Toolbox Revisited

Executive Summary

The Toolbox Revisited is a data essay that follows a nationally representative cohort of students from high school into postsecondary education, and asks what aspects of their formal schooling contribute to completing a bachelor's degree by their mid-20s. The universe of students is confined to those who attended a four-year college at any time, thus including students who started out in other types of institutions, particularly community colleges.

The core question, data source, and legacy

The core question is not about basic "access" to higher education. It is not about persistence to the second term or the second year following postsecondary entry. It is about completion of academic credentials—the culmination of opportunity, guidance, choice, effort, and commitment.

To answer the question, *The Toolbox Revisited* uses the most recently completed of the national grade-cohort longitudinal studies conducted by the National Center for Education Statistics. This study, known as the NELS:88/2000, began with a national sample of eighth-graders in 1988. They were scheduled to be in the 12th grade and graduate from high school in 1992. They were followed through December 2000. In addition to regular interviews with these students, the data set on which this essay draws includes the critical components of high school and college transcripts, and the transcript data are the principal sources for the academic history observed.

The Toolbox Revisited was designed as a replication of a noted previous study published by the U.S. Department of Education, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* (1999), hereinafter referred to as "the original *Tool Box*," which based its analysis on a national cohort of high school students who were scheduled to graduate in 1982, and who were followed through 1993. The question naturally arose as to whether the hypotheses and analyses based on that cohort's history would hold up in the story of the slightly overlapping 1992–2000 period.

We have learned a great deal in a very short time from numerous initiatives of states and private foundations to prepare high school students better for higher education, and from major federal stimuli under the *No Child Left Behind* legislation to jump start the process of academic momentum prior to high school. One of the reasons for examining the academic history of the NELS:88/2000 cohort is that its students attended high school after the wave of reforms in the 1980s that followed the critique of U.S. education offered by the seminal report, *A Nation at Risk* (1983), and, hence, may provide some clues as to the likely outcomes of current reform efforts.

Much has changed in other ways, too, since the High School Class of 1982 (the subjects of the original *Tool Box*) moved through their scheduled 12th grade and through postsecondary education. A dramatically higher proportion of high school seniors of all race/ethnicity groups continue their education, though access gaps remain (Wirt et al. 2005, indicator 22). Postsecondary attendance patterns among traditional-age students have become far more

complex, with nearly 60 percent of undergraduates attending more than one institution, and 35 percent of this group crossing state lines in the process; community college transfer rates rising nearly 10 percentage points; one out of eight undergraduates based in four-year institutions using community colleges to fill in pieces of their curriculum, and another eight percent "swirling" back and forth between the four-year and two-year sectors. Dual-enrollment while in high school, credit-by-examination, and use of summer terms all added to the dynamic mix of time and space that marked student pathways in the1990s.

With all this change, we still measure something called "college graduation rates" with anachronistic formulas that do not track students through increasingly complex paths to degrees. As a result, we do not understand what is really going on. The dominant language accompanying analyses bemoaning putatively low graduation rates is a language of "attrition," with students labeled "at risk" or "minimally college-qualified," and leaking out of "pipelines."

This study looks at student histories derived from transcript records in a different way and with a different tone. It follows the student, not the institution, because it is the *student's* success that matters to families—and to the nation. It allows the maximum length of postsecondary time for the High School Class of 1992, 8.5 years, for students to earn degrees no matter how many institutions they attend. It notes that if the history of the Class of 1982 were truncated at 8.5 years, there has been a decent improvement in bachelor's degree attainment among non-incidental students (those who earned more than 10 credits, i.e. "made a go of it") who attended a four-year college at any time (from 60 to 66 percent). It is natural to ask how this happened, to identify the moments and aspects of schooling that may have made a difference, and to reflect on what might make the most difference in the future for narrowing degree-completion gaps by race/ethnicity. In that task, *The Toolbox Revisited* looks for the features of academic history that are realistically subject to change by institutions whose principal business is the generation, preservation, and dissemination of knowledge. While acknowledging that for degree-completion rates to improve, students themselves must respond, and that their response does not occur in a vacuum, the features of student histories that are the domain of this inquiry do not include social and psychological variables attendant on the passage from adolescence to adulthood.

It is important to note that, as was the case for the original *Tool Box*, the student universe for *The Toolbox Revisited* constitutes roughly half who reach the 12th grade (table 1). It does not include students who failed to graduate from high school, those who earned General Education Diplomas (GEDs), those who had not enrolled in any postsecondary institution by the age of 26, and those who entered the postsecondary system but never attended a bachelor's degree-granting institution. The resulting demographics are slightly more female, slightly less minority, less with a second language background, and a higher socioeconomic status distribution than the cohort as a whole (table 2).

Organization

We learned from critiques of the original *Tool Box* to sort the chronology of events with greater care. There are seven steps in the analysis of *The Toolbox Revisited*, each of which involves a

collection of variables that are investigated in terms of the degree to which they help us explain bachelor's degree completion for the population of students under investigation:

Step 1: Demographic background and high school history
Step 2: Postsecondary entrance (timing and type of institution)
Step 3: First postsecondary year history (curriculum and performance)
Step 4: Factors of financing postsecondary education in the early years
Step 5: Postsecondary attendance patterns
Step 6: Extended postsecondary history (curriculum and performance)
Step 7: Final model, with complete academic history

This essay also takes an important pause outside the steps of the core statistical model to consider the characteristics of student progress through the *second* year following postsecondary entry.

As each step of the statistical model of student history is set forth, it is pointed out where the results are similar to the findings of the original *Tool Box* with its earlier population, and where they diverge. All seven steps are subsequently assembled together in one place (table 29) so that the reader can observe the factors that have *consistently* contributed to degree completion.

Principal Stories and Guidance

This executive summary offers themes, highlights, and implications of the data for those who comment on secondary and higher education and make decisions about institutional or system policy—editorial writers, legislators, researchers, education administrators.

Two national longitudinal studies, a decade apart, have told similar stories. When the second story reinforces the first—and sheds even more light—something has to be right, and it behooves us to pay attention. Both of them provide support for current efforts to improve the quality of high school curricula and the participation in those curricula of ever larger proportions of students. Both of them provide guidance for college and community college processes likely to lead students to degree completion.

Some of what was learned from the original *Tool Box* was taken to heart at the secondary school level, and, in some respects, we are seeing positive results in academic curricular participation in high schools. But counting Carnegie units[1] in English or science is not the same as describing and validating what students have learned, and whether that learning links smoothly to the performance expectations of the postsecondary world. *The Toolbox Revisited* says we have more to do, that the bulk of our task lies both after the college matriculation line, and in communication and outreach between postsecondary institutions and high schools. How do we

[1] A Carnegie unit is the basic credit system for U.S. secondary schools. It is generally recognized as representing a full year (36-40 weeks) in a specific class meeting four or five times per week for 40-50 minutes per class session (Martinez and Bray 2002).

learn what we have to do? By following students in the richness and complexity of their postsecondary histories.

Curriculum, starting in high school, and continuing

However complex students' attendance patterns, the principal story line leading to degrees is that of content. What one learns is what one studies, and what one brings to economic and community life. The story starts in high school, but merely crossing the bridge to college or community college doesn't mean the story is over. Furthermore, the bridge is not always aligned with the road on the other side.

The academic intensity of the student's high school curriculum still counts more than anything else in precollegiate history in providing momentum toward completing a bachelor's degree. At the highest level of a 31-level scale describing this academic intensity (see Appendix F), one finds students who, through grade 12 in1992, had accumulated:

3.75 or more Carnegie units of English
3.75 or more Carnegie units of mathematics
highest mathematics of either calculus, precalculus, or trigonometry
2.5 or more Carnegie units of science *or* more than 2.0 Carnegie units of core laboratory science (biology, chemistry, and physics)
more than 2.0 Carnegie Units of foreign languages
more than 2.0 Carnegie Units of history and social studies
1.0 or more Carnegie Units of computer science
more than one Advanced Placement course
no remedial English; no remedial mathematics

These are minimums. In fact, students who reached this level of academic curriculum intensity accumulated much more than these threshold criteria (see table F1), and 95 percent of these students earned bachelor's degrees (41 also percent earned master's, first professional, or doctoral degrees) by December 2000.

Provided that high schools offer these courses, students are encouraged or required to take them, and, in the case of electives, students *choose* to take them, just about everybody could accumulate this portfolio. Unfortunately, not all high schools present adequate opportunity-to-learn, and some groups of students are excluded more than others. Latino students, for example, are far less likely to attend high schools offering trigonometry (let alone calculus) than white or Asian students. Students from the lowest socioeconomic status (SES) quintile attend high schools that are much less likely to offer any math above Algebra 2 than students in the upper SES quintiles (table 6). If we are going to close gaps in preparation—and ultimate degree attainment—the provision of curriculum issue has to be addressed. In recent years, colleges and community colleges have begun to provide these courses to high school students, and distance learning provides additional options if students have access to the technology. The hypothetical

consequences of participating in curriculum configurations approaching that illustrated above for Latino degree completion rates, in particular, are stunning (table 32).

There is a quantitative theme to the curriculum story that illustrates how students cross the bridge onto and through the postsecondary landscape successfully. The highest level of mathematics reached in high school continues to be a key marker in precollegiate momentum, with the tipping point of momentum toward a bachelor's degree now firmly above Algebra 2. But in order for that momentum to pay off, earning credits in truly college-level mathematics on the postsecondary side is *de rigeur*. The world has gone quantitative: business, geography, criminal justice, history, allied health fields—a full range of disciplines and job tasks tells students why math requirements are not just some abstract school exercise. By the end of the second calendar year of enrollment, the gap in credit generation in college-level mathematics between those who eventually earned bachelor's degrees and those who didn't is 71 to 38 percent (table 21). In a previous study, the author found the same magnitude of disparity among community college students in relation to earning a terminal associate degree (Adelman 2005a). The math gap is something we definitely have to fix.

A dominant feature of academic histories that cannot really be assessed until the end of the second year following college entry is the extent to which students successfully completed credits in a range of "gateway" courses. It is at this point that the postsecondary curricular story line fully emerges, with ratios of participation in the "gateways" between those who ultimately earned degrees and those who did not running 6:1 in American literature, 4:1 in general chemistry, and more than 3:1 in precalculus, micro/macroeconomics, introduction to philosophy, and world civilization (table 20). These gaps in curricular participation argue for academic administrators to identify their key gateway courses and regularly monitor participation.

College and community college expectations for their first-year students in those gateway courses—expressed through examinations, paper and laboratory assignments—need to be more public. Examples such as those offered by the American Diploma Project in its report, *Ready or Not: Creating a High School Diploma That Counts* (2004), should be shared with larger audiences than policymakers and others who habitually read such reports. Parents should see those assignments even if they don't understand them; high school teachers should ponder them to assess whether their exiting students are likely to be prepared; and, most importantly, high school students have got to see them as road signs to their next education destination. *The Toolbox Revisited* advocates making these examples part and parcel of admissions packets, publicity brochures, and Web sites. There is risk in this: Some students may be scared away. But there is no better way to enhance articulation and preparedness than to display what students can expect.

Postsecondary benchmarks

In both colleges and community colleges, the curriculum story line intersects attendance patterns and performance in ways that set benchmarks for academic advisement and intervention:

- Less than 20 credits by the end of the first calendar year of enrollment (no matter in what term one started, whether summer, fall, winter, spring) is a serious drag on degree completion. The original *Tool Box* told the same story. It is all the more reason to begin the transition process in high school with expanded dual enrollment programs offering true postsecondary course work so that students enter higher education with a *minimum* of 6 additive credits to help them cross that 20-credit line. Six is good, 9 is better, and 12 is a guarantee of momentum.
- We falsely believe that beginning students drop out of higher education in appalling numbers by the end of their scheduled first academic year of attendance. In fact, about 90 percent of traditional-age beginning students turn up somewhere (maybe not at the first school attended) and at some time (maybe not in the fall term) during the subsequent calendar academic year (which we measure as July 1 through June 30). However impressive this percentage, the *quality* of persistence counts more, and, for a third of these students, the quality of persistence leaves much to be desired (table 17). *The Toolbox Revisited* urges that institutions monitor and report the quality (as much as the fact) of persistence.
- More than 60 percent of the students in the sample under investigation enrolled during summer terms. Undergraduates are not only more geographically mobile, but have shattered observance of the traditional academic calendar. Summer term credits are more than metaphors for high octane persistence: Earning more than 4 credits during those terms held a consistently positive relationship to degree completion, and gave African-American students, in particular, a significant boost in hypothetical graduation rates (table 32). College and community college administrators can be very creative in expanding the use of summer terms.

Student uses of time

The example of summer-term credits, particularly in combination with the complex multi-institutional attendance patterns, underscores another theme of *The Toolbox Revisited*: Student uses of time in undergraduate careers are now more important than their uses of place. In other words, *when* students do something academic has a more significant relationship to degree completion than *where* they do it. For example:

- For the High School Class of 1982 (the subjects of the original *Tool Box)*, timing of entry to postsecondary education never rose to a level of statistical significance in the analysis, whereas variables for the type of institution first entered played inconsistent but positive roles in explaining degree completion. A decade later, with a higher proportion of high school students continuing to college, the situation was reversed (table 13). What this means is that recruitment efforts have to insure that students enter postsecondary education immediately following high school graduation. The longer students wait, the less likely they will finish a degree.

- The only characteristic of the first institution of attendance to be admitted to statistical analysis was selectivity, but it never rose above the threshold of significance. Quite frankly, one isn't worried about degree completion for the 5 percent of traditional-age undergraduates who enter highly selective colleges. One is more concerned with the rest of the river—particularly the 78 percent who start in either nonselective four-year colleges or open-door community colleges.
- The original *Tool Box* study declined to confront part-time status and its effects. If one is using transcripts as evidence, there are a number of problems in determining which students are part-time and when. *The Toolbox Revisited* found a way around these problems to mark whether a student's enrollment intensity *ever* fell into part-time status, i.e., less than 12 credits per semester or its equivalent. Part-time attendance by whatever means, as Carroll (1989) labeled it, proved "hazardous" to degree completion health (table 24; table 29).
- In longitudinal studies extending for as long a period of postsecondary time as does the NELS:88/2000 (8.5 calendar years), a student is allowed stop-out periods totaling one semester or its equivalent (e.g., two quarters), exclusive of summer terms, and still be considered "continuously enrolled." Continuous enrollment is a factor of attendance patterns, and another marker of the student's use of time. It proves to be overpowering: with 16 other variables in play, continuous enrollment increases the probability of degree completion by 43 percent (table 27). The original *Tool Box* offered the same message, arguing for assiduous monitoring of student stop-out periods. Put another way: Keep the student continuously enrolled, even part-time (less damaging than excessive stop-out periods).

Purposeful migration versus "swirling"

The complexity of student postsecondary enrollment patterns, already a notable phenomenon for the population under study in the original *Tool Box*, accelerated in the subsequent cohort. The construction of the NELS:88/2000 postsecondary transcript files took advantage of what we learned from more sophisticated institutional and state system tracking studies of the 1990s; hence, some new attendance pattern variables were available and others (those describing different kinds of multi-institutional attendance) refined.

What we found for the students of the 1992-2000 period was this:

- Formal transfer from a community college to a four-year college and formal transfer from one four-year college to another were positively associated with degree completion, but wandering from one school to another was not.

In fact, the nomadic multi-institutional attendance behavior increasingly known as 'swirling,' held a significant and negative relationship to degree completion (table 24, table 39). These statements are a very simple untangling of complex realities.

The basic question asked of the transcript data—did a student attend only one school or more than one?—begins a process of inquiry to determine *how* the student attended second and third institutions. Given very taut definitions of what transfer means, we are advised to ensure that multi-institutional attendance is purposeful and productive. For that, we require much better student tracking systems than we currently possess, and regular contact with students in motion.

Student academic performance

More than the original *Tool Box*, *The Toolbox Revisited* recognizes that the path of student academic performance, marked by grades, is a reflection of quality of effort, and pays off. It starts in high school: Academic curriculum participation is still the strongest of the precollegiate momentum indicators, but between the 1980s and 1990s, class rank/GPA moved markedly ahead of senior year test score in its contribution to students' overall "Academic Resources" index, a composite indicator of high school curriculum intensity, class rank/GPA, and senior year scores on a 90-minute exam best described as a mini, enhanced SAT (see p. 16 and Glossary).

This story continues on the postsecondary side of the matriculation line:

- Earning grades that place one in the top 40 percent of first-year GPA for the whole cohort is a strong—and positive—contributor to academic momentum, and remains in the account of degree completion throughout the histories of both the class of 1982 and the class of 1992 (table 15).

- The theme of quality-of-student-effort, reflected in grades, is strengthened when the canvas covers the student's entire undergraduate career. In the original *Tool Box*, the variable describing the *trend* in students' GPA had only two reference points: first calendar year and final GPA. For *The Toolbox Revisited*, there are three such points: first calendar year GPA, cumulative GPA for the first two calendar years, and GPA as of the last date of attendance, whether or not a degree was earned. A rising trend in grades fits with attainment (table 25), contributing positively and significantly (table 26).

A story twice told should be a story to which we listen

Both the original *Tool Box* and *The Toolbox Revisited* revealed that one of the most degree-crippling features of undergraduate histories is an excessive volume of courses from which the student withdrew *without penalty* and those the student repeated. We set this up as a ratio, and marked those who withdrew from or repeated 20 percent or more of their course attempts. Doing so cuts the probability of completing a degree in half (table 27)!

The withdrawals counted here are not "drop" grades that apply during standard drop-and-add periods at the beginning of terms. They are the result of institutional policies that allow withdrawals without penalty after the drop-and-add period. No-credit repeats are standard fare

in remedial courses, but when they reach destructive levels the question arises as to how many times an institution allows a student to repeat a course. Think of it this way: Every non-penalty withdrawal and no-credit repeat means that a seat in a course is not available to someone else. Add those seats up, and admission to an institution may not be available to someone else. Excessively lax withdrawal and repeat policy, then, ultimately blocks general access. And in terms of degree completion, such policies do students no favors.

What Does Not Count in The Account of Completion?

- Students' education "anticipations" (the consistency and level of their vision of how far they will get in school) were not significant at any step of the logistic account for the High School Class of 1992. This is a change from the position of the "anticipations" variable in the original *Tool Box*, where it ducked in and out of significance. The new message is more clear: Among students who attend a four-year college at some time, expectations are distinctly secondary to one's uses of academic time and to one's academic performance.

- Whereas grants and student work-study were modestly significant contributors to degree momentum at *early* stages of students' postsecondary careers in the history of the High School Class of 1982, the data on finance mechanisms for the High School Class of 1992 are poor, and the results inconclusive. Analysts are directed instead to the Beginning Postsecondary Students longitudinal studies, which contain detailed financial aid data (but skeletal information on high school histories and postsecondary course work).

- Of student demographic characteristics, only one—socioeconomic status—was significantly associated with degree completion, though in a modest manner. Gender and race/ethnicity were never significant in the logistic narrative, even though some *indirect* effects of these key demographic characteristics would probably be found in other statistical models. When each race/ethnicity group was treated as an independent variable, the basic story did not change.

- Both a dichotomous variable marking any remedial work in the first calendar year of attendance, and an elaborate variable describing types and extent of remediation over the course of a student's entire undergraduate career were employed in the analysis, but to no avail. The same procedure was used in the original *Tool Box*, where the variables were admitted to the statistical model but did not reach the threshold of significance. Sufficient numbers of students who took remedial classes successfully moved through them so that remediation did not make a strategic difference in degree completion.

- Half of the students in the sample for *The Toolbox Revisited* who earned bachelor's degrees changed their major along the way. It was natural to ask whether change-of-major had any influence on degree attainment. It did not,

principally because, with few exceptions, community college transfer students come in to the four-year institution from a general studies program and automatically are classified as "change-of-major" the minute they enter a specific program at the four-year school.

Students as active, responsible participants

The Toolbox Revisited does not treat students as passive creatures whose fate is wholly molded by schools and colleges. It demonstrates that, within the population of traditional-age students who attend a four-year college at any time (obviously including community college transfers), we *can* improve graduation rates and close some of the gaps in completion by race/ethnicity and socioeconomic status. But it also argues that there is a limit to what we can realistically do unless students respond to highly targeted advice and prodding.

The analysis of *The Toolbox Revisited* identifies features of academic history that are most tractable in terms of second party intervention. But there is also something we might dub "first party intervention." Once the modest echoes of socioeconomic status are accounted for, each step of academic history offers *students* a set of decisions that require the commitment of time and effort likely to yield the return of earning a degree. Provided there is opportunity, the choices made by students, beginning with high school curriculum and quality of effort in high school, allow subsequent leverage. Entering a postsecondary institution directly from high school, earning 20 or more credits in the first calendar year of enrollment, and performing well enough in that first calendar year to fall in the top 40 percent of a GPA distribution build on previous academic investments, and are all signs of commitment.

Subsequent choices that may not be reflected in a bounded period of time, such as excessive course withdrawals, prove to be poor decisions with negative returns, breaking accumulated momentum. Other configurations of choice, including summer-term credit generation, meeting the challenge of college-level mathematics, effort required to yield a rising GPA, and most of all, remaining continuously enrolled, all reflect continuing leverage of attainment. This is what academic momentum is all about. While these choices do not take place in a social and psychological vacuum, this is a story about the intersection of student choice with the structures of opportunity offered by institutions whose first order of business is the distribution of knowledge. It is not a story about growing up, although that happens along the way.

Degree Completion: How High Can We Go? How Much Can the Gaps Be Closed?

In Part V of *The Toolbox Revisited*, three different national longitudinal studies conducted during the 1990s are set side-by-side, so as to demonstrate a remarkable degree of agreement on the rate of bachelor's degree completion for students who started out in four-year colleges (granted, that is only part of the broader universe addressed in this essay). Looking at the concordance of these three sources (table 30), it is fair to say that:

- A third of traditional-age students who started in a four-year college earned a bachelor's degree from the same school in the "traditional" four-year period.

- Between 54 and 58 percent earned the degree from the same school in which they began within six years of entry.
- When the option of earning a degree from a different four-year college than the one in which these students commenced study, the six-year completion rates are in the 62–67 percent range.
- Only the NELS:88/2000 extends the time period for earning a degree beyond six years; at 8.5 years, its degree completion rate for students who started in a four-year college approaches 70 percent.

However, it is unfortunate to note that despite increased participation of minority students to postsecondary education over the past quarter century, the gap in bachelor's degree completion between whites and Asians, on the one hand, and Latinos and African-Americans, on the other, remains wide.

What features of academic history might close the gaps, and by how much?

The data-driven exercise in Part V of *The Toolbox Revisited* can be characterized as "reasoned speculation." From the NELS:88/2000, we start with a degree completion gap between whites and Asians vis-a-vis African-Americans of 15 percent; and with reference to Latinos, 22 percent. We go back through our analysis and ask what factors:

(a) consistently contributed to bachelor's degree completion at all stages of the model in which they were "in play," and

(b) were most subject to change by external parties with little-to-modest—but creative—effort that might improve the portrait of degree completion.

Five factors stand out, four of which affect small populations in which minority students are over-represented. Small populations can add up. These factors are:

1. **First-year credit generation**, i.e., the goal of making sure that postsecondary students end their first calendar year of enrollment with 20 or more additive credits.

2. The problem of **excessive no-penalty withdrawals and no-credit repeats**, which affect 10 percent of the cohort. Institutional policy and advising can cut the incidence of withdrawals and repeats in half.

3. **Use of summer terms**. Strategic enrollment management can move more sections of high demand courses into summer terms, offer credit-bearing internships in summer terms, and engage in other creative initiatives that will also smooth out the utilization of institutional resources over what has become an "academic calendar year."

4. **No delay of entry.** This is a matter of recruitment strategy among high school students whose commitment to postsecondary education is less than fervid. The later they show up, the more their postsecondary fate is in jeopardy.

5. **The high school curriculum component of "Academic Resources."** This is not a case of "little-to-modest" effort or a small population. It is a megawork in progress, much of which depends on students' reading skills on entering high school. If students cannot read close to grade level, the biology textbook, the math problems, the history documents, the novel—all will be beyond them. And if high schools are not offering a full academic curriculum, there is little hope.

But with those five factors in mind, and assuming full student response and success, *potential* degree completion rates were hypothesized based on the records of NELS:88/2000 high school graduates by race/ethnicity (table 32) and socioeconomic status quintile (table 34). Virtually every one of these factors contributed to closing degree completion gaps, but none more than high school academic curriculum participation—which, to repeat, is criterion-referenced, hence, open to everyone to rank at or near the top. For African-American students, the combination of moving into the top 40 percent of the high school academic curriculum intensity index plus earning more than four credits during postsecondary summer terms would lower the degree completion gap vis-a-vis white and Asian students from 15 percent to 6 percent. For students from the lowest socioeconomic status quintile, moving into the top 40 percent of the academic curriculum intensity index and entering postsecondary education directly from high school would improve degree completion from 36 to 59 percent. For Latino students, the same steps would improve degree completion from 45 to 69 percent. Does that mean that future degree completion rates will look like those in tables 32 and 34 if everyone meets the criteria on all five counts? No; not everybody will make it. But the tables suggest just where the improvements could be dramatic—and for whom.

Messages to Students and Commentators

Student responsibility (the intersection of choice with opportunity) is a major theme of *The Toolbox Revisited* in a way that was only implicit in the original *Tool Box*. The essay concludes with some recommendations for students, who are partners in their own education fate, who shouldn't wait around for someone else to do something for them, and who are rarely addressed in studies of attainment.

The concluding messages also reflect on the dissonant data of public discourse on high school graduation rates, college attrition rates, and college graduation rates, examples of consequent "scare stories" that do not help us identify and address real problems, and a plea for creativity and cooperation in developing better student tracking systems. These messages also urge a considerable change in the language we use in describing what happens to students from a negative rhetoric that assumes passivity to one that respects students as active players, seeking and discovering paths to their education goals.