

Setting Greater Expectations for Quantitative Learning*

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The Greater Expectations initiative focuses on important outcomes of college-level learning, outcomes that are intended more powerfully to prepare students for lives of creative and thoughtful intelligence, professional excellence, and engaged citizenship. The initiative calls for

- Articulation of and focus on forms of learning that are widely needed in the modern world;
- A new intentionality about addressing expectations for student achievement across successive levels of learning, from school through college;
- Involvement of students in “authentic assignments,” i.e., the kinds of tasks that actually develop complex abilities while showing students how those abilities can be used with power in real contexts;
- Transparent assessments, linked to authentic assignments, that emphasize what students can do with their knowledge rather than their ability to pass standardized tests;
- Connection of desired capabilities to learning in each student’s major, so that study in the major becomes an essential vehicle not only for developing those capabilities but also for learning how to put them to use.

What do these premises imply for fostering quantitative literacy through school and college learning? Here are my proposals for educational change:

Create a public and policy dialogue about the uses of quantitative literacy.

The first change is to identify the ways in which quantitative literacies are actually used in contemporary society. But this should be more than an academic discussion; we must spark a broader public and policy dialogue about the need to recast and broaden our expectations for the quantitative literacy of the citizenry.

Identify kinds of learning.

The second change is to move beyond typologies of numeracy to a delineation of the kinds and levels of learning that need to be addressed, both in school and college, if students are actually to be held accountable for developing usable capabilities in quantitative reasoning and problem solving. Here again, the discussions should include policy and civic leaders as well as teachers and scholars.

Rethink high school mathematics.

The third change is to acknowledge the need to substantially retool the high school mathematics curriculum as well as the preparation of the teachers who provide that curriculum. High school study must lay a foundation for statistical as well as mathematical understanding. And it needs to incorporate context-rich practices that enable students to learn essential skills and discover why and for what purpose these skills matter.

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Rethink college quantitative literacy requirements.

The fourth change is to recognize that, at the college level, no one course of study can realistically develop all the major kinds of quantitative literacies. We need to stop thinking that remedying our quantitative deficiencies is simply a matter of “fixing” mathematics standards and the corresponding curriculum.

Encourage alternative pathways.

Instead—the fifth change—we need to design multiple courses of study, each well structured to foster quantitative strategies used in specific kinds of professional and civic contexts. The analogy is to writing. Although all educated people need certain kinds of writing abilities, successful people actually deploy very different rhetorics depending on the context. Scientists, for example, make highly field-specific written arguments; politicians frame their written arguments in very different terms. We should allow college students to develop quantitative strengths keyed to their actual interests, even at the cost of underdeveloping other possible abilities that, realistically, they are unlikely actually to use.

Embed quantitative literacy in other fields.

The sixth change follows from the fifth. It is time to give up on the stand-alone general education mathematics requirement. The great majority of colleges and universities, whether research- or teaching-oriented, still insist that most students take such a course (usually selected from a limited menu of

options) as a requirement for graduation. But very little is actually accomplished through this traditional approach to quantitative reasoning, and we must fundamentally rethink it. One promising strategy is to make field-related quantitative competence the standard, holding students accountable for evidence of developed ability to actually use quantitative reasoning in ways keyed to their major field(s) of study.

This sixth proposal may give the reader pause. Suppose the student’s field of study seems not to require quantitative abilities. What about English, the paradigmatic non-quantitative major?

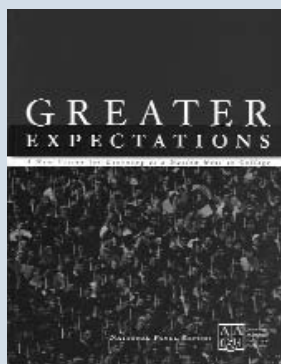
The tough question is how to bring all fields into dialogue with the modern world. Even as I was majoring in history in the late 1960s, and assiduously avoiding all quantitative courses, my field was actually moving in a decidedly quantitative direction. Most fields are becoming more quantitative, reflecting trends in the world at large. All

curricula must adapt to these realities.

Today many history departments hold students accountable for knowledge of quantitative methods. Tomorrow (or at least in a few years) English departments, already infused with richly sociocultural concerns, must recognize and engage their students’ need for quantitative literacy as well.

Moreover, there is a discernible trend on college campuses toward minors and double majors. Colleges might insist that students choose at least one area of concentrated study, whether a major or a minor, that requires and fosters quantitative competence.

Whatever strategy we choose, we must recognize that it really is malpractice to allow students to slip through college without developing the ability to use quantitative strategies to examine significant questions. We are only shortchanging our graduates with respect to the actual demands of a numbers-infused world. ■



Greater Expectations: A New Vision for Learning as a Nation Goes to College

Released October 2002, this report of the Greater Expectations National Panel calls for a new focus on excellence to better prepare students for the twenty-first century. The report recommends the creation of a New Academy characterized by high expectations, a focus on learning, commitment to demonstrated achievement, intentional practices, and an engaged, practical liberal education for all students.

The full text of the Greater Expectations report is available online at www.greaterexpectations.org, where you may download a PDF copy or order the printed version.