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# Who Gets to Graduate?

By Paul Tough
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For as long as she could remember, Vanessa Brewer had her mind set on going to college. The image of herself as a college student appealed to her — independent, intelligent, a young woman full of potential — but it was more than that; it was a chance to rewrite the ending to a family story that went off track 18 years earlier, when Vanessa's mother, then a high-achieving high-school senior in a small town in Arkansas, became pregnant with Vanessa.

Vanessa's mom did better than most teenage mothers. She married her high-school boyfriend, and when Vanessa was 9, they moved to Mesquite, a working-class suburb of Dallas, where she worked for a mortgage company. Vanessa's parents divorced when she was 12, and money was always tight, but they raised her and her younger brother to believe they could accomplish anything. Like her mother, Vanessa shone in school, and as she grew up, her parents and her grandparents would often tell her that she would be the one to reach the prize that had slipped away from her mother: a four-year college degree.

There were plenty of decent colleges in and around Dallas that Vanessa could have chosen, but she made up her mind back in middle school that she wanted to attend the University of Texas at Austin, the most prestigious public university in the state. By the time she was in high school, she had it all planned out: She would make her way through the nursing program at U.T., then get a master's in anesthesiology, then move back to Dallas, get a good job at a hospital, then help out her parents and start her own family. In her head, she saw it like a checklist, and in March 2013, when she received her acceptance letter from U.T., it felt as if she were checking off the first item.

Five months later, Vanessa's parents dropped her off at her dorm in Austin. She was nervous, a little intimidated by the size of the place, but she was also confident that she was finally where she was meant to be. People had warned her that U.T. was hard. "But I thought: Oh, I got this far," Vanessa told me. "I'm smart. I'll be fine."

And then, a month into the school year, Vanessa stumbled. She failed her first test in statistics, a prerequisite for admission to the nursing program. She was surprised at how bad it felt. Failure was not an experience she was used to. At Mesquite High, she never had to study for math tests; she aced them all without really trying. (Her senior-year G.P.A. was 3.50, placing her 39th out of 559 students in her graduating class. She got a 22 on the ACT, the equivalent of about a 1,030 on the SAT — not stellar, but above average.)

Vanessa called home, looking for reassurance. Her mother had always been so supportive, but now she sounded doubtful about whether Vanessa was really qualified to succeed at an elite school like the University of Texas. "Maybe you just weren't meant to be there," she said. "Maybe we should have sent you to a junior college first."

"I died inside when she said that," Vanessa told me. "I didn't want to leave. But it felt like that was maybe the reality of the situation. You know, moms are usually right. I just started questioning everything: Am I supposed to be here? Am I good enough?"

There are thousands of students like Vanessa at the University of Texas, and millions like her throughout the country — high-achieving students from low-income families who want desperately to earn a four-year degree but who run into trouble along the way. Many are derailed before they ever set foot on a campus, tripped up by complicated financial-aid forms or held back by the powerful tug of family obligations. Some don't know how to choose the right college, so they drift into a mediocre school that produces more dropouts than graduates. Many are overwhelmed by expenses or take on too many loans. And some do what Vanessa was on the verge of doing: They get to a good college and encounter what should be a minor obstacle, and they freak out. They don't want to ask for help, or they don't know how. Things spiral, and before they know it, they're back at home, resentful, demoralized and in debt.

When you look at the national statistics on college graduation rates, there are two big trends that stand out right away. The first is that there are a whole lot of students who make it to college — who show up on campus and enroll in classes — but never get their degrees. More than 40 percent of American students who start at four-year colleges haven't earned a degree after six years. If you include community-college students in the tabulation, the dropout rate is more than half, worse than any other country except Hungary.

The second trend is that whether a student graduates or not seems to depend today almost entirely on just one factor — how much money his or her parents make. To put it in blunt terms: Rich kids graduate; poor and working-class kids don't. Or to put it more statistically: About a quarter of college freshmen born into the bottom half of the income distribution will manage to collect a bachelor's degree by age 24, while almost 90 percent of freshmen born into families in the top income quartile will go on to finish their degree.

When you read about those gaps, you might assume that they mostly have to do with ability. Rich kids do better on the SAT, so of course they do better in college. But ability turns out to be a relatively minor factor behind this divide. If you compare college students with the same standardized-test scores who come from different family backgrounds, you find that their educational outcomes reflect their parents'

income, not their test scores. Take students like Vanessa, who do moderately well on standardized tests — scoring between 1,000 and 1,200 out of 1,600 on the SAT. If those students come from families in the top-income quartile, they have a 2 in 3 chance of graduating with a four-year degree. If they come from families in the bottom quartile, they have just a 1 in 6 chance of making it to graduation.

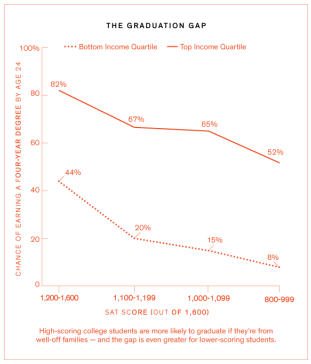
The good news for Vanessa is that she had improved her odds by enrolling in a highly selective college. Many low-income students "undermatch," meaning that they don't attend — or even apply to — the most selective college that would accept them. It may seem counterintuitive, but the more selective the college you choose, the higher your likelihood of graduating. But even among the highly educated students of U.T., parental income and education play a huge role in determining who will graduate on time. An internal U.T. report published in 2012 showed that only 39 percent of first-generation students (meaning students whose parents weren't college graduates) graduated in four years, compared with 60 percent whose parents both graduated from college. So Vanessa was caught in something of a paradox. According to her academic record, she had all the ability she needed to succeed at an elite college; according to the demographic statistics, she was at serious risk of failing.

But why? What was standing in her way? This year, for the first time, the University of Texas is trying in a serious way to answer that question. The school's administrators are addressing head-on the problems faced by students like Vanessa. U.T.'s efforts are based on a novel and controversial premise: If you want to help low-income students succeed, it's not enough to deal with their academic and financial obstacles. You also need to address their doubts and misconceptions and fears. To solve the problem of college completion, you first need to get inside the mind of a college student.

**The person at** the University of Texas who has been given the responsibility for helping these students succeed is a 56-year-old chemistry professor named David Laude. He is, by all accounts, a very good college professor — he illustrates the Second Law of Thermodynamics with quotations from Trent Reznor and Leonard Cohen and occasionally calls students to the front of the class to ignite balloons filled with hydrogen into giant fireballs. But he was a lousy college student. As a freshman at the University of the South, in Sewanee, Tenn., Laude felt bewildered and out of place, the son of a working-class, Italian-American family from Modesto, Calif., trying to find his way at a college steeped in Southern tradition, where students joined secret societies and wore academic gowns to class. "It was a massive culture shock," Laude told me. "I was completely at a loss on how to fit in socially. And I was tremendously bad at studying. Everything was just overwhelming." He spent most of his freshman year on the brink of dropping out.

But he didn't drop out. He figured out college, then he figured out chemistry, then he got really good at both, until he wound up, 20 years later, a tenured professor at U.T. teaching Chemistry 301, the same introductory course in which he got a C as a freshman in Sewanee. Perhaps because of his own precarious college experience, Laude paid special attention as a professor to how students were doing in his class. And year after year, he noticed something curious: The distribution of grades in his Chemistry 301 section didn't follow the nice sweeping bell curve you might expect. Instead, they fell into what he calls a "bimodal distribution." In each class of 500 students, there would be 400 or so who did quite well, clustered around the A and high-B range. They got it. Then there would be a second cluster of perhaps 100 students whose grades were way down at the bottom — D's and F's. They didn't get it.

To many professors, this pattern simply represents the natural winnowing process that takes place in higher education. That attitude is especially common in the sciences, where demanding introductory classes have traditionally been seen as a way to weed out weak students. But Laude felt differently. He acknowledged that some of his failing students just weren't cut out for chemistry, but he suspected that many of them were — that they were smart but confused and a little scared, much as he had been.




Anthony P. Carnevale and Jeff Strohl/"Rewarding Strivers."

To get a better sense of who these struggling students were, Laude started pulling records from the provost's office. It wasn't hard to discern a pattern. The students who were failing were mostly from low-income families. Many of them fit into certain ethnic, racial and geographic profiles: They were white kids from rural West Texas, say, or Latinos from the Rio Grande Valley or African-Americans from Dallas or Houston. And almost all of them had low SAT scores — low for U.T., at least — often below 1,000 on a 1,600-point scale.

The default strategy at U.T. for dealing with failing students was to funnel them into remedial programs — precalculus instead of calculus; chemistry for English majors instead of chemistry for science majors. “This, to me, was just the worst thing you could possibly imagine doing,” Laude said. “It was saying, ‘Hey, you don’t even belong.’ And when you looked at the data to see what happened to the kids who were put into precalculus or into nonmajors chemistry, they never stayed in the college. And no wonder. They were outsiders from the beginning.”

In 1999, at the beginning of the fall semester, Laude combed through the records of every student in his freshman chemistry class and identified about 50 who possessed at least two of the “adversity indicators” common among students who failed the course in the past: low SATs, low family income, less-educated parents. He invited them all to apply to a new program, which he would later give the august-sounding name the Texas Interdisciplinary Plan, or TIP. Students in TIP were placed in their own, smaller section of Chemistry 301, taught by Laude. But rather than dumb down the curriculum for them, Laude insisted that they master exactly the same challenging material as the students in his larger section. In fact, he scheduled his two sections back to back. “I taught my 500-student chemistry class, and then I walked upstairs and I taught this 50-student chemistry class,” Laude explained. “Identical material, identical lectures, identical tests — but a 200-point difference in average SAT scores between the two sections.”

Laude was hopeful that the small classes would make a difference, but he recognized that small classes alone wouldn’t overcome that 200-point SAT gap. “We weren’t naïve enough to think they were just going to show up and start getting A’s, unless we overwhelmed them with the kind of support that would make it possible for them to be successful,” he said. So he supplemented his lectures with a variety of strategies: He offered TIP students two hours each week of extra instruction; he assigned them advisers who kept in close contact with them and intervened if the students ran into trouble or fell behind; he found upperclassmen to work with the TIP students one on one, as peer mentors. And he did everything he could, both in his lectures and outside the classroom, to convey to the TIP students a new sense of identity: They weren’t subpar students who needed help; they were part of a community of high-achieving scholars.

Even Laude was surprised by how effectively TIP worked. “When I started giving them the tests, they got the same grades as the larger section,” he said. “And when the course was over, this group of students who were 200 points lower on the SAT had exactly the same grades as the students in the larger section.” The impact went beyond Chemistry 301. This cohort of students who, statistically, were on track to fail returned for their sophomore year at rates above average for the university as a whole, and three years later they had graduation rates that were also above the U.T. average.

Two years ago, Laude was promoted to his current position — senior vice provost for enrollment and graduation management. His official mission now is to improve U.T.’s four-year graduation rate, which is currently languishing at around 52 percent, to 70 percent — closer to the rates at U.T.’s state-university peers in Ann Arbor, Chapel Hill and Charlottesville, Va. — and to achieve this leap by 2017. The best way to do that, Laude decided, was to take the principles and practices that he introduced 15 years earlier with TIP and bring them to the whole Austin campus.

**One complicating factor** for administrators at the University of Texas — and, indeed, one reason the school makes for such an interesting case study — is that U.T. has a unique admissions policy, one that is the legacy of many years of legal and legislative battles over affirmative action. After U.T.’s use of race in admissions was ruled unconstitutional by the Fifth Circuit in 1996, the Texas Legislature came up with an alternative strategy to maintain a diverse campus: the Top 10 percent law, which stipulated that students who ranked in the top tenth of their graduating classes in any high school in Texas would be automatically admitted to the campus of their choice in the U.T. system. (As U.T. Austin has grown more popular over the last decade, the criterion for automatic admission has tightened; Texas high-school seniors now have to be in the top 7 percent of their class to earn admission. Automatic admits — Vanessa Brewer among them — make up about three-quarters of each freshman class.)

At high schools in the wealthier suburbs of Dallas, the top 7 percent of students look a lot like the students anywhere who go on to attend elite colleges. They are mostly well off and mostly white, and most of them rack up high SAT scores. What sets U.T. apart from other selective colleges is that the school also admits the top 7 percent of students from high schools in Brownsville and the Third Ward of Houston, who fit a very different demographic and have, on average, much lower SAT scores.

Getting Results: David Yeager (top right) teaching graduate students at the University of Texas at Austin about mind-set intervention. Bill McCullough for The New York Times

The good news about these kids, from U.T.'s point of view, is that they are very good students regardless of their test scores. Even if their high schools weren't as well funded or as academically demanding as schools in other parts of the state, they managed to figure out how to learn, how to study and how to overcome adversity. Laude's experience teaching Chemistry 301 convinced him that they could succeed and even excel at the University of Texas. But when he looked at the campuswide data, it was clear that these were the students who weren't succeeding.

"There are always going to be both affluent kids and kids who have need who come into this college," Laude said. "And it will always be the case that the kids who have need are going to have been denied a lot of the academic preparation and opportunities for identity formation that the affluent kids have been given. The question is, can we do something for those students in their first year in college that can accelerate them and get them up to the place where they can be competitive with the affluent, advantaged students?"

Before he could figure out how to help those disadvantaged students, though, Laude first had to find out exactly who they were. This was relatively simple to determine in a single chemistry class, but with more than 7,000 students arriving on campus each year, finding the most vulnerable would be a challenge. Laude turned to a newly formed data team in the provost's office called Institutional Research. Like every big university, U.T. had long had an in-house group of researchers who compiled statistics and issued government-mandated reports, but with Institutional Research, the school had created a data unit for the Nate Silver era, young statisticians and programmers who focused on predictive analytics, sifting through decades' worth of student data and looking for patterns that could guide the administration's decision-making on everything from faculty career paths to financial aid.

Laude wanted something that would help him predict, for any given incoming freshman, how likely he or she would be to graduate in four years. The Institutional Research team analyzed the performance of tens of thousands of recent U.T. students, and from that analysis they produced a tool they called the Dashboard — an algorithm, in spreadsheet form, that would consider 14 variables, from an incoming student's family income to his SAT score to his class rank to his parents' educational background, and then immediately spit out a probability, to the second decimal place, of how likely he was to graduate in four years.

In the spring of 2013, Laude and his staff sat down with the Dashboard to analyze the 7,200 high-school seniors who had just been admitted to the class of 2017. When they ran the students' data, the Dashboard indicated that 1,200 of them — including Vanessa Brewer — had less than a 40 percent chance of graduation on time. Those were the kids Laude decided to target. He assigned them each to one or more newly created or expanded interventions. The heart of the project is a portfolio of "student success programs," each one tailored, to a certain extent, for a different college at U.T. — natural sciences, liberal arts, engineering — but all of them following the basic TIP model Laude dreamed up 15 years ago: small classes, peer mentoring, extra tutoring help, engaged faculty advisers and community-building exercises.

Laude's most intensive and innovative intervention, though, is the University Leadership Network, a new scholarship program that aims to develop not academic skills but leadership skills. In order to be selected for U.L.N., incoming freshmen must not only fall below the 40-percent cutoff on the Dashboard; they must also have what the financial-aid office calls unmet financial need. In practice, this means that students in U.L.N. are almost all from families with incomes below the national median. (When you enter a family income at that level into the Dashboard, the predicted on-time graduation rate falls even further; for U.L.N. students, Laude estimates, it is more like 20 percent than 40 percent.) The 500 freshmen in U.L.N. perform community service, take part in discussion groups and attend weekly lectures on topics like time management and team building. The lectures have a grown-up, formal feel; students are required to wear business attire. In later years, U.L.N. students will serve in internships on campus and move into leadership positions as mentors or residence-hall advisers or student government officials. In exchange for all this, they receive a $5,000 scholarship every year, paid in monthly increments.

Perhaps the most striking fact about the success programs is that the selection criteria are never disclosed to students. “From a numbers perspective, the students in these programs are all in the bottom quartile,” Laude explained. “But here’s the key — none of them know that they’re in the bottom quartile.” The first rule of the Dashboard, in other words, is that you never talk about the Dashboard. Laude says he assumes that most U.L.N. students understand on some level that they were chosen in part because of their financial need, but he says it is important for the university to play down that fact when dealing directly with students. It is an extension of the basic psychological strategy that he has used ever since that first TIP program: Select the students who are least likely to do well, but in all your communications with them, convey the idea that you have selected them for this special program not because you fear they will fail, but because you are confident they can succeed.

Which, from Laude’s perspective, has the virtue of being true. I sat with him in his office one morning in late January, not long after students had arrived back on campus for the spring semester. The university was closed for the day because of a freak ice storm, and he and I were more or less alone in the administration building, a huge clock tower in the center of campus. We were talking about his experience in Sewanee, specifically a low moment almost exactly 38 years earlier when he arrived back on campus for spring semester of his freshman year, plagued with doubt, longing to give up and go home. “Everybody has moments like that,” Laude said. “There are probably 50 or 60 kids in the U.L.N. who are on academic probation right now. They’re coming back, and we’ve got all these great support networks set up for them. But still, there’s got to be a part of them that is afraid, a part of them that wonders if they can make it. My bet is that the vast majority of them will make it. And they will, because nobody will give them the chance to simply give up.”

**Though Laude is** a chemist by training, he spends much of his time thinking like a psychologist, pondering what kind of messages or environmental cues might affect the decisions that the students in his programs make. He’s the first to admit that he is an amateur psychologist at best. But he has found an ally and a kindred spirit in a psychological researcher at U.T. named David Yeager, a 32-year-old assistant professor who is emerging as one of the world’s leading experts on the psychology of education. In his research, Yeager is trying to answer the question that Laude wrestles with every day: How, precisely, do you motivate students to take the steps they need to take in order to succeed?

Before he arrived at U.T. in the winter of 2012, Yeager worked as a graduate student in the psychology department at Stanford, during an era when that department had become a hotbed of new thinking on the psychology of education. Leading researchers like Carol Dweck, Claude Steele and Hazel Markus were using experimental methods to delve into the experience of students from early childhood all the way through college. To the extent that the Stanford researchers shared a unifying vision, it was the belief that students were often blocked from living up to their potential by the presence of certain fears and anxieties and doubts about their ability. These feelings were especially virulent at moments of educational transition — like the freshman year of high school or the freshman year of college. And they seemed to be particularly debilitating among members of groups that felt themselves to be under some special threat or scrutiny: women in engineering programs, first-generation college students, African-Americans in the Ivy League.

The negative thoughts took different forms in each individual, of course, but they mostly gathered around two ideas. One set of thoughts was about *belonging*. Students in transition often experienced profound doubts about whether they really belonged — or could ever belong — in their new institution. The other was connected to *ability*. Many students believed in what Carol Dweck had named an entity theory of intelligence — that intelligence was a fixed quality that was impossible to improve through practice or study. And so when they experienced cues that might suggest that they weren’t smart or academically able — a bad grade on a test, for instance — they would often interpret those as a sign that they could never succeed. Doubts about belonging and doubts about ability often fed on each other, and together they created a sense of helplessness. That helplessness dissuaded students from taking any steps to change things. Why study if I can’t get smarter? Why go out and meet new friends if no one will want to talk to me anyway? Before long, the nagging doubts became self-fulfilling prophecies.

When Yeager arrived at Stanford in 2006, many of the researchers there had begun to move beyond trying to understand this phenomenon to trying to counteract it. In a series of experiments, they found that certain targeted messages, delivered to students in the right way at the right time, seemed to overcome the doubts about belonging and ability that were undermining the students’ academic potential.

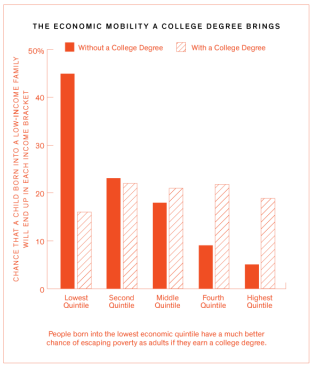
Yeager began working with a professor of social psychology named Greg Walton, who had identified principles that seemed to govern which messages, and which methods of delivering those messages, were most persuasive to students. For instance, messages worked better if they appealed to social norms; when college students are informed that most students don’t take part in binge drinking, they’re less likely to binge-drink themselves. Messages were also more effective if they were delivered in a way that allowed the recipients a sense of autonomy. If you march all the high-school juniors into the auditorium and force them to watch a play about tolerance and inclusion, they’re less likely to take the message to heart than if they feel as if they are independently seeking it out. And positive messages are more effectively absorbed when they are experienced through what Walton called “self-persuasion”: if students watch a video or read an essay with a particular message and then write their own essay or make their own video to persuade future students, they internalize the message more deeply.

In one experiment after another, Yeager and Walton’s methods produced remarkable results. At an elite Northeastern college, Walton, along with another Stanford researcher named Geoffrey Cohen, conducted an experiment in which first-year students read brief essays by upperclassmen recalling their own experiences as freshmen. The upperclassmen conveyed in their own words a simple message about

belonging: “When I got here, I thought I was the only one who felt left out. But then I found out that everyone feels that way at first, and everyone gets over it. I got over it, too.” After reading the essays, the students in the experiment then wrote their own essays and made videos for future students, echoing the same message. The whole intervention took no more than an hour. It had no apparent effect on the white students who took part in the experiment. But it had a transformative effect on the college careers of the African-American students in the study: Compared with a control group, the experiment tripled the percentage of black students who earned G.P.A.s in the top quarter of their class, and it cut in half the black-white achievement gap in G.P.A. It even had an impact on the students’ health — the black students who received the belonging message had significantly fewer doctor visits three years after the intervention.

Next, Yeager did an experiment with 600 students just entering ninth grade at three high schools in Northern California. The intervention was 25 minutes long; students sat at a terminal in the school computer lab and read scientific articles and testimonials from older students with another simple message: People change. If someone is being mean to you or excluding you, the essays explained, it was most likely a temporary thing; it wasn’t because of any permanent trait in him or you. Yeager chose ninth grade because it is well known as a particularly bad time for the onset of depression — generally, depression rates double over the transition to high school. Indeed, among the control group in Yeager’s experiment, symptoms of depression rose by 39 percent during that school year. Among the group who had received the message that people change, though, there was no significant increase in depressive symptoms. The intervention didn’t cure anyone’s depression, in other words, but it did stop the appearance of depressive symptoms during a traditionally depressive period. And it did so in just 25 minutes of treatment.

After the depression study, Yeager, Walton and two other researchers did an experiment with community-college students who were enrolled in remedial or “developmental” math classes. Education advocates have identified remedial math in community college as a particularly devastating obstacle to the college hopes of many students, especially low-income students, who disproportionately attend community college. The statistics are daunting: About two-thirds of all community-college students are placed into one or more remedial math classes, and unless they pass those classes, they can’t graduate. More than two-thirds of them don’t pass; instead, they often drop out of college altogether.




Ron Haskins/“Education and Economic Mobility.”

Clearly, part of the developmental-math crisis has to do with the fact that many students aren’t receiving a good-enough math education in middle or high school and are graduating from high school underprepared for college math. But Yeager and Walton and a growing number of other researchers believe that another significant part of the problem is psychological. They echo David Laude’s intuition from the early days of TIP: When you send college students the message that they’re not smart enough to be in college — and it’s hard not to get that message when you’re placed into a remedial math class as soon as you arrive on campus — those students internalize that idea about themselves.

In the experiment, 288 community-college students enrolled in developmental math were randomly assigned, at the beginning of the semester, to read one of two articles. The control group read a generic article about the brain. The treatment group read an article that laid out the scientific evidence against the entity theory of intelligence. “When people learn and practice new ways of doing algebra or statistics,” the article explained, “it can grow their brains — even if they haven’t done well in math in the past.” After reading the article, the students wrote a mentoring letter to future students explaining its key points. The whole exercise took 30 minutes, and there was no follow-up of any kind. But at the end of the semester, 20 percent of the students in the control group had dropped out of developmental math, compared with just 9 percent of the treatment group. In other words, a half-hour online intervention, done at almost no cost, had apparently cut the community-college math dropout rate by more than half.

Soon after Yeager arrived at the University of Texas, in the winter of 2012, he got an email from a vice provost at the university named Gretchen Ritter, who had heard about his work and wanted to learn more. At Ritter’s invitation, Yeager gave a series of presentations to various groups of administrators at the university; each time, he mentioned that he and Walton were beginning to test whether interventions that addressed students’ anxieties about ability and belonging could improve the transition to college, especially for first-generation students. Ritter asked Yeager if the approach might work in Austin. Could he create an intervention not for just a few hundred students, but for every incoming U.T. freshman? In theory, yes, Yeager told her. But at that scale, it would need to be done online. And if he

did it, he said, he would want to do it as a randomized controlled experiment, so he and Walton could collect valuable new data on what worked. In April 2012, Ritter asked Yeager to test his intervention on the more than 8,000 teenagers who made up the newly admitted U.T. class of 2016. It would be one of the largest randomized experiments ever undertaken by social or developmental psychologists. And it would need to be ready to go in three weeks.

Yeager was already feeling overwhelmed. He and his wife had just moved to Austin. Three weeks earlier, they had their second child. He was swamped with lingering commitments from Stanford and scrambling to stay on top of the classes he was teaching for the first time. But he was painfully aware of the statistics on the graduation gaps at U.T., and he had enough faith in the interventions that he and Walton were developing to think that a well-orchestrated large-scale version could make a difference. “I went home to Margot, my wife,” he told me, “and I said: ‘O.K., I know I’m already overworked. I know I’m already never at home. But bear with me for three more weeks. Because this has the potential to be one of the most important things I ever do.’ ”

**Yeager immediately** began holding focus groups and one-on-one discussions with current U.T. students, trying to get a clearer understanding of which messages would work best at U.T. It’s an important point to remember about these interventions, and one Yeager often emphasizes: Even though the basic messages about belonging and ability recur from one intervention to the next, he and Walton believe that the language of the message needs to be targeted to the particular audience for each intervention. The anxieties that a high-achieving African-American freshman at an Ivy League college might experience are distinct from the anxieties experienced by a community-college student who was just placed into remedial math.

Yeager and Ritter decided that the best way to deliver the chosen messages to the incoming students was to make them a part of the online pre-orientation that every freshman was required to complete before arriving on campus. That May, rising freshmen began receiving the usual welcome-to-U.T. emails from the registrar’s office, inviting them to log on to U.T.’s website and complete a series of forms and tasks. Wedged in between the information about the meningococcal vaccine requirements and the video about the U.T. honor code was a link to Yeager’s interactive presentation about the “U.T. Mindset.”

Students were randomly sorted into four categories. A “belonging” treatment group read messages from current students explaining that they felt alone and excluded when they arrived on campus, but then realized that everyone felt that way and eventually began to feel at home. A “mind-set” treatment group read an article about the malleability of the brain and how practice makes it grow new connections, and then read messages from current students stating that when they arrived at U.T., they worried about not being smart enough, but then learned that when they studied they grew smarter. A combination treatment group received a hybrid of the belonging and mind-set presentations. And finally, a control group read fairly banal reflections from current students stating that they were surprised by Austin’s culture and weather when they first arrived, but eventually they got used to them. Students in each group were asked, after clicking through a series of a dozen or so web pages, to write their own reflections on what they’d read in order to help future students. The whole intervention took between 25 and 45 minutes for students to complete, and more than 90 percent of the incoming class completed it.

Going in, Yeager thought of the 2012 experiment as a pilot — simply a way to test out the mechanics of a large-scale intervention. He didn’t have much confidence that it would produce significant results, so he was surprised when, at the end of the fall semester, he looked at the data regarding which students had successfully completed at least 12 credits. First-semester credit-completion has always been an early indicator of the gaps that appear later for U.T. students. Every year, only 81 or 82 percent of “disadvantaged” freshmen — meaning, in this study, those who are black, Latino or first-generation — complete those 12 credits by Christmas, compared with about 90 percent of more advantaged students.

In January 2013, when Yeager analyzed the first-semester data, he saw the advantaged students’ results were exactly the same as they were every year. No matter which message they saw in the pre-orientation presentation, 90 percent of that group was on track. Similarly, the disadvantaged students in the control group, who saw the bland message about adjusting to Austin’s culture and weather, did the same as disadvantaged students usually did: 82 percent were on track. But the disadvantaged students who had experienced the belonging and mind-set messages did significantly better: 86 percent of them had completed 12 credits or more by Christmas. They had cut the gap between themselves and the advantaged students in half.

A rise of four percentage points might not seem like much of a revolution. And Yeager and Walton are certainly not declaring victory yet. But if the effect of the intervention persists over the next three years (as it did in the elite-college study), it could mean hundreds of first-generation students graduating from U.T. in 2016 who otherwise wouldn’t have graduated on time, if ever. It would go a long way toward helping David Laude meet his goals. And all from a one-time intervention that took 45 minutes to complete. The U.T. administration was encouraged; beginning this month, the “U.T. Mindset” intervention will be part of the pre-orientation for all 7,200 members of the incoming class of 2018.

When Yeager and Walton present their work to fellow researchers, the first reaction they often hear is that their results can’t possibly be true. Early on, they each had a scientific paper or grants rejected not because there were flaws in their data or their methodology, but simply because people didn’t believe that such powerful effects could come from such minimal interventions. Yeager admits that their data can seem unbelievable — they contradict many of our essential assumptions about how the human mind works. But he can articulate an entirely plausible explanation for what’s happening when students hear or read these messages, whether they’re at U.T. or in community college or in ninth grade.

Our first instinct, when we read about these experiments, is that what the interventions must be doing is changing students' minds — replacing one deeply held belief with another. And it is hard to imagine that reading words on a computer screen for 25 minutes could possibly do that. People just aren't that easy to persuade. But Yeager believes that the interventions are not in fact changing students' minds — they are simply keeping them from overinterpreting discouraging events that might happen in the future. "We don't prevent you from experiencing those bad things," Yeager explains. "Instead, we try to change the meaning of them, so that they don't mean to you that things are never going to get better."

Every college freshman — rich or poor, white or minority, first-generation or legacy — experiences academic setbacks and awkward moments when they feel they don't belong. But white students and wealthy students and students with college-graduate parents tend not to take those moments too seriously or too personally. Sure, they still feel bad when they fail a test or get in a fight with a roommate or are turned down for a date. But in general, they don't interpret those setbacks as a sign that they don't belong in college or that they're not going to succeed there.

It is only students facing the particular fears and anxieties and experiences of exclusion that come with being a minority — whether by race or by class — who are susceptible to this problem. Those students often misinterpret temporary setbacks as a permanent indication that they can't succeed or don't belong at U.T. For those students, the intervention can work as a kind of inoculation. And when, six months or two years later, the germs of self-doubt try to infect them, the lingering effect of the intervention allows them to shrug off those doubts exactly the way the advantaged students do.

**When I spoke** with Vanessa Brewer in January, she was deep in the grip of those doubts. She had made it through the fall with a perfectly decent 3.0 G.P.A., and she even pulled out a B-plus in statistics, but she looked back on it as a very difficult stretch. "I felt like no one really believed in me," she said. Her mother was the only person she really confided in, but even those conversations sometimes made her feel more aware of the lack of a support system around her. "She told me I sounded different," Vanessa said. "She was like: 'Are you O.K.? Are you taking care of yourself?' I'm normally a pretty happy person, but I guess when I called her, it was more monotone, uninterested."

When Vanessa thought about the semester ahead of her, she felt stressed out, and she told me that her anxiety about whether she belonged at U.T. was with her every time she stepped into a classroom. "Everybody else seems like they have it in the bag," she said. "They look intimidating, even when they're just sitting in class — even the way they're taking notes. They seem so confident. I sometimes feel like I am the only one who is lost, you know?"

Vanessa Brewer (in red shoes) in her chemistry class at the University of Texas. Bill McCullough for The New York Times

But as the spring semester progressed, things started to look up for Vanessa. She was taking the dreaded Chemistry 301, and while she found it a real challenge, she was also determined not to fall behind. She was enrolled in U.L.N. and in Discovery Scholars, another of the programs David Laude oversaw, and her advisers arranged for her to get free help at the campus tutoring center. She spent six or more hours there each week, going over chemistry problems, and by March she was getting A's and B's on every test.

Gradually, Vanessa started to feel a greater sense of belonging. She told me about a day in February when she was hanging out in the Discovery Scholars office and suddenly had an impulse to "do a little networking." She went up to the young woman working at the front desk, an African-American undergrad like Vanessa, and asked her on a whim if she knew any students in the nursing program. As it happened, the woman's two best friends were in nursing, and they had just helped start an African-American nursing association at U.T.

Vanessa got their numbers and started texting with them, and they invited her to one of their meetings. They were juniors, a couple of years older than Vanessa, and they took her under their wing. “I like having someone to look up to,” Vanessa told me. “I felt like I was alone, but then I found people who said, you know, ‘I cried just like you.’ And it helped.”

The messages about belonging and ability that Vanessa was hearing from her mentors and tutors weren’t the only things getting her through Chemistry 301, of course. But they were important in lots of subtle but meaningful ways, helping to steer her toward some seemingly small decisions that made a big difference in her prospects at U.T. Like walking into the tutoring center and asking for help. Or working up the nerve to ask a stranger if she knew any friendly nursing students.

I spoke to dozens of freshmen during the months I spent reporting in Austin, most of them, like Vanessa, enrolled in U.L.N. or another of Laude’s programs. And while each student’s story was different, it was remarkable how often the narratives of their freshman years followed the same arc: arriving on campus feeling confident because of their success in high school, then being laid low by an early failure. One student told me he fell into a depression and couldn’t sleep. Another said she lost weight and broke out in a rash. But then, sometimes after weeks or months of feeling lost and unhappy, most of them found their way back to a deeper kind of confidence. Often the support necessary for that recovery came from a U.L.N. adviser or a TIP mentor; sometimes it came from a family member or a church community or a roommate. But one way or another, almost all of the students I spoke to were able to turn things around, often pulling themselves back from some very low places.

“What I like about these interventions is that the kids themselves make all the tough choices,” Yeager told me. “They deserve all the credit. We as interveners don’t. And that’s the best way to intervene. Ultimately a person has within themselves some kind of capital, some kind of asset, like knowledge or confidence. And if we can help bring that out, they then carry that asset with them to the next difficulty in life.”

My conversations with the U.L.N. students left me feeling optimistic about their chances. But they also served as a reminder of how easy it is for things to tip the other way — for those early doubts to metastasize into crippling anxieties. What Laude and Yeager are helping to demonstrate is that with the right support, both academic and psychological, these students can actually graduate at high rates from an elite university like the University of Texas. Which is exactly why the giant educational experiment now taking place there has meaning well beyond the Austin campus.

It matters, in all sorts of ways, whether students like Vanessa and her fellow U.L.N. members are able to graduate from a four-year college. The data show that today, more than ever, the most powerful instrument of economic mobility for low-income Americans is a four-year college degree. If a child is born into a family in the lowest economic quintile (meaning a family that earns $28,000 or less), and she doesn’t get a college degree, she has only a 14 percent chance of winding up in one of the top two quintiles, and she has a 45 percent chance of never making it out of that bottom bracket. But if she does earn a four-year degree, her prospects change completely. Suddenly, there is a 40 percent chance that she’ll make it into one of the top two quintiles — and just a 16 percent chance that she’ll remain stuck at the bottom.

Beyond the economic opportunities for the students themselves, there is the broader cost of letting so many promising students drop out, of losing so much valuable human capital. For almost all of the 20th century, the United States did a better job of producing college graduates than any other country. But over the past 20 years, we have fallen from the top of those international lists; the United States now ranks 12th in the world in the percentage of young people who have earned a college degree. During the same period, a second trend emerged: American higher education became more stratified; most well-off students now do very well in college, and most middle- and low-income students struggle to complete a degree. These two trends are clearly intertwined. And it is hard to imagine that the nation can regain its global competitiveness, or improve its level of economic mobility, without reversing them.

To do so will take some sustained work, on a national level, on a number of fronts. But a big part of the solution lies at colleges like the University of Texas at Austin, selective but not superelite, that are able to perform, on a large scale, what used to be a central mission — arguably *the* central mission — of American universities: to take large numbers of highly motivated working-class teenagers and give them the tools they need to become successful professionals. The U.T. experiment reminds us that that process isn’t easy; it never has been. But it also reminds us that it is possible.

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