chief economist Hal Varian frequently gives: seek to be an indispensable complement to something that's getting cheap and plentiful. Examples include data scientists, writers of mobile app apps, and genetic counselors, who have come into demand as more people have their genes sequenced. Bill Gates has said that he chose to go into software when he saw how cheap and ubiquitous computers, especially microcomputers, were becoming. Jeff Bezos systemically analyzed the bottlenecks and opportunities created by low-cost online commerce, particularly the ability to index large numbers of products, before he set up Amazon. Today, the cognitive skills of college graduates—including not only science, technology, engineering, and math, the so-called STEM disciplines, but also humanities, arts, and social sciences—are often complements to low-cost data and cheap computer power. This helps them command a premium wage.

However, another part of the college premium is less encouraging. More and more employers are requiring college degrees, even for entry-level jobs. As Rampell writes, "The college degree is becoming the new high school diploma: the new minimum requirement, albeit an expensive one, for getting even the lowest-level job. . . . Across industries and geographic areas, many other jobs that didn't used to require a diploma—positions like dental hygienists, cargo agents, clerks and claims adjusters—are increasingly requiring one."19 This "degree inflation" is troubling because a college education is expensive and causes many people to go into debt. By the end of 2011, in fact, student loan debt in America was greater than either total outstanding car loans or credit card debt.20 We hope that MOOCs and other educational innovations eventually provide a lower-cost alternative to traditional colleges, and one that is taken seriously by employers, but until that time comes a college degree remains a vital stepping stone to most careers.

In the future, more and more careers will not be in pure information work—the kind that can be done entirely from a desk. Instead, they will include moving through and interacting with the physical world. This is because computers remain comparatively weak here, even as they get so much stronger at many cognitive tasks. Advances like autonomous cars, drone airplanes, the Baxter robot,
and hacked Kinect devices that can map a room show that great progress has been made in giving machines real-world capabilities, but a towel-folding robot illustrates how far we are from cracking Moravec's paradox. A team of Berkeley researchers equipped a humanoid robot with four stereo cameras and algorithms that would allow it to 'see' towels, both individually and in piles. These algorithms worked; the robot successfully grasped and folded the towels, even though it sometimes took more than one try to grab them correctly. However, it took an average of 1,478 seconds, or more than twenty-four minutes, per towel. The robot spent most of that time looking to learn where the towel was and how to grasp it.21

Results like these indicate that cooks, gardeners, repairmen, carpenters, dentists, and home health aides are not about to be replaced by machines in the short term. All of these professions involve a lot of sensorimotor work, and many of them also require the skills of ideation, large-frame pattern recognition, and complex communication. Not all of these jobs are well paying, but they're also not subject to a head-to-head race against the machine.

They may, however, be subject to more competition among people. As the labor market polarizes more and the middle class continues to hollow out, people who were previously doing mid-skill knowledge work start going after jobs lower on the skill and wage ladder. After medical billing specialists have their work automated, for example, they may start looking for jobs as home health aides. This puts downward pressure on wages and makes it harder to find a job in that profession. Even if home health aides remain largely immune to automation, in short, they won't necessarily be immune to all the effects of digitization.

The Fuzzy Future

We have to stress that none of our predictions and recommendations here should be treated as gospel. We don't project that computers and
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for malpractice. Increasingly, commentators were asking whether college was worth it, and often explicitly invoked our prior work to question the value of undergraduate education. In spite of this sometimes shrill commentary, social scientific research on how college graduates fared during the recent economic downturn demonstrated that college-educated young adults continued to experience significant advantages in finding desirable employment, relative to those young adults without a degree. Sociologist David Grusky and colleagues write, "The deteriorating market situation of recent college graduates, while real and troubling, is nonetheless less extreme than that experienced by less-educated groups."

Significance and Measurement of General Collegiate Skills

Our project is unique in that it includes an objective measure of student performance in critical thinking, complex reasoning, and writing as students move through college and then transition into the labor market as well as other aspects of adulthood following graduation. While we are unable to explore the extent to which other, subject-specific, competencies make independent contributions to improving graduate outcomes, our focus on a measure of general collegiate competencies is particularly relevant now, for multiple reasons.

First, there is increasing evidence that generic skills, such as analytical ability, have significant and growing consequences for labor market success. Recent research by sociologists Yujiia Liu and David Grusky is particularly compelling in this regard. Analyzing data from several million respondents in Current Population Surveys (CPS) from 1979 through 2010, Liu and Grusky identify different skill requirements required for occupations by applying ratings developed by independent analysts at the Department of Labor as well as by representative individuals in those occupations who were surveyed about this issue. As the CPS data also include earnings reports, Liu and Grusky were able to track changes in the relative payoffs for different types of occupational skills over this time period. These returns can be thought of as the "revealed demand" for various skills, although changes in occupational earnings are also influenced by other institutional factors (such as the decline of unions).44 Liu and Grusky demonstrate increases over the past three decades both in the skill requirements of occupations—particularly for computer, creative, managerial, and nurturing skills—and in economic returns for analytic, computer, managerial, and nurturing skills. Some skills, such as creative competencies, which were rising in prevalence across occup-

ations, had negative returns associated with them in general, and were actually experiencing rapidly deteriorating returns over the last three decades, indicating an oversupply of workers with skills suited for "dancers, journalists, poets, sculptors, creative writers, artists, and all manner of associated creative types." On the other hand, increases in returns for analytical skills were particularly striking. According to Liu and Grusky, "Demand for analytic skills may be increasing because (1) they require intuitive problem solving skills that cannot easily be substituted with computer programming or software (unlike quantitative and verbal skills), and (2) the accelerating 'creative destruction' of modern capitalism places a growing premium on innovation, problem solving, and rapid response to changing market conditions." A standard deviation increase in analytical skills was associated with 10.4 percent greater wages in 1980 and 17.5 percent greater wages in 2010. Analytical skills not only had the greatest increase in returns over this time period, but also had high returns overall. Liu and Grusky note, "The defining feature...of the last 30 years has been a precipitous increase in the wage payoff to jobs requiring synthesis, critical thinking, and deductive and inductive reasoning."

Second, these generic competencies have broad applications; and multiple stakeholders, from colleges to employers, repeatedly assert that they represent core student learning outcomes. While students are expected to develop subject-specific skills and experience affective growth, the development of generic competencies in college has been argued to be increasingly important in the twenty-first-century knowledge economy. Generic competencies—such as critical thinking, complex reading, and writing—are transferable across jobs, occupations, firms, and industry; given the broad character of these skills, they likely also have relevance for other aspects of individuals' lives, including citizenship. The potential broad relevance of these skills for individuals and society has led to extensive support for developing these competencies in college. Commitment to these competencies is found in institutional mission statements and faculty surveys, as well as in employer surveys of desirable skills sought in job candidates.

Third, there is growing concern that the US higher education system is failing to adequately develop generic collegiate skills in its graduates. For example, recent surveys of employers have highlighted dissatisfaction with the preparation of college graduates, noting that only approximately a quarter of college graduates entering the labor market have excellent skills in critical thinking and problem solving, and only 16 percent have excellent written communication. "Woefully unprepared" is how one
employer described college graduates in a 2012 survey conducted by the Chronicle of Higher Education and American Public Media’s radio show Marketplace. According to this survey, employers tended to “ding bachelor’s degree holders for lacking basic workplace proficiencies, like adaptability, communication skills, and the ability to solve complex problems.”

More troubling still are the recent results of the Programme for the International Assessment of Adult Competencies, a study of adult skills in twenty-three developed countries conducted by the Organisation for Economic Cooperation and Development (OECD). The study measures individuals’ ability to understand and use information from written tests; to use, apply, interpret, and communicate mathematical information and ideas; and to use technology to solve problems and accomplish complex tasks. The OECD disaggregated the results by education level, so that it is possible to compare US college graduates to individuals in other countries with similar levels of education. The results for US college graduates on these assessments were not impressive: on most measures they scored below the average of college graduates in other countries. In addition, the results were discouraging when considering change for the population as a whole over recent decades. The OECD states that in spite of increasing percentages of adults in the US having gone to college, “there are few signs of improvement. Today, adults in the U.S. have similar or weaker literacy skills to their counterparts in the mid-90s, and the average basic skills of young adults are not very different from older adults.”

In addition to new cross-national research on adult competencies, an important development in efforts to measure general collegiate skills in the United States was also undertaken by the Council for Aid to Education (CAE). The CAE brought together leading assessment experts to design an instrument, the Collegiate Learning Assessment (CLA), that required students to perform a task akin to what they might be asked to complete by an employer following college graduation. Students were given a prompt that required them to analyze and think critically about a set of documents, synthesize information across these documents, and then write a logical response that used evidence from the documents to support the arguments being made. Although all instruments that attempt to measure student competencies are by definition limited and imperfect, the CLA was adopted as a reasonable proxy for students’ general collegiate skills by a large number of organizations and higher-education institutions. For example, the OECD used a modified version of the CLA for its cross-national institutional Assessment of Higher Education Learning Outcome (AHELO) project, and the Association of Public and Land-Grant Universities (APLU) and the American Association of State Colleges and Universities (AASCU) promoted use of the instrument through the Voluntary System of Accountability project. Other measures which rely on multiple choice questions, such as the Collegiate Assessment of Academic Proficiency (CAAP) and the Proficiency Profile (formerly known as the Measurement of Academic Progress and Proficiency or MAPPP), yield similar findings at the institutional or aggregate level.

Additional Motivations and an Outline of the Book

In exploring graduates’ life-course transitions after college, and particularly the extent to which different components of undergraduate education facilitate successful transitions, this book seeks to extend our prior research. In Academically Adrift: Limited Learning on College Campuses, we joined an existing longitudinal study of several dozen colleges and universities that was being fielded by the CAE and documented the limited learning and lack of academic rigor that large numbers of students experienced during their first two years of college. Specifically, during the fall of their sophomore year, 50 percent of students had no single class which required more than twenty pages of writing over the course of the semester, 32 percent had no class that required more than forty pages of reading per week, and 36 percent studied alone five or fewer hours per week—less than an hour per day. Given this limited educational “treatment,” student gains on the CLA were modest. The average student only improved by 0.18 standard deviations, after two years of college—meaning that if, after two years of college, he or she were to take the assessment with a new cohort of freshmen, he or she would move up only from the 50th percentile to the 57th. If the assessment was scored on a scale from 0 to 100, 45 percent of the students would not have demonstrated an improvement of even one point on this measure at the end of their sophomore year. These findings were not likely an artifact of the assessment instrument or the sample in our study, as researchers using data from the Wabash National Study (WNS), which used a different measure of general collegiate skills and followed several thousand students in a different set of schools, found similar results in a replication study.

In Academically Adrift we also explored the variation in student outcomes to understand better the factors that were associated with student learning. As with learning outcomes in elementary and secondary schools, we found variation in test score gains to be greater within colleges than across colleges. Which schools individuals attended made a difference,
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"people skills" to do so. Nick explained: "I'm starting to see that managing people is more important than anything else, because a lot of times that's the biggest determinant on success—the people involved, not necessarily the situation. So, definitely the [soft] skills in working with people and communication were probably the biggest things I took away [from college that] prepared me for this [current job]."

While students' appraisals of their social experiences and the potential of those experiences to foster personal development were remarkably positive, several concerns could be raised that challenge this completely sanguine picture of social life. For example, researchers have documented that the simple act of placing students from different backgrounds in close proximity is not sufficient to generate thoughtful engagement with diversity. Diverse campuses can provide opportunities for engagement, but they do not inevitably create supportive environments. Recent studies also indicate that students' interest in exploring diversity in culture, ethnicity, perspectives, values, and ideas actually declines during college, and that negative diversity experiences are not uncommon and have consequences for academic outcomes.

Indeed, while students in our study often reported that exposure to people different from themselves led to reflective thought and learning how to work with others, at other times it led to resignation. In those instances, students felt that some people were just different and would stay that way, and that the best one could do was to tolerate them. Illustrating this point, Joseph commented, "I also found out that there are a number of personality styles that I just kind of clash with or I need to stay away from... I think over four years, I really learned to come to grips with that." Similarly, Vanessa noted:

I guess I learned a lot socially then, because the first time you go in, you're friends with everyone—everyone is scared and everyone is this and that. By the time the years progress, I've been in a lot of arguments with a lot of those girls. I got into a lot of altercations with a lot of the girls... By senior year it was, I guess, it wasn't that we were all friends; it was just mutual understanding and mutual respect. "You stay in your lane. I stay in my lane." (emphasis added).

This resignation, which might be called the "tolerance of difference," highlights the fractured nature and contradictory practices associated with getting along with others. Riesman noted that peer groups, which modern individuals rely on as a moral compass, are typically comprised of individuals of the same age and class background. Getting along with others thus may often mean getting along with similar others. Different others are not necessarily the source of social cues as much as a force to be, if not reckoned with, at least tolerated. This portrayal of an easygoing and tolerant self is deeply embedded in student culture. As Mary Grisby noted in a recent study of college life, "This self is based in a polite, tolerant, superficial approach to interactions and requires little from the authentic person beyond conforming to a polite form of interaction with others." While perhaps preventing open conflict, this approach can also lead to acceptance of racist and sexist behavior in the interest of getting along.

This highlights a second concern with the social sphere that is rarely attended to: a high degree of inequality. In the higher education literature, social integration is typically portrayed as a positive factor—one that is related to a range of desirable education outcomes, including persistence. However, several scholars have noted that low levels of social integration may represent not a failure of the individual, as seems implicit in some scholarly accounts, but a shortcoming of the collegiate culture. Indeed, social integration is not equally viable for students from all social backgrounds. Middle-class parents cultivate their children's talents and abilities, including their social competence, from an early age. Middle-class students thus enter college attuned to the social sphere and with an orientation toward sociability. While working-class students do not necessarily share the same orientations, and do not perceive the importance of or engage in extracurricular activities to the same extent, they are confronted with the dominant social practices of higher education. Even more notably, institutions support and perpetuate the focus on the social, often making it difficult for students to avoid embracing what Armstrong and Hamilton have labeled the "party pathway" through college. It takes concerted effort, and often much knowledge about how higher education institutions operate, to find alternative pathways and secure adequate academic supports.

Academic Engagement

Given students' emphasis on getting along with others and developing socially, it is not surprising that they spent a disproportionate amount of time participating in social activities as opposed to academic pursuits. Seniors in our sample reported spending fourteen hours attending class and lab, and an additional twelve hours studying outside of class. Overall, they were dedicating twenty-six hours to academic pursuits, or 15 percent of
Surveys of seniors conducted by the Higher Education Research Institute at the University of California, Los Angeles (UCLA), provide another perspective on student engagement: among graduating seniors, less than half reported always completing homework on time, and only approximately one-third reported never coming to class late.\textsuperscript{33}

While students spend substantially more time on social activities than on academics, that alone does not speak to what constitutes a desirable amount of time students should spend studying. Faculty members typically advise students to spend three hours studying outside of class for each hour spent in class—meaning that a student taking twelve credits of coursework would be expected to spend thirty-six hours on schoolwork outside of class. If faculty expectations are dismissed as unrealistic, one could turn to the federal definition of a credit hour, which includes the expectation that students spend “a minimum of two hours out of class” studying for each hour of classroom instruction.\textsuperscript{34} This more lenient definition would still imply that a full-time student enrolled in twelve credits of coursework should spend at least twenty-four hours a week studying outside of class.

Indeed, twenty-five hours of studying per week used to be the average for full-time undergraduates. Combining several national surveys, economists Philip Babcock and Mindy Marks reported that students in the 1960s spent forty hours on academic pursuits: fifteen hours attending classes, and twenty-five hours studying.\textsuperscript{35} By the early 2000s, the amount of time spent in classes and labs remained relatively stable, but the number of hours students spent studying decreased to between eleven and thirteen hours, depending on the survey. There are myriad reasons for these trends. Compositional change, technological innovation, and increased employment are often mentioned, but none of those factors can fully account for the observed patterns. In addition, while study time in college has declined in recent decades, the amount of time high school students spend studying has actually increased.\textsuperscript{36}

Whatever the reasons for the decline, college students today spend less time studying than they did in the past, and less than either their faculty members or the federal government deem necessary. Moreover, college students in the United States dedicate less time to academic pursuits than do students in most European countries. In a recent EUROSTUDENT survey, students in all countries examined except Slovakia spent more time on academics (i.e., time spent in class and studying) than students in the United States.\textsuperscript{37} The complexities of cross-national comparison notwithstanding, students’ accounts of what it means to be academically engaged are quite telling. When asked whether they had been academically engaged

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Figure 2: Time use by college seniors. Percentages are based on a full seven-day week totaling 168 hours.

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the total time available in a week (figure 2.1).\textsuperscript{39} Similarly, other recent estimates of time use reveal students’ limited focus on academics. A study of University of California undergraduates reported that students spent only thirteen hours a week studying—three times fewer hours than they spent on other activities such as socializing with friends, using computers for fun, watching television, exercising, hobbies, and other forms of entertainment.\textsuperscript{40} Effective study time may actually be lower, as the students in our sample reported spending only nine hours studying alone, with the other three hours spent studying with peers—which, as we showed in Academically Adrift, was not time well spent, at least not for developing general collegiate skills.

It is notable that students invested the same amount of time in academic pursuits as seniors as they had when they were sophomores.\textsuperscript{31} Even though their junior and senior years were expected to include higher-level courses and more demanding curricula, they were not spending any more time on academics in their senior year than they had two years earlier. The National Survey of Student Engagement (NSSE), which over the past decade has surveyed more than two million students at more than one thousand colleges and universities, also reveals limited levels of academic engagement even among seniors. For example, 51 percent of college seniors reported that they had not written a paper during the current academic year that was twenty or more pages long, and more than half reported writing fewer than five papers that ran from five to nineteen pages in length.\textsuperscript{32}
during college, the majority of students reported being reasonably or very engaged, and this is how they defined academic engagement:

I was a very good student. I did all my homework and studied for all my tests (Dan, business major as a selective educational institution). Pretty committed. I went to 50 to 95 percent of all my classes, and I did all my homework and, for the most part, the readings (Caroline, psychology major at a more selective institution).

Actually, like, I put forth a good deal of effort. I was great about going to class. I think I really only missed a handful of classes the entire time I was at college. I studied. Any homework I had to do, I did (Dennis, education major at a selective institution).

I was fairly academically engaged in that I tried very hard not to fail most of my classes (laughter) (Eric, biological/life sciences major at a more selective institution).

I was a good student. I did my homework on time (Cory, biological/life sciences major at a less selective institution).

What is remarkable about these definitions of academic engagement is their focus on fulfilling little more than minimum requirements. Moreover, the students quoted represent all school selectivity levels and span different majors, from the arts and science core to professional fields. Since our interview sampling was relatively small, we do not have adequate data to conduct a nuanced analysis of graduates’ interview responses along fields of study. Other research has emphasized the importance of examining variation across fields of study in definitions of academic engagement—a topic that warrants further attention in future research.

Defining academic engagement as minimal effort, the mere acts of showing up in class and turning in assignments, is consistent with a world of higher education in which many students do not even meet these low expectations. In this context, one may wonder whether even complying with the minimum is necessary. In reflecting on whether she would have done anything different during college, Beth remarked: “Maybe I should have relaxed a little bit more. I should have gone to more basketball games, a couple of more football games, things like that. I only skipped one college class ever. People right and left were skipping class and I was just like, ‘How are you doing it?’”

When looking around and seeing students who are not working very hard but are still passing their classes, a student might be compelled to wonder what is really necessary and what it means to be a good student.

In this environment of low expectations, students often turn to faculty for guidance. Faculty, through assigning grades for student performance, provide an external (and thus supposedly objective) measure of students’ academic achievement. Students internalize these signals and regard themselves as highly motivated because they “got good grades” and “worked very hard for them” (Jodie), or they claim to be good students because their “grades would say so” (Emma). Students thus look for external signals to evaluate their performance, but the challenge is that those signals are quite weak, as decades of grade inflation have eroded the power of grades to signal academic accomplishment. Despite low levels of academic engagement, our respondents graduated college with an average of a 3.33 cumulative GPA. Even those who reported studying alone five or fewer hours a week during their senior year still made it through college with a 3.22 cumulative GPA.

College students in our interview sample who defined academic engagement based on their GPA did not have meaningfully higher GPAs than did other students. Similarly, both groups of students—those who based their definition of academic engagement on hours studying and those who did not—reported studying the same number of hours during their senior year. Even an average level of academic engagement and performance may be considered an accomplishment when academics are regarded as painful. Rachel said, “I would say that I was a very hard worker. I wouldn’t say that I was one of the very best workers. I certainly had other classmates who seem to have had a higher tolerance for homework pain than I did.”

Limited Learning

Emphasis on personal development achieved largely through participation in college social life, combined with minimal definitions of academic engagement, raises questions about whether and to what extent these students were developing general collegiate skills, such as critical thinking, complex reasoning, and writing, during college. While general collegiate skills do not encompass all aspects of academic learning in college, they represent an important set of skills broadly endorsed both by higher education institutions and by employers. Using an objective measure, the Collegiate Learning Assessment (CLA), we can identify the extent to which students improve their general collegiate skills during college.

Over the full four years of college, students gained an average of 0.47 standard deviations on the CLA. Thus, after four years of college, an average-scoring student in the fall of his or her freshman year would score
at a level only eighteen percentile points higher in the spring of his or her senior year. Stated differently, freshmen who entered higher education at the 50th percentile would reach a level equivalent to the 68th percentile of the incoming freshman class by the end of their senior year. Since standard deviations are not the most intuitive way of understanding learning gains, it is useful to consider that if the CLA were rescaled to a one-hundred-point scale, approximately one-third of students would not improve more than one point over four years of college.\footnote{42}

In addition to low average gains over time, it is valuable to note that improvement on the CLA was not significantly larger in the last two years of college than in the first two. Academically Adrift, which focused on the first two years of college, reported an average gain of 0.18 standard deviations on the CLA. One of the critiques of Academically Adrift rested on the expectation that students would improve their critical thinking, complex reasoning, and writing skills more during the last two years of college. General collegiate skills, such as critical thinking, are hard to practice in the large lecture classes that many underclassmen spend their first years attending. As students progress through college and advance to higher-level seminars, one might expect them to show marked gains in these complex skills. However, this expectation did not materialize. Academically Adrift covered three full semesters, from the fall of the freshman year to the spring of the sophomore year, implying an average gain of 0.060 standard deviations per semester. Considering all four years of college, there are seven full semesters between the fall of the freshman year and the spring of the senior year (i.e., between our observation points), implying an average gain of 0.067 standard deviations per semester. If one takes selective attrition into account, student gains were actually larger earlier in their college careers.\footnote{43}

Despite limited gains on an objective measure of critical thinking, complex reasoning, and writing, students overall believed that they had substantially improved their skills in these areas. In the senior-year survey (spring 2009), we asked students how much they believed they had developed different skills during college—including critical thinking, writing, using evidence to support arguments, and understanding charts and graphs. On a scale ranging from 1 ("not at all") to 7 ("a great deal"), the mean for each of the measures during the senior year was above 5, ranging from a high of 5.7 for critical thinking to a low of 5.1 for understanding charts and graphs.

Few seniors thought that they had not learned much; only 4 to 7 percent of students rated different measures in the 1 to 3 range. Figure 2.2 shows the percentages of students who reported moderate (categories 4 and 5) and high (categories 6 and 7) levels of skill development. Students who rated their skill development as low (categories 1 to 3) are omitted from the figure. The only exception was the measure of understanding charts and graphs, for which 16 percent of students reported values in the 1 to 3 range. Across different skills, on average, almost one-third of students reported moderate levels of development during college. Almost two-thirds of seniors, however, reported that they had learned a great deal. Critical thinking led the way, with more than three-quarters of students reporting high levels of skill development in that domain. Students thus embraced the message, prominent in higher education rhetoric and college mission statements, that critical thinking was a key skill developed during college.

These findings may not be surprising, given that people tend to overestimate their own competence. Since the publication of research showing that most people believe they are better-than-average drivers, psychologists have documented individuals’ tendency toward an overly positive appraisal of their own abilities across many domains.\footnote{44} In addition, social contexts provide cues that support overly optimistic conclusions. When
academic engagement is defined in minimal terms and students are able to leave college with high GPAs despite limited academic engagement, they can only surmise that they have done well and learned much. These patterns raise caution about overreliance on students’ self-reports of academic skills and personal development that have been reported in prior surveys. Gains in personal development are likely equally biased.

While an inflated sense of personal competencies may not be surprising, we also find that students’ assessments of their learning gains increased with their distance from higher education. In 2011, which for the majority of our sample was two years after college graduation, ratings of how much graduates believed they had developed specific skills during college were even higher than in 2009. Depending on the measure, between 40 and 50 percent of survey respondents rated their learning during college higher in 2011 than they did in 2009 (their senior year). Moreover, this increasingly positive appraisal of college learning was observed for all groups, irrespective of college selectivity or subsequent labor market outcomes. The labor market thus did little to raise the students’ doubts about their own academic engagement and learning during college. Instead, it helped to reinforce students’ perceptions that they had learned a great deal in college despite low levels of academic engagement. This stands in contrast to what might be expected given employers’ expressed dissatisfaction with graduates’ low levels of general collegiate skills.45 Employers may not have been happy, but they were not effectively conveying that message to these recent college graduates.

Variation in Student Learning

Although the average CLA gains over four years of college were limited, our data reveal substantial variation in learning both within and across institutions. With respect to cross-institutional variation, we highlight in particular the association between institutional selectivity and CLA gains. Before presenting results from our statistical analyses, Figure 2.3 shows variation within and across institutions descriptively. For illustrative purposes, institutions are divided into three categories: less selective, selective, and more selective.46 For each selectivity category, the black box represents the middle 50 percent of the distribution of CLA scores (i.e., between the 25th and 75th percentiles). The lines above and below the boxes extend up to the 90th percentile and down to the 10th. The middle of the distribution (i.e., the middle of each black box, which represents the 50th percentile) shows that students attending less selective institutions started college with lower

CLA scores than those at more selective institutions, and gained less between their freshman and senior years. However, there is substantial variation in CLA scores within each selectivity category, and there is a reasonable amount of overlap between institutions at different selectivity levels. Students who made substantial gains on the CLA between their freshman and senior years can be found across different institutional types, as can students with small or nonexistent gains. This finding implies the need to focus improvement efforts within institutions. While it can be useful to look at peer institutions, learn about their practices, and aim to emulate their organizational cultures, institutions can also learn a great deal from looking within themselves—identifying programs with students who learn more and those who learn less, exploring ways in which they may facilitate positive outcomes, and altering their practices to ensure that more students reach their full potential.

These descriptive patterns point to the importance of examining variation both within and across institutions. We begin by examining variation across institutions, focusing specifically on institutional selectivity. To examine this relationship, we compare senior-year CLA scores for students

![Figure 2.3 Distribution of freshman and senior CLA scores across institutions of varying levels of institutional selectivity. Black bars represent the 25th to 75th percentiles; vertical lines at the bottom of each bar represent the 10th to 25th percentiles, and at the top the 75th to 90th percentiles.](image-url)
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predicted probability of enrolling in full-time master's, professional, or doctoral programs for students majoring in different fields of study (for complete models, see table A2.3 in appendix A). Even after analyses adjust for background characteristics and CLA performance at the end of college, students who had graduated with degrees in traditional arts and science fields, and especially those who had majored in natural sciences and math, were substantially more likely to enroll in full-time master's, professional, or doctoral programs. Students who had majored in business were least likely to enroll in these types of graduate programs, although their probability of graduate school attendance was statistically indistinguishable from that of students in other professional fields, including education, social work, and health. These patterns illustrate what economists Eric Eide and Geetha Vachher have referred to as the "option value" of undergraduate education, or the value of the option to attend graduate school and receive greater returns from increased educational attainment than an undergraduate degree. Many undergraduates choose their majors with the intention of later enrolling in graduate or professional schools. The "option value" of attending graduate programs is greater in liberal arts and science fields, such that students choose to major in those fields in part due to their expectations of attending graduate school. This differential distribution of graduate school attendance illustrates the challenges of evaluating wages across different fields of study in the years immediately following bachelor's degree completion.

Preparing for Life after College

Over the course of the twentieth century, colleges increased their focus on the personal development of students. During the 1920s higher education began to endorse a focus on personal adjustment, driven by the emergence of new psychological sciences. Colleges became increasingly concerned with students' well-being, and tried to "make the total environment more flexible as well as fun." At the same time, research reporting that social engagement was related to outcomes such as persistence further fueled higher education's attention to extracurricular activities, thus providing ample opportunities for social engagement on college campuses.

Our graduates have deeply internalized the personal development message about the purpose of higher education. As college students, they placed emphasis on the social, which was the realm that provided opportunities for them to learn about themselves and about how to get along with others. This emphasis on personal development and social engagement at least partly reflects the role of schools in socializing students for membership in society. As agents of socialization, schools are expected to structure their academic and social activities in ways that facilitate a specific type of socialization that is valued at a particular historic moment. Graduates repeatedly emphasized how college was meant to develop a particular kind of sensibility—one that was attuned to others, able to read social cues, and able to act appropriately across a range of social situations. This social sensibility is what sociologist David Riesman called the "other-directed" character type in his seminal 1950 book The Lonely Crowd.

Even if higher education today is appropriately socializing students for engagement in the modern world and helping them to develop a specific type of sociable personality, this leaves open the question about academic skills. Focusing on the social sphere can push academic learning to the fringes, helping to make the overall social enterprise legitimate while lacking the power to define the collegiate experience. Indeed, students feel they have learned most in their social lives during college. A senior cited in a study by George Kuh noted, "It is funny that we are talking about things outside the classroom because I feel like that is the place that I have done most of my growing." Given this context, it is perhaps unsurprising that we find evidence of limited development of general collegiate skills,
such as critical thinking, complex reasoning, and writing, over four years of college.

If not in school—and in college, in particular—where are students going to learn how to analyze evidence, solve challenging problems, and convey complex ideas? Echoing a long-standing human capital argument that employers have little incentive to provide general skills that can be transferred to other companies, employers in a recent survey claimed that "many of the skills and abilities they seek can—and should—be taught on campus." The kinds of skills needed are generic higher-order skills, with more than 90 percent of employers rating written communication, critical thinking, and problem solving as "very important" for the job success of new labor market entrants. And indeed, this is one area where employers and faculty agree, with a virtually unanimous consensus among faculty that teaching critical thinking is a central aim of undergraduate education. Social sensibility may be valuable, but focusing on general collegiate skills is thought by many to be increasingly necessary in this competitive market of labor and ideas.
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How to Think Like Shakespeare

By Scott L. Newstok | AUGUST 29, 2016

Class of 2020, welcome to college. Right about now, your future professors are probably sitting in a faculty meeting, rolling their eyes at their dean’s recitation of the annual Beloit College Mindset List, which catalogs the cultural touchstones of your lives.

But to me, the most momentous event in your intellectual formation was the 2001 No Child Left Behind Act, which ushered in our disastrous fixation on testing. Your generation is the first to have gone through primary and secondary school knowing no alternative to a national regimen of assessment. And your professors are only now beginning to realize how this unrelenting assessment has stunted your imaginations.

In response to the well-intentioned yet myopic focus on literacy and numeracy, your course offerings in art, drama, music, history, world languages, and the sciences were all too often set aside “to create more time for reading and math instruction.” Even worse, one of the unintended consequences of high-stakes testing is that it narrowed not only what you were taught but how you were taught. The joy of reading was too often reduced to extracting content without context, the joy of mathematics to arbitrary exercises, without the love of pattern-making that generates conjecture in the first place.

You’ve been cheated of your birthright: a complete education. In the words of Martin Luther King Jr. (at your age of 18), a “complete education” gives “not only power of concentration, but worthy objectives upon which to concentrate.”

But now your education is in your own hands. And my advice is: Don’t let yourself be cheated anymore, and do not cheat yourself. Take advantage of the autonomy and opportunities that college permits by approaching it in the spirit of the 16th century. You’ll become capable of a level of precision, inventiveness, and empathy worthy to be called Shakespearean.

Building a bridge to the 18th century must seem like a perverse prescription for today’s ills. I’m the first to admit that English Renaissance pedagogy was rigid and rightly mocked for its domineering pedants. Few of you would be eager to wake up before 6 a.m. to say mandatory prayers, or to be lashed for tardiness, much less translate Latin for hours on end every day of the week. Could there be a system more antithetical to our own contemporary ideals of student-centered, present-focused, and career-oriented education?

Yet this system somehow managed to nurture world-shifting thinkers, including those who launched the Scientific Revolution. This education fostered some of the very habits of mind endorsed by both the National Education Association and the Partnership for
21st Century Learning: critical thinking; clear communication; collaboration; and creativity. (To these “4Cs,” I would add “curiosity.”) Given that your own education has fallen far short of those laudable goals, I urge you to reconsider Shakespeare’s intellectual formation: that is, not what he purportedly thought — about law or love or leadership — but how he thought. An apparently rigid educational system could, paradoxically, induce liberated thinking.

So how can you think like Shakespeare?

His mind was shaped by rhetoric, a term that you probably associate with empty promises — things politicians say but don’t really mean. But in the Renaissance, rhetoric was nothing less than the fabric of thought itself. Because thinking and speaking well form the basis of existence in a community, rhetoric prepares you for every occasion that requires words. That’s why Tudor students devoted countless hours to examining vivid models, figuring out ways to turn a phrase, exercising elaborate verbal patterning.

Antonio Gramsci described education in this way: “One has to inculcate certain habits of diligence, precision, poise (even physical poise), ability to concentrate on specific subjects, which cannot be acquired without the mechanical repetition of disciplined and methodical acts.” You take it for granted that Olympic athletes and professional musicians must practice relentlessly to perfect their craft. Why should you expect the craft of thought to require anything less disciplined? Fierce attention to clear and precise writing is the essential tool for you to foster independent judgment. That is rhetoric.

Renaissance rhetoric achieved precision through a practice that might surprise you: imitation. Like “rhetoric,” “imitation” sounds pejorative today: a fake, a knockoff, a mere copy. But Renaissance thinkers — aptly, looking back to the Roman Seneca, who himself looked back to the Greeks — compared the process of imitation to a bee’s gathering nectar from many flowers and then transforming it into honey. As Michel de Montaigne put it:

“Take advantage of the autonomy and opportunities that college permits by approaching it in the spirit of the 16th century. You’ll become capable of a level of precision, inventiveness, and empathy worthy to be called Shakespearean.”

“The bees steal from this flower and that, but afterward turn their pillerings into honey, which is their own. ... So the pupil will transform and fuse together the passages that he borrows from others, to make of them something entirely his own; that is to say, his own judgment. His education, his labor, and his study have no other aim but to form this.”

The honey metaphor corrects our naïve notion that being creative entails making something from nothing. Instead, you become a creator by wrestling with the legacy of your authoritative predecessors, standing on the shoulders of giants. In the words of the saxophone genius John Coltrane: “You’ve got to look back at the old things and see them in a new light.” Listen to Coltrane fuse experimental jazz, South Asian melodic modes, and the Elizabethan ballad “Greensleeves,” and you’ll hear how engaging with the past generates rather than limits.

The most fascinating concept that Shakespeare’s period revived from classical rhetoric was inventio, which gives us both the word “invention” and the word “inventory.” Cartoon images of inventors usually involve a light bulb flashing above the head of a solitary genius. But nothing can come of nothing. And when rhetoricians spoke of inventio, they meant the first step in constructing an argument: an inventory of your mind’s treasury of knowledge — your database of reading, which you can accumulate only through slow, deliberate study.
People on today’s left and right are misguided on this point, making them strange bedfellows. Progressive educators have long been hostile to what they scorn as a “banking concept” of education, in which teachers deposit knowledge in passive students. Neoliberal reformers — the ones who have been assessing you for the past dozen years — act as if cognitive "skills" can somehow be taught in the abstract, independent of content. And some politicians seem eager to get rid of teachers altogether and just have you watch a video. You, having been born when Google was founded, probably take it for granted that you can always look something up online.

But knowledge matters. Cumulatively, it provides the scaffolding for your further inquiry. In the most extreme example, if you knew no words in a language, having a dictionary wouldn’t help you in the least, since every definition would simply list more words you didn’t know. Likewise, without an inventory of knowledge, it’s frustratingly difficult for you to accumulate, much less create, more knowledge. As the Italian novelist Elena Ferrante said, “There is no work … that is not the fruit of tradition.”

Tradition derives from the Latin traditio — that which is handed down to you for safekeeping. I think part of our innate skepticism of tradition derives from our good democratic impulses: We don’t want someone else telling us what to do; we want to decide for ourselves. In other words, you rightly reject a thoughtless adherence to tradition, just as you rightly reject (I hope) the thoughtlessness that accompanies authoritarianism. However, as the political philosopher Hannah Arendt insisted, education “by its very nature … cannot forgo either authority or tradition, and yet must proceed in a world that is neither structured by authority nor held together by tradition.” Educational authority is not the same thing as political authoritarianism.

You simply cannot transform tradition (a creative ideal) without first knowing it (a conserving ideal). Making an inventory must precede making an invention. Just imagine how startling it must have been for Shakespeare, the child of a small-town glove maker, the first time he encountered Seneca’s blood-drenched tragedies, or Lucretius’ treatise on the nature of the material world, or Ovid’s exquisite tales of shape-shifting. Shakespeare’s education furnished him with an inventory of words, concepts, names, and plots that he would reinvent throughout his career. Immersion in distant, difficult texts enlarges your mind and your world, providing for a lifetime of further inquiry. Devote the time in college to develop your growing inventory.

You’ve repeatedly heard the buzz phrase “critical thinking” during your orientation; who could be against such an obvious good? Yet we might do better to revive instead the phrase “negative capability”: what the poet John Keats called Shakespeare’s disposition to be “capable of being in uncertainties, Mysteries, doubts.” In the Renaissance, the rhetorical tradition encouraged such “play of the mind” through the practice of disputation. Students had to argue from multiple perspectives rather than dogmatically insist upon one biased position.

Once you are familiar with Shakespeare’s training in disputation, you can easily see how it would lead to the verbal give-and-take that constitutes the heart of drama. As Zadie Smith marvels: “Shakespeare sees always both sides of a thing. … In Eis plays he is woman, man, black, white, believer, heretic, Catholic, Protestant, Jew, Muslim. … He understood what fierce, singular certainty creates — and what it destroys. In response, he made himself … speak truth plurally.” Now that’s the kind of critical thinking you should aspire to: speaking truth plurally.

All well and good, you say, but my parents are worried about what I’m going to do after I graduate. There, too, Shakespeare can be a model.

When he was born, there wasn’t yet a professional theater in London. In other words, his education had prepared him for a job that didn’t even exist. You should be encouraged to learn that this has been true for every generation: Four of today’s largest companies did not exist when I was born, 43 years ago. One of them, Apple, was co-founded by someone who said that the most important topic he ever studied was not engineering
but calligraphy.

In short, the best way for you to prepare for the unforeseen future is to learn how to think intensively and imaginatively. Abraham Flexner, a legendary reformer of American medical education, was adamant about the "usefulness of useless knowledge." According to Flexner, "the really great discoveries" have "been made by men and women who were driven not by the desire to be useful but merely the desire to satisfy their curiosity." To cultivate such curiosity, you should think of yourself as apprenticing to the craft of thought. As the intellectual historian Mary Carruthers puts it: "people do not 'have' ideas, they 'make' them."

As with rhetoric, imitation, and inventory, you might not think very highly of apprenticeship these days. But it was crucial for skilled labor in Renaissance Europe. It required an exacting, collaborative environment with guidance from people who knew more than you did. When Shakespeare arrived on the London theater scene, he entered a kind of artistic studio, or workshop, or laboratory, in which he was apprenticing himself to experienced playwrights. Note that playwright is not spelled w-r-i-t-e-r; it's spelled w-r-i-g-h-t: a maker — like a wheelwright, who crafts wheels, or a shipwright, who crafts ships. A playwright crafts plays.

After collaborating with other dramatists, Shakespeare soon graduated to crafting his own plays, yet still collaborating with the members of his company, in which he owned a share. That is, he received revenue from every ticket purchased. As Bart Van Es has shown, Shakespeare wrote with specific actors in mind, making the most of the talents of his team, with an eye toward long-term continuity. And profit! At the age of 33, he could already afford to buy the second-biggest house in prosperous Stratford. He soon acquired another home, purchased more than 100 acres of land, and retired before the age of 50. Who says rhyme doesn't pay?

Part of what made Shakespeare collaborate so well with others was his radical sense of empathy; he probably would have called it fellowship. Researchers "have found evidence that literary fiction improves a reader's capacity to understand what others are thinking and feeling." Shakespeare developed his empathy through his schoolboy exercises of "double translation," when he was impersonating the voices of others, as explored in Lynn Enterline's work on character making (ethopoeia).

A letter I recently received from a former student renewed my appreciation for the indirect ways in which empathy can be developed. Christopher Grubb, who double-major in chemistry and music at Rhodes College, is now enrolled in Columbia University's College of Physicians and Surgeons. He recalled the opening quatrain of Shakespeare's Sonnet 73, which he had memorized for my seminar. An aging speaker compares his declining life to a tree shedding its leaves:

That time of year thou mayst in me behold,
When yellow leaves, or none, or few, do hang
Upon those boughs which shake against the cold,
Bare ruined choirs where late the sweet birds sang.

It would be hard to think of something more irrelevant to a medical student interviewing a patient than some ambiguous 400-year old poem. Talk about useless knowledge! Or is it? Remarkably, Shakespeare enacts a double empathy here — that is to say, the speaker imagines the addressee imagining the speaker: "That time of year thou mayst in me behold." Reading this poem as an undergraduate, for an elective course, contributed in some small but genuine way to Chris's capacity for empathy.

As Chris observed, medical schools are introducing liberal-arts approaches into their curricula, but he wonders whether this is "too little, too late. If a person has spent an entire academic life striving for scientific advancement, how can we expect that person to become, suddenly, expert at conversations about end-of-life care or existential pain?"
He's far from the first to lament the creeping preprofessionalism in our schools — in fact, Shakespeare's contemporary Francis Bacon complained that among the many "colleges in Europe, I find strange that they are all dedicated to professions, and none left free to arts and sciences at large." Our word "college" derives from the Latin legal term collegium. It means a group of people with a common purpose, a body of colleagues, a fellowship, a guild.

Class of 2020: welcome to college, your workshop for thought. You have the "gift of the interval": an enviable chance to undertake a serious, sustained intellectual apprenticeship. You will prove your craft every time you choose to open a book; every time you choose to settle down to write without distraction; every time you choose to listen, to consider, and to contribute to a difficult yet open conversation. Do not cheat yourselves.

While the Latin curriculum has long since vanished, you can still bring precision to your words, invention to your work, and empathy to your world.

Scott L. Newstok directs the Pearce Shakespeare Endowment at Rhodes College, where he gave a convocation address from which this essay is adapted.

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is asked to identify the actual moments in time when the student is not only engaged, but visibly responding successfully. Although remarkably time-consuming, making such judgements is not as difficult as it first sounds. Why? Because, substantially, this type of judgement is what experienced teachers carry out in the natural world. That is, teachers are accustomed to glancing at individual students and using cues such as concentration and facial expressions to infer that students are responding appropriately, or are having some difficulty.

Now with Mr Berry’s mathematics lesson, we get our experienced teacher to apply this procedure intensively and it is found that the academic learning times for individual students vary between 9 and 45 minutes, with a class median level of 27 minutes.

By reputation and direct observation, Mr Berry is a well-regarded teacher. In this illustrative lesson, the average child is rated as experiencing academic learning time for about one half of the initial allocated time. Such a finding would be interpreted positively since it constitutes 27 minutes of solid mathematics learning work going on, on average. Within one classic study, the Californian Beginning Teacher Evaluation Study (BTES), it was found that experienced teachers (working as observers) rated success levels of students in mathematics classes at around one third of the students’ level of on-task engagement. In short, even when the students were engaged with mathematics tasks, they were still rated as experiencing relatively low levels of academic learning time.

But in our hypothetical case, note the huge variations, with some students experiencing about one quarter of the academic learning time experienced by others within the same class. Indeed, the available research into time on task does document that such large variations are commonly found, not only within classes, but between different classes. The research into natural classroom variations has been reviewed by several key researchers. All such reviews document quite remarkable variations in time allocations and student engagement levels across different classrooms.

You will have noted how awkward and time-consuming it is to get an accurate fix on academic learning time within the classroom. In the research world we may have the luxury of recordings, and subsequent opportunity to analyse these products. In the world of the classroom, too much is occurring. It is hardly feasible, within real-time, to monitor academic learning time with accuracy.

Teachers will have the impression that certain students are working well, and others not so well. Indeed, it is known that excellent teachers do scan their classrooms on a regular basis during formal lessons. But the idea that there could be a four-fold difference in individualised time accumulations going on in your class, right under your nose, is something of which many teachers would have virtually no awareness. There is no mechanism in the mind that could enable a teacher to continuously monitor and tally individual rates of engagement. Hence, an interesting observation is that although student engagement appears highly visible on a moment-to-moment basis, the subsequent tabulation of academic learning time remains a somewhat hidden aspect of classroom life.

The research basis

But why is academic learning time important? Studies conducted in the 1980s indicated that time itself does not correlate strongly with achievement outcomes. But studies did indicate that, when teachers were compared on specific curriculum topics, allocations of time to those topics can indeed vary widely. For example, in the Californian BTES study time allocated to certain arithmetic activities varied from 9 minutes to 315 minutes a year in Year 2 classes. And time allocated to reading comprehension activities varied from 10 minutes a day to 50 minutes a day in Year 5 classes. Hence, how much time is assigned to teaching specific topics can become a significant factor when it impinges directly upon the opportunities afforded to students. If students have not been taught certain topics, or have covered them in a perfunctory manner, they cannot be expected to be familiar with test items based on those topics. When researchers such as David Berliner began to ask individual teachers why they allocated greater or lesser levels of time to certain curriculum topics, many teachers indicated that such decisions reflected their personal pre-dilections.

Similarly, on an overall basis, instructional time alone probably does not normally predict student achievement within school to any great degree. But correlations are more significant when it comes to linking achievement outcomes with engaged time and the academic learning time factor. Several studies suggested that time engagement factors become relatively more critical for low-achieving students.

One meaningful finding is that the time engagement factor, when the student is not being successful on the set task, generally fails to predict learning. Also, the BTES data indicated that when students did achieve high levels of success in mathematics, their positive attitudes towards mathematics increased. Hence, the conclusion from the BTES study was that the students’ level of success became a crucial factor linked to significant gains on both achievement and positive attitudes. The study also documented how excellent teachers monitored success levels in individual students and so made adjustments in their teaching strategies accordingly.

According to the BTES researchers themselves,

The ALT model proposes that the more time spent working with high success leads to increased achievement. However, it does not necessarily imply that all a student’s time should be spent in the high success condition, nor does it imply that high success corresponds to little effort on the part of the student. In fact, high success will be attained sometimes with relatively little effort and sometimes with considerable effort. Generally, it is expected that some balance between high and medium success tasks will produce the most student learning. Low success tasks will always be detrimental to learning.

(Fisher et al., 1980, pp. 9–10)
Hence, a sensible descriptive model stems from this body of research. This is where academic learning time may be seen as a type of a final common path flowing from teaching functions that took place earlier. The classroom is well managed, conducive to learning, and conveys an abundance of opportunities to learn. Then students engage with tasks that they are well equipped to handle. Some initial difficulty is evident before the student achieves personal success. Once an experienced teacher is able to identify that the student is clearly being successful, then this measure presages levels of achievement on subsequent assessments. Berliner (1987) has referred to such notions as a ‘simple theory’ of classroom learning.

Getting the simple theory into perspective

We do not treat the academic learning time model as a definitive statement of a theory of teaching and learning. It suggests, however, certain likely relationships between classroom time and student learning outcomes. Relationships between time spent in learning activities, and actual learning outcomes are never going to be simple, easy, or direct ones. It is important to recognize that such relationships will be subject to a range of moderating factors. This notion comes into sharp relief when looking at studies into how expertise is acquired. That is, reasonably successfully but without increasing their skills to expert levels. The topic of expertise and its development is reviewed in later chapters in this book, but at this point we can note that any relationship between time spent in learning and level of expertise attained is very much bound up with the notion of deliberate practice (see Chapter 11). Simply spending more time on an activity will not result in skill improvement unless there is a deliberate effort made to improve performance, and the critical components are factors such as guidance, instruction, goal setting, and feedback.

Research into students’ study techniques also shows no automatic relationship between time spent studying and student grades. In fact, high ability university students have been found to perform well while spending less overall time than others in their studies. Hence, although there can be a relationship between an individual’s time spent studying and his or her exam performance, this will not emerge when comparing individuals of differing ability levels.

The role of time in promoting deep learning

At times it is possible to acquire surface information fairly rapidly. On the other hand, time is still needed to allow learners opportunity to think deeply about the incoming information and to find relationships between diverse ideas and experiences. Teachers frequently express the view that the curriculum they are mandated to teach is hurried and discourages in-depth studies. Should this be your view, then the finding of the following project will be of interest.

Douglas Clark and Marcia Linn (2003) reported on a study conducted in an American middle school in which the same science eighth-grade curriculum was taught in four different ways, either as a full 12-week semester topic, or in streamlined (i.e., cut down) form in either 9-week, 6-week, or 3-week versions. The same four topics were covered, but the amount of time devoted to the four units of work was dramatically reduced. Assessments took the form of both multiple choice and written tests. The results were startling. The reduced time allocations barely made any impact on the multiple choice tests. But students who had to cover the content in reduced time were unable to pass the written tests that assessed for depth in understanding. For instance, students who covered the content in three weeks scored around 25 per cent on the written sections, despite scoring 90 per cent on the multiple choice test. Students who had studied the full version scored 90 per cent on multiple choice, and 67 per cent on written sections.

What was dramatically apparent in this study was that students subjected to the abridged curricula were unable to relate ideas across the four units. The researchers noted:

Knowledge integration takes time, energy, varied activities, and many opportunities to make connections from one topic to another. In streamlining the curriculum, we inevitably reduce opportunities for students to reflect on the connections from one topic to another. As students race through topics they have less opportunity to engage in the processes of sorting out, comparing, prioritizing, organizing, and critiquing their science ideas. These processes, essential for lifelong learning, are less practiced in the streamlined curriculum. (Clark & Linn, 2003, p. 482)

By asking students to race through mandated lessons under duress of time pressures, we run considerable risk of tainting little more than isolated islands of knowledge. Isolated knowledge will be subject to rapid forgetting in the natural course of time, and is not conducive to schema development (see Chapter 14). Should we want our students to retain meaningful information, allowing sufficient time to work on thoughtful and enriching activities, which promote knowledge, building, and consolidation, will pay dividends.

IN PERSPECTIVE: So, is this all obvious?

As we cited at the outset, we have been assailed by critics who appear to regard the empirical relationship between time and learning as ‘obvious’. Of course it is necessary to spend time on a topic to enable deep learning to take place, as surely, everyone knows this?
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or attention. Nevertheless, when grilled as to why the teacher might display an act such as touching Johnny’s desk, the teacher can look at the video film and immediately explain the reasons. It could be, for instance, ‘I touched John’s desk because I wanted to gain his attention, and let him know I was watching’.

What is so curious about such examples is that they do imply some level of awareness being active at the time, even though attention was not involved. For example, your arms and hands might be doing a palms-down gesture, to dampen the activity level in the classroom, while your active focal attention is on the information you are about to convey concerning the plight of the Italian nation during World War II. Later, we ask you what you were doing with your hands, and you look blank. But if we now show you the video of what you were doing, you immediately see that your palms-down gesture served as a key managerial tool. System 1 was running part of the show at that point, which enabled your conscious mind to focus on World War II.

**But, we still need to ‘explain’ what the robot did**

That people can readily explain something they have done, even if they cannot actually recall the act, is an especially curious phenomenon. We value explanations as things to treasure and respect. There simply has to be a good reason. Research into decision-making has thrown up many curious findings. It has been known since the 1920s that people will readily form attitudinal towards target objects without any real understanding of how their attitudes get formed. Market research, for example, established that people strongly purchase brands to one product, even when the identical product is available elsewhere, more cheaply.

In one classic study, Tim Wilson and Richard Nisbett (1978) asked people to select the best panthoe of four brands in a market research context. In truth, the products were identical, merely presented differently. People made decisions, and were asked why. Virtually all participants produced viable answers such as ‘sheer weave’, or ‘elasticity’ in describing the one chosen. In the event, the real underlying factor was the order of presentation, with strong recency effects evident. The fourth and final one was chosen 40 per cent of the time. But people cannot say they preferred one because it was presented last. Instead, they had no difficulty in generating an answer to fit the context, even though it was straight confabulation.

Such findings help describe the relationship between Systems 1 and 2 (see Table 30.2). Your System 2 has the job of monitoring, verbalising, explaining, and making sense of it all. Since (a) you do prefer product X to product Y and (b) you clearly are making choices freely, then (c) there must be clear and sensible reasons why you would behave this way. It is necessary to see oneself as a rational human being, even though the principles that govern System 1 inherently are not rational ones. This type of reflective thinking, referred to as an *attributinal response*, enters the realm of System 2 functioning. System 1 learns

<table>
<thead>
<tr>
<th>UNDERLYING PROCESS</th>
<th>SYSTEM 1</th>
<th>LOW COST AND FAST PROCESSING</th>
<th>SYSTEM 2</th>
<th>HIGH COST AND SLOW PROCESSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of awareness</td>
<td>Unconscious</td>
<td></td>
<td>Consciousness expressed in words and feelings.</td>
<td></td>
</tr>
<tr>
<td>Target of adjustment</td>
<td>Negotiation of present context in an efficient and timely manner.</td>
<td></td>
<td>Ensuring that future eventualities will transpire successfully, irrespective of current situational pressures.</td>
<td></td>
</tr>
<tr>
<td>Nature of learning</td>
<td>Can learn implicitly (i.e. without words) through behavioural conditioning.</td>
<td></td>
<td>Learns more explicitly through using knowledge and thinking strategically.</td>
<td></td>
</tr>
<tr>
<td>Mechanism of learning</td>
<td>Associations and contingencies. Learning may be generalised through low-level or surface cues.</td>
<td></td>
<td>Uses associations, but stores these as rule-based principles available by thought analysis and deep inferential processes.</td>
<td></td>
</tr>
<tr>
<td>Activation of memory</td>
<td>Automatic activation within context. Can be a 'blink' response being activated.</td>
<td></td>
<td>Depends on activating context within working memory. Blink responses are evaluated as part of WM contents.</td>
<td></td>
</tr>
<tr>
<td>Level of effort</td>
<td>Effort minimal as well-learnt procedures make little demands on focused attention.</td>
<td></td>
<td>Effort high, with danger of overload. Attention is focused on one thing at a time.</td>
<td></td>
</tr>
<tr>
<td>Overlapping skills</td>
<td>Some level of multi-tasking is possible when performance demands are low.</td>
<td></td>
<td>Ego-depletion effects possible.</td>
<td></td>
</tr>
<tr>
<td>Nature of goals being actively pursued</td>
<td>Goals are often implicit or unspoken (such as desire to look good, make friends, or spell correctly). Oriented to present.</td>
<td></td>
<td>This mind is designed to focus, and is incapacitated through any attempt to multitask.</td>
<td></td>
</tr>
<tr>
<td>Tactics for solving problems</td>
<td>Heuristic methods such as useful and practical short cuts. Locate the correct steps in terms of well-honed procedural knowledge.</td>
<td></td>
<td>Goals are consciously represented and often flagged (such as need to get good grades, buy a nice house, or have a holiday). Oriented to future.</td>
<td></td>
</tr>
<tr>
<td>Hypothesis testing</td>
<td>Does not occur. But experiencing anxiety then activates System 2.</td>
<td></td>
<td>Careful assessment of all available resources, including declarative knowledge and knowledge of how to access external resources.</td>
<td></td>
</tr>
<tr>
<td>Major liability to you</td>
<td>Heuristics have limits, can induce overconfidence. Also major problem of impulsiveness.</td>
<td></td>
<td>Planning and information gathering allow for several possibilities to be mentally simulated.</td>
<td></td>
</tr>
</tbody>
</table>

Metacognitive processes are often poorly executed. Also system is lazy, will tire easily (ego depleted), and is inclined to show helplessness symptoms.
through associations, but System 2 relies on the ability to express actions and knowledge in terms of rules, logic, and coherent relationships. Although presentation order effects can be powerful (the last one seen is advantageous), the conscious mind does not know this.

Your System 2 executive

System 2 is the effortful thinking and planning part of your mind. While System 1 enables the past to impact upon the present, System 2 can operate on a more extended time frame. This system enables your present knowledge to be applied to the future, by which we mean the long-term future, rather than the pressing issue of negotiating the next few minutes. The beauty of System 1 is that it enables you to cope well with immediate contexts and goals. But it is System 2 that enables you to think, plan ahead, and scheme, and so adjust actions toward serving those goals you harbour; that can be more abstract, remote, or deferred. Indeed, impulse control and delay of gratification are typically the natural accomplishers of effective System 2 functioning.

One of the major functions of your conscious mind is to engage in simulations of the future. For instance, you can imagine what would happen if your car breaks down, or if you insult your boss, or win the lottery, or get selected as a model teacher. However, you do not have to have your car break down to find out what you might do. As inside your head is a mental model of reality. You can run this model to simulate reality in terms of ‘what if’ ideas. The ability to envisage the future, and make goal directed motions in the present, which anticipate outcomes that you have never before experienced, is very much a product of your second mind, your System 2.

As indicated earlier, this system will come into operation once System 1 responding appears unlikely to achieve your goals. You may not always be explicitly aware of goals that your System 1 is following. But a part of your mind is always vigilant. For example, you may not realise that you want to maintain friends with someone until you realise that the interaction with this person is going awry. Alarm bells ring. Suddenly the goal of friendship is seen as an explicit one, and then consciousness kicks in to help you decide if such a goal is worthy of pursuit, and if so, to decide what repairs are necessary.

Here is a scenario. You are experiencing a sense of ease, automaticity, and congeniality. Then you clumsily, unwittingly, ‘hit a nerve’. You need a back-up. Your System 2 will have certain default skills such as slowing down, inhibiting automatic responses, and can quickly activate social appeasement gestures, such as saying ‘sorry’, and adopting submissive body language.

In one sense, your inner robot has let you down. Your gaucheness elicits immediate external feedback, which drives the System 2 executive to take over. You may not know what to do, but at this point powerful executive processes can be brought into play. This entails specific mental focus, conscious recognition, explicit evaluation of the most important goal to be pursued, and a redirection, perhaps reversal, of your overt behaviour. Throughout this episode, your heart will have been beating faster, and your pupils dilated. Just by way of interest, there is a significant body of data indicating that successful marriages are characterised by partners’ ability to activate such relationship repair strategies.

The crucial differences in how your two mind systems handle the world are shown in Table 30.1. If you study this table you will see how the two systems act in a complementary manner. Most of your life is spent at the level of System 1. You do not need to think, but you can rely on successful habits that you have been building up from birth. However, this system also brings with it a level of rigidity. Times emerge when System 1 no longer provides protection and security. It literally ‘runs out’ of decent options. The natural human response is then one of increasing anxiety that signals the need to arouse System 2 from slumber.

System 2 initially ascertains that resources are stretched, and orders an immediate contraction of mental energies. Stop, look, listen, and focus are strategies activated in order to begin the serious appraisal work. Recognition processes are brought to bear almost immediately. What do I know about this current situation that reminds me of something in the past? But if that is inadequate then drive the mind to acquire additional resources. If declarative knowledge is not available, perhaps you know how to locate external information that can readily be converted into fresh declarative knowledge. If so, the working memory can be brought into play to marry new knowledge into the old, and so allow development to proceed.

Over time, this new declarative knowledge is converted into new procedural knowledge, and the need for future System 2 overrides is averted since adjustment is taken over by System 1 again. This is one way in which the mind builds its knowledge base. But notice how this entire process hinges upon being sensitive to the available feedback, and using that feedback to realign and reprogram System 1.

Our necessary mental collaboration

Systems 1 and 2 work in with each other, metaphorically hand-in-glove. System 1 is successful and reliable as the repository of your life skill. System 2 is needed to support and back up. System 2 has limited energy, but while its energies remain, it has powerful tricks up its sleeve. For one thing, it provides override whenever self-control is needed. You will note the comment in Table 30.2 that this system can be subject to ego depletion (see also Chapter 26). Typically, we cannot sustain intensively high levels of effort for much longer than 15 minutes. In children, such ego-depletion effects creep in after short periods of just several minutes’ intense concentration.
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how to improve. Teachers make observations of student understanding and performance in a variety of ways: from classroom dialogue, questioning, seatwork and homework assignments, formal tests, less formal quizzes, projects, portfolios, and so on.

Black and William (1996) provide an extensive review of more than 250 books and articles presenting research evidence on the effects of classroom assessment. They conclude that ongoing assessment by teachers, combined with appropriate feedback to students, can have powerful and positive effects on achievement. They also report, however, that the characteristics of high-quality formative assessment are not well understood by teachers and

that formative assessment is weak in practice. High-quality classroom assessment is a complex process, as illustrated by research described in Box 6.1 that encapsulates many of the points made in the following discussion. In brief, the development of good formative assessment requires radical changes in the ways students are encouraged to express their ideas and in the ways teachers give feedback to students so they can develop the ability to manage and guide their own learning. Where such innovations have been instituted, teachers have become acutely aware of the need to think more clearly about their own assumptions regarding how students learn.

**BOX 6.1 Transforming Classroom Assessment Practices**

A project at King's College London (Black and William, 2000) illustrates some of the issues encountered when an effort is made to incorporate principles of cognition and reasoning from evidence into classroom practice. The project involved working closely with 24 science and mathematics teachers to develop their formative assessment practices in everyday classroom work. During the course of the project, several aspects of the teaching and learning process were radically changed.

One such aspect was the teachers' practices in asking questions in the classroom. In particular, the focus was on the notion of wait time (the length of the silence a teacher would allow after asking a question before speaking again if nobody responded), with emphasis on how short this time usually is. The teachers altered their practice to give students extended time to think about any question posed, often asking them to discuss their ideas in pairs before calling for responses. The practice of students putting up their hands to volunteer answers was forbidden; anyone could be asked to respond. The teachers did not label answers as right or wrong, but instead asked a student to explain his or her reasons for the answer offered. Others were then asked to say whether they agreed and why. This questions opened up discussion that helped expose and explore students' assumptions and reasoning. At the same time, wrong answers became useful input, and the students realized that the teacher was interested in knowing what they thought, not in evaluating whether they were right or wrong. As a consequence, teachers asked fewer questions, spending more time on each.

In addition, teachers realized that their lesson planning had to include careful thought about the selection of informative questions. They discovered that they had to consider very carefully the aspects of student thinking that any given question might serve to explore. This discovery led them to work further on developing criteria for the quality of their questions. Thus the teachers confronted the importance of the cognitive foundations for designing assessment situations that can evoke important aspects of student thinking and learning. (See Bonniol [1991] and Perrenoud [1998] for further discussion of the importance of high-quality teacher questions for illuminating student thinking.)

In response to research evidence that simply giving grades on written work can be counterproductive for learning (Butler, 1988), teachers began instead to concentrate on providing comments without grades—feedback designed to guide students' further learning. Students also took part in self-assessment and peer-assessment activities, which required that they understand the goals for learning and the criteria for quality that applied to their work. These kinds of activities called for patient training and support from teachers, but fostered students' abilities to focus on targets for learning and to identify learning goals for which they lacked confidence and needed help (metacognitive skills described in Chapter 3). In these ways, assessment situations became opportunities for learning, rather than activities divorced from learning.
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Example of Assessments

Formative assessment ideas
- Exit slips
- Admit slips
- "Muddiest point"
- Polls
- Surveys
- Focus groups
- Concept map
- Exam wrappers
- Graphic organizers
- Think-pair-share
- Student-led discussion
- Learning/response logs
- Demonstration
- Learning/response logs
- Self-evaluation
- Peer-evaluation
- Kinesthetic assessments
- Individual "whiteboards"
- Journals
- Frequent, low-stakes quizzes
- Frequent, low-stakes grading
- Curricular outline
- Clickers
- Games/simulations

(Summative cont.)
- Seen exam paper in controlled conditions
- Open book exam
- Take-away exam
- Multiple choice test
- Essay exam
- Report
- Dissertation
- Presentation
- Oral examination
- Taking attendance
- Participation

Pedagogical approaches
- Discovery learning
- Interdisciplinary learning
- Experiential learning
- Peer instruction/feedback
- Case study
- Socratic Method
- Lecture
- Seminar
- Small group discussions
- Close reading/looking/listening
- Discussion
- Field trip
- Jigsaw (mix up content)
- Pair and share
- Presentation
- Quick write (in-class writing)
- Research
- Role play

Summative assessment ideas
- Portfolios
- Process portfolio
- Product portfolio
- Research project
- Performance task
- Unseen examination in controlled conditions
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tradition and inertia exert a strong residual pull, even today college literature students who resist the temptation to panic will usually still do well if they master old-fashioned formalist close-reading. The bombardment of dissonant approaches, however, often prevents students from making this discovery. The multiplication of methods, vocabularies, and -isms combined with the lack of a coherent conversation in which they can be compared and contrasted increases the likelihood of students' feeling intimidated and of talking themselves into the belief that "I'm just not cut out for this stuff."

WHO CARES?
Curricular disconnection, then, widens a gap between teachers and students that was already wide because of the marginal status of intellectual culture in the United States. The problem has been described by the literary scholar David Richter, who, while interviewing undergraduates as part of an accreditation team, was struck by "the great gap . . . between [undergraduates] and their teachers." Richter observes that the gap "was not just a matter of age or experience." The students felt isolated from the ideas and questions that their teachers argued among themselves. There was an enormously interesting conversation swirling around them, of which they were able to catch brief words and phrases. The students felt like children in unhappy marriages who have to be protected against hearing the bickering of their parents." Richter's comment gets at the connection I have been trying to show between the internal disconnection of academic institutions and their external unintelligibility. When the "parents" are not in conversation with each other, their relations are obscured from the "children," who are further infantilized.

Richter goes on to suggest a link between curricular disconnection and student apathy and relativism. If the professorial conversation was not "enormously interesting" to the students as it was to their teachers, the subject matter may have been only part of the reason, for any subject tends to elicit apathy and indifference when experienced in a disjunctive way. As Richter puts it, "Like such children, students are hard to fool. They learn, sometimes in cynical ways, to accommodate the seemingly contradictory ways of instructors. They learn that, just as

Professor Jones likes papers to be folded while Professor Smith likes them flat. Professor Jones sees the self as lonely and agonized while Professor Smith views the subject as socially constituted. The problem is that they are likely to view the question of personal identity as being in the long run of equal importance to that of folding papers."

I argued in Chapter 2 that much of the oft-lamented relativism of today's youth actually stems from the difficulty of imagining a world in which their arguments would make a difference. I would now add that this relativism is reinforced by students' exposure to clashing course perspectives that never meet. The curriculum sends an implicit message that the institution does not care strongly enough about the intellectual differences between instructors to bother engaging them, so why should students be expected to care, either?

A link between student apathy and another kind of disjunction—that of the school day—has been incisively pointed out by the high school educator and critic John Taylor Gatto:

Suppose that you and I . . . decided to create some structural way to make young people indifferent to everything.

And suppose we came up with the idea that we would enthusiastically launch them on an hourly basis on one or another project of art or thinking and then we would ring a bell and say you must stop and move immediately away from this. And we did that for year after year after year. After year. Would that not produce an internal mechanism that said nothing is worth finishing? And if nothing's worth finishing, isn't the next logical step that nothing's worth beginning?

In school as in college, repeatedly changing the subject without making the necessary connections and transitions is a prescription for apathy.

If the mixed-message curriculum forces students into an undue dependence on psyching out what teachers want, it can also make it hard for students to discern what those wants actually are. If Richter's Professor Jones refers to "the self" while his Professor Smith calls it "the subject," or if Jones refers to "the great books" while Smith refers
to "Western hegemonic discourse," their students may not recognize that the two instructors are actually talking about the same thing, that is, that they disagree. And even if it is apparent that the instructors disagree, how would they talk to each other about their differences will not be, though by then the students will probably have lost interest anyway.

In addition to keeping students confused about academic usages and conventions, the mixed-message curriculum also makes it difficult for students to know which kind of competence figure to matter from one course or subject to the next. Another writing across the curriculum, Art Young, describes the case of an undergraduate named Mary who got a solid B in Young's English composition classes but was marked down as "semiliterate" by her biology professor, who angrily complained to Young about the poor quality of writing. The problem, Young discovered, lay not, he at first guessed, in the different writing conventions of the English essay and the biology report. Rather the problem was that Mary assumed that "because this was a biology course and not an English course, concerns for a focused introduction, purposeful organization, and attention to spelling and punctuation would not matter." Mary, Young writes, "knew perfectly well how to perform [these] basics, she just didn't think scientists 'cared about this stuff,'" as was probably often the case in her experience.¹³

CURRICULAR SUBURBAN SPRAWL

I have elsewhere traced the mixed-message curriculum and the Volleyball Effect to the add-on system of curricular formation that came in with the modern departmentalized school and college. In this system, new courses and subjects are assimilated by simply being added to the aggregate, a tactic that conveniently avoids conflicts and dispenses with the need to rethink the curriculum as a whole.¹⁴ The American curriculum has evolved in much the same way as the American city: when threatening conflicts have erupted, they have been relieved by adding a new "suburb"—a new course, a new program, a new department, eventually, for universities, a new building. Whenever a threatening innovation appears—feminist history and literary criticism, creative writing, econometrics, psychokrhythm, structuralism, multiculturalism—it is assimilated by adding a new instructor, course, or program, a process that appeases both the old guard and the innovators by giving each a portion of the curricular turf and insulating them from each other so they won't bicker.

The add-on method of assimilating change goes hand in hand with an ethos of pedagogical laissez-faire: I promise not to interfere with what you want to teach or study if you promise not to interfere with me. The vacuum left by the absence of open debate is filled by academic administration, conceived as an art of crisis-management whose aim is to put out fires as they occur and neutralize departmental turf wars rather than exploit their educational potential. Administrative "conflict management" comes to mean conflict avoidance or suppression, usually by keeping clashing factions in separate buildings, offices, departments, and courses to maintain peaceful coexistence.

To give the add-on method its due, it has enabled academic institutions to assimilate a tremendous degree of change and diversity, making American education wonderfully receptive to innovation and able to reconcile it easily with tradition. It allows the old guard to go on doing what it has always done in its sector of the curriculum even as young turks shake things up in theirs. A high educational price is paid, however, when the increased diversity that results leads to conflicts, which are evaded instead of confronted. As these conflicts become more polarized and ideologically loaded, hatreds that have no way of being channeled into open discussion tend to fester, erupting finally in shouting matches at faculty meetings or campus demonstrations. And finally, another kind of price is paid as shrinking budgets deprive administrators of the former luxury of avoiding conflicts by adding new academic "suburbs" and expanding the playing field.

The irony of such curricular compromises is that though all factions may win concessions, they ultimately defeat their own educational interests by isolating themselves from the opposing positions they need in order to make their own values intelligible to students. For example, the separation of Western and non-Western cultures in noncommunicating courses deprives students of the cross-cultural comparisons they need in order to understand what may be distinctive about either culture. In turn, the isolation of factions in separate courses increases the
likelihood of students' feeling coerced by political correctness of the Left or the Right. For when the classroom walls enable teachers to tune out objections from their colleagues that they would rather not hear, everyone is given a license to derogate without fear of being contradicted except by the rare courageous student. Teachers often brag that they urge their students to disagree vigorously with them, and not accept their word on authority. I have no doubt that these teachers are sincere, but they unwittingly send students the opposite message when they are content to stay sheltered from those colleagues across the hall or the quad who would be in the best position to disagree with them and provide a model of students of how to disagree in public. Students would figure to be more prone to disagree with their teachers if they had more chance to see those teachers disagreeing with each other.

If the mixed-message curriculum cheats students, it may cheat their teachers even more. For when our classroom walls enable us to tune out colleagues who disagree—or even agree—with us, we teachers are robbed of the peer challenges and the intellectual community that we need in order to avoid going brain-dead. I am reminded of this fact whenever I give a talk at another campus or a professional conference. At home my pet assumptions may be contradicted by the occasional contentious student, but such occasions are rare, whereas on the road I am routinely forced to explain and defend myself.

Away from home, I become part of an intellectual community again, as I am when I write and publish, whereas at home I am expected to teach my classes and attend faculty meetings but otherwise to mind my own business and keep my ideas to myself. On the road I am encouraged to assert myself intellectually—that is why I have been invited to give the lecture or attend the conference—whereas asserting my ideas at home would evidently threaten too many others who have their own ideas. Campus culture is governed by a tacit code of democratic silence, whereby we all agree to muzzle ourselves so that no individual or group gets their way. Again, this mutual nonaggression treaty preserves short-term peace, but is doing so it shuts down intellectual community or pushes it to the margins. It also deprives faculty members of the public sphere of ideas that we need in order to grow intellectually, to influence students and other publics, and to defend our economic interests in a shrinking market. No wonder academics communicate badly, seeing that the isolation from colleagues in which we teach is the poorest possible training for representing ourselves in public.

My critique of curricular isolation should not be confused with accounts that attribute curricular incoherence to disciplinary specialization. Frank H. T. Rhodes, for example, complains that "faculty members have added courses that reflect their own, increasingly specialized interests" rather than "a commitment to common educational goals." I agree with Rhodes that fragmentation and incoherence are the product of a curriculum that is produced by "adding" courses that randomly reflect faculty interests rather than serve the educational needs of students. I don't agree, however, that these faculty interests are "increasingly specialized," a claim Rhodes himself belies when he goes on to say that knowledge has been "compartmentalized" by "the rapid spread in most universities of freestanding programs ... devoted to specialized studies as well as a host of cultural issues—poverty, peace, ethnicity, gender, and sexual preference." Clearly, poverty, peace, and the other issues in Rhodes's list do not exemplify specialization, but rather the move toward broader outreach that I noted in my introduction. The problem is not the proliferation of studies that are so specialized that they can't communicate, as Rhodes implies, but rather the existence of entities that he calls "freestanding"—programs and courses that have potential interests in common but no means of coming together.15

Toward a Comparative Curriculum

Clearly, it is crucial to begin providing students with a more connected view of the academic intellectual universe, one that lets them recognize and enter the conversation that makes that universe cohere and relates it to the wider world. This task is not easy, for American schools and colleges have been wonderful at adding exciting new components—subjects, courses, fields, and intellectual perspectives—but pathetically inept at connecting and integrating these rich materials so that those not already at home in academia can make sense of them.

Two strategies are needed. First, we need more centrally placed composition courses—preferably in writing across the curriculum programs that involve professors and graduate assistants from across the
disciplines, not only English. Since writing is central to all disciplines, all departments have to take responsibility for it, not fob the task off on the English department and walk away. Then, too, only if writing is taught by instructors from all disciplines are students likely to get a sense of the contrasts and convergences between disciplinary conventions of communication. An excellent model is the composition course taught by Donald Jones that I describe in chapter 13, which focuses not only on the contrasts and convergences between writing in different disciplines, but also on the opposition between academic and personal writing. However the job is done, it is crucial that students come away from basic writing courses with the understanding that entering the public argument culture is the name of the academic game.

Second, we need to explore ways of putting courses into conversation. In the last chapter of Beyond the Culture Wars, I discuss a number of strategies for connecting courses, including "teacher swapping" (instructors visit or teach each other's classes). student symposia based on common texts taught in different courses and departments, and visiting lectures and lecture series that bring together courses around common issues and problems. I also described the "learning community" programs that have been developed at numerous schools and campuses, in which the same cohort of students takes several courses that are linked by a common theme, the instructors of which meet regularly with the students and each other. 9 [Jane Tompkins and I have recently co-written a dialogue in which we elaborate on the benefits of the learning community model.] 10 I cited the book Learning Communities by Faith Gabelnick, Jean MacGregor, Roberta S. Matthews, and Barbara Leigh Smith, which describes programs based on such thematic clustering, expands the educational rationale for the tactic, and addresses some of the practical challenges of putting it into effect at large urban commuter campuses (which need it most) as well as small colleges. 11

Students and teachers in these programs report that the more connected and focused experience provided by the thematically linked courses results in a higher proportion of students becoming insiders to the intellectual club, identifying with intellectual roles and becoming more independent and motivated. Students are no longer reduced to slavishly conforming to whatever individual instructors "want," since authority has been shifted from the individual instructors to the community of instructors and students, as in real-world intellectual communities in which experts are answerable to other experts and lay people. Learning community teachers report that they are able to "demand more" from their students and "get more in terms of student perseverance and quality of performance." 12 Another way to put it is that, unlike the standard curriculum in which many students drift haphazardly from one course to the next, the learning community model does not offer students the option of being alienated from the intellectual life. Because the learning community constitutes a real intellectual conversation, the task of the student is no longer just to get through a series of subjects but actually to join the conversation.

The University of Illinois at Chicago initiated a pilot program of learning clusters for 250 freshmen in the fall of 2003. Cohorts of twenty-five students chose among ten clusters, each consisting of three courses—a freshman seminar taught by faculty members across the disciplines, a section of English composition, and a third course that fulfills general education requirements. The writing assignments in the cluster's composition course were especially important in ensuring that the disciplines brought together in each cluster cohered for the students. If we did our jobs well, the freshmen who took our clusters should come away measurably better socialized into academic culture and its discourse than those who don't.

Clearly, collaborative teaching in learning communities or other models is no panacea. In collaborating with colleagues, instructors give up the luxury of doing as they please, and they risk making things more confusing for students rather than less. Merely coming together with colleagues does not automatically make academic work more exciting or clear—it takes considerable effort, planning, and trial and error. In the long run, however, the pedagogical payoff of collaborative teaching should be greater than that of teaching in isolation, for collective teaching can be self-policing in a way that solo teaching is not. Finally, an advantage of the learning community model is that it enables instructors to enact a new kind of curriculum instead of talking about it in endless faculty meetings that only result in a superficial reshuffling of what existed before. 13
Whenever I urge these ideas, I am told that academics are too temperamental or too much a bunch of loners to collaborate in their teaching, and even if they are not, their departmental turf wars and ideological battles have made them too polarized to make this idea realistic. Or it is said that academics have become too highly specialized to converse with one another. These objections are logically circular as long as we academics tell ourselves we are too far apart to have a common discussion within the curriculum, our failure to have that discussion forces us further apart. Again, it is notable that we academics regularly (if not always gracefully) engage in collective discussions when we leave our campuses to attend conferences and when we respond to each other in print. We have learned to take for granted an immunity from collegial disagreement in our teaching that we would never expect in the real world of intellectual work. It would be wrong as well as futile to try to force unwilling teachers to teach with their colleagues, but it doesn’t follow that we have to organize education for the academic Greta Garbos who want to be alone. If I am right that students need to experience an intellectual conversation in order to join it, then the curriculum needs to represent that conversation in a more connected way.