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DIVERSITY AND CIVIC LEARNING: New Directions, New Research

Diversity should be talked about as “inclusive excellence,” for only when a campus is truly inclusive can it make a claim to excellence
—Tori Haring-Smith

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Diversity and Civic Learning: The Unfinished Work

Last winter, AAC&U released two reports on diversity and civic learning: A Crucible Moment: College Learning and Democracy’s Future, the new report of the National Task Force on Civic Learning and Democratic Engagement, and The Drama of Diversity and Democracy: Higher Education and American Commitments, the classic AAC&U report now published in a new edition. Released in the context of a renewed legal challenge to race-conscious affirmative action, both reports invite higher education to reengage a fundamental question: How does—and should—higher education help shape the future and secure the foundations of this nation’s still unfinished experiment with democracy?

First published in 1995, Drama was the anchor report for the American Commitments initiative, a decade-long, multi-project effort focused on diversity as a resource for excellence and a catalyst for understanding ongoing struggles for justice. Over time, hundreds of colleges, universities, and community colleges became involved in the initiative, working together to bring new voices and communities into the curriculum, make campus life constructively intercultural, and tackle festering systemic problems in partnership with wider communities. The report’s analysis was framed by a distinguished national panel of scholars and academic leaders who, in turn, were richly informed by two years of dialogue with faculty and other leaders from all parts of higher education.

As president of AAC&U, I am very proud of the role this association has played in making respectful engagement with cultures and perspectives different from one’s own and the study of socially enforced inequalities an expected part of a contemporary liberal education. As recent studies show, 79 percent of our members now make intercultural knowledge and competence a key requirement for college learning.

The educational principles, premises, and practices articulated through American Commitments also became foundational to AAC&U’s subsequent work on liberal education and making excellence inclusive, especially our current signature initiative, Liberal Education and America’s Promise (LEAP). Diversity and civic learning are central to the LEAP vision for liberal education. Engaging with ideas, beliefs, experiences, and cultural traditions very different from one’s own, the AAC&U community believes, is a necessary part of any high-quality education, and a new basic for success in the workplace and for civic problem solving in society.

And yet, notwithstanding the progress Americans have made with diversity over the past two decades—within higher education and in our still-evolving democracy—we need to be intensely conscious of the work that has not been accomplished and that still requires both creativity and a sense of urgency from educators and societal leaders alike.

Despite valiant efforts, American society has not even begun to achieve the equitable access to college—much less equitable completion of college degrees—that AAC&U leaders envisioned when we launched the American Commitments initiative. Our campuses value diversity, and the majority of them are far more inclusive today than they were just a generation ago. But large parts of our society still remain far outside the gates when it comes to meaningful educational opportunity and access to prosperity. And, as recent research documents, only some college students are really benefiting from extended engagement with people from diverse backgrounds and with perspectives different from their own.

Even more soberingly, the social opportunity and mobility that Americans have long taken for granted as intrinsic and admirable features of our society have slowed dramatically in recent years.
With the top 1 percent of Americans controlling more than 40 percent of the nation’s wealth, and with economic growth anemic at best, the quest to create a truly equitable democracy seems more challenging than ever.

And, regrettably, we still remain very far indeed from making the connections between diversity and democracy an expected and integral part of the college curriculum. AAC&U’s goal for American Commitments was to ensure that all college students graduate both prepared and inspired to take active responsibility for building a more just, equitable, and inclusive democracy. But twenty years later, civic learning remains optional within the curriculum; diversity studies continue to assume core democratic principles without, for the most part, actually examining them; and even as democratic movements and quests build strength around the world, democracy in any form is rarely part of the college curriculum.

Was democracy ever part of the standard college curriculum? In fact, it was. Throughout the first half of the twentieth century, faculty members across higher education developed required courses that were intentionally designed to acquaint college students with the institutions, ideas, principles, and contestations that undergirded Western democracies and, more broadly, the very idea of a free and self-governing society. By the last quarter of the century, these so-called “Western Civ” courses were rightly deemed dated and inadequate—to partial in their vision for a global era, too exclusionary in the voices and texts they explored. But when higher education turned away from what had been a widely taught core course, we did not create a new and more contemporary design for engaging students with democracy’s roots, constitutional principles, or foundational and continuing debates, either at home or abroad.

Today, our democracy is riven by profound disagreements about the meaning and nature of federalism and about the intended constitutional relation between church and state. The struggles over who belongs and who has meaningful access to opportunity continue. We assume the future of our democracy, of course. But we are not asking the nation’s most highly educated citizens to think about what it will actually take to sustain it. And the core issues for a democratic republic—the meaning of freedom, equality, human dignity, human rights, civil rights, and justice—are, astounding, not “core” at all in the college curriculum. Nor are these topics explored in the high school curriculum, whose textbooks assiduously seek to avoid any topic that might be controversial.

A Crucible Moment, prepared and released with support from the US Department of Education, presents a far-reaching national action plan designed to move civic learning from the periphery to the center of the college curriculum. The report builds on the good work done on many campuses in such areas as the study of diversity at home and abroad, service learning, and intergroup dialogue, and on a few outstanding campus models for making civic learning expected rather than optional across the curriculum and cocurriculum. But the core message of the National Task Force on Civic Learning and Democratic Engagement (of which I am a member) is that islands of promising practice for civic learning in a diverse democracy are far from enough. A democratic society needs to take democracy seriously. And that means engaging all college learners with democracy’s multiple histories, presences, and futures—in all the ways that Drama outlined nearly two decades ago.

Diversity and democracy need to be studied—and experienced—in generative relationship with one another. Neither construct is simple; the meaning of each is both contested and evolving. And yet, the interconnections and generative tensions between diversity and democracy provide a fundamental framing for the past, present, and future of our republic—and, we may posit, for the challenges now faced by other societies around the globe.—CAROL GEARY SCHNEIDER
In the winter issue, we presented several perspectives on the ongoing national efforts to increase college completion rates, focusing in particular on the potential negative unintended consequences for educational quality. The issue has drawn an unusually large response from readers. Given the importance of the topic, and in response to the continuing interest in it, we have invited several national educational leaders and practitioners to help us extend this discussion of the completion agenda by contributing to “liberal.education nation,” the LEAP blog. As this spring issue of Liberal Education goes to press, we have already posted contributions by Alexander Astin, senior scholar and founding director of the Higher Education Research Institute at the University of California–Los Angeles, and Terry O’Banion, president emeritus of the League for Innovation in the Community College and senior advisor for programs in higher education at Walden University. Others will follow in the coming weeks. We encourage you to visit the blog and join the discussion by adding your comments.

Meanwhile, the current issue is, in a sense, an attempt to keep another conversation going. As Carol Schneider explains in her President’s Message, AAC&U and its members have been working for decades to make diversity and civic learning essential aspects of a contemporary liberal education. The January release of A Crucible Moment, the report of the National Task Force on Civic Learning and Democratic Engagement, marked a particularly important and promising development in that ongoing work. In the face of a prevailing national dialogue that limits the mission of higher education to workforce preparation and training while marginalizing disciplines basic to democracy, A Crucible Moment calls on the nation to reclaim higher education’s civic mission. The authors in the Featured Topic section of this issue of Liberal Education add their voices to that call.—DAVID TRITELLI

Editor’s Message

liberal.education nation

Special Series of Postings on the Completion Agenda

Sponsored by AAC&U as part of its signature initiative, Liberal Education and America’s Promise (LEAP), this blog features postings and perspectives on liberal education—how it is changing, why it is so important in today’s world, and what people are saying about it around the country and around the world.

The blog currently features an invited series of postings by national educational leaders and practitioners commenting on issues raised by the completion agenda, the Featured Topic of the winter 2012 issue of Liberal Education.

blog.aacu.org
**Mark W. Roche Wins Ness Book Award**

At the AAC&U annual meeting, the 2012 Frederic W. Ness Book Award was presented to Mark W. Roche for *Why Choose the Liberal Arts?* (University of Notre Dame Press, 2010). In his book, Roche draws on more than thirty years of experience in higher education—as a student, faculty member, and administrator—and connects the broad theoretical perspective of educators to the practical needs and questions posed by many students and their parents. Roche is the Rev. Edmund P. Joyce, C.S.C., Professor of German Language and Literature and Concurrent Professor of Philosophy at the University of Notre Dame. The Ness award is given to a book that best illuminates the goals and practices of a contemporary liberal education.

**New Board Members and Officers**

At its 2012 annual meeting, AAC&U named seven new directors and elected a slate of new officers. Dr. Bobby Fong, president of Ursinus College, became the chair of the board of directors, taking over from Dr. Helen Giles-Gee, president of Keene State College. Giles-Gee will continue to serve on the executive committee of the board as past chair.

AAC&U appointed Mildred García, president of California State University–Dominquez Hills, as vice chair of the board. Robert Sternberg, provost and senior vice president of Oklahoma State University, was reappointed as board treasurer. In addition, AAC&U appointed seven new directors: Charlene Dukes, president of Prince George’s Community College; Allison Jones, vice president for postsecondary collaboration at Achieve, Inc.; Darcy B. Kelley, Harold Weintraub Professor of Biological Sciences at Columbia University; Holiday Hart McKiernan, president of De Anza College; Elsa Nuñez, president of Eastern Connecticut State University; and Michael S. Roth, president of Wesleyan University.

**Massachusetts Becomes Eighth LEAP State**

The Massachusetts Department of Higher Education recently announced that Massachusetts would become the eighth official state partner in AAC&U’s LEAP initiative. According to Massachusetts Higher Education Commissioner Richard M. Freeland, “The LEAP Vision for Learning and its approach to student learning outcomes assessment is so consistent with Massachusetts’s Vision Project for achieving academic excellence across public higher education.” Freeland added, “LEAP offers an extraordinary model for how our campuses can best prepare students for postgraduate life as engaged citizens and highly skilled contributors to Massachusetts’s knowledge-based economy.”

**AAC&U MEMBERSHIP 2012**

1,263 members

- OCTOBER 18–20, 2012
  - Modeling Equity, Engaging Difference: New Frameworks for Diversity and Learning
  - Baltimore, Maryland

- NOVEMBER 8–10, 2012
  - Next-Generation STEM Learning: Investigate, Innovate, Inspire
  - Kansas City, Missouri

*Specialized schools, state systems and agencies, international affiliates, and organizational affiliates
We can and should do more to improve inclusiveness on our campuses as a whole

For years, American higher education institutions have been working hard to increase the racial and ethnic diversity of our campuses. This work is driven in part by arguments for social justice and the felt need for equal and expanded access to higher education. Our society is diverse, and our campuses should reflect that. We also seek diverse student bodies, because we know from numerous research studies that engaging with others from a variety of different backgrounds improves the learning environment. Our learning is impoverished when we are in a homogeneous group of like-minded individuals who share the same kinds of experiences, beliefs, and aspirations. As the Association of American Colleges and Universities (AAC&U) so often points out, diversity should be talked about as “inclusive excellence,” for only when a campus is truly inclusive can it make a claim to excellence.

And we have made significant progress in improving the racial and ethnic diversity in our institutions. Over the past forty years, our freshman classes have changed from over 90 percent white to about 73 percent white. According to the most recent Chronicle of Higher Education survey (2011), African Americans now comprise 11.5 percent of our freshman classes, and 12.4 percent of first-year students are Latino, Mexican American, Puerto Rican, or Chicano. As figure 1 shows (see page 8), this is remarkably close to national census data from 2010, which report that 72.4 percent of Americans are white and 12.6 percent are black. There is, however, still a considerable disparity between the prevalence of Hispanics and Latinos on our campuses and in the population as a whole: 16.3 percent of the national population identify as Hispanic, Latino, or Mexican in terms of national origin.

While our progress to date in diversifying our student populations is laudable, we can and should do more to improve inclusiveness on our campuses as a whole. Nationally in 2009, only 7 percent of faculty were black and 4 percent were Hispanic, while only 19 percent of all executive, managerial, and administrative staff were nonwhite (Snyder and Dillow 2011). Race continues to be a source of division, misunderstanding, prejudice, and discrimination on our campuses and in our country. Educational institutions have an obligation to address these inequalities in their admissions policies, their student life programming, their hiring, and their curricula. But there are other dimensions of diversity that have long been underemphasized and that also deserve serious attention.

TORI HARING-SMITH is president of Washington & Jefferson College.
Other dimensions of diversity

Our record of providing equal access to all socioeconomic classes is discouraging, as figure 2 illustrates. According to the most recent economic data available, in 2008, 40.4 percent of American households earned less than $50,000 annually, 21 percent earned $100,000 to $199,000, and only 5 percent earned more than $200,000. On our campuses however, only 30.9 percent of freshmen report their annual family income as less than $50,000, while 24.8 percent report household earnings of $100,000 to $199,000, and a whopping 12 percent report incomes exceeding $200,000 (Chronicle of Higher Education 2011). Given current college costs, this may not seem surprising, but it does not begin to approach equal access, even given the commitment of many elite schools to meeting students’ total financial need.

Richard Kahlenberg’s (2004) research indicates that “economically disadvantaged students are 25 times less likely to be found on elite college campuses than economically advantaged students. And yet,” he adds, “this phenomenon receives none of the attention or moral outrage associated with efforts to curtail racial preferences.” Race and socioeconomic class can coincide, presenting even greater obstacles to access for poor black and Latino students, who do not benefit from our habit of construing diversity only in terms of race. But these factors can also operate independently. In their book, The Shape of the River, William Bowen and Derek Bok (2000) reported that 86 percent of black students who enrolled in the twenty-eight selective universities they studied were middle class or upper-middle class. So, relying upon racial identity as a proxy for class is not advisable.

Recent research has also demonstrated that the academic achievement gap across socioeconomic strata has been growing. According to Martha J. Bailey and Susan M. Dynarski (2011), 54 percent of the affluent students born in the United States between 1979 and 1982 were able to complete college, compared with only 9 percent of low-income students from the same generation. Since college completion is the most important indicator of success in the workplace, the inability of students from lower socioeconomic classes to complete college has lifelong effects for them and their families (DeParle 2012).

In addition to socioeconomic status, we need to consider worldview when we are discussing diversity. Class and race may often align with political and ideological belief, but that alignment is far from perfect. The foundations of our society and our democratic government require us to be able to talk respectfully with people who hold different views.

Figure 1. Racial composition

![Racial composition graph]

**Figure 1.** Racial composition

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<th>Caucasian</th>
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- Freshman class, all baccalaureate institutions (2010)

Figure 2. Family adjusted gross income comparisons

![Income comparison graph]

**Figure 2.** Family adjusted gross income comparisons

- Freshman class, all baccalaureate institutions (2010)
opinions and have different backgrounds than we do. As the Personal and Social Responsibility Index makes clear, in order to educate productive citizens, we need to nurture students’ capabilities to see the world from many different perspectives (AAC&U 2011). This can only happen if our campuses are populated with students who hold a wide range of beliefs and feel free to engage in discussions about them.

But examining the social and political beliefs of our students reveals surprising homogeneity. According to the 2010 Cooperative Institutional Research Program (CIRP) survey, freshmen students in this country fall along a fairly smooth bell curve in terms of identifying as liberal or conservative, but when asked about specific national issues that traditionally define liberal or conservative perspectives, they show remarkably high levels of political homogeneity. More than 76 percent of freshman surveyed in 2010 supported the rights of a gay or lesbian couple to adopt a child, 63.1 percent felt that global warming should be a federal priority, 67.5 percent supported increasing handgun control, and 78.2 percent thought that the federal government was not doing enough to control environmental pollution (Pryor et al. 2010).

While I personally endorse many of these positions, they are hardly representative of the national population’s opinions. According to recent polls, for example, only 46 percent of Americans support adoption by gay and lesbian couples, and the nation is about equally divided in terms of whether it is more important to limit or protect the rights of Americans to own guns (Pew Forum on Religion and Public Life 2008; Pew Research Center for the People and the Press 2011). Similarly, according to other recent polls, the general populace is much less worried about pollution and global warming than our students are (Leiserowitz, Maibach, and Roser-Renouf 2010; Saad 2009). The broad picture is clear: whereas the country is roughly equally divided on controversial social and political issues, a much higher percentage of our students are likely to express liberal views.

Because the university was so homogeneous ideologically, it was, quite simply, not inclusive and, in this sense, not excellent. From 1980 to 1996, I taught on the faculty of Brown University, which was one of the most racially and ethnically diverse campuses I have known. Students of all colors mixed together in classrooms and student organizations. Interracial dating was widely accepted, and Greek organizations were integrated. However, in another sense, it was one of the most homogeneous campuses I have known. The vast majority of students there came from affluent families and held expressly liberal political views. My husband and I used to say that when students parked their upscale cars in our driveway, it raised the property value of our house. Any student who had difficulty paying for textbooks was silent and tried to make do with the library’s holdings.

Similarly, any student who disagreed with the dominant ideology kept quiet for fear of being ridiculed. As a professor who taught feminist theory, I felt at home at Brown. However, I had to work extremely hard to convince my students that any intelligent person might disagree with the positions taken by feminist writers. When I brought in opposing views, my students too often dismissed the writers as uneducated—as not worth engaging in debate. It was a very comfortable learning environment in which the students were all convinced that they were right because no one disagreed with them. They could congratulate themselves on being politically savvy while looking askance at those on the “wrong” side of the issue. Because the university was so homogeneous ideologically, it was, quite simply, not inclusive and, in this sense, not excellent.

I do not intend to demean Brown at all, and it may well have changed in the fifteen years since I left there. It is a fine school, and the faculty do a superb job of challenging extremely bright students to do their best work. But I suspect that in terms of socioeconomic and political diversity it cannot measure up to the college where I am now honored to serve as president.

Invisible diversity
If you took a picture of the student body at Washington & Jefferson College, it would look relatively homogenous. About 17
percent of our 1,500 students are students of color, although many students who come from mixed racial backgrounds might appear Caucasian at first glance. Only 13 percent of our faculty and 6 percent of our staff are nonwhite. There is no question that we need to improve the racial and ethnic diversity of our faculty, staff, and students. But nevertheless, this small college does a remarkable job, I would maintain, in preparing students to be active participants in a diverse and democratic society because we have considerable invisible diversity. Here, students who never crossed the county line before coming to college are roommates with students who have traveled the world. Farmer’s children and Wall Street financiers’ children work together in our laboratories and service organizations. At Washington & Jefferson, we have a wide spectrum of political views represented—and by large groups of students. About half of our students identify as Republicans, and half as Democrats. About half of our students say they hold primarily conservative views, and half say they are liberal. In this environment, students learn how to talk about deeply emotional and divisive issues with those who disagree with them—and to do so with respect.

When I was a presidential candidate at Washington & Jefferson in the fall of 2004, the national presidential campaign was mired in discussions of “swift boat” incidents. It was a very divisive time. But during my visit to campus, two young men came up and introduced themselves to me as the most politically active students on campus. “He’s the most conservative,” one said of the other, “and I am the most liberal. And,” he added, “we’re roommates.” I asked whether they watched the presidential debates together. No, they had rules, they said. They watched the debates in separate rooms but met later to discuss them. And they would often talk for hours in the cafeteria or the residence hall. Later, when I lived on campus, I would see them, the one who always wore a tie and the other whose shirt had never seen an iron, sitting together and talking animatedly about politics. Since the election was coming up, I asked one of the two, “Do you think you will ever change your roommate’s mind about the campaign?” “No,” the student replied, “but I have to keep trying, because I respect him.”

During my first year at Washington & Jefferson, I also saw the power of socio-economic diversity when I met two freshman roommates, one from a small farm in rural West Virginia and the other from an exclusive, gated community in Los Angeles. For Thanksgiving vacation, the girl from Los Angeles went home with her West Virginia roommate. She had traveled to several different countries, she said, but she had never been inside a barn and “that close to real cows.” “You wouldn’t believe what I learned!” she told me. The next year, the two girls remained roommates and spent Thanksgiving in Los Angeles. I am confident that this was a learning experience for both, one that complemented and made real all their courses in economics, sociology, and American history.

Every day I continue to be impressed by the ways in which the ideological differences expressed by students on the Washington & Jefferson campus enhance their learning. Some colleges must stage “difficult dialogues” in order to get students talking. On this campus, difficult dialogues happen every day. One reason we have this kind of invisible diversity is our location. We are at the border of the East Coast region and the Midwest, near a financially vibrant, cosmopolitan city and also in the foothills of Appalachia. Nurturing a truly diverse political community is a deep-rooted tradition here. When Washington College and Jefferson College were forced to join in 1865, the two schools had an almost equal number of students who had taken leaves of absence to fight for the North as those who had left to fight for the South in the Civil War. So, when the veterans returned, they found themselves members of a newly united college, one in which they shared classrooms and residence halls with those they had tried to kill in the bloody battles of the Civil War. There were sword duels on campus, but gradually these young men, with strongly held opposing views, found a way to live and learn together. From this experience grows our motto, Junta Juvant, Together We Thrive.

There are, of course, other colleges that, like Washington & Jefferson, have
socioeconomically and ideologically diverse student populations. Simply by virtue of their size, large institutions usually have students who represent a wide spectrum of classes and ideologies. But on those city-sized campuses, students can and do form homogeneous groups and create their own islands of comfortable consensus. The “granola group” can live together off campus or gather at the student-run coffeehouse. The social conservatives can join a particular Greek organization. Wealthy students can live in expensive apartments, while poorer students occupy spartan residence halls or live at home. While diversity may be present in the student bodies of these large universities, it is often not part of an individual student’s experience. At a small college, however, if there is socioeconomic and ideological diversity present in the student body, individual students will necessarily be aware of it as they eat together in the same dining hall, share classes, and live together in residence halls.

It is time that we dispel the popular myth that small colleges are socioeconomically homogeneous. In fact, small colleges generally have greater diversity in terms of class than large institutions do. In Pennsylvania, for example, independent colleges enroll more than one-third of the state’s Pell grant recipients, despite their small size. (The other two thirds are about equally divided between the state institutions and the community colleges.) And, from 1997 to 2007, these small colleges increased their annual enrollment of Pell grant recipients by more than 14,000, while large institutions added only a total of 510 Pell recipients to their total enrollment. I have shared these data with colleagues in other states who report that their numbers are comparable.

More important than numbers, however, is the way in which many small colleges emphasize the invisible aspects of their diversity. At Washington & Jefferson, for example, a group of students who took a first-year seminar on the American presidency have now formed a “civics house,” where students choose to live with those who differ from them in terms of politics and ideology. This very visible symbol of the students’ commitment to dialogue across lines of difference emphasizes the college’s commitment to fostering civil discourse for civic ends.

Promoting inclusive excellence
As we promote inclusive excellence on our campuses, our admissions processes must consider not only race and ethnicity, but also class and ideology. How can we do this?
Free Application for Federal Student Aid forms indicate parents’ income, educational levels, and occupations. Information is also available to identify high schools with only a small proportion of their graduates going on to four-year colleges or a large proportion of students who are eligible for free or reduced-price lunches. All of these markers of class can be used not only to establish financial aid packages, but also to give applicants from socioeconomically disadvantaged backgrounds well-deserved credit for overcoming obstacles in their education that might, for example, reduce their SAT scores. Students from low socioeconomic strata who have excellent grades and strong teacher recommendations but low SAT scores might have those scores routinely discounted. Paying attention to class in this way might result in a more favorable review of socioeconomically disadvantaged applicants’ credentials or more generous financial aid packages than their academic record might initially merit. As Richard Kahlenberg (2004) points out, “A 3.6 grade-point average and SAT score of 1200 surely means something more for a low-income first-generation college applicant who attended terrible schools than for a student whose parents have graduate degrees and pay for the finest private schooling.”

It may be a bit more difficult to ensure political and ideological diversity, but extracurricular activities, interviews, and admissions essays may provide some clues. We need to use whatever information we can gather to determine the extent of ideological diversity on our campuses and work hard consciously to increase our heterogeneity through shaping our entering classes. At Washington & Jefferson, we introduce prospective students to our ideological diversity in several different ways. For example, student panelists at admissions events discuss the cultural, social, and political organizations to which they belong, and as president I stress the importance of campus’s ideological diversity at most major campus gatherings. Therefore, students who arrive on the campus are prepared to enter into conversation with those who do not necessarily share their opinions and beliefs. In this way, we establish a self-fulfilling expectation for ideological diversity.

But admitting students from truly diverse populations is not enough. We must also
make our faculty and staff aware of the need to welcome students from all backgrounds. Faculty who require costly field trips, for example, need to consider how they will accommodate students with limited means, and those requiring live performances might consider options for students whose work schedules preclude their attendance. Faculty and staff may need to attend workshops on overcoming socioeconomic and political prejudice, just as they now participate in workshops on overcoming racial and ethnic prejudice. Teaching centers that help faculty determine whether they favor students of a particular race or gender might address similar questions about class and ideology.

It would also be helpful for national databases to record information not just about race and ethnicity, but also about socioeconomic and political diversity on our campuses. The National Survey of Student Engagement and CIRP could both be helpful in providing colleges more information about their class and ideological heterogeneity as well. Finally, those funders who have a mission to reward campuses for promoting diversity might ask colleges to demonstrate their commitment to broader definitions of inclusive excellence.

As a country, we must overcome our reluctance to discuss socioeconomic class and politics. We must not only enroll students from all socioeconomic classes and representing all ideologies, we must welcome them, ensuring that their voices are heard. I am convinced that we had conservative students and poor students at Brown—they were just hidden. We need to celebrate both the visible and the invisible diversity of our campuses so that we can prepare future citizens to engage in productive, respectful civic discourse with those who disagree with them. Without this kind of commitment to multiple aspects of diversity, our colleges will not be able to produce the kind of citizens who will keep our democracy vibrant.

To respond to this article, e-mail liberaled@aacu.org, with the author’s name on the subject line.

REFERENCES

NOTE
1. Even this picture is clouded, though, since on the national census more than half of those who identified themselves as Hispanic, Latino, or Mexican in national origin also identified as “white” when asked for their race. How these individuals are counted in terms of race on college campuses may vary widely from institution to institution. (The six racial categories presented on the census were White, Black or African-American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and Some Other Race.)
The conversation in higher education has shifted, moving from a focus on what students know to a focus on whether they know how to think and, more importantly, toward the goal of providing skills needed for living and working in the twenty-first century (AAC&U 2007). Educational practices and diverse learning environments should provide students with skills that will serve them throughout their lives. Equally important, however, are practices that prepare students for the society we aspire to become, practices that empower them to create a world that is more equitable, just, democratic, and sustainable. Therefore, we should not only develop critical thinking skills among our students, but also equip them as citizens with the drive, values, capacity to question, and ability to develop solutions in order to advance social progress. This is best accomplished through intentional educational practices that are integrative in nature, provide experiences that challenge students’ own embedded world-views, and encourage application of knowledge to contemporary problems. These are characteristics of many forms of diversity and civic-minded educational practices in curricular and cocurricular contexts.

The Association of American Colleges and Universities (AAC&U), the American Democracy project of the American Association of State Colleges and Universities, Campus Compact, and others have been engaged in initiatives to advance these practices and increase our understanding of how they are linked with student learning and civic outcomes. Many campus leaders, faculty, and program directors are also motivated to understand and demonstrate how they are making a difference in the education of undergraduates through programs and practices that result in informed and engaged citizens for a better world.

Much of this valuable work has been conducted at the level of program evaluation on individual campuses. Here, we present national evidence regarding the impact of intentional diversity and civic-related practices on specific educational outcomes for students. We summarize results across a series of studies conducted by the Higher Education Research Institute (HERI) at the University of California–Los Angeles, basing results on surveys administered as part of the Cooperative Institutional Research Program (CIRP). CIRP surveys contain a rich set of measures that capture not only students’ civic and diversity-related experiences, but also outcomes that can be linked with educationally purposeful activities coordinated by faculty and staff. We also integrate findings from the national HERI faculty survey that show how the behaviors, values, and characteristics of faculty engaged in civic-minded practice...
relate to parallel observations made regarding student participation in initiatives and subsequent outcomes.

**Studying the impact of civic-related and diversity practices**

In order to understand what works, given the plethora of initiatives in the area of diversity and civic learning across many types of institutions, we used four national databases to examine student change on key outcomes associated with the personal and social responsibility dimensions of the Essential Learning Outcomes articulated by AAC&U (2007). Students never arrive as blank slates, nor are they randomly distributed across institutions, so it is essential to understand their experiences and skills before assessing their change and development in higher education. Students participate in The Freshmen Survey (TFS) at college entry, allowing campuses to assess student background characteristics and predispositions on outcomes before any impact of the college experience can be detected. For example, figure 1 shows national data on over a quarter of a million entering college students at four-year colleges (which vary by type and selectivity) over the last two decades. In 1990, nearly 70 percent of entering freshmen indicated they had some experience participating in volunteer work during their senior year of high school, but by fall of 2011 that percentage had increased to 88 percent. Also, expectations for participation in volunteer or community service work in college increased from 17 percent to 34 percent during this period. Thus, increasing numbers of students enter college with some volunteer experiences and expect to be involved in some community service activity during their time in college. According to these students’ predispositions, the data show we have a good starting point to build upon in order to expand their interest, knowledge, and skills in college.

Selecting aspects of their precollegiate experiences that include background and predispositions from the freshman survey, we next merge information from a survey taken at the end of the first year of college, using the Your First College Year (YFCY) survey. This enables us to examine the impact of intentional educational practices in the first year of college. We present results from two different longitudinal YFCY datasets (including students who took TFS at college entry and YFCY at the end of the first year). We chose two outcomes to examine: (1) students’ habits of mind, a measure of the behaviors and traits associated with academic success in the first year, and skills that are foundational for lifelong learning (Conley 2005; Pryor et al. 2007; Sharkness, DeAngelo, and Pryor 2010), and (2) pluralistic orientation, a scale developed from employer surveys and developmental studies that identify traits and skills necessary for negotiating a diverse workforce (Engberg and Hurtado 2011; Sharkness, DeAngelo, and Pryor 2010). We also use the 2009 College Senior Survey (CSS), another longitudinal dataset that is linked with student responses to the 2005 TFS. We present results from two outcomes at the end of four years of college: self-reported growth during college in (1) civic awareness and (2) complex thinking skills for a diverse democracy.

Finally, we also report related 2007 findings from the triennial HERI Faculty Survey in order to examine the characteristics of faculty engaged in civic-minded practices in

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**Figure 1. High school service and expectations for college**

![Bar chart showing high school service and expectations for college from 1990 to 2011](chart.png)

- **Participate in volunteer or community service work in college:** “very good chance”
- **Performed volunteer work in senior year of high school:** “occasionally” or “frequently”

*Source: National data from the CIRP Freshmen Survey, Higher Education Research Institute, University of California–Los Angeles.*
relation to pedagogy and values. This additional information from 23,728 faculty respondents provides insight into unexplained relationships between practices and outcomes. That is, although faculty and staff are often the key conduits for student development in college, we do not always explore this connection when focused on student outcomes.

Because these extensive analyses represent distinct studies conducted for papers or presentations for specific audiences, we summarize findings across these studies to show evidence regarding the link between diversity and civic-minded practice, on the one hand, and student educational outcomes, on the other. The specific set of survey items that comprise each outcome, validated through the use of item response theory, can be found in the CIRP Constructs Technical Report (http://www.heri.ucla.edu/researchersTools.php). Information regarding statistical results can be obtained directly from the authors.

**Habits of mind for lifelong learning**

We identified a set of informal and campus-facilitated college experiences that are associated with changes in students' habits of mind, or academic activities associated with success by the end of the first year of college (DeAngelo and Hurtado 2009). Table 1 summarizes the significant effects of these first-year experiences after controlling for student predispositions, background characteristics, and especially for students' habits of mind at college entry. Results show that the peer environment is a powerful, yet underutilized, tool for learning in college. Informal college experiences verify this, in that students who report discussing course content with peers outside of class demonstrate more change in habits of mind activities than students who do not. Having had intellectual discussions or meaningful and honest discussions about race or ethnic relations outside of class with students of a different race or ethnicity also contributes to the development of strong habits of mind. In addition, students who frequently studied with other students make gains on this outcome. These informal college experiences with peers can also be integrated into formal educational programming for students.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Experiences that foster habits of mind for learning in the first year of college (N=25,602)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td></td>
</tr>
<tr>
<td><strong>Campus-facilitated educational experiences</strong></td>
<td></td>
</tr>
<tr>
<td>Student-faculty interaction (CIRP construct)</td>
<td>+++</td>
</tr>
<tr>
<td>Worked on a professor's research project (occasionally vs. not at all)</td>
<td>– – –</td>
</tr>
<tr>
<td>Worked on a professor's research project (frequently vs. not at all)</td>
<td>+++</td>
</tr>
<tr>
<td>Community service as part of class (occasionally vs. not at all)</td>
<td>ns</td>
</tr>
<tr>
<td>Community service as part of class (frequently vs. not at all)</td>
<td>+++</td>
</tr>
<tr>
<td>Part of a formal learning community</td>
<td>ns</td>
</tr>
<tr>
<td>First-year seminar on college adjustment</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Informal educational experiences</strong></td>
<td></td>
</tr>
<tr>
<td>Discussed course content with students outside of the classroom (occasionally vs. not at all)</td>
<td>+++</td>
</tr>
<tr>
<td>Discussed course content with students outside of the classroom (frequently vs. not at all)</td>
<td>+++</td>
</tr>
<tr>
<td>Studied with other students (occasionally vs. not at all)</td>
<td>ns</td>
</tr>
<tr>
<td>Studied with other students (frequently vs. not at all)</td>
<td>+</td>
</tr>
<tr>
<td>Had meaningful and honest discussions about race/ethnic relations with students of different race/ethnicity outside of the classroom (frequency)</td>
<td>+++</td>
</tr>
<tr>
<td>Had intellectual discussions with students of different race/ethnicity outside of the classroom (frequency)</td>
<td>+++</td>
</tr>
<tr>
<td>First-year college GPA</td>
<td>+++</td>
</tr>
</tbody>
</table>

*Note: +/– designates significance at p<0.05; +++/– – at p<0.01; ++++/– – – at p<0.001. Results are reported from the final step of multivariate regression analyses after controls for student background characteristics, a measure of habits of mind at college entry, and institution type. CIRP constructs scored using item response theory.*
college. Specifically, the amount and quality of faculty contact is a strong predictor of change in students’ habits of mind, as is working on a professor’s research project in the first year. However, those students who frequently participated benefited, while those who reported they occasionally participated in a professor’s research project actually scored lower on the outcome. This may well be a proxy for the quality of students’ involvement and experiences with faculty. In addition, students who frequently participated in community service as part of a class in the first year of college were also more likely to see gains in their habits of mind. Although students with high first-year grade point averages were more likely to report higher scores on the habits of mind index, it is important to note that these campus practices were significant in changing students’ academic behaviors regardless of grades or prior abilities.

**Faculty engaged in civic-minded practice**

What is the mechanism by which this change in academic habits occurs, particularly in relation to community service that is structured as part of a class? Data are beginning to show that it has much to do with the faculty leading such classes. Table 2 shows results from analyses of the characteristics of faculty who report engagement in civic-minded practice in their research, teaching, and service (Hurtado and Milem 2010). Faculty engaged in civic-minded practice also typically engage in student-centered practices. They are more likely to report teaching a seminar for first-year students, engaging undergraduates on their research projects, and using student-centered pedagogy in the classroom often. They are also more likely to encourage activities that foster the specific skills associated with students’ habits of mind. They report participating in professional development, including workshops focused on teaching in the classroom, and were supported through paid workshop opportunities outside of the institution. It is not surprising, given these results, that faculty engaged in civic-minded practice are also more likely than their colleagues to report receiving teaching awards.

Although faculty engaged in civic-minded practice report spending more time on a
weekly basis on teaching and research/scholarly writing, they are significantly more likely than other faculty to value the undergraduate educational goal of improving students’ personal development. They are less likely, however, than their colleagues to state that promoting students’ intellectual skill development is the primary goal of undergraduate education, a goal rated by the majority of faculty as the most important in the national survey (DeAngelo et al. 2009). It may well be that value development is a prime driver for these faculty in their work with students. In fact, civic-minded faculty are more likely than other faculty to express the value of diversity as central in the learning process and to report experiencing close alignment between their work and personal values.

**Pluralistic orientation: Preparation for a diverse workplace**

A thread interwoven within these findings on student behaviors is the value of diversity in the learning environment. How do diversity experiences and student engagement in service relate to improving preparation for a diverse workforce? Table 3 reveals the significant predictors associated with change in students’ pluralistic orientation skills from college entry until the end of the first year (Hurtado, DeAngelo, and Ruiz 2011). This measure of pluralistic orientation skills includes the ability to work cooperatively with diverse people, discuss and negotiate controversial issues, and engage in perspective taking, as well as traits associated with cognitive development that include tolerance of different beliefs and openness to having one’s own views challenged. Results show that positive experiences with cross-racial interactions and socializing with someone from another race in college are associated with changes in pluralistic orientation. Students who reported exposure to diverse opinions, cultures, and values also tended to score higher on the scale. In contrast, students who reported negative cross-racial interactions and even perceptions of racial tension on campus scored significantly lower. The campus climate for diversity, therefore, affects students’ assessment of their own skills and abilities for a diverse workforce.

When students are placed in contact with real-world problems and more diverse people, they also show gains. Students who performed volunteer work and who demonstrated for a cause showed changes in self-reports that place them above their average peers on the pluralistic orientation outcome. Two campus-facilitated activities were also significantly associated with students’ pluralistic orientation: students who performed community service as part of class (frequency)

### Table 3

**Experiences that foster pluralistic orientation in the first year of college** (N=21,122)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Racial/ethnic interaction</strong></td>
<td></td>
</tr>
<tr>
<td>Positive cross-racial interaction (CIRP construct)</td>
<td>+++</td>
</tr>
<tr>
<td>Negative cross-racial interaction (CIRP construct)</td>
<td>– – –</td>
</tr>
<tr>
<td>There is a lot of racial tension on campus (degree of agreement)</td>
<td>– –</td>
</tr>
<tr>
<td>College experience has exposed me to diverse opinions, cultures, &amp; values (degree of agreement)</td>
<td>+++</td>
</tr>
</tbody>
</table>

| **Student activities**                                                  |                    |
| Participated in demonstrations (frequency)                              | +++                |
| Performed volunteer work (frequency)                                    | +++                |
| Participated in leadership training                                     | +                  |
| Performed community service as part of class (frequency)               | ++                 |

**Note:** +/– designates significance at p<0.05; ++/+ – at p<0.01; +++/+ – – at p<0.001. Results are reported from the final step of multivariate regression analyses after controls for student background characteristics, precollege experiences with diversity, and institution type. CIRP constructs scored using item response theory.
service as part of class and students who participated in leadership training activities report higher self-ratings in pluralistic orientation than their peers who did not participate in these activities in the first year. It is important to note that these practices positively affect students who enter college with varying skills, predispositions, background, and self-confidence.

Civic awareness and complex thinking for a diverse democracy

After examining changes in students during their first year of college, we turned to another assessment about specific campus-facilitated activities that have an impact on students after the four years of college. We studied students’ self-reported understanding of global, national, and local issues and problems, which we term “civic awareness,” and also a scale that measures students’ complex thinking for a diverse democracy, which focuses on knowledge and abilities. We report both outcomes here as two different measures to study student assessment of their own abilities and understanding of contemporary problems (Hurtado 2009). Table 4 shows that results are similar across the two different outcomes, with one exception: students’ negative cross-racial interaction experiences on campus are significantly associated with lower civic awareness, but are not associated with complex thinking for a diverse democracy.

In contrast, both positive cross-racial interaction and participation in campus-facilitated curricular and cocurricular diversity activities have an important impact on both outcomes. Students who reported that they attended racial/cultural awareness workshops, took an ethnic studies course, or took a women’s studies course rated themselves higher on civic awareness and on knowledge and abilities associated with complex thinking for a diverse democracy. Students who performed community service as part of a class and/or studied abroad were also more likely to rate themselves higher on both outcomes after four years. As we might expect, student participation in a range of civic-related activities during college also contributes to self-reported growth. Students who reported that they performed volunteer work, voted in a student election, or demonstrated either for or against war tended to rate themselves higher on civic awareness and complex thinking for a diverse democracy. Thus, informal and formally structured activities during college appear to build students’ self-confidence in their abilities to function in a diverse, global, and interconnected society.

| Table 4 | Experiences during college that foster civic awareness and skills needed for a diverse democracy | (N=13,157) |
| Variable | Significance level | Civic Awareness Construct | Skills for Diverse Democracy |
| Racial/ethnic interaction | | | |
| Positive cross-racial interaction (CIRP construct) | +++ | +++ |
| Negative cross-racial interaction (CIRP construct) | – – | – – |
| Attended a racial/cultural awareness workshop | +++ | +++ |
| Curricular activities | | | |
| Took an ethnic studies course | +++ | +++ |
| Took a women’s studies course | +++ | ++ |
| Performed community service as part of a class (frequency) | +++ | +++ |
| Participated in study abroad | +++ | +++ |
| Civic activities | | | |
| Performed volunteer work (frequency) | +++ | +++ |
| Voted in student election (frequency) | +++ | +++ |
| Demonstrated for/against war (frequency) | +++ | +++ |

Note: +/– designates significance at p<0.05; +/+/- at p<0.01; +++/+ – at p<0.001. Results are reported from the final step of multivariate regression analyses after controls for student background characteristics, predispositions, and institution type. CIRP constructs scored using item response theory.
Implications for advancing practice

We examined college experiences in relation to a range of student outcomes that capture several dimensions of personal and social responsibility, one area of the Essential Learning Outcomes articulated by AAC&U (2007). Results from these surveys enable us to conclude that both diversity and civic-related practices foster knowledge, skills, and values that are widely viewed as necessary in the twenty-first century. Although previous work has focused on informal college educational experiences, this recent research contributes to an accumulation of evidence in the last decade regarding the impact that intentional educational practices associated with both diversity and service for the public good have on civic-related outcomes (Pascarella and Terenzini 2005; Bowman 2011). These results also establish that practices such as service learning contribute to students’ habits of mind for lifelong learning, and that the mechanism for this link lies in student contact with faculty who are themselves engaged in civic-minded practice and who value diversity in the learning environment. Many individuals, however, share the responsibility for advancing students’ personal and social responsibility through their roles on campus. The student and faculty data strongly suggest, respectively, that student affairs work with the cocurricular peer environment and faculty development coordinators who support faculty engaged in civic-minded practice play a role in advancing practices that prepare students for engagement in a diverse democracy.

Campuses have incorporated diversity and community service in many aspects of the curriculum, from first-year seminars to senior capstone projects, and in the cocurriculum, from new student orientation to leadership training and internships. While all are important, the timing of when to encourage student participation in initiatives may be key to advancing students’ skills and dispositions. For example, freshmen often decline on scale scores regarding habits of mind behaviors (e.g., asking questions in class) and pluralistic orientation during the first year, as they transition between high school and college environments. Contradicting such change, frequent participation in community service as part of class has positive effects on first-year students’ behaviors related to habits of mind as well as their pluralistic orientation skills. John Gardner (2008, 2) states that “the first year of college provides the opportunity to introduce students to the kinds of thinking and experiences that the institution values—including, importantly, civic engagement.”
It also provides an important baseline for assessing how effective higher education initiatives are in instilling the values institutions espouse.” Therefore, the earlier students become engaged in activities that build their knowledge, skills, and confidence, the more likely it is that they will find subsequent curricular and cocurricular opportunities that will reinforce their engagement as complex thinkers and responsible citizens.

We mirrored students and faculty responses on their respective surveys and identified that those faculty who are most committed to civic-minded activities in their own research, teaching, and service tend to encourage students to engage in the very learning behaviors that will help them become successful in the first year and beyond. Students who experience quality engagement with faculty research in the first year also tend to benefit in terms of changes in their academic habits. Both service and research projects enable students to advance their knowledge and help them apply concepts from the classroom toward solving real-world problems, with faculty as guides in authentic learning experiences. Not all students have these opportunities in the first year of college, but those who do stand to benefit. Institutional support, recognition, and rewards for faculty are essential if we hope to make these types of learning activities more available to students at various stages of their college careers. Outside of structured and coordinated programs for service or undergraduate research, individual faculty may find support through faculty development centers in the form of workshops, small grants, and off-campus learning opportunities.

Curricular-based initiatives— including ethnic and women’s studies, study abroad, and community service as part of a class—are associated with higher scores in civic awareness and complex thinking skills for a diverse democracy. In the past, these initiatives have not been tied together, because they have different historical origins and are even coordinated in different campus units that often do not communicate with each other (Hurtado 2007). The examination of student outcomes, however, helps us begin to identify that not only do different initiatives on campus produce similarly desirable outcomes among college students, but they also share important elements that expose students to diverse perspectives and ways of life and that challenge students to set aside their own embedded worldviews to consider those of another. The cocurricular components associated with these academic activities engage students with differences on a more personal level through “immersion” or face-to-face contact with distinct communities. Some campuses have begun to link these distinct activities by design. For example, one Midwestern university has redesigned study abroad to include service activities in third-world countries, led by diverse faculty and inclusive of diverse students. A campus in the northeast has a study abroad requirement that students use scientific skills to devise sustainable solutions to improve the welfare of underdeveloped communities. These new designs of previously separate campus educational programs suggest a high level of intentionality to ensure that students emerge as complex thinkers for a global society.

Although faculty and staff continue to play critical roles as “institutional agents” and guides in developing student skills and dispositions for a diverse democracy, much informal learning occurs in the peer environment. The quality of students’ interactions with peers from different racial or ethnic groups is associated with students’ pluralistic orientation skills, civic awareness, and complex thinking skills for a diverse democracy, as well as the development of the habits of mind for academic success. Moreover, a hostile climate, characterized by negative cross-racial interactions and perceptions of racial tension, tends to contribute to students’ low assessment of their competencies to manage living in a diverse world (Hurtado et al. 2009). The CIRP surveys have helped campuses assess the links between student outcomes, the climate, and campus
practices. Neglect in any of these areas has real consequences for student development. The nature of the climate, opportunities for learning about diversity, and civic-minded practices among faculty and staff are key features of inclusive learning environments that result in developing informed and engaged citizens. There is evidence to support institutions that make a commitment to articulate the outcomes of personal and social responsibility and integrative learning, as well as invest in intentional practices that achieve these goals.

To respond to this article, e-mail liberaled@aacu.org, with the authors’ names on the subject line.

REFERENCES
Civic virtue has to be systemically acquired and learned

SHELDON ROTHBLATT

Yet Another Plea for Civic Virtue

There exists a plethora of writings about citizenship, or “civic virtue,” in a democracy. Articles, books, reports, and commentaries proliferate, and the theme is continually stressed in the multiple activities of the Association of American Colleges and Universities (AAC&U). I cannot promise to go beyond the common wisdom. My purpose in writing is really quite straightforward. First, I believe a summary of the leading features of the history of civic virtue, to include newer multidisciplinary approaches, allows us some perspective on where we stand today and what a next step might be. Second, and more prosaically, I simply wish to add my voice to those who are greatly disturbed by the current state of American political behavior: the misuse of plebiscitarian constitutions, as in California; misleading statements by politicians; a disregard of compelling and complex global and domestic issues; the appeal to selfish and short-sighted aims; and the influence of special-interest groups and individuals. This is but a short list.

The history of civic virtue

Baldly stated, civic virtue pertains to the conception of a good society as supported by the rights and duties of citizenship. The subject has a long pedigree. Normally traceable to Hellenic thought, civic virtue also comes down to us through writings from Renaissance Florence. It is sometimes named the “Atlantic tradition” or the “Commonwealthman.” Its focus is the city-state or “republic,” and while a republic need not be a democracy, such it has become in the free world. New scholarship has uncovered French and Swiss variations. A recent and enthralling body of work explores the contributions of Jewish sources, and we find references to a “Hebrew Commonwealth” in the early modern period.

Historically, “rights” are defined as the freedom from tyranny. “Liberty” is the preferred word, and liberty can be either the liberty of individuals, a late idea, or, de facto, the freedom of groups (such as the barons of Magna Carta). More narrowly, it can be a territorial enclave where the king’s writ does not run, as at the medieval abbey or “Liberty” of Bury St. Edmunds in the east of England. Over and over again the theme of oppression, monarchical or religious, is repeated. Ancient Greek writers have left us with a wealth of information, factual and philosophical. The abuse of power is poignantly explored in the books of Samuel and Kings, and debated (cautiously) in the commentaries of the Talmudic Sages. One Roman Catholic priest of the sixteenth century cited Torah in an argument against the authority of the papacy. He was placed under house arrest. The Dutch, as the most accomplished Christian Hebraists in seventeenth-century Europe, found plentiful analogies in the story of Israel in Egypt to justify their revolt against Spanish domination. The theme of liberty appears in places not normally encountered in a casual reading of

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history, as in the short-lived success of Swedish nobility to impose constraints on seventeenth-century absolute monarchs.

Limiting the potential excesses of central government, however, is but a first step on the path to civic virtue. A danger is that once liberty is secured, the temptations of private life and withdrawal take precedent over virtue. Consequently, a second and necessary step requires the citizen to safeguard liberty through the responsible exercise of republican obligations, such as voting. Rights are paired with duties, even if this requires foregoing personal pleasures, even if austerity is a necessary by-product. The warnings of irresponsible voter behavior are plentiful in the history of civic virtue. The historian Thucydides ascribed the downfall of Athens to leaders selected by voters readily misled, and Plato offered an alternative “republic” to replace the one whose demise he witnessed.

The historical irony cannot be missed. If the exercise of civic virtue is only possible through constraints on political authority—“power tends to corrupt, and absolute power corrupts absolutely,” in Lord Acton’s uncompromising reproach to Bishop Creighton in 1887—it also requires constraints on personal conduct.

Within the conception of civic virtue, if power tends to corrupt, so does money. Warnings about the consequences of private wealth or “luxury” surfaced early in the political history of the West—as far back as the Greek states, in fact. For those above the ranks of the laboring classes, commerce and finance, later to be followed by industrialism, created new sources of income and directed individual energies to the enjoyments of private life. Self-interest, said Adam Smith, actually conduces to the general good. Unconvinced, other Scots of the eighteenth century, discovering the delights of a prosperous metropolitan culture after a long history of clan rivalries, debated the choice between virtue and pleasure. Was luxury actually inconsistent with civic virtue? Could not the two happily coexist? The Enlightenment scientist J.B. Priestly also sought a happier outcome. A poor society has crime, he said, but a rich one has only vice, which once led a colleague of mine to wonder why in today’s affluence we have both.

Civic virtue and the American republic
Nowhere were the issues more discussed than in the circumstances leading to the founding of the American republic. The most famous documents dating from that period are the Federalist Papers containing the views of Hamilton, Madison, and Monroe writing as “Publius.” The new nation was more of a “republic” with a limited franchise than a “democracy.” It was, furthermore, a federated republic; yet whether the new leaders supported a strong federal government or favored states’ rights, all agreed that selfish interests were a threat, and citizens must be virtuous. One historian has argued differently, finding a Protestant theology of the good more important than republican traditions (Shain 1994). In either case, whether civic virtue was the dominant consideration or religion, the emphasis was on a shared conception of the common welfare.

Obviously, much in the mainline thinking about civic virtue could not survive in the United States after 1800. An austere life of self-sacrifice was hardly to be expected, especially in an individualist society. The moralists were correct. Luxury was an ever-present concern. There were also gender issues. The exercise of civic virtue was not only a prerogative of men, it was also virile. Military obligations were included within its definition. The citizen must be a patriot prepared to fight for liberty. While women are today included in the nation’s provision for defense and war, the requirement that all citizens undergo military training is no longer obligatory in America, although it is elsewhere.

Beliefs and practices regarding the conventional role of women as keepers of the hearth, a role given added emphasis by Romantics such as Rousseau, lingered for a very long time. But in order for the republic to become a democracy, not only women but all the constitutionally excluded had to be candidates for virtue. The heinous practice of slavery could not endure in a genuinely free society, nor could Native Americans remain second-class citizens, although citizenship for those still suffering
from the effects of racism in
the United States had to
await the coming of the civil
rights movement but a half
century away from the pres-
ent. The necessary observa-
tion, however, is that in a plural society, and
one in which immigration is continuous, the
exercise of civic virtue can never be taken for
granted. The mainline republican tradition
assumed the existence of stable and relatively
homogenous city-states. Broadening that tra-
dition to encompass nation-states composed
of diverse populations is the distinct chal-
lenge of the modern period.

Historians dispute whether the American
republic was actually individualistic at the
time of its formation. But whatever the out-
come of that particular dispute, America is
regarded today as the most individualistic of
the advanced democracies, the one in which
social democratic policies are most disputed.
It is also the most consumer-directed society
of the Western democracies, where possession
and, as it happens, debt made worse by preda-
tory lending and low savings are pronounced.
The autonomy of the individual versus the
authority of government is a standing politi-
cal issue, as much in 2012 as it has ever been.
Consequently, from the perspective of tradi-
tions of civic virtue, “luxury” and withdraw-
al from the responsibilities of citizenship are
ow omnipresent. The sociologist Richard Sen-
ett (1976) has termed this “the fall of pub-
lic man.” Others have spoken about a new
“narcissism,” a habit of focusing exclusively
on one’s own self. We have what a political
scientist calls the phenomenon of “bowl-
ing alone” (Putnam 2000), although this
notion has been modified. People still bowl
in groups. But the point is that a century of
Sigmund Freud has kept us centered on psy-
chological issues regarding self-management,
family adjustment, and the overcoming of
personal traumas.

More recent approaches
Hitherto, discussions about civic virtue have
been the province of philosophers, econo-
mists, political scientists, and historians. But
the subject of citizenship has now greatly
broadened to include disciplines such as
sociology, anthropology, and psychology. A
lexical shift has moved discussion away from
exclusive concentration on
the “Atlantic tradition.”
“Polity” has been supplanted,
or joined by, “society.” Refer-
ences to “civil society” are
now more frequent than are
those to civic virtue. Essentially, depending
upon whom we cite, “civil society” refers to
the spheres of behavior and values lying out-
side government proper, or, as in the special
French case, to the manifold relationships
between the individual and the state in a
nation with pervasive etatist and dirigiste in-
heritances. Until the end of the seventeenth
century, “civil society” and “civic virtue”
actually overlapped, but we notice a separa-
tion of terms beginning in the writings of
Friedrich Hegel or in some Scottish authors
of the eighteenth century who stressed family,
community, and interpersonal relationships.
AAC&U has taken an active part in sponsor-
ing work that emphasizes the importance of
psychosocial factors in the formation of a
healthy citizenry. These include community
participation and interethnic dialogue, with
the caveat, however, that engagement in
certain highly stressful and public activities
can have detrimental effects on personality
(Tritelli 2011).

Urbanologists, since their concern is with
the built environment, offer an addition-
al perspective. One group is alarmed by the
threatening and disorienting effects of crowd-
ing and the destruction of neighborhoods.
The culture of the city leads to withdrawal
and to a desperate need for self-preservation.
We are urged to return to the “walking city,”
the friendly and reassuring urban configura-
tions of centuries past. But a different group
of planners, in a burst of optimism, put faith
in a new regionalism of polycentric cities,
where innovations in transportation com-
bine with new communications technologies
to promote a culture of cooperation, instant
connectivity, and mutual dependence—all of
which promote civic virtue.

The use of phrases such as “civil society”
often shades into discussions of civility, the
codes of manners that regulate both interper-
sonal and group relations. To any number of
commentators, civility is always in short sup-
ply. The history of manners is beguiling, tak-
ing root in medieval and Renaissance
manuals of decorum, narrowing from universal
prescriptions about conduct to Victorian class-based etiquette books and other such advice columns on correct behavior prevalent in our own time. Norbert Elias (1978) has provided a remarkable if somewhat disjointed history of the evolution of manners. After centuries of brutal and even disgusting personal habits, the advent of civility produced a new emphasis on self-restraint. The subject of codes of manners has opened up other channels of arresting inquiry. The sociologist Erving Goffman (1971), for example, has enjoyed exposing the unwritten codes governing interpersonal behavior, those truths (if that is what they are) that remain unsaid because to say them is both embarrassing and a threat to social relationships. Clifford Geertz (1973), in his celebrated account of the Balinese cockfight, pursued a similar line of thought, exploring how social rivalries are contained by sublimating them into a terrible fight between animals. Attention is then diverted from the possible dangers that would occur if participants vented their true feelings toward one another. “Civility” has an obvious political referent insofar as any kind of decision making first requires mutual respect and tolerance.

Education and civic virtue
So the problem of the conditions under which the exercise of civic virtue is possible is as intense as ever, more so as the variables increase. And as they increase, so does our confusion. All voters—if they vote—are puzzled by the issues and party politics of the present. Clearly we require a thread through the labyrinth, and that thread remains what it has always been: the special undertaking of any educational system. Civic virtue has to be systematically acquired and learned. The founders of the American republic regarded education as the key to the formation of a democratic polity. This is often said. Education was the means for creating “Americans” out of the diverse and polyglot peoples of the continent, transposing them from subjects of the British crown to citizens of a republic. Just at the moment, an indispensable educational undertaking appears desperate. There is no need to amplify the familiar details. Everyone reads about the diminished resources for all levels of public education; the high drop-out rates, unsafe learning environments, and widespread cheating on assignments; the decline in quality and the disparities in achievement between groups; the teenage pathologies such as delinquency, pregnancy, eating disorders, and the adverse influences of certain peer pressures; and the unhappy consequences that arise from broken homes and poverty. As if this were not sufficient, serious quarrels exist over curricula, and many schoolteachers are caught in partisan and sectarian crossfires.

The consensus is that most schools today are not performing their historical obligations very well. The National Assessment of Educational Progress for 2011 concludes that a quarter of high school seniors are deficient in civic knowledge and skills (depending, I think, on exactly what is being tested). Reports from CIRCLE (the Center for Information and Research on Civic Learning and Engagement) find wholesale inadequacies. The fear that young people are reading less, voting less, and making fewer efforts to be informed is widespread. Findings about the withdrawal of the young from the political process have also been reported in Sweden, where a startling proportion of young people—perhaps as high as 20 percent—express no concern whether the country is governed democratically or autocratically. At the core of such findings is a suspicion that the absence of civic virtue is inclining voters to ignore the political process as futile, as only serving the desires of groups strong and rich enough to make demands. Does everyone understand that cynical attitudes undermine the conception of a republic of free citizens?

We have what is daily identified as an urgent educational problem in a great bowl full of urgent problems. Yet despair is hardly a solution. We have openings. If, for example, Morley Winograd and Michael Hais (2011) are correct in maintaining that the generations of Americans born since 1982 (a pool of more than ninety million) look more favorably upon a positive role for government than their immediate predecessors, our schools and universities have renewed opportunities.

Service learning has an important part to play. The Campaign for the Civic Mission of Schools, a coalition of forty organizations,
is at work on improving civic education in grades K–12. Service to others is learned through participation in voluntary programs such as Teach for America or the Peace Corps. The understanding gained from discussions of “civil society” and “civility” is invaluable; it broadens our understanding of the mainline tradition of civic virtues, and provides additional support for the kind of education needed to fulfill the requirements of civic virtue.

**Teaching about politics**

Nevertheless, there remains a problem of focus. I would therefore suggest that once we have identified all the variables that affect civic virtue, that buttress or undermine its principal purpose, that update our understanding of the meaning of being a citizen in today’s republic, we are still required to turn our attention systematically to the critical task of explaining how government actually works. My plea is for the centrality of teaching about politics in any program of general education, in lower and higher education—a tough request to make in an age where strong arguments can be advanced for teaching virtually any subject. Government is the ultimate source of authority in any society, but civic virtue accounts for its ultimate legitimacy in a democracy. Every citizen is directly and profoundly affected by how a society governs itself, how it makes decisions for the collective good, and how it holds leaders accountable.

How many young people approaching majority, or even adults for that matter, have a solid perception of the political process, how legislative decisions are made, how tradeoffs are arranged, the nature of party politics, the role of bureaucracy? How many possess a detailed understanding of the structures, agencies, and institutions of government, of the nature of regulatory bodies and how they regulate, of the role of journalism and how to understand and evaluate media, its objectivity, its distortions, its half-truths, and its inattention to contexts? Interest groups and their special aims—surely a place can be found for them? Additional topics, especially relevant to polities whose constitutions or practices include them, are initiatives and referenda, recall provisions, gerrymandering, term limits, and the rules governing the passage of legislation. The role of legislative committee structures and caucuses might also be included. Since so much information is now obtained through the Internet, the benefits and distortions of information gained in this way also deserve a place in advancing civic virtue.

I have in mind a very comprehensive agenda relating to how governments function, in theory and in practice, with some attention to comparative analysis. This is a heavy but necessary burden to place on teachers, and special preparation would be required. As always, the obstacles to understanding are the emotional comforts of simplicity, the not-so-hidden arts of persuasion, the commercialization of information and its transformation into entertainment in an “age of luxury” and, more dangerously, an age of economic instability and external danger. Ignorant and fearful populations are readily suborned. The global history of the last two centuries provides terrible examples of voters led astray with calamitous results. Surely we owe the youth of this nation an emphatic explanation of why their welfare is intimately connected to that of others and why a proud democracy rests upon a discerning electorate united in a shared understanding of the political process.

To respond to this article, e-mail liberaled@aacu.org, with the author’s name on the subject line.

**REFERENCES**


Achieving a Quantitatively Literate Citizenry

Resources and Community to Support National Change

NATHAN D. Grawe

In the National Council on Education and the Disciplines’ (NCED) 2001 Mathematics and Democracy, Lynn Steen vividly declares, “The world of the twenty-first century is a world awash in numbers” (2001, 1). In that volume, Steen and his collaborators articulate a clear call for broad reforms to prepare students for the ubiquitous need for quantitative literacy (QL)—in citizenship, education, professional life, personal finance and health, and even culture. Making certain not to underestimate the case, Robert Orill warns in his preface, “If individuals lack the ability to think numerically they cannot participate fully in civic life, thereby bringing into question the very basis of government of, by, and for the people” (2001, xvi).

While built on a foundation of mathematical skill, the QL needed by our students is distinct from traditional mathematics in several key dimensions. Where mathematics is intentionally abstract, QL drives toward the specific context of problems. As Steen explains, “The power of mathematics lies in its generality and abstraction, in its ability to rise above specifics. Quantitative literacy, on the other hand, is anchored in real world data” (2004, 34). In addition, QL involves rhetorical choices necessary to communicating arguments (Lutsky 2007). Thus, mathematics training is insufficient for the complete development of applied QL skill, just as QL instruction cannot instill the abstract, formal reasoning skills imbued by the mathematics curriculum. These two endeavors truly complement one another.

Indeed, effective science requires both the abstract qualities of math and the real-world attributes of QL to operate in concert. To take just one high-profile example, consider the Centers for Disease Control and Prevention’s 2004 study, published in the Journal of the American Medical Association (JAMA), estimating that 400,000 American lives are lost each year to obesity. The debate that followed led ultimately to a retraction (and a new estimate of just over 100,000 obesity-related deaths) the following year. While the academic debate focused on formal statistical methods (the original study effectively failed to account for the effects of age in cause of death), the broader public debate centered on a QL question that might have saved the scientific community from a high-profile embarrassment: Is this estimate reasonable? In 2008, the US Statistical Abstract reports just over 2.4 million deaths. Of those, 200,000 were of people younger than age 45, and another 1.4 million were 75 or older. The former seem too young, while the latter seem too old for many to have been related to obesity. That leaves approximately 850,000 deaths in the age group for which obesity would seem to be a major cause of death. In this context, is it reasonable that 400,000 people die of obesity-related deaths each year? Does the simple comparison of 400,000 to 850,000 at least advise a reexamination of methods before publication in JAMA?

But QL is not just about preparing scientists. Its reach extends to the public, professional, and personal lives of all our students. Whether making informed political decisions when voting on candidates who advocate differing economic policies, weighing the costs and benefits of expanding or shrinking a firm, or determining an appropriate treatment plan for a recently diagnosed cancer, all of us must navigate a sea of numbers on a daily basis. As we have learned through much collective

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pain in the last few years, in a highly integrated economy it is exceedingly risky to accept as inevitable the innumeracy of many of our fellow citizens.

The Association of American Colleges and Universities (AAC&U) demonstrated its support for the QL movement when it announced the Essential Learning Outcomes as part of its Liberal Education and America’s Promise (LEAP) initiative. In addition to being explicitly listed among the key intellectual and practical skills students need, QL and its values are represented implicitly among other outcomes including inquiry and analysis, critical thinking, written and oral communication, and information literacy (AAC&U 2007). For while these skills obviously apply to qualitative as well as quantitative work, they exhibit themselves in distinctive ways in the quantitative context.

Sadly, the clear understanding of QL and its role in twenty-first-century lives was not initially matched by robust resources to support institutions seeking to develop curricula to meet student needs. In fact, at the end of 2001, the NCED, along with the Mathematical Association of America (MAA) and the Mathematical Sciences Education Board, hosted a forum on QL that arrived at the following stark findings: (1) Most higher education students graduated without sufficient QL training; (2) faculty in all disciplines needed professional development support to enhance QL in their courses; (3) QL was not part of assessment...
activity; and (4) education policy leaders were insufficiently aware of the increasing need for QL (Steen 2004, 11).

Fortunately, over the last decade, groups like AAC&U, Project Kaleidoscope (PKAL), the MAA's Special Interest Group on QL (SIGMAA-QL), and the National Numeracy Network (NNN) have worked diligently to address these gaps. We now have free collections of materials that can support curricular development in all divisions of the academy, assessment tools that match a range of QL definitions, and a robust community to come alongside institutions taking action. What follows is a brief description of these newly developed resources.

Curricular materials
In Our Underachieving Colleges, Derek Bok argues that “numeracy is not something mastered in a single course. The ability to apply quantitative methods to real-world problems requires a facility and an insight and intuition that can be developed only through repeated practice. This quantitative material needs to permeate the curriculum, not only in the sciences but also in the social sciences and, in appropriate cases, in the humanities...” (2006, 134). This inspiring call is consistent with what we know about student learning: deep understanding follows from repeatedly encountering material in a diverse range of contexts. But in 2006, it was not clear whether the reform Bok championed was feasible. It is much easier to theorize about infusing QL throughout the curriculum than to identify those authentic curricular connections, particularly in the arts, literature, and the humanities. Happily, the QL movement has answered this call and can now point to extensive resources to support such reforms.

PKAL has published a series of “what works” documents, outlining key elements of curricular reform for QL and the related “statistical literacy” (see http://www.aacu.org/pkal/resources/teaching/quantitative.cfm). The documents emphasize several recurring themes. While mathematics and other departments play an important role in promulgating the QL movement, true success demands a collaborative approach that involves partners in and beyond the natural sciences. The contextual nature of the QL endeavor simply cannot be learned solely in the intentionally abstract mathematics environment. Moreover, the mastery of quantitative skill by itself does not prepare students for the world they will enter. They need to be given opportunities to practice the communication and analysis of quantitative arguments.

The NNN houses multiple, free collections of example assignments and class activities to support the dissemination of this cross-cutting approach (see http://serc.carleton.edu/nnn/teaching). Each is explained in detail. In addition to providing specific learning goals, the context for use, and the teaching materials, the descriptions include “teaching notes and tips”—the electronic equivalent of the collegial advice we share with each other when passing on assignments at the water cooler. While the examples can be used “as is,” the rich background information included makes it easy to think through necessary revisions for application in different contexts.

Example activities are drawn from across the curriculum. For instance, the collection of roughly seventy quantitative writing assignments includes offerings in foreign languages, history, classics, American studies, and the fine arts, in addition to the natural and social sciences. Similarly, a collection of fifty-five assignments that use spreadsheets to teach quantitative analysis includes examples in education, library and information science, and the humanities. Whether used with students in courses or as prompts for professional development conversations, the assignment collections are designed to speed curricular development from the course to the institutional level.

Assessment tools
In 2004, Steen painted a bleak picture of QL assessment: “QL is largely absent from our current systems of assessment and accountability” (11). This void in the resource base was not due merely to neglect. In fact, the very nature of QL poses challenges for traditional assessment approaches. In short, the context-rich nature of QR runs contrary to typical test design, which seeks to “standardize” prompts to avoid confounding factors. As Wiggins (2003) argues, “The implications of contextualized and meaningful assessment in [QL] challenge the very conception of ‘test’ as we understand and employ that term. Test ‘items’ posed under standardized conditions are decontextualized by design. . . .
must be designed to cause questioning (not just ‘plug and chug’ responses to arid prompts); to teach (and not just test) which ideas and performances really matter; and to demonstrate what it means to do mathematics” (2003, 125; italics in original). Fortunately, many scholars have been busy filling this gap.

Steen and Wiggins suggest one path forward: the development of new, standardized tests that target the QL learning outcome. With support from the National Science Foundation (NSF), James Madison University has taken this approach and developed the Quantitative Reasoning Test, which targets two key dimensions of QL:

- the ability to “use graphical, symbolic, and numerical methods to analyze, organize, and interpret natural phenomenon”
- the ability to “discriminate between association and causation, and identify the types of evidence used to establish causation”

A twenty-five-minute multiple-choice exam, the Quantitative Reasoning Test provides results that are easy to score and nationally comparable (Sundre 2008).

To date, the test has been used at over fifty institutions with more than twenty thousand students. The results are encouraging to those of us working to develop QL among our students. In particular, James Madison students who had completed more credit hours in the “Natural World” cluster—the course grouping designed most explicitly to teach QL—exhibit greater QL facility. In other words, deliberate instruction increases student performance.

At around the same time, Carleton College’s Quantitative Inquiry, Reasoning, and Knowledge (QuIRK) initiative took a very different approach. Even as he advocated for the creation of better standardized tests, Wiggins noted that, “as in book literacy, evidence of students’ ability to play the messy game of the [QL] discipline depends on seeing whether they can handle tasks without specific cues, prompts, or simplifying scaffolds from the teacher-coach or test designer” (2003, 134). With support from the Fund for the Improvement of Postsecondary Education and the NSF, QuIRK responded to this challenge by developing a rubric to assess the use of quantitative evidence in the context of papers written by students throughout the general education curriculum and submitted to a writing portfolio. (For a detailed description of the instrument, see Grawe, Lutsky, and Tassava 2010.) One of the great benefits of the portfolio approach is the development of community on campus, as faculty readers discuss specific papers and issues. As Kezar notes, “Studies have shown that deliberation and discussion among professionals commonly lead to authentic change” (2012, 43).

QuIRK’s assessment work quickly documented that there are indeed opportunities for QL instruction across the curriculum. Among papers written for courses in the arts, literature, and the humanities, 30 percent were found to include claims for which quantitative evidence would be appropriate (Grawe 2011b). This finding confirmed that Bok’s theory of QR across the curriculum was, in fact, possible to achieve in the context of the current academy. Of equal importance, while QuIRK’s definition of QL pushed its
relevance beyond the natural sciences, Carleton found results that paralleled those at James Madison: a program of intentional QL instruction—even if diffused across the curriculum—produces documentable improvements in student outcomes (Grawe 2011a).

As part of its Valid Assessment of Learning in Undergraduate Education (VALUE) project, AAC&U also pursued a portfolio approach in developing a rubric for assessing the LEAP goals, including QL. The resulting assessment tool provides language for assessing a broad range of QL dimensions: interpretation, representation, calculation, application/analysis, assumptions, and communication (see http://www.aacu.org/value/rubrics/QuantitativeLiteracy.cfm). While the VALUE rubrics can be applied to some student work samples without revision, the project recognizes in the rubric framing language that “the core expectations articulated in all fifteen of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses” (Rhodes 2010, 21). Boersma et al. (2011), Dingman and Madison (2011), and Pusecker et al. (2012) provide detailed examples of how this adaptation can take place in both course- and institution-level assessment.

As much as has already been completed to address the void articulated in 2004, activity continues. For example, a recently funded NSF project centered at Bowdoin College is refining a nonproprietary test incorporating short-answer and multiple-choice prompts (as a means of assessing the efficacy of both approaches) that can be taken in one hour. It is hoped this compromise between open-ended essays and multiple-choice questions will provide insight into complex, problem-solving QL skills while retaining cross-institution comparability. Although it is clear that more work must be done in coming years, multiple options for both formative and summative assessment now exist.

**Community**

PKAL has argued from its inception that community is a key ingredient in fostering national reform movements. All the resources noted above will likely amount to little, unless an engaged group of teacher-scholars brings them to life through active conversation and innovation. As Kezar puts it, “Scale-up works better when individuals or groups working in local settings are connected to a network of others who are also involved in similar efforts. Through such networks, innovators can support one another and help resolve issues of implementation, motivation, and ownership. Networks can also provide the leadership needed to create and sustain change in particular settings” (2012, 41–42).

In addition to groups like AAC&U and PKAL that, through initiatives like LEAP, endorse the QL movement within the context of broader missions, several organizations have created important community groups to support the advancement of QL specifically. Mathematicians might be particularly interested in the MAA’s Special Interest Group on QL (SIGMAA-QL). Open to members of the MAA, SIGMAA-QL organizes sessions at MAA meetings and hosts an active online conversation throughout the year (see http://

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**The PKAL Perspective**

*Analysis and Action for 21st-Century STEM Learning and Success*

The mastery of quantitative skill by itself does not prepare students for the world they will enter.
This community is especially valuable for those interested in leading QL reform on their campuses through the mathematics curriculum.

Resting on mathematical foundations, effective QL must reach beyond the math department. The National Numeracy Network (NNN) seeks to support this broad effort by supporting members from all disciplines—from the sciences and the social sciences to the humanities and the arts. In addition to providing web access to the curricular resources summarized above, the NNN sponsors an annual meeting and maintains an ongoing online forum to discuss ways that QL can be advanced across the curriculum (see http://serc.carleton.edu/nnn/index.html). NNN leadership can offer suggestions to institutional members who seek experts to assist in QL program evaluation—whether the focus is on basic skills development, student support, QL in writing, QL assessment, or curriculum development. The organization’s open-access journal, Numeracy, offers scholars a peer-reviewed venue for disseminating and reviewing research, best practices, and perspectives in this growing field. With more than eight hundred full-text downloads per month, the journal is providing the QL movement with an intellectual home for scholarship that advances this new “discipline.”

While AAC&U, PKAL, SIGMAA-QL, and the NNN support different facets of the collective work toward a numerate society, each recognizes the value of the others. Significant overlap in leadership ensures the healthy cross-fertilization and coordination necessary to support continued advancement of this Essential Learning Outcome. With your membership and involvement in our growing, collaborative networks, together we can prepare a quantitatively literate citizenry.

To respond to this article, e-mail liberaled@aacu.org, with the author’s name on the subject line.

REFERENCES


The Place of the Arts

LAST SPRING, the Martha Graham Dance Company spent several days in residence on the Pomona College campus. Their visit included master classes and ended with a joint public performance by the professional ensemble together with student dancers. Few Pomona students become professional dancers or choreographers, but almost fifty students participated in this training and performance. The opportunity to perform at this level was a valuable part of these students’ education and will have a lasting impact, regardless of their future careers. Yet some might ask why a dance performance, or training in dance, should be integral to a college or university experience and deserving of institutional investment and tuition dollars. This question needs a strong answer.

Amid all the current discussion of the value of a liberal education, and the pressure on colleges and universities to articulate benefits and career outcomes, the role of the arts is particularly important. If the standard of judgment is the salaries of graduating majors, the arts will inevitably be marginalized on our campuses. Likewise, if the standard is a direct disciplinary connection to “critical needs” areas such as STEM fields, the arts will seem peripheral to the “real” work of higher education. If, on the other hand, we regard fostering creativity as one of the core values of education, the arts disciplines can and must play a central role. We need to understand and articulate both the disciplinary cohesion of programs in the arts and their interdisciplinary value. Acting with this intention in curricular planning and resource allocation is potentially transformative for institutions and for the educational experience we offer.

What is the place of the creative and performing arts in a liberal education? In her recent plea for the place of the humanities (including the arts) in higher education and in modern life, Martha Nussbaum (2010) provides a strong argument for the arts at all levels of education. She presents a valuable cross-cultural perspective, with education for citizenship in India contrasted with that in the United States, and she discusses in particular the role of a children’s choir in fostering democratic inclusion. Nussbaum describes the role of the arts in challenging ideology by pointing out that “artists . . . always ask the imagination to move beyond its usual confines, to see the world in new ways” (23–24). Just as we expect our students to question and critique ideology in their oral and written work, we need to recognize that students also interact with and challenge ideology through artistic work. And—I would add—just as focus, discipline, and practice develop understanding and talent specific to mathematics, chemistry, or historical analysis, so also the diligence and training in arts disciplines allow students to develop understanding and to perfect artistic expression.

Opportunities for our students are often limited to analyzing the art created by others, without a chance to take part directly in the creative process. The performance and creation of art need to move from the margins to the center of a modern education because they can help shape a new generation of creative college graduates in all walks of life. On our campuses, we need to articulate the importance of the arts (including performing and fine arts), be clear about the “fit” of arts programs and courses within our missions and our curricula, and affirm the lasting social and community impact of students and graduates whose education values creativity, performance, and art-making.

The place of the creative arts

In her eloquent Jefferson Lecture in the Humanities, Helen Vendler (2010) argued that humanistic study should be centered on the arts. She pointed out that general education programs in universities have given pride of place to philosophy and history, and have tended to ignore cultural expressions that she regards as compelling and timeless: poetry, art, music, and drama. Vendler concluded her powerful argument by saying that “just
in a Liberal Education
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Tors have not effectively communicated either their place in a liberal education for creation, and the creation in performance, as well as for analysis and appreciation? This question goes unanswered in her lecture, but I would answer, yes of course!

Likewise, in an essay on the importance of visual literacy, Deandra Little, Peter Felten, and Chad Berry (2010) discuss the value of learning how to look at and evaluate images in all fields, from art to astronomy. Visual literacy, they argue, should take its place alongside reading as a skill to be gained in a core curriculum. But could we take this argument a step further? If looking critically at images is parallel in importance to reading texts critically, should drawing (or creating visual images on a computer) rank with writing as a key skill to be developed in college? Even further, my colleagues in music emphasize the importance of aural literacy, the ability to listen well and to use hearing skills to further understanding and interpretive skills. How does performance of music, or recitation of poetry, enhance aural literacy?

In broad statements about the value of liberal education, the creative and performing arts tend to lurk uncomfortably around the edges, if they are present at all. We can all agree that “critical reasoning” is a desirable goal of education, and good arguments can be made that different dimensions of this skill can be gained through courses as disparate as philosophy, English literature, sociology, and art history. The familiar argument that there is good alignment between what future employers are looking for and the core programs in liberal education is clear for most of the curriculum (writing, numeracy, problem-solving skills, critical thinking), but less directly evident for our arts programs. Does that make them dispensable? Are they only “frills” that are nice supplements to a core education? Or do art-making, rehearsal, and performance contribute equally, if differently, to critical intelligence by developing one’s ability to express, imagine, interact with, and reinterpret the world and human experience? Again I would answer, yes of course!

Yet my own experience tells me that educators have not effectively communicated either the value of arts programs within a liberal education or an understanding of the arts as disciplines with their own histories, theoretical frameworks, and best practices. A few years ago, I presented Pomona College’s strategic plan to our board, organizing it around the Essential Learning Outcomes identified through the Association of American Colleges and Universities’ Liberal Education and America’s Promise (LEAP) initiative. It worked very well, except for one area: the arts. It was hard to connect Pomona’s ambitious goals to strengthen our program in the creative and performing arts with LEAP learning outcomes and skills. “Study” of the arts is mentioned in LEAP rubrics, but not creation or performance; “teamwork” is another LEAP outcome, but it appears as a generic goal that one could apply not only to a group of students performing a play or ensemble music, but also to everything from group classroom presentations to laboratory work. The rest of the LEAP initiative barely connects to the arts. As leaders in higher education, we have an opportunity and a responsibility to communicate the centrality of active creativity to our learning goals.

Uncomfortable fit

If fostering creativity is a goal of a liberal education, we should ask whether our institutional cultures and structures support that goal. Can we, and do we even want to, squeeze the creative and performing arts into the traditional academic mold of our colleges and universities? How do we define “scholarship” or “professional accomplishment” for a faculty member who teaches sculpture or voice? The standard is not books and articles published, but creative work exhibited or publicly performed— which is not always easy for promotion committees to assess. How do we assign grades to students in a music performance course? Does “effort” matter? Do the A grades go to the students with the finest voices, or do we grade on a combination of effort and product? Do we give college credit for theatre performance or set design?

As the report of the Harvard Task Force on the Arts (2008) recognizes, a similar challenge arises from the students’ point of view: Many students remain oblivious to the hard work—the careful training, perception, and intelligence—that the arts require. They know that writing essays is a skilled and time-consuming effort. They recognize that problem sets in math and
science are meant to be difficult. But ask them to photograph a landscape, compose a short story, or direct a scene rather than write an analytical essay and they will almost universally assume that the exercise will be quickly and easily dispatched . . . [Students must be taught] to exercise a quite different kind of diligence, one involving the mind and the body in different ways than analytical writing and computation do. (4)

In the words of the task force report, “The arts may be everywhere on campus, but they are also conspicuously marginal” (3).

The creative and performing arts are not “easy” programs for colleges and universities to mount well, especially since the arts tend to spill out of traditional campus buildings and have an impact on the surrounding community. Effective arts buildings are not always the most neatly groomed spaces on campus. Sculpture studios or theatre set-building workshops can be messy and noisy in active use. Public performance and exhibition (part of the goal of an active arts program) can raise questions from controversial politics to adult sexual content. These factors can lead to the marginalization of fine and performing arts on many campuses in one of two directions: as vocational training or as purely extracurricular activities. Let us look at each in turn.

Vocational training. Professional schools exist throughout the world as primary training grounds for future creative and performing artists: conservatories of music, schools of art and design. There are no analogous professional schools to train future historians or mathematicians; that is the role of our colleges and universities. Even though a substantial number of creative artists do in fact emerge from liberal arts institutions, a suspicion of “professionalism” can still linger around such programs, pushing them out of core general education and into a space inhabited by unabashedly professional programs such as nursing or business. At many larger universities, the arts are in fact separated into schools that are quite distinct from the school of “arts and sciences,” while at smaller institutions, the arts are sometimes taught by adjunct faculty with different institutional status. Without denying the valuable role of professional training in the arts in our colleges and universities, I would argue that areas such as studio art, theatre and dance performance, creative writing, and musical performance need to be better integrated into core liberal education—as part of general education requirements and an expectation of all students.

Extracurricular activities. The Pomona College Orchestra is conducted by a tenured member of the faculty, and the students in the orchestra receive regular academic course credit for taking part. The education that takes place in a semester leading to a performance of challenging pieces from throughout the music repertory is extraordinary. And yet, too often, members of the college community—including faculty—refer to such an activity as “extracurricular,” putting it parallel to other activities that students might choose to do for fun in their non-classroom hours. Courses that meet for discussion in classrooms and involve solving problems or writing papers are considered to lie at the heart of the “curriculum,” whereas other activities such as performing in a play or drawing a picture are not. It is true that the line between the curricular and the extracurricular is not always sharp; the same student may sing in the chamber choir (curricular) and in a student-organized a cappella singing group (extracurricular). It is also true that different colleges place different emphasis on the creative and performing arts within their curricula. Some students argue for the value of student control over arts programs, asking their colleges only for programmatic support and resisting the “taking over” of drama, for example, by departments and regular faculty members.

Why include the arts?
The fact that the creative and performing arts are not always an easy fit for colleges and universities is actually an important reason to include them. Their “angularity” helps challenge our campuses and push boundaries. There are at least four strong arguments for placing these fields at the heart of our institutions, rather than at the margins.

1. Impact on society. As public funding for the arts has diminished, especially in the
Having never sung in my life, it stretched me. When at age forty I took voice lessons, I became a student and ultimately give him more confidence. Work in the creative and performing arts represents a different type of learning from that in traditional classroom settings, and it can challenge a student to try out a dance or a drawing course. For the arts to flourish in society, the college years present a critical window of opportunity to foster social and cultural responsibility. Many alumni speak of how their college education in the arts started them on a course of lifelong learning. A student’s experience of the role of the arts on campus will shape her or his expectations and community involvement well beyond college. And, as Dana Gioia (2008) has argued in this journal, during their college years most students have the advantage of “being part of a community that takes arts and ideas seriously.” Once the “support system” ends with graduation, however, they “face the choice of whether they want to be passive consumers or active citizens, whether they want to watch the world on a screen or live in it so meaningfully that they change it” (21).

2. Helping students “push their boundaries.” Many students arrive on college campuses as accomplished—or at least experienced—test-takers, familiar with standardized tests, short-response essays, and problem solving. A great deal of the curriculum feels quite comfortable for such students. But put such a student into, say, a dance class when he has never attempted that art, and he will be pushed out of his comfort zone. Work in the creative and performing arts represents a different type of learning from that in traditional classroom settings, and it can challenge a student and ultimately give him more confidence. When I was forty I took voice lessons, having never sung in my life, it stretched me in ways that were completely new to me. I not only became a better singer, I now understand music differently. I know something about music that I could not know without creating music myself. The same can happen with students of all ages on our campuses.

3. The arts and experiential education. Arts programs pull the education of students from the theoretical toward the practical. Scientists are fully comfortable with this process. In my own field of chemistry, students learn from classroom lectures and discussion about the principles of thermodynamics or how to synthesize organic molecules, and a healthy dose of theory gives them the framework for understanding the world around them. But then they go into the laboratory and learn about the “messiness” of science: the fact that experiments can go wrong, that they are not always easy to interpret, and that creative advances can arise from both repetition and serendipity. The actual experience of performing or creating a work of art is similarly messy, taxing, repetitive, and serendipitous. It is not that every art historian needs to learn to paint a picture in order to be successful in his or her academic career, but the experience of creating or performing in a rigorous setting provides a practical understanding of the creative process that cannot help but inform both the professional and amateur understanding of the arts for students in college and throughout their lives.

An active program in the creative and performing arts can be considered an extension of the move toward “experiential education” that is primarily associated with the social sciences. Just as a sociology course can benefit from a team project connected to a community-based organization, so too a music history student develops “embodied knowledge” from singing a madrigal with the college chamber choir, or by trying her hand at electronic composition. Edward Ayers (2010) has argued for the value of experience in liberal education. In his words, “Classrooms seem built precisely to suppress experience, to deprive students of as many stimuli as possible. The chairs are hard, the walls are bare, the windows are scarce. The only two senses allowed are hearing and looking” (6). Although Ayers is not talking specifically about the arts, these words certainly apply directly. Arts disciplines and their emphasis on practical technique, embodied knowledge, imagination, design, and observation have a...
critical contribution to make toward new paradigms across the sciences, social sciences, and humanities.

4. **Teaching creativity.**

Innovation and creativity are core goals of the twenty-first-century economy. It is a truism that success in the future will involve making new connections and coming up with new ideas, not simply using one’s training in a well-defined career. The education for such a world needs to respond to this demand, and that requires core courses taken by students during their time in college. The creative arts are thus one of the vital components of a modern liberal education, as they develop a different set of capacities that students will benefit from long after graduation.

One of our alumni—a successful international businessman—was a studio art major on campus. He now speaks of how his college experience broadened him and opened him to new ideas. Other alumni who have taken only a few arts-related courses also frequently cite those experiences as among the most formative for their current work, even if the connections are indirect. To prepare creative citizens and leaders, all creative capacities should be fostered through college education.

**Conclusion**

As they set goals, our colleges and universities need to consider the central role of the arts. The quality of spaces allocated to studio and performing arts is a statement on institutional priorities, as is the investment in arts faculty, balancing full-time tenured faculty members with visiting artists and part-time instructors. How we treat artistic interest and experience in admissions helps determine our student body. The display of public art, as well as that of student and museum-based art, shapes the aesthetic sensibilities of students. The role and priority of the arts—creation, experience, integration—characterize an institution as strongly as any other aspect.

At Pomona College, we have made the arts a focus of our strategic planning and our fundraising campaign. We are planning new facilities and implementing new initiatives in arts courses and museum programming, and—like many institutions—continuing to grapple with how to support and enhance the arts through admissions recruiting and in our curriculum. Our students’ training and performance with the Martha Graham Dance Company showed clearly how students can engage intelligently, meaningfully, and creatively with each other, with human experience, and with the world. Still, fully integrating the arts into the student experience and into our vision of a liberal arts education will require new thinking, bold conversations, and creative action.

As Dana Gioia (2008, 21) has said, “Art is an irreplaceable way of understanding and expressing the world—equal to but distinct from scientific and conceptual methods. . . . Art awakens, enlarges, refines, and restores our humanity.” Curricula on college campuses are the product of politics and compromise, and it is never possible to include everything that might be desirable in a student’s education. Balance between the sciences, social sciences, and humanities, and the teaching of skills from critical reasoning to writing to numeracy might seem to be more than enough to fill a required program of study. Making room within the curriculum for courses teaching the discipline and refinement of technique that allow students to express themselves creatively can pay off in more broadly educated students who will build on that creativity in their future lives and careers.

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**REFERENCES**


The social critic and psychotherapist Susie Orbach (2009) has observed that, in an American culture that relentlessly markets the need to be a particular body type, our bodies have become less where we live from and more what we can personally manufacture. In a similar vein, the humanities professor Wilfred McClay (2008) argues that new medical technologies—from human cloning and genetic engineering, to artificial wombs and bionic and pharmacological enhancements—are challenging our definitions of what it means to be human. Are individuals with prosthetic limbs that enable them to leap higher and run farther disabled or enhanced? Is there a limit to the number of implants or bionic limbs that a single human should be allowed? McClay suggests that the potential impact of these medical innovations on our understanding of the meaning of human life offers important and intriguing new lines of inquiry for which the liberal arts, in their basic commitment to make sense of the human experience, are uniquely suited to engage.

Furthermore, if liberal arts institutions are truly to serve the public good, which virtually every “home page” of every institution claims, then bringing attention to the nature of embodied experience necessarily broadens awareness of the diverse bodies that are on our nation’s campuses. This, in turn, deepens awareness and understanding of the very public an institution seeks to serve. If, then, we were to imagine the body as a site and ally of intellectual and academic work, rather than as the distraction it is generally thought to be, what would we have to do differently?

I believe there are three conceptual and somatic (from the Greek, meaning “of the body”) changes that could be made in order to better educate the student body and, thereby, help sustain the intellectual and social relevance of the liberal arts as a program of study. First, the commitment to what Sir Ken Robinson has called “the Enlightenment view of intelligence,” in which a particular kind of deductive reasoning is prized above all others, must be reexamined in response to neuroscience research that suggests it is the interplay between the brain and body that creates the human mind. Second, we must take seriously the potential of contemplative practices to inform students’ academic work in the face of a growing body of research on the impact of contemplative practices on both mental health and intellectual development. Third, we should interrogate the hyphen that separates the words “student” and “athlete” (student-athlete) so that the potential for physical activity to inform intellectual life can be usefully explored. Approached holistically, the student body offers an opportunity to reaffirm the importance of a liberal arts education.

Imagining the body as intelligent
The complex interplay between the brain and the body creates what we call the mind. Philosophers such as Mark Johnson (1987), feminist scholars such as Moira Gatens (1995), neuroscientists such as Antonio Damasio (1994, 1999, 2003), and sociologists such as Donald Levine (2006) have offered helpful insights regarding why and how the mind-body relationship should be explored. In The Body in the Mind, Johnson argues that the very roots of our intellectual ability lie in bodily experiences. The only way we can understand a phrase such as “the force of moral reason,” for example, is due to the bodily experience of being acted upon and of oneself being an agent capable of forceful, physical action. The ability to understand a concept such as “balance” is dependent upon the physical activity of learning how to balance our bodies.

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Gatens (1995) has argued that, contrary to the popular notion in higher education that the finest minds suffer least from the body, our minds are constituted by the affirmation of the actual existence of our bodies. Reason is active and embodied precisely because it is the affirmation of a particular body experience. Who we are and what we think is, to a great extent, a summary of the experiences we have had. Or, as the neuroscientist Antonio Damasio (2003) has put it, “no body, never mind.” In university classrooms, we often behave as if the bodies of our students are simply transport systems for their brains. Certainly, when one is teaching anatomy, it is useful to separate the brain from the rest of the body in order to clarify what is located where. But for the purposes of learning and deepening our understanding of what it means to be human and what it means to reason, such a division has become conceptually incoherent (Doidge 2007; Blakeslee and Blakeslee 2008; LeDoux 2002; Ratey 2008).

In his provocative book, *Powers of the Mind: The Reinvention of Liberal Learning in America*, Levine (2006) offers both a theoretical framework and an embodied curriculum for how the liberal arts can serve as the vehicle through which to explore the body-mind relationship. As a former dean of the undergraduate college at the University of Chicago, Levine draws deeply from the work of Robert Maynard Hutchins to offer a rich and vigorous academic curriculum. Yet, in addition, as a fourth-degree black belt in the martial art of aikido, he stresses the notion that essential concepts and skills related to fruitful dialogues and constructive disagreement can be taught by incorporating specific movement practices. He uses the natural action of inhalation and exhalation as the organizing metaphor for his book and as the embodied equivalent of the “powers of prehending and the powers of expression” (Levine 2006, 187). “Prehending” refers to the processes of seeing, hearing, feeling, and making sense of things, while “expression” refers to the many ways in which students are encouraged to demonstrate their understanding of what we have taken in. Just as inhaling and exhaling are the most fundamental of all human life processes, the process of prehending and expression forms the foundation of intellectual life. The syllabus for his course titled *Conflict Theory and Aikido*, which he includes in his book, provides a model for integrating rigorous academic study with movement practices specifically designed to enhance the intellectual concepts...
being studied. In the course, specific philosophical tenets and specific aikido techniques are studied at the same time that students are reading about theoretical understandings of the sources and resolutions of conflict. Levine’s work offers an embodied approach to learning that simultaneously upholds the traditional rigorous of the undergraduate curriculum at the University of Chicago.

**On the possibilities of contemplative practices**

In 1983, the Harvard Mind-Science Symposium brought together the Dalai Lama of Tibet; professor of Buddhist studies at Columbia University, Robert Thurmann; professor of cognition and education at Harvard University, Howard Gardner; and psychologist Daniel Goleman to engage in discussions regarding the unique characteristics of the human mind. At this gathering, Thurmann argued that “in the West” our power to affect “outer reality” had far outstripped our power over ourselves. The great achievements of the Enlightenment had provided extensive knowledge of the mechanistic aspects of how the external world worked, but had developed little understanding of the inner world of our minds—the very thing that Tibetan Buddhists, for example, had been studying for over a thousand years. He suggested that if cognitive science and neuroscience were brought together with mind-science—that is, contemplative traditions that focus on developing both an understanding of the inner world of the human mind and greater awareness of what one is seeing, thinking, and feeling—we might transform our understanding of what it means to know the world in which we live.

Since the 1983 Harvard Mind-Science Symposium, the research regarding the impact of contemplative practices has grown steadily. Jon Kabat-Zinn, professor of medicine emeritus and founding director of the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical School, has documented the positive impact of even moderate experience with contemplative practices on the ability of individuals to respond effectively to stressful situations (1982, 2002, 2005; Kabat-Zinn, Chapman, and Salmon 1997). The ability to sustain concentration and ignore distractions are two characteristics of people who maintain a meditation practice—critical skills in an era of Twitter and texting. Other researchers have found that contemplative practices foster the capacity for insight, that is, the ability to make new connections that link previously disjointed information (Subramaniam et al. 2009). Sustained focus, calmness in the face of new and unexpected challenges, and an ability to see possibilities that transcend old divisions are important benefits of contemplative practices, and they are also critical attributes of a liberal arts education.

The Mind & Life Institute in Boulder, Colorado, along with continuing to host ongoing dialogues between the Dalai Lama and various neuroscientists and philosophers, has also been a center of pioneering experiments in neuroplasticity, the ability of the brain to undergo wholesale change. These experiments have revealed that, contrary to the assumption that the human brain is comprised of fixed elements, the brain is capable not only of altering its structure but also of generating new neurons, even into old age. This combination of research and ongoing dialogues is fundamentally reshaping our understanding of human consciousness and learning (Chambers et al. 2008; Raffone, Tagini, and Srivinivasan 2010; Subramaniam 2009; Zajonc 2009).

There is also a growing body of research demonstrating the power of mindfulness meditation and other forms of contemplative practice to improve educational performance in students and to foster attitudes and abilities that promote learning. Studies have shown, for instance, that mindfulness training improves students’ ability to maintain preparedness, orient attention, and process information (Jha, Krompenger, and Baime 2007). A 1999 study of undergraduates demonstrated that concentration practice improves academic achievement as measured by grade point average (Hall 2007). Recent reports have concluded that long-term practice of meditation techniques has the potential to
increase cortical thickness and slow the thinning of the cortex with age, as well as actually to increase gray matter (Vestergaard-Poulsen et al. 2008; Lazar et al. 2005).

Arthur Zajonc (2009), Andrew Mellon Professor of Physics at Amherst College and president of the Mind & Life Institute in Boulder, Colorado, offers a model of how contemplative practices can be incorporated into a liberal arts curriculum in Meditation and Contemplative Inquiry. The first step is to sit down, do nothing, and observe the patterns of one’s own natural breathing. From this initial practice, Zajonc offers a careful selection of practices that include fostering the ability to perceive relationships and sustain contradictions—two thinking skills tightly connected to the purpose of a liberal arts education.

As Eva Brann (1989) of St. John’s College in Annapolis, Maryland, has argued, perhaps the most important question one can ask of a text is, is this true? Contemplative inquiry is intended to develop the habits of mind that foster the patience, careful examination of evidence, and openness to input that enhances the ability to sustain thoughtful discussions around such meaningful questions.

Particular forms of noncompetitive movement exercises such as those found in Brain Gym, the movements of tai chi and aikido, and the postures of yoga—when they are combined with reflection and discussion regarding their philosophical foundation and potential application—enable individuals to tolerate the discomfort that often arises during dynamic discussions (Miller-Lane 2006; Miller-Lane and Selover 2008; Chew 1995).

The ability to engage effectively in discussion is a central, undervalued, and undertaught element of a liberal arts education. Increasingly, research on contemplative practices suggests that such practices may enhance the academic experience of students by fostering attitudes that welcome, rather than fear, the cognitive dissonance and intellectual discomfort that any good education should provide.

**Using the hyphen to connect student and athlete**

The third body-mind division that we need to address is the hyphen that separates the words “student” and “athlete.” We have allowed our student-athletes to perceive their bodies as simply instruments in the service of specific functions on a particular athletic field, court, rink, etc. Many institutions have enabled this attitude to fester by extolling their winning teams, rather than emphasizing the ideal of a student-athlete. Instead of continuing to tread in this routine, what if we asked, how has the physical experience of being a student-athlete deepened or informed your understanding of the meaning and purpose of a liberal arts education? Such a question enables the hyphen in “student-athlete” to become a bridge connecting, rather than a divide separating, two competing halves of the same body. Initially, such a question might lead to stories of teamwork, sharing responsibility, dealing with defeat, or pursuing goals. Certainly, when engaged thoughtfully, such topics can be avenues into self-reflection.

However, in the context of unraveling the meaning and purpose of a liberal arts education, the goal is to dig deeper into the kind of possibilities raised by the philosopher Mark Johnson and noted above. Is it possible that a refined understanding of physical balance can be an entry point for imagining living a “balanced life”? What would such a life involve, both intellectually and somatically? And, to return to the specific questions posed by Orbach and McClay with which I started this discussion, we might ask, if you could make voluntary changes to your body through medical replacement parts that would make you a better athlete, would you do it? Would those changes make you more or less human? What sources can we explore to inform our thinking? Thus, the student’s own embodied experience provides a path into the study of the academic texts we wish to read and over which we want students to linger. The highly contested nature of the definition of the liberal arts also becomes a source of inquiry for students. We do not have to agree about what the purpose of a liberal arts education should be—the literature is rich with disagreement. But what we should be doing is engaging the literature on the nature of the disagreement so that our own stance becomes informed and grounded in the literature and in a thoughtful analysis of our own, embodied experiences.

**Conclusion**

In the past decade, colleges have offered students an extraordinary array of extracurricular activities that seem to respond to a vague,
incoherent sense that the whole student does matter. Yet for various and legitimate reasons of time and relevance, faculty have generally considered such activities to be a distraction from the academic purpose of an undergraduate education. The end result is a level of disembodied, frenetic activity on college campuses that affects students and faculty alike. If Barrett Seaman’s (2005) description of student life in Binge is accurate, then the only time bodies seem to be addressed in a forceful way is when students want to disengage from the present moment. To sustain the place of the liberal arts in the college curriculum, we have to cross the great divide between body and brain and to create academic spaces in which we can explore the entirety of our students’ embodied experiences in a thoughtful, academically vigorous manner. By doing so, we also challenge assumptions about which bodies are normative and, thereby, might perhaps make our liberal arts colleges a more welcoming environment to a greater diversity of students.

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REFERENCES
PETER SMITH

The Quality Challenge

When I attended a Network for Academic Renewal conference sponsored by the Association of American Colleges and Universities (AAC&U) last year, I was surprised by the level of skepticism expressed from the podium about proprietary higher education. This article is intended as a response. From my perspective as a for-profit educator, I explore the educational concerns that AAC&U promotes so strongly. Do they matter? Why? And what can the proprietary sector contribute to the larger conversation that AAC&U is promoting?

But first, a caveat about the author. I have had the privilege of serving in both state and federal government, first as a state senator (Vermont) and later as a congressman. I have also served as founding president of both a community college (Community College of Vermont) and a state university (California State University–Monterey Bay), as well as dean of a graduate school of education (George Washington University). Most recently, I was the assistant director general for education at the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in Paris before coming to Kaplan as senior vice president of academic strategies and development in August 2007. I list these experiences as a way of suggesting that, over the years, I have looked at the issues of access, quality, and innovation from several vantage points and, thus, bring an informed and balanced perspective to this topic.

I can say unequivocally that Kaplan’s academic community is committed to the values and aspirations promoted by AAC&U through its Liberal Education and America’s Promise (LEAP) initiative. Both LEAP and the Lumina Completion or attainment without academic quality is a betrayal of learners and the larger society
Foundation’s Degree Qualifications Profile (DQP) are shifting the policy and practice discussion in higher education toward learning outcomes, while joining the academic quality agenda with the completion and productivity agendas. Completion or attainment without academic quality is a betrayal of learners and the larger society. LEAP and the DQP provide institutions like mine the needed opportunity to discuss academic quality in a transparent environment, using third-party frameworks and definitions. Kaplan and most other American colleges and universities, both nonprofit and proprietary, badly need this transparency about academic quality.

**Accountability, readiness, and quality**

Historically, student learning assessment has been regarded as a faculty prerogative and conducted at the course level, free from any serious oversight. If we were educating only the “sons of Harvard,” we could probably still get away with that today. We know that strong prior educational performance is the single best indicator of future educational performance in college. So, until the fathers and mothers of those students can’t afford to pay the steadily escalating bills associated with that model, technologically enabled quality, efficiency, and effectiveness will take a back seat to prestige. Furthermore, the inputs at a place like Harvard—students, faculty, and other resources—coupled with reputation are probably quality assurance enough for most people.

There are, however, at least two big problems with the traditional approach. First, the “quality via inputs” model won’t scale to meet the requirements of mass higher education for the American public. Second, and importantly, for the vast majority of existing institutions, including the burgeoning proprietary sector, assuring that all learners, including multiple-risk-factor learners, are getting
a quality academic experience and professional preparation at a price they can afford is the accountability imperative of the twenty-first century. These problems, in turn, raise at least two issues: the “qualify” issue and the “quality” issue. Although this article is predominantly about the latter, about how best to stitch academic quality throughout the curriculum in a mass higher education environment, let me say a brief word about how Kaplan “qualifies” students in order to determine that they have a chance of succeeding in an increasingly open-access world.

As anyone in the community college and state university sectors knows from experience, it is one thing to be legally qualified to attend college and quite another to be academically “ready” as a learner to prosper and have a chance of succeeding. There are and will continue to be increasingly sophisticated assessments of college readiness. These will ultimately evolve into tools that allow us to get a high-percentage handle on who has a chance at succeeding in our institutions, and who does not. This will be accompanied by alternative steps to remediate the characteristics or knowledge deficiencies that render a learner incapable of success. In the meantime, with a high early-dropout rate, we at Kaplan didn’t think we could wait for the “perfect” entry assessment. Instead, we have developed and implemented the Kaplan Commitment.

The Kaplan Commitment is simple: we provide the first five weeks of the first term without charge to all enrolled students—no tuition or fees. At or before the end of the fifth week, the learner has the right to withdraw without financial or academic penalty if they believe they are in the wrong program. The university also has the right to dismiss any student who is not making satisfactory academic progress and showing serious curricular and cocurricular engagement. The Kaplan Commitment allows learners and institution alike to “try each other out” before paying any money or receiving any aid.

Interestingly, for every student who has asked to leave, the university has dismissed several students for poor engagement and performance. The Kaplan Commitment is costly. It resulted in almost $65,000,000 in lost tuition revenue in 2011. But it is also the right thing to do until a better proxy is developed, one that more effectively identifies and responds to the behavioral and academic needs of these marginalized learners.

But for the second issue, that of academic quality, we don’t have to wait. Higher education is in the early stages of a seismic shift away from a sole focus on faculty-driven curriculum and teaching and toward learning outcomes, learning support, and learning assessment as quality differentiators. For-profit education and other private-sector interests will play a significant role in defining and developing the potential in this migration. The sector will play a leading role not because it is more virtuous, per se, but because it is not tied down politically to state funding traditions or organizationally to restrictive traditional academic processes and practices. At Kaplan, for example, the faculty jointly owns the curriculum with our Subject Matter Experts (SMEs). And the conversation among them drives the process. My experience in multiple sectors tells me that, as in this example, the proprietary sector will help drive innovation and improvement because it is able and motivated to respond to the new markets, new learners, and new opportunities generated by the “new ecology” of learning that is now burgeoning throughout our society.

**Technology**

Technology encourages and supports learning and learning operations at a scale and scope that would have been unimaginable a decade ago. As such, it has transformed both the access agenda and our ability to scale up curricular, programmatic, and support initiatives for hundreds of thousands of learners. In addition, by enabling levels of personalization and customization that would have been unthinkable only a few years ago, new media are changing the way learners behave.

With the advent of this transformative resource, which I will call “web-enabled software,” the learning platform (or its future derivatives), not simply the campus, will become the organizing architecture of the college experience. And, correspondingly, learning networks (or their future derivatives) will become the defining process for much college learning. As higher education comes out of the classroom and off the campus, the need for transparency and for quality standards linked to independent benchmarks is
increasing. Moreover, the growing number of public consumers, employers, and political and policy leaders who are served by and paying for higher education will require higher and more transparent standards and processes for academic quality, effectiveness, efficiency, and success. Several recent books, including DIY U (Kamenetz 2010) and Harnessing America’s Wasted Talent (Smith 2010), explore the impact of the web and social networking on the traditional practices and assumptions of higher education. As mentioned above, I believe that technology’s value in the “new ecology of learning” has expanded beyond providing greater access to rewriting the rules governing the traditional value proposition that is higher education itself. This “rewrite” includes assuring academic quality more consistently and reliably, with more personalization and customization, better student diagnostics, and better learning support in mass higher education.

Liberal Education and America’s Promise
The LEAP initiative offers an elegant conception of a liberal education curriculum. Importantly, LEAP offers common definitions and an overall rationale for what a liberally educated person should know and be able to do. In doing this, it calls on institutions of all stripes, and their faculties, to declare their interpretation of the LEAP standards and their approach to implementing them. By bridging several of the false dichotomies that have hamstrung our ability to think across traditional curricular boundaries, LEAP also brings three other values to the conversation. First, LEAP envisions the achievement of liberal education outcomes in professional and preprofessional courses and programs. This has important implications not only for deepening the quality of the course-level educational experience, but also for increasing its effectiveness and efficiency. Second, LEAP bridges the artificial separation of academic life and community life, of service to democracy and academics. No longer are the life of the community and the life of the individual learner in that community divorced by rule from academic life, recognition, and achievement. Third, LEAP expands and deepens the understanding of what it means to be “smart” and successful in school to include being capable in the nonschool world as well. This understanding of academic quality is based on a broader understanding of intellectual and behavioral capacities that include being ready and able to contribute to society civically, socially, and economically.

One of the challenges facing the implementation of the LEAP vision, however, is the need to drive the assessment of learning from the program level down to the course level, and to do so with a high degree of consistency and quality across the curriculum. How can we design curricula and then gather analytics on the teaching and learning going on such that we know reliably what is being learned, by whom, and why in any given course? To answer this question, Kaplan has introduced several initiatives—based on curriculum design and fueled by technology—that focus directly on the consistency and quality of what is learned by using learning outcomes and rubrics at the course level; the effectiveness and interplay of learner support, curricular design, and effective teaching in order to build in and secure tangible answers to academic quality questions for all learners, including historically marginalized populations; and the ability to stitch liberal education learning outcomes throughout the curriculum of a program as well as the whole university.

Course-level assessment
At Kaplan, course-level assessment is used to measure student learning and to inform a continuous academic improvement process. It is a method for measuring student mastery of stated course-level learning outcomes in an objective manner. Course-level assessment is criterion-referenced, not norm-referenced. The scores obtained measure the student’s current level of mastery of the skills and knowledge described by the outcomes. The assessment supports program-level outcomes, while providing the framework for assessing specific learning objectives and activities within a course. Each learning outcome describes one primary area of knowledge or skills, and reflects
the specific behavior(s) underlying the area of knowledge or skills for which students should be able to demonstrate mastery by the end of the course. Also, each outcome is written in a style that reflects the appropriate level of complexity of the underlying cognitive tasks required for given levels of mastery. Tracking student learning outcomes at the course level allows us to gauge both the effectiveness and the career relevance of our instruction and our curriculum—and to engage in a continuous improvement process.

The learning outcomes are supported by rubrics at the course level. For each course, faculty members develop and employ standardized rubrics to assess student success in achieving all the course outcomes. They develop a rubric for each outcome based on specific criteria, and use them to identify student progress toward mastery. Scores on outcomes are then analyzed to determine whether students are gaining the desired mastery. And, as students proceed through their programs of study, their progress on achieving the outcomes is monitored.

This approach to learning assessment allows us to achieve a high degree of consistency and academic quality. Standards and learning expectations are consistent and transparent across every section and every course. Expectations for the student-facing experience are equally consistent and transparent. Within this consistent curricular and outcome structure, faculty teaching can flex and adapt based on learner needs and faculty strengths. For example, the course-level assessment gauges student progress on mastering the general education literacies and discipline-specific course outcomes throughout the learner’s degree program. We evaluate on a 0–5 scale (0=“no progress,” 3=“practiced,” and 5=“mastery”). It is our objective that each learner will reach mastery of disciplinary course outcomes by the end of the course, and mastery of general education outcomes by the time of degree completion.

The rubrics’ structure allows us to look at the “profile of learning” either within a section or across all sections of a particular course in order to identify anomalies and success rates as well as levels of learning. In one study, completed in 2009 and 2010, the data indicated that 77 percent of our learners demonstrated “practiced” or better in early 2009, 83 percent did the same a year later, and 87 percent scored at “practiced” or better by late 2010 (Eads, Prost, and Van Dam 2010). Technology is the key differentiator in enabling us to gather and analyze these kinds of data. It allows us to scale this research to all our learners and, ultimately, to collect information on thousands of students and courses per year. Technology also allows us to obtain consistent information across every section, which would be impossible in a traditional environment. And finally, technology provides clear control over the means and structure of learning assessment, which leads to a high degree of consistency in that process as well.

**A matrix approach to learning outcomes**

Our use of technology also gives us the capacity to embed certain learning outcomes across the curriculum through a matrix approach. In a single course experience, we can evaluate mastery of the substance of the course as well as knowledge development in other domains, such as teamwork, writing, and critical thinking. For example, general education at Kaplan University is taught through a core curriculum of six courses, with other outcomes distributed throughout the undergraduate curriculum. The overall program goal is for the student to be literate and knowledgeable in the following eight areas: arts and humanities, communication, critical thinking, ethics, mathematics, research and information, social science, and science. The matrix approach allows us to “double up” the learning in undergraduate courses, getting better value for the learner and increased efficiency and effectiveness for the institution. The vast majority of courses contain a communication course outcome, which is key to our writing-across-the-curriculum approach. All required courses also contain course outcomes in critical thinking, ethics, or research and information. Elective courses contain evenly distributed course outcomes in the areas of arts and humanities, mathematics, science, or social science. Finally, technological literacy is reinforced throughout a student’s program.
The matrix approach provides several other advantages. The centrally managed curriculum ensures a consistent distribution of learning objectives and outcomes, as well as consistency of course outcomes across course sections regardless of individual faculty. Further, the use of common rubrics to evaluate student learning ensures the universality of the learning outcomes, and consistent faculty training on rubric use ensures inter-rater reliability.

We have conducted several studies of this approach. In a 2009 cohort study, we used three courses in sequence, with the same students remaining enrolled in each course. We reviewed the percentage of students who achieved the level of “practiced or higher” on the communication outcome—that is, the percentage who “demonstrated college-level communication through the composition of original materials in standard American English.” The percentage of students who achieved “practiced or higher” increased from 76 percent in the first course to 85 percent in the third course, a result that demonstrates steady improvement in core academic skills as the students progressed.

In a 2010 ethics and communication study, the sample included 2,581 undergraduate psychology students who were learning at the one-hundred, two-hundred, and four-hundred levels. In ethics, the average scores on the 0–5 rubric scale were, respectively, 2.72, 3.54, and 3.64. In communication, the average scores improved from 3.20 at the one-hundred level to 3.49 at the two-hundred level and, finally, 3.54 at the four-hundred level. Our initial conclusion is that the general education program is resulting in documented improvement in the core knowledge and ability areas of ethics and communication.

As students advance through their programs of study, their progress in achieving these outcomes is monitored. Course-level assessments provide feedback to students, faculty, and administrators alike about specific knowledge, skills, and abilities acquired by the students during the course of their education. The assessments also allow us to monitor the quality of the curricular design as well as the effectiveness of training in improving faculty performance, both in teaching and in learning assessment.

The ability to employ technology in order to matrix learning outcomes within a single learning experience may also reduce time to (and cost of) the degree without reducing the amount or quality of learning accomplished. If, for example, the outcomes embedded across the curriculum amounted to the equivalent of forty-five quarter credits, we could consider increasing the credit award per course and decreasing the number of courses required for graduation. By deepening the learning we are assessing, and by improving the assessments, we further enrich the value of the overall experience.

**Conclusion**

Our increasingly complex world has a concomitant need for more well-educated people. As American higher education moves forward, the new standard for academic quality will be determined by the use of consistent, reliable, and valid assessments that are linked to life skills as well as workplace and professional abilities. Academic quality that is derived from the reputation of the institution will continue to have validity in a few, specific cases. But in a mass higher education environment informed by information abundance, efficiency, and effectiveness, the core quality standard for most colleges and universities will be based upon consistent, reliable, and valid assessments of transparent learning outcomes. A student portfolio that tells employers (and others) what the learner knows and is able to do as a result of his or her learning will be a significant quality differentiator.

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**REFERENCES**


Evidence-based problem solving can help students “LEAP” into the health professions

Evidence-based problem solving represents an integrative approach to the application of scientific principles across the natural, behavioral, and social sciences. As opposed to the traditional reductionist approach that examines the impact of one factor at a time, evidence-based problem solving examines interactions between factors and brings together a range of disciplines. In addition, it goes beyond explanation to implementation and evaluation. Evidence-based problem solving can be an especially effective method for achieving the fourth LEAP Essential Learning Outcome: integrative and applied learning. That is, it can provide a basis for “synthesis and advanced accomplishment across general and specialized studies demonstrated through the application of knowledge, skill, and responsibilities to new settings and complex problems.”

Evidence-based problem solving has become increasingly important for the preparation of health professional students as well as students in a range of other disciplines, from education to business. The Educated Citizen and Public Health movement currently being led by AAC&U in collaboration with public health education groups has stimulated discussion of how to connect the LEAP initiative with the preparation of public health professionals. Similarly, the Association of Schools of Public Health, in collaboration with AAC&U, has developed and is now disseminating a set of undergraduate public health learning outcomes that are built upon the LEAP Essential Learning Outcomes.1

In medicine, the need for evidence-based problem solving has led to the “evidence-based medicine” movement. Preparation to learn evidence-based medicine requires that an understanding of basic principles be built into undergraduate education. Accordingly, a great deal of attention is now focused on the new Medical College Admission Test (MCAT), which will be introduced in 2015. The new test will incorporate scientific inquiry and reasoning skills (SIRS) into the natural sciences sections as well as a new behavioral and social sciences section. (For discussion of SIRS and why they are important, see sidebar on p. 58.)
A framework for evidence-based problem solving

Figure 2 depicts five phases in evidence-based problem solving: problem description, etiology, recommendations, implementation, and evaluation. As the figure indicates, evidence-based problem solving is an iterative process; each successive cycle builds on the previous cycle. The process can be structured and facilitated by posing a series of questions (see fig. 3). The following case studies illustrate the use of evidence-based problem solving to address two important health problems, Reye’s syndrome and the association of male circumcision and HIV (Riegelman 2010, 2011).

Reye’s syndrome

**Problem.** Reye’s syndrome is a potentially fatal disease of childhood that is characterized by progressive stages of nausea and vomiting, liver dysfunction, and mental impairment that often progresses over hours to days and results in a range of symptoms, from irritability to confusion to deepening stages of loss of consciousness. Reye’s syndrome was first defined as a distinct condition with the development of a case definition in the early 1960s. By the 1980s, over five hundred cases per year were being diagnosed in the United States alone. When Reye’s syndrome was diagnosed, the chance of death was greater than 30 percent. There is no known cure for Reye’s syndrome, but early diagnosis and aggressive efforts to prevent brain damage have been shown to reduce the number of deaths and limit the mental complications. Reye’s syndrome typically occurs in the winter months at the end of an episode of influenza, chicken pox, or other acute viral infection. It is diagnosed by putting together a pattern of signs and symptoms. There is no definitive diagnostic test.

**Etiology.** In the late 1970s and early 1980s, a series of case-control or retrospective studies compared children with Reye’s syndrome to similar children who had also had an acute viral infection but did not develop the syndrome. These studies suggested that the use of aspirin, then called “baby aspirin,” was strongly associated with Reye’s syndrome; over 90 percent of the children afflicted with the syndrome had recently used aspirin. There was no association with acetaminophen (e.g., Tylenol). Cohort studies were not practical because they would require observation of very large numbers of children who would be given or not given aspirin. Randomized controlled trials were neither feasible nor ethical.

**Recommendations.** As early as 1980, the Centers for Disease Control and Prevention cautioned clinicians and parents about the potential dangers of aspirin. It was considered safe and acceptable in terms of costs to reduce
or eliminate aspirin use in children because a widely-used alternative, acetaminophen, was not implicated in the studies of Reye's syndrome. In 1982, the American Academy of Pediatrics recommended that aspirin products not be given to children, and the US surgeon general issued an advisory on the danger of aspirin for use in children.

**Implementation and evaluation.** By 1986, the US Food and Drug Administration required that a Reye's syndrome warning label be placed on all aspirin-containing medications. This effort was coupled with public service announcements, informational brochures, and patient education by pediatricians and other health professionals who cared for children. The use of the term “baby aspirin” was strongly discouraged. In the early 1980s, there were over five hundred cases of Reye's syndrome per year in the United States. In recent years, there have often been fewer than five per year.

The Reye's syndrome success story is unfortunately the exception, rather than the rule. Often, as with HIV/AIDS, each advance leads to new challenges and the need to recycle the process. This is illustrated in the summary of the second case below, which looks at recent efforts to address the growing epidemic of HIV/AIDS in Africa by going beyond efforts to treat patients with the disease.

### Male circumcision and HIV

**Problem.** Until recently, little progress has been made in the prevention of HIV/AIDS in the areas of Africa with the highest rates of HIV infection (10–20 percent of the population). In the 1980s, it was found that an association existed between geographic areas of Africa with high rates of HIV and those with the lowest rates of male circumcision. This association existed at the population level; no individual data yet existed. Nonetheless, it generated the hypothesis that male circumcision may be protective.

**Etiology/Efficacy.** During the 1980s and 1990s, a series of case-control and cohort studies provided consistent data summarized in a meta-analysis supporting the contention that male circumcision reduces the risk of HIV by 50 percent or more. Prior to the use of an invasive and potentially harmful intervention such as male circumcision, it was considered ethically important to demonstrate its efficacy and safety through randomized controlled trials.

The World Health Organization, the National Institutes of Health, and the Centers for Disease Control and Prevention collaborated on three large, well-conducted, randomized controlled trials in Africa to study the impact of male circumcision among predominately heterosexual males. In all
three studies, the volunteers were randomized to one of two groups: an intervention group received medically supervised cost-free circumcision, while a comparison group received extensive HIV education and were offered free circumcision after the completion of the trial.

The results of the three studies were very similar. Participants in one of the studies were followed up for eighteen months before the investigation was stopped early because of the impressive results. In this study, there were twenty cases of HIV among the approximately 1,862 young men randomized to the circumcision group, and forty-nine cases among the approximately 1,862 young men randomized to the control group. The results of the other two studies were similar, and the findings from all three studies were statistically significant.

**Recommendations.** Analysis of the results helps us estimate the potential magnitude of the impact of male circumcision, suggesting that up to 60 percent of the risk of HIV infection among uncircumcised males may be eliminated by use of circumcision in high-risk areas of Africa. Unfortunately, there has been little evidence that male circumcision reduces the risk to women, at least in the short run. Widespread acceptance of these findings led to recognition of a biological mechanism that could explain the observed efficacy. Laboratory studies found that the inner lining of the foreskin contains large numbers of HIV “target cells” (white cells in close proximity to the surface).

In terms of potential harms, male circumcision performed under unhygienic conditions can cause infection, penile damage, and a range of other complications. However,

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**What Are SIRS, and Why Are They Important?**

Scientific inquiry and reasoning skills (SIRS) have been approved for incorporation into the new Medical College Admissions Test (MCAT). SIRS will be integrated into the two natural sciences components as well as the behavioral and social sciences component, which is currently being planned as a new section of the examination. The aim is to provide an overall framework for testing examinees’ ability to apply scientific and evidence-based principles to a wide range of disciplines, including physics, chemistry/biochemistry, biology, behavioral sciences, and social sciences.

To integrate scientific inquiry and reasoning skills into the examinations, four foundational concepts have been defined:

1. **Knowledge of Scientific Concepts and Principles.** This foundational concept requires the ability to state, recognize, and use basic representations of scientific concepts, including mathematical and graphical forms of representation. It does not require synthesis or problem-solving skills.

2. **Scientific Reasoning and Evidence-Based Problem Solving.** This foundational concept addresses the key skills required for drawing conclusions and solving problems, including working with scientific models and theories to solve problems, generating hypothesis and making claims, identifying assumptions and logical inconsistencies, identifying and applying appropriate formulae, and implementing and evaluating proposed solutions.

3. **Reasoning about the Design and Execution of Research.** This foundational concept requires skills in identifying and evaluating the appropriateness of research designs; critiquing research design, including sample size and sources of bias and confounding; evaluating research designs to determine the appropriateness of conclusions; and recognizing ethical issues inherent in research investigations.

4. **Data-Based and Statistical Reasoning.** This foundational concept requires the ability to analyze data from research studies, including using descriptive statistics, interpreting patterns in data to draw or evaluate conclusions or make predictions, and using inferential statistics to evaluate hypotheses and the strength of relationships. It also requires skills in interpreting data patterns presented in tables, figures, and graphs to make comparisons, interpret results, and draw conclusions.

These foundational concepts will be cross-linked with clusters of foundational concepts from the two natural sciences sections as well as the behavioral and social sciences section. Thus, scientific inquiry and reasoning skills will be integrated throughout the content components of the MCAT, providing a unique opportunity for educators to integrate evidence-based thinking throughout the preparation for the health professions.
there is agreement among experts that adolescent and adult male circumcision can be done safely under medical supervision to ensure hygienic and technically competent implementation.

The World Bank estimated the cost of medically supervised adolescent and young adult male circumcision to be about twenty-five dollars per procedure in African countries. This surprisingly low cost is largely due to the dramatically lower local labor costs. Further, the World Bank estimated that fewer than forty circumcisions needed to be performed in high-risk countries of Africa in order to prevent one additional case of HIV infection. The Bank concluded that this cost is far below the lifetime cost of providing HIV drug treatment and that male circumcision should, therefore, be considered a cost-effective intervention.

**Implementation and Evaluation.** In 2007, the President’s Emergency Plan for AIDS Relief, the US initiative to control HIV/AIDS in areas of high prevalence around the world, accepted male circumcision conducted under medical supervision as an integral part of an HIV-control program, along with education, safer sex practices, and use of antiretroviral drugs. Efforts to evaluate the impact of these programs are currently underway.

**Using case studies to teach evidence-based problem solving**

A wide range of relevant case studies can be used to engage students in evidence-based problem solving. At the George Washington University School of Public Health and Health Services, for example, students use the process described above to work through problems such as sudden infant death syndrome, coronary artery disease, meningococcal disease, chickenpox, oxygen levels and blindness in premature infants, and spina bifida.

Moreover, as stated above, the approach enables students to build upon key LEAP Essential Learning Outcomes. For instance, as illustrated by the Reye’s syndrome and HIV/AIDS examples above, case studies provide and utilize “knowledge of human cultures and the physical and natural world,” and they engage students with “big questions, both contemporary and enduring.” Evidence-based problem solving also builds on intellectual and practical skills, including inquiry and analysis, critical thinking, quantitative literacy, and, of course, problem solving.

Using case studies in a small group setting can provide practice in information literacy and teamwork. Personal and social responsibility can also be readily integrated into the cases, as illustrated by the issues related to the recommendation of male circumcision in Africa. Case studies for evidence-based problem solving should be designed to stimulate discussion and allow students to challenge accepted approaches.

The evidence-based public health approach can be introduced as part of a general education course that aims to improve critical thinking and problem solving. More advanced case studies can be utilized in specialty courses in the social sciences, in science courses such as biology, or as part of a capstone or synthesis course for a wide variety of majors. With an introductory course as a prerequisite, an evidence-based problem-solving course can build upon the basics and tie the pieces together.

Evidence-based problem solving is fast becoming an expected part of the preparation for graduate-level education in the health professions. Undergraduate institutions can take advantage of this evolution in the health professions to help students achieve many of the LEAP Essential Learning Outcomes. Evidence-based problem solving can help students “LEAP” into the health professions.

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**REFERENCES**


**NOTE**

1. Information about the Educated Citizen and Public Health initiative can be found online at www.aacu.org/public_health. For information about the Undergraduate Public Health Learning Outcomes Model developed by the Association of Schools of Public Health, visit www.asph.org/document.cfm?page=1085.
The natural sciences can be quintessential liberal arts

I teach biology at a college of art and design. When people hear this, the inevitable response is one of two: “Really? I didn’t know they even taught science at art schools” or, just as commonly, “Well, I suppose someone needs teach anatomy of the human figure.” After all, what business does science have at an art school otherwise? In the case of my field, the proverbial short answer can be quite long, given all the ways biology is now a focal point for engaging with fundamental questions of form, function, and even aesthetics. Genetic modification, biomimetic design, eco-art, neuroperception, sustainable systems theory—it is no exaggeration to say that the list of biological topics that have come to populate art museums, gallery exhibitions, and popular media has exploded in the last fifteen years. The surprise over art students learning science says more about outdated notions of art and design than about science education’s proper place within them.

Still, it is conspicuously the case that my other liberal arts colleagues who teach literature, anthropology, or philosophy rarely meet the same kind of skepticism about their role at art school that I face as a scientist. This may be because the “humanistic” fields are considered a natural part of the liberal education that an art and design undergraduate should receive. Plato, Freud, and Derrida? Most certainly. Name-dropping Da Vinci? Perhaps. But Darwin, much less Newton? As far as the foundational education of artists and designers is concerned, there is a sense that the natural sciences are of marginal importance, that they deal primarily with matters of material fact rather than the concerns of critical thought or cultural discourse.

Interestingly, it is among other professors, rather than my students, that I most commonly find this notion of scientific knowledge. For example, a recent informal poll of academic faculty at my institution asked what constitutes the liberal arts; over 20 percent of respondents provided definitions that explicitly excluded the natural sciences. If my own colleagues don’t recognize science as part of the liberal arts, then perhaps it is little wonder that the role of science within the education of artists and designers seems curious to so many.

Academic inheritance may be partly to blame. The distinctions often asserted between the natural sciences and the humanities today almost seem like a caricature of C. P. Snow’s influential “two cultures” argument of fifty years ago, perhaps with a touch of 1990s academic “culture wars” thrown in. Yet, the way we discuss disciplines still often serves to reinforce a sense of fundamental divide, albeit with varying degrees of nuance. In his essay “Dehumanized,” Mark Slouka (2009) asserts that, “to put it simply, science addresses the outer world; the humanities, the inner one. Science explains how the material world is now for all men; the humanities, in their

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indirect, slippery way, offer the raw materials from which the individual constructs a self.” This may appear so categorical as to be simply hyperbole, but distinctions that are just as sharp can be found among the premises of more tempered commentaries as well.

Take, for example, Stanley Fish’s discussion of the controversial curricular standards published in 2009 by the American Council of Trustees and Alumni (ACTA). In considering the validity of the standards across different disciplines, Fish grouped the natural sciences together with composition, math, and foreign languages and readily endorsed ACTA’s vision for these fields. In contrast, when it came to literature and history, he strongly opposed the “stringent and narrow” criteria as “an effort to shape the discipline from the outside according to a political vision.” For Fish, this difference seems to come down to the cultural and
intellectual engagement of the disciplines. “You can tell when you are being taught a mathematical function or a scientific procedure or a foreign language or the uses of the subjunctive and when you are being taught something else,” he argued.

“Things are not so clear when it comes to literature and history” (Fish 2009). Why aren’t the problems with ACTA’s strict criteria just as apparent when it comes to the natural sciences?

Science and liberal education
The Association of American Colleges and Universities (2012) describes liberal education as “an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change.” This approach is “characterized by challenging encounters with important issues, and more a way of studying than a specific course or field of study”; it “helps students develop a sense of social responsibility.” Given these characteristics of liberal education, it is hard not to feel that both Fish and ACTA sorely underestimate the cultural and critical relevance of scientific understanding and science education. While rightly pointing out the need for literacy and core education, the “hard science” criteria of the ACTA standards throw out the baby with the bathwater by rejecting courses that engage crucial social or philosophical contexts central to contemporary science. By claiming that courses such as “The Tropics: Biology and Social Issues” or “Genetics, Law, and Social Policy” don’t count as science courses, the ACTA criteria risk reinforcing a problematic, status quo view of science as simply problem solving around known facts, rather than an epistemologically complex means to understanding and engaging with the world. The overall effect is essentially to exclude the natural sciences as serious liberal arts, almost by definition.

Although it may be tempting to brush it off as just a semantic quibble, the question of whether science education is truly liberal education—and ought properly to be recognized as such—is of real consequence. Take, for example, Kitzmiller v. Dover. In that 2005 trial over the teaching of evolution in the public schools, the well-known philosopher and sociologist Steve Fuller testified for the creationist defense, claiming that he was more qualified than a scientist to expertly assess the scientific status of intelligent design. Fuller’s rationale was that, given the narrow scope of “ordinary science education” in the United States, scientists are not capable of effectively analyzing the issue the way a philosopher-sociologist is. “I think the key thing is that… the kinds of things that are, as it were, relevant to know about science aren’t necessarily the things that would be in a science curriculum,” Fuller testified, “especially if we’re talking about people who are being professionally trained to be scientists” (2005, 32).

While it is hard not to take umbrage with his claim, I also worry that Fuller could turn out to be right. A study by Marra and Palmer in the Journal of General Education (2008), for example, found that liberal arts undergraduates tend to view the epistemology of the humanities or the social sciences as more complex than that of the natural sciences, perceiving knowledge in the sciences as primarily factual and involving less of the evaluative thinking found in the humanities and the social sciences. If we continue to rely on antiquated taxonomies of the disciplines and on traditional ways of teaching within them,
it is not certain that education will necessarily succeed in meeting the aims of a truly liberal education. Views like Fuller's should also motivate us to examine seriously the almost complete absence of history or philosophy of science requirements at both the undergraduate and graduate levels for students who major in science. Such educational gaps make it more likely that future scientists will lack the integrative skills necessary to connect the culturally complicated dots between science and society.

For these very reasons, it is precisely courses like “The Tropics: Biology and Social Issues” and “Genetics, Law, and Social Policy” that need to be included in college curricula if we want students to develop a mature perspective on science as a dynamic process of inquiry, discovery, and reason that addresses real-world uncertainties. Innovative approaches to science pedagogy place a premium on active, evaluative thinking about real-world scenarios, and the development of curricula that engage the critical and civic questions of sustainability, public health, evolution education, and climate change are being actively promoted as a matter of best practice in science teaching.

The natural sciences can be quintessential liberal arts. As science teachers, it is up to us to create curricula, instruct undergraduates, and mentor graduate students in ways that cultivate engagement with science that is intellectually critical and culturally crucial. In the process, we will have to confront a number of institutionalized norms, including outdated notions of the nature and role of science education within the academy. We will also have to confront the contradictions in how science faculty are professionally evaluated and the strong tendency to prioritize grants and research prowess over teaching. Reimagining the intellectual and civic value of the natural sciences, how they are best taught, and the significance of scientific fluency—for artists, designers, scientists, humanists, and social scientists alike—will contribute to reclaiming the fundamental relevance of a liberal education today.

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A Crucible Moment: College Learning and Democracy’s Future
BY THE NATIONAL TASK FORCE ON CIVIC LEARNING AND DEMOCRATIC ENGAGEMENT

This report calls on the nation to reclaim higher education's civic mission. Commissioned by the Department of Education and released at a White House convening in January 2012, the report pushes back against a prevailing national dialogue that limits the mission of higher education to workforce preparation and training while marginalizing disciplines basic to democracy. The task force calls on educators and public leaders to advance a 21st-century vision of college learning for all students—a vision with civic learning and democratic engagement an expected part of every student's college education. This publication emerged from a project supported by the US Department of Education. Its printing and dissemination was supported, in part, with funding from the Bringing Theory to Practice project and its supporters, the S. Engelhard Center and the Christian A. Johnson Endeavor Foundation. The entire report is also available as a PDF document online at www.aacu.org/civic_learning/crucible. Print copies can be purchased online.

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