College Learning for the New Global Century

A Report from the National Leadership Council for Liberal Education & America’s Promise

Association of American Colleges and Universities
PART 3

A New Framework for Excellence

The aims and outcomes described as “essential” in part 1 of this report (see p. 12) call for students to become “intentional learners” who focus, across ascending levels of study, on achieving these learning outcomes. But to help students do this, educational communities will also have to become more intentional both about these essential outcomes and about effective educational practices that help students integrate their learning and apply it to complex questions.

The principles and recommendations presented here are intended to give impetus to this new intentionality about the aims and quality of college learning, and about the complementary roles of school and college in preparing graduates for twenty-first-century realities.

In shaping the principles, the National Leadership Council for Liberal Education and America’s Promise has drawn from many sources: active reform movements on many campuses and in a broad array of disciplines; recommendations from academic leaders; analyses from the business community; new standards in the accrediting communities; and dialogues held across the United States with campus, business, and community leaders.

The council believes that higher education can and should play a crucial role in fulfilling America’s promise in this new global century: tapping potential, creating opportunity, fueling an innovative economy, reducing inequities, solving problems, and inspiring citizens to create a more just, humane, and sustainable world.

Toward these ends, the LEAP National Leadership Council calls for a new compact—between educators and American society—to adopt and enact the following seven Principles of Excellence.

“This new era calls on higher education to set significantly higher standards for student achievement while avoiding the disadvantages of standardization.”
The Principles of Excellence

Principle One
★ Aim High—and Make Excellence Inclusive
Make the Essential Learning Outcomes a Framework for the Entire Educational Experience, Connecting School, College, Work, and Life

Principle Two
★ Give Students a Compass
Focus Each Student’s Plan of Study on Achieving the Essential Learning Outcomes—and Assess Progress

Principle Three
★ Teach the Arts of Inquiry and Innovation
Immerse All Students in Analysis, Discovery, Problem Solving, and Communication, Beginning in School and Advancing in College

Principle Four
★ Engage the Big Questions
Teach through the Curriculum to Far-Reaching Issues—Contemporary and Enduring—in Science and Society, Cultures and Values, Global Interdependence, the Changing Economy, and Human Dignity and Freedom

Principle Five
★ Connect Knowledge with Choices and Action
Prepare Students for Citizenship and Work through Engaged and Guided Learning on “Real-World” Problems

Principle Six
★ Foster Civic, Intercultural, and Ethical Learning
Emphasize Personal and Social Responsibility, in Every Field of Study

Principle Seven
★ Assess Students’ Ability to Apply Learning to Complex Problems
Use Assessment to Deepen Learning and to Establish a Culture of Shared Purpose and Continuous Improvement
★ Principle One
Aim High—and Make Excellence Inclusive

Make the Essential Learning Outcomes a Framework for the Entire Educational Experience, Connecting School, College, Work, and Life

Americans have entered a global century that presents “greater expectations” for knowledge in every area of life. This new era calls on higher education to set significantly higher standards for student achievement while avoiding the disadvantages of standardization. The essential learning outcomes (see p. 12) provide a common framework and a shared sense of direction for student accomplishment across school and college. These outcomes are not intended as a checklist of courses and requirements to—in the current campus vernacular—“get out of the way.” Nor do they dictate a particular set of courses that all students should take.

Rather, these aims and outcomes are intended to build students’ working understanding of the world and to foster capacities that will be practiced in school and used beyond school. The essential learning outcomes provide an inclusive framework for a contemporary liberal education by defining it not as a selected set of disciplines, but as a set of resources for all aspects of life: work, citizenship, and personal fulfillment.

Contemporary students compose their education across many different institutions and from many different academic fields and courses. Of those who complete a bachelor’s degree, nearly 60 percent take courses at more than one college or university and nearly 25 percent at more than two institutions. The essential learning outcomes set a common framework that provides a sense of purpose and direction to guide student progress across the many different parts of the academic system. The outcomes can be used for P–16 planning in the states, articulation between two-year and four-year colleges and universities, and accreditation standards for institutions and academic fields. At every level, a clear and constant focus on these essential outcomes can help systems, institutions, academic programs, and students themselves become more intentional.

These forms of learning can and should be fostered through many different curricular pathways. But to ensure their achievement, each institution and each program will need to be certain that students have multiple opportunities and appropriate academic support to work toward the intended outcomes. To reach high levels of success, each system, each institution, and each academic program will need to set standards and guidelines for the expected level of student accomplishment.

Within higher education, many will see these aims and outcomes as goals for the general education program alone. That is not the intention. General education plays a role in their fulfillment. But it is not feasible to assign to general education programs alone the breadth and scope of learning described in the essential learning outcomes. The majors also have a crucial role to play in fostering rich knowledge, strong intellectual and practical skills, an examined sense of personal

THE PRINCIPLES IN PRACTICE
Aim High—and Make Excellence Inclusive

The State Council of Higher Education for Virginia (SCHEV) has identified a set of competencies that all students should achieve from their college studies. The competencies are similar to the “intellectual and practical skills” that the LEAP National Leadership Council defines as “essential.” SCHEV requires public institutions to submit “reports of institutional effectiveness” that include assessments of student learning in written communication, technology/information literacy, quantitative reasoning, scientific reasoning, critical thinking, and oral communication. Each individual campus defines the outcomes, establishes expected achievement levels, creates or chooses assessment methods, and reports on results. The SCHEV framework creates public and transparent reports of institutional learning outcomes while maintaining institutional autonomy to define and assess student learning outcomes in relation to institutional mission and priorities.

THE PRINCIPLES IN PRACTICE
Aim High—and Make Excellence Inclusive

Faculty at Indiana University–Purdue University Indianapolis (IUPUI) have agreed to six Principles of Undergraduate Learning that define important learning outcomes for each IUPUI student. These include communication and quantitative skills; critical thinking; intellectual depth, breadth, and adaptiveness; integration and application of knowledge; understanding society and culture; and values and ethics. These principles apply to the entire educational experience and to the departmental programs as well as general education courses. Most students take a first-year learning community that explores these core goals and helps students begin work on them. To document and assess students’ achievement, IUPUI faculty are developing e-portfolios that set standards for the outcomes and make the basis for their assessments visible. IUPUI has provided extensive support for faculty development as well as student orientation as it encourages this shift toward goals across the entire educational experience.
and social responsibility, and the ability to integrate and apply knowledge from many different contexts. If the majors neglect these shared goals, students are unlikely to achieve them.

Recommendation 1

The National Leadership Council recommends that a national commitment be made to foster the aims and outcomes of a twenty-first-century liberal education for all college students, not just those attending elite institutions and not just those studying in what traditionally have been called “arts and sciences disciplines.”

This call is extended to each college, community college, and university, to state systems, and to the fields of study within colleges and universities. Every institution and system should develop for itself a vision of intended learning outcomes that addresses, in ways appropriate to mission, the multiple goals for college. This vision should be expressed in a public document that is accessible to everyone and frequently consulted by faculty, staff, and students alike. In state systems, the educational outcomes should become shared responsibilities, applicable across institutional boundaries.

Every field should be taught as part of liberal education, and every field should audit, clarify, and strengthen its own practices for fostering the knowledge and capacities identified as essential outcomes of a twenty-first-century education.

Recommendation 2

The National Leadership Council recommends that two-year colleges, together with the senior institutions that serve large numbers of transfer students, focus on the aims and outcomes of a twenty-first-century liberal education.

Nearly half the nation’s college students, and the majority of students from low-income families, begin their studies in two-year institutions. It should be a national priority to ensure that these students, whatever their career choices and preparation, become richly prepared for a changing economy, for the option of further study, and for a lifetime of continuous learning—as employees and as citizens.

This recommendation neither requires nor anticipates that community college students should study only, or primarily, what are conventionally known as arts and sciences or “general education” courses. Rather, it calls on two-year and four-year institutions, in every state and region, to collaboratively remap the curriculum so that arts and sciences and professional or “career” courses can work together, from first to final years, to foster the broad knowledge, sophisticated skills, personal and social responsibility, and demonstrated achievement that every student needs and deserves.

Faculty and staff who teach remedial/developmental courses should take an active part in this remapping, so that these courses help students prepare successfully for the expectations and standards of the regular curriculum.
Principle Two

Give Students a Compass

Focus Each Student’s Plan of Study on Achieving the Essential Learning Outcomes—and Assess Progress

American college students already know that they want a degree. The challenge is to help students become highly intentional about the forms of learning and accomplishment that the degree should represent.

In today’s academy, many students are not following any comprehensive academic plan at all. Rather, many are working to cobble together a sufficient number of courses that will enable them to meet the required number of credits—typically 60 at the associate’s level and 120 at the bachelor’s level—necessary to earn a degree. Setting goals for educational accomplishment based on the essential learning outcomes can change this haphazard approach to academic study. Each student will know what is expected, and each student can construct a plan of study that simultaneously addresses his or her own interests and assures achievement in the essential learning outcomes.

Students will know before they enter college, for example, that they are expected to bring their communication skills—written and oral—to a high level of demonstrated accomplishment. As they work with mentors to plan a course of study, they will learn to seek out, rather than avoid, courses in which extensive writing and/or oral presentations are required. The same principle applies to all the outcomes. By clarifying the intended forms of learning and their significance, and by helping students connect these broad outcomes with their own individual goals and areas of study, educators will help all students become more intentional about their learning and more likely to reach high levels of accomplishment.

Recommendation 3

The National Leadership Council recommends that the essential learning outcomes be used to guide each student’s plan of study and cumulative learning and, further, that their achievement be the shared focus of both school and college.

Students should begin intensive work in each of these areas of learning—knowledge, skills, responsibilities, and integrative learning—as early as middle school. And they should understand that they will be expected—wherever they enroll, whatever their intended career—and no matter how far they go in college—to attain progressively higher levels of competence in each of these key areas. Teachers, faculty members, and student life professionals should work together to help students understand why these outcomes are important, and how they are applied in work settings, civil society, and students’ own lives.
The Principles in Practice
Give Students a Compass

The curriculum at Bard College is designed to encourage students to play an active and intentional role in shaping their education. Rather than selecting from traditional departmental majors, students at Bard major in programs that cross disciplinary boundaries. This program-based approach is combined with core curricular experiences that develop broad capacities and allow for milestone assessments of learning. New students begin their studies with the Workshop in Language and Thinking, an intensive summer program that serves as an introduction to college-level learning, and continue in the first-year seminar, where they explore many of the intellectual ideas that will form the basis of their subsequent study. In the second semester of the sophomore year, students undertake “moderation,” a process that requires them to reflect on their academic experiences, assess their performance, and plan in consultation with faculty advisers the work they will pursue in their major field. This culminates with the senior project, which serves as the capstone to a Bard education. Together, these elements of the college’s curriculum help students to integrate their learning and follow a purposeful course of study as they chart a path through their undergraduate education.

Recommendation 4
The National Leadership Council recommends that teachers and faculty set high and explicit standards for student achievement, that the curriculum be organized to provide students with ample opportunities to meet the standards, and that students be provided with regular feedback on their progress.

The expected standards should be made public, and should periodically be reviewed by external experts to ensure appropriate quality. While in high school, students should receive periodic feedback about their progress, as well as guidance on the connections between the expected outcomes and future success in both work and college. Diagnostic assessments in the first year of college, and milestone assessments upon completion of community college and/or the second year of college, can help students evaluate their own achievement to date and identify areas of needed improvement. Each student’s plan of study—informed by the assessments—should clearly connect expected outcomes to the institution’s required studies, students’ major field(s), and their elective choices. Where today’s students frequently see curricular requirements as a set of obstacles to get “behind them” as early as possible, the students of tomorrow will know that learning is cumulative and that continuous progress is both expected and supported.

Principle Three
Teach the Arts of Inquiry and Innovation
Immerse All Students in Analysis, Discovery, Problem Solving, and Communication, Beginning in School and Advancing in College

In a complex world, there is no way that students can master everything they “need to know.” The scope is too broad, and the frontiers of knowledge are expanding far too rapidly. The key to educational excellence, therefore, lies not in the memorization of vast amounts of information, but rather in fostering habits of mind that enable students to continue their learning, engage new questions, and reach informed judgments. Helping students master analytical capacities has been one of the most enduring commitments of a liberal education. Since this nation was founded, American leaders have emphasized the value of these capacities to a free society; today, we see their value for an innovation-fueled economy as well.

Given their importance, the foundations for inquiry, investigation, and discovery should be laid early and reinforced across the educational system. A good education should provide multiple opportunities for students to engage in “inquiry-based learning,” both independently and in collaborative teams. Through inquiry projects, students should learn how to find and evaluate evidence, how to consider and assess competing interpretations, how to form and test their own analyses and interpretations, how to solve problems, and how to communicate persuasively.

Fifty years ago, it would not have been feasible to emphasize
inquiry and discovery in many fields and institutions. Today, however, the advent of new technologies has created unprecedented opportunities for students to take part in collaborative inquiry, creative projects, and research. The need and the opportunity are there. Yet most schools and colleges have barely tested the waters. Faculty members who supervise student research and/or teach "capstone" courses to advanced college students frequently are frustrated by students' poor preparation for tackling complex inquiry and creative projects. That is because few departments and institutions have developed curricula and pedagogies that incrementally foster and assess students' skills in inquiry and innovation as they advance through a course of study. Fundamental change is needed, at all levels of education, to help students develop the intellectual and practical skills basic to inquiry, innovation, and effective communication.

Recommendation 5
The National Leadership Council recommends that the power of new technologies be harnessed in order to give all students extensive experience in research, experimentation, problem-based learning, and other forms of creative work, especially but not only in their major fields.

Undergraduates today, even first-year students, can learn how to use tools of research, analysis, design, and creation that are more powerful than those available to professionals a generation ago. Whether the challenge is studying classical Greece, designing semiconductors, analyzing elections, or extending access to the arts, the technological tools available to students are extraordinary. The Internet and other communications technologies also make it possible for students to take part in creative problem solving with partners outside of the classroom—community agencies, arts organizations, corporations, schools, and people in other parts of the world. Technology-assisted inquiry should be carefully woven into the expected academic experience and emphasized in the college majors.

Recommendation 6
The National Leadership Council recommends that colleges and universities work with the schools to raise the level of inquiry and project-based learning in precollege education and take vigorous steps to build these skills further once students enter college.

The best public and private schools and many of the most successful charter schools have long made analysis and inquiry central to their programs of high school preparation and learning. But in many schools, students write very little and receive no preparation in critical inquiry and research skills. When this foundation is lacking, colleges must play catch-up when it should be their primary task to move students' skills in analysis and application to a much higher level. New emphasis on the skills essential to inquiry and innovation is needed
- in the preparation of teachers and faculty;
- in the design of curriculum and assessments in the schools;

THE PRINCIPLES IN PRACTICE
Teach the Arts of Inquiry and Innovation
With the support of a Ewing Marion Kauffman Foundation grant, the University of Rochester is striving to make entrepreneurship—and the skills that accompany it such as problem solving, continuous learning, and innovation—a basic component of undergraduate education by infusing it into all academic disciplines. The University of Rochester has created the Center for Entrepreneurship (CFE), which brings together faculty, students, and community members from a variety of academic disciplines to encourage and enhance the culture of entrepreneurship at the university and within the Rochester community. As a result, there are now courses at the University of Rochester available for students wishing to focus specifically on entrepreneurship as it relates to any major, and the CFE holds a variety of workshops, seminars, and conferences for faculty as well. The University of Rochester is one of several dozen liberal arts colleges and research universities that are connecting entrepreneurship with teaching, learning, and research in arts and sciences disciplines.

"The key to educational excellence lies not in the memorization of vast amounts of information, but rather in fostering habits of mind that enable students to continue their learning, engage new questions, and reach informed judgments."
### The Principles in Practice

**Teach the Arts of Inquiry and Innovation**

<table>
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<tr>
<th>Curricular strategy</th>
<th>Transparency</th>
<th>Classroom practices</th>
<th>Example</th>
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<tbody>
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<td>Step 1. In high school, students enroll in a theme-based academy of</td>
<td>Advisers and teachers stress the goals of answering questions and</td>
<td>Teachers provide guiding questions, prompts, models, frameworks, and</td>
<td>Sir Francis Drake High School (San Anselmo, California) Students study</td>
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<td>three or four linked courses that promote synthesis through projects.</td>
<td>justifying the answers, framing new questions, and relating raw data to</td>
<td>suggested sites for information. They use direct observation, case studies,</td>
<td>the election process by creating video campaign ads for candidates or</td>
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<td>the questions.</td>
<td>simulations, and role playing.</td>
<td>issues in an upcoming election. They also make “process” Web sites that</td>
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<td>lead them to reflect upon their learning and thinking.</td>
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<td>Step 2. In college, first-year seminars and selected courses in general education</td>
<td>Professors make explicit the outcomes of further developing powers of</td>
<td>Writing assignments and/or oral presentations ask students to identify a problem/</td>
<td>Indiana University-Purdue University Indianapolis A first-year learning</td>
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<td>introduce inquiry and analysis through specific problems/projects/assignments.</td>
<td>observation, synthesis, and problem posing as well as expectations in reflection and analysis. Critical thinking is stressed as a goal of the first-year seminars/courses and of the entire institution.</td>
<td>issue and devise ways to resolve it. Professors provide guidelines and format. Techniques might include journals, brainstorming, teamwork, or demonstrations.</td>
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<td>community for students in engineering includes an investigation of reverse engineering, instruction on creating a Web page, an introduction to engineering careers, and a look at professional organizations. It also includes a group research paper, teamwork topics, and a PowerPoint presentation.</td>
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<td>Step 3. Across the college curriculum, problem-based learning occurs in disciplinary</td>
<td>Professors discuss critical observation, problem posing and problem solving, analysis, synthesis, and interpretation of complex issues in the discipline. At the institutional level, facilities support problem-based learning and inquiry is stressed as an institutional priority for all majors.</td>
<td>Projects based on complex issues/problems of the field ask students to draw on their specific content knowledge as well as on their developing powers of analysis, synthesis, and interpretation. Students pose their own questions and devise ways of answering them. Active, hands-on learning could alternate with lectures that provide “just-in-time” information that students can apply immediately.</td>
<td>Samford University (Birmingham, Alabama) A junior-year, foundational nursing course includes a problem-based learning model for each key concept. Progressing through the course involves advancing from simple to complex concepts. A module, which might last from several days to one month, could focus, for example, on nutrition and hygiene issues in nursing patients from diverse cultural and religious traditions. Students form groups early in the course to work through the problems posed.</td>
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<td>courses as students begin their majors.</td>
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<td>Step 4. At the senior level, a capstone project or thesis in the major (or in</td>
<td>Course catalogs and departmental information about the senior capstone</td>
<td>Under faculty guidance, students or teams choose a significant problem/project to</td>
<td>Southern Illinois University Edwardsville All seniors must complete a capstone that, for computer science majors, consists of a team project that spans two semesters. Ideas for real programming needs are solicited from the university and local community. Students are responsible for all aspects, from establishing initial requirements to implementation and deployment; they need to figure out how to interact with and design products for non-specialist users.</td>
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<td>general education) culminates the inquiry approach to learning by asking students</td>
<td>experience clearly state that the capstone requires advanced critical analysis, evidence, synthesis, conceptualization, interpretation, and evaluation. Formative assessments during the experience provide reminders of the need for insightful use of data, logic, and diverse resources.</td>
<td>research/carry out over a semester or two. The professor could provide guiding questions but the emphasis is on student initiative. The work could be made public through publishing an article or presenting it to community and industry experts.</td>
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<td>to draw on the knowledge and skills acquired in the major, general education,</td>
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<td>electives, and cocurricular experiences.</td>
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• as students progress from year to year;
• in the college admissions process, which ought to attend more closely to student experience in inquiry- and project-based learning;
• in the careful design of first-year and second-year experiences geared to students' differing levels of preparation and skill;
• in the careful design of advanced studies that emphasize inquiry, analysis, and the application of knowledge to complex problems.

In recalibrating school and college curricula, and the connections between them, educators need to ensure that every student experiences the excitement and intellectual growth that follows from working to solve real problems. In doing so, they will also provide students with the forms of preparation they need both for a dynamic and innovative economy and for a vibrant democracy.

★ Principle Four
Engage the Big Questions

Teach through the Curriculum to Far-Reaching Issues—Contemporary and Enduring—in Science and Society, Cultures and Values, Global Interdependence, the Changing Economy, and Human Dignity and Freedom

Study in the arts and sciences remains an essential and integral part of a twenty-first-century liberal education. But it is time to challenge the idea—tacitly but solidly established in American education—that simply taking a prescribed number of courses in liberal arts and sciences fields is sufficient. Rather, new steps must be taken to ensure that study in these core disciplines prepares students to engage with the “big questions,” both contemporary and enduring. Study in the arts and sciences should provide students with opportunities to explore the enduring issues, questions, and problems they confront as human beings—questions of meaning, purpose, and moral integrity. These studies should also teach students to look beyond themselves, by considering their obligations to others, and to look beyond the classroom, by applying their analytical skills and learning to significant issues and problems in the world around them.

The research on this point is compelling. All students—including those least prepared—learn best when they can see the point of what they are doing. Illuminating real-world implications can help students discover the excitement and the benefits of powerful learning.40

By engaging students with complex issues, questions, and problems where there are real consequences at stake, and by teaching students how to draw and assess knowledge from many sources, this problem-centered approach to liberal education will prepare students both for the challenges of a dynamic global economy and for the responsibilities of citizenship.

To achieve this vision, it will be necessary to revisit the chaotic and redundant practices that currently subvert powerful learning in both school and college. Millions of college students are presently repeat-

THE PRINCIPLES IN PRACTICE

Engage the Big Questions

In addition to core general education requirements, San Jose State University (SJSU) has implemented SJSU Studies, which are intended to foster students' advanced, integrative learning as citizens and thoughtful people. Each SJSU undergraduate must take one upper-level class in each of four topic areas—Earth and Environment; Self, Society, and Equality in the United States; Culture, Civilization, and Global Understanding; and Written Communication. These courses connect the curriculum to larger, complex issues in society as a way of preparing students to become better global citizens and educated adults. Like many campuses in the California State University system, San Jose State University serves many transfer students who have taken all or many of their core general education requirements at other institutions. By framing distinctive upper-level goals for general education, SJSU affirms its commitment—officially endorsed by the Faculty Senate—to liberal education for all students. It also creates its own "signature" approach to that goal.

“It is time to challenge the idea that simply taking a prescribed number of courses in liberal arts and sciences fields is sufficient.”
"Illuminating real-world implications can help students discover the excitement and the benefits of powerful learning."

THE PRINCIPLES IN PRACTICE
Engage the Big Questions

One of seven colleges in the Dallas County Community College system, Richland College serves nearly twenty thousand students who collectively speak seventy-nine different first languages. Richland’s several academic enrichment programs reinforce the college’s emphasis on educating students to build sustainable communities, both at home and abroad. The Global Studies program, for example, challenges students to search for solutions to issues such as “peace, ecological balance, social and economic justice, intercultural understanding, democratic participation, and the impact of technology.” By design, Global Studies intersects with other academic enrichment programs, including Richland’s campus-wide service-learning program, learning communities (two courses that address a common topic from different disciplinary perspectives), peace studies, and several ethnic studies programs. To earn a Global Studies Certificate—which complements other majors—students take fifteen hours of Global Studies courses, including a learning community, and also complete an academically based service-learning project. Students who take one year of a second language and earn honors grades are named Global Studies Scholars. With a strong emphasis on integrative planning and continuous educational improvement, Richland College became in 2008 the first community college to win the Malcolm Baldrige National Quality Award, the nation’s highest presidential recognition for quality and organizational excellence.

ing work they should have accomplished in high school, and paying college tuition to do so. At the same time, three million students are now taking “early college courses” that give them a leg up on college-level requirements, especially in arts and sciences fields. Often, however, students can use these early college credits to avoid further learning in core disciplines—such as science, mathematics, history, or languages—once they are enrolled in college. With the demand for advanced knowledge expanding exponentially, it is self-defeating to let today’s college students opt out of key disciplines before they even begin their higher education. It is equally self-defeating to cover essentially the same content in both high school and college survey courses.

Therefore, a coordinated effort is needed to ensure that all Americans reach high levels of knowledge and skill—began in school and advanced in college—in the following areas of twenty-first-century learning:

- **science, mathematics, and technology**—including a solid grasp of the methods by which scientific knowledge is tested, validated, and revised

- **cultural and humanistic literacy**—including knowledge of the world’s histories, American history, philosophical traditions, major religions, diverse cultural legacies, and contested questions

- **global knowledge and competence**—including an understanding of economic forces, other cultures, interdependence, and political dynamics, as well as second-language competence and direct experience with cultural traditions other than one’s own

- **civic knowledge and engagement**—including a rich understanding of the values and struggles that have established democratic institutions and expanded human freedom and justice, and direct experience in addressing the needs of the larger community

- **inquiry- and project-based learning**—including multiple opportunities to work, independently and collaboratively, on projects that require the integration of knowledge with skills in analysis, discovery, problem solving, and communication

This is not a menu of course categories. Rather, it is a proposal to move beyond the fragmented modular curriculum that students already take in the arts and sciences, in both school and college (see p. 20, fig. 6). The list above specifies core areas of twenty-first-century learning and invites fresh consideration of the way study within and across different disciplines—from school through college—can be organized to develop deep knowledge and strong competence in each of them.

Self-evidently, four years of study is not enough time to achieve such breadth and depth of knowledge. But students are spending at least sixteen years—if they complete a bachelor’s degree—in the combination of school and college. If educators map goals for learning in these core areas across this extended sequence of study, the goals become attainable.
Recommendation 7

The National Leadership Council recommends that faculty and teachers in all the relevant disciplines be involved in new national efforts to identify the goals for college-level achievement in each of these core areas of twenty-first-century learning, and to create purposeful curricular pathways, from high school through college, that ensure students' cumulative learning in these core areas.

The task goes well beyond identifying needed knowledge in such basic disciplines as literature, history, or biology. Rather, educators should revisit the overarching goals for student learning in the arts and sciences, and create disciplinary and cross-disciplinary patterns of learning that build deep understanding of the world in which students live and work. Because these broad areas of learning illuminate the context for students' specialized interests, the core areas should be addressed across the several years of college, and not just in the first two years.

Recommendation 8

The National Leadership Council recommends that new efforts be made to raise the level of student engagement and accomplishment in these core areas of learning in both the final years of high school and the initial phase of college.

The transition from school to college should be the joint responsibility of schools and higher education, and should be carefully planned to ensure that students meet high standards in each of the core areas of expected learning. Standards should be set for needed levels of achievement in these essential areas of learning at the point of college entrance, and the final years of high school should be designed to ensure that students meet the expected entrance standards. Colleges should provide diagnostic feedback to their students on their actual level of preparation and achievement in these expected areas of twenty-first-century learning, and on what they need to accomplish further to meet the institution's own expectations for graduation-level knowledge and competence. At all points along the way, educators should work with external partners to help students understand why and how these core areas of learning are important to success in the economy and to the responsibilities of citizenship.

★ Principle Five

Connect Knowledge with Choices and Action

Prepare Students for Citizenship and Work through Engaged and Guided Learning on “Real-World” Problems

Both democracy and the economy depend on creative problem solving, bold experimentation, and the capacity to learn from the results of experimentation. As they move through their studies, students should have multiple opportunities to grapple with and prepare for these “real-world” demands. Assignments should compel them to define the task, explain its significance, test alternative
THE PRINCIPLES IN PRACTICE

Connect Knowledge with Choices and Action

Long a pioneer in education for women, Smith College has recently become a pioneer once again in integrating engineering education within a liberal arts education. Smith College’s Picker Engineering Program encourages students to set their engineering studies in a larger social and global context. It also teaches the social, ethical, and professional responsibilities essential to successful practice in the field. The program’s stated outcomes include the fundamentals of engineering disciplines, but also prioritize the ability to collaborate and communicate effectively with diverse audiences, lifelong learning, and the value a contemporary and historical perspective can give to science. A senior design project challenges students to address broad societal aspects of their work as well as technical skills. The Picker Program tells students that, "as critical thinkers and socially responsible decision makers, they will help engineer a sustainable future for our global community."

solutions, and take actions based on their own judgment. Some of these learning experiences can take the form of independent study; others should be carefully designed experiences in collaborative learning with diverse partners. Every student should prepare for both life and citizenship by working frequently on unscripted problems, and by building capacities to function as part of an effective team. Fostering this kind of informed practical judgment should be a priority for every academic field.

Students today have many opportunities for “learning in the field,” including service-learning courses, internships, cooperative education, and community-based research. Some majors routinely include apprenticeship assignments, such as student teaching. Many students do projects with diverse communities and/or in other parts of the world as part of their formal study. And 90 percent of college students work while they are in school.42

While all these experiences present rich opportunities for connecting knowledge with choices and action, too many are essentially “add-ons” in which students are left to their own devices for any insights gained. Students perform service on their own time; they find jobs and even internships independently of their academic studies. Study abroad, another form of experiential learning, is powerful for students, but any educational “debriefing” on what they learned by living in another culture frequently goes on quite apart from their home institutions and departments. Work—especially off-campus employment—is too often considered a distraction rather than a potentially rich venue for applying what one is learning in the academic program.

To build students’ preparation for both work and citizenship, higher education needs to give new emphasis to fostering practical judgment and problem solving “in the field.” Community-based learning should be integrated into the curriculum, and efforts to strengthen the quality of students’ learning from such experiences should become an integral part of a contemporary liberal education.

In fostering these kinds of practical judgment and problem solving, there is much to be learned from the professional fields and from the performing arts. As Lee Shulman and his colleagues at the Carnegie Foundation for the Advancement of Teaching have demonstrated, many of the signature practices of professional education are designed to help individuals develop their capacities for effective judgment in contexts where the right course of action is uncertain.43 They do this by making the learner’s thinking and assumptions public in the presence of knowledgeable mentors and peers and by subjecting these to intense discussion and challenge. Similarly, both in the professions and in the performing arts, the learner’s performance itself is public, and students work closely with mentors on ways to improve the quality of their work. Learning to give and receive feedback is already part of both professional and artistic development; it ought to become expected practice in all fields of study.

To apply knowledge productively in field-based settings, all
students should experience in-depth questioning from faculty, staff, and other mentors about their assumptions, analyses, conclusions, and actions. Learners also need both guidance and feedback, from mentors and peers, as they probe the facets of a complex issue and test their own insights against both theory and the experiences of others. And to prepare for the world's diversity, all students need frequent opportunities to engage in collaborative interaction with people whose assumptions and life experiences are different from their own.

**Recommendation 9**

The National Leadership Council recommends that every student engage in some form of field-based learning and that faculty and staff create opportunities (reflective forums) for students to learn collaboratively and systematically from their field-based experiences.

These opportunities can take many different forms to serve different educational fields and student learning goals. Models for good practice in experiential learning have already been developed in many professional and performing arts fields, in the service-learning community, and in some global studies programs. These models should be more widely studied and adopted. Each institution and program should review and strengthen its standards for supervising, supporting, and evaluating students' field-based learning.

**Recommendation 10**

The National Leadership Council recommends that partnerships between faculty and student life professionals be strengthened in order to integrate and document the learning students gain from involvement with a campus community.

Some of the most powerful learning in college occurs in activities undertaken as part of the cocurriculum, both on campus and through campus outreach to community partners. The essential learning outcomes can be fostered through intentional integration of students’ in-class and out-of-class activities. There should be far more systematic attention paid to fostering these opportunities for guided experiential learning and to documenting, through expanded forms of assessment, the gains students make on the essential learning outcomes through these cocurricular experiences.

**Principle Six**

**Foster Civic, Intercultural, and Ethical Learning**

**Emphasize Personal and Social Responsibility, in Every Field of Study**

Since the founding of the United States, Americans have recognized the close connections between education and the sustainability of our democratic experiment. Traditionally, however, the role of producing an educated citizenry was assigned to the public schools, which enrolled almost everyone, rather than to higher education, which until recently served only a small fraction of the population.
THE PRINCIPLES IN PRACTICE

Foster Civic, Intercultural, and Ethical Learning

Bowling Green State University places strong emphasis on educating graduates who demonstrate ethical integrity, reflective thinking, and social responsibility. To introduce these goals, the university has developed the BGeXperience (BGeX), a program designed to ease the transition from high school to college while, at the same time, engaging first-year students with the core values that inform the university’s vision statement. BGeX begins with a three-day orientation and continues into the first semester with a “values” course—a class that provides conventional instruction in a discipline and also encourages students to reflect upon values questions in that field. An introductory course in geology, for example, covers the essential content of a geology survey but also considers how values shape debates about global warming and the theory of evolution. By asking students to think critically about values questions without prescribing specific set of conclusions, BGeX aspires to educate more ethically aware and thoughtful citizens. Those who are interested can also pursue service learning, take upper-division courses that explore values in the disciplines, and even become BGeX peer facilitators later in their undergraduate careers.

Reflecting this inherited division of labor, higher education is poised ambivalently between the past and the future concerning its appropriate role in fostering democratic values and responsibilities. Mission statements proclaim education for citizenship as central. They testify to the role of the academy in fostering personal and social responsibility, at home and abroad; in preparing graduates to contribute to the community; and more recently, in building communities that acknowledge and value difference. But the faculty members who actually teach students rarely are asked to think deeply about their own responsibilities for educating engaged and ethical citizens. In practice, many assume that teaching students to think critically is the academy’s main contribution to the public good.

During the last two decades, higher education has embarked on new efforts to foster civic engagement. A “service-learning movement” has gained strong traction on all kinds of campuses—large and small, two-year and four-year. Simultaneously, many faculty members have worked to make diversity studies and intercultural learning a new basic for student learning in college. Both service learning and experiences with diversity are powerful catalysts for deeper engagement and insight. They teach students to engage, respect, and learn from people with worldviews that are very different from their own. They involve students with many of society’s most urgent unsolved problems. They challenge individuals to consider, at a deep level, the responsibilities of a democratic society to its citizens, and their own responsibilities as human beings and citizens. And these forms of learning have significant effects on students’ ethical awareness, challenging learners to confront alternative beliefs and values, and to think more deeply about their own. Research studies show that service and diversity experiences have positive effects both on students’ civic commitments and on their overall cognitive development.

As with so many other “high-impact” educational innovations, these efforts to prepare students for active citizenship in diverse communities still hover on the margins of the mainstream academy. Some students participate and benefit; large numbers do not. Less than half of college seniors report that their college experience significantly influenced their capacity to contribute to their communities; only half report significant gains in learning about people from different backgrounds. Moreover, there is evidence that study in many majors actually depresses students’ interest in active citizenship. This is a warning note indeed for a democracy that depends on civic responsibility and commitment.

The higher education community needs to match its commitment to educating responsible and ethical citizens with learning practices, in both the curriculum and cocurriculum, that help all college students engage their responsibilities to self and others. Further, vigorous efforts are needed to build new understanding that civic development—in all the forms described here—is an essential rather than an elective outcome of college.
Recommendation 11
The National Leadership Council recommends that students be provided with recurring opportunities to explore issues of civic, intercultural, and ethical responsibility in the context of their broad studies of science, cultures, and society and, further, that these topics be connected to democracy and global interdependence.

Questions about the relationship between individuals and societies, about major developments in human histories, and about cross-cultural encounters are classic themes for the shared curriculum, whether in a first-year experience, or a general education sequence, or in advanced capstone courses that provide a larger context for students' specialized studies. First-year and general education courses should intentionally help students grapple with the kinds of "big questions" they will inevitably face both as human beings and as citizens—about science and society, cultures and values, global interdependence, the changing economy, and human dignity and freedom. The general education curriculum is also a place where students can explore the values, institutions, and aspirations that are basic to democracy, examining these complex questions through multiple and cross-disciplinary lenses: philosophical, empirical, historical, cross-cultural.

The foundations for such studies need to be laid in the schools, through a course of study that builds rich understandings both of world histories and of American history, and of the relationships between them (see recommendation 7). Building on these precolligate experiences, college courses can help students explore the difficult issues of our world, the ones where both the nature of the problem and the range of solutions are actively contested. Equally important, college forums can model and teach the kinds of respectful deliberation—across difficult differences—that are crucially important to a sustainable democracy.

Recommendation 12
The National Leadership Council recommends that students be provided with guided opportunities to explore civic, ethical, and intercultural issues in the context of their chosen fields.

Every field of study, no matter how "technical," is a community of practice. For this reason, no field is "value-free." Every community of practice is framed by communal values and ethical responsibilities; these expectations need to be made explicit and fully explored among students and faculty. Similarly, every field is rife with contested questions whose resolution may have far-reaching human consequences. In every community of practice, there are some people with power and others who lack and/or seek power. Often, questions of power are further complicated by legacies of racial, ethnic, gender, and other disparities. When students choose a field of study, they need and deserve the opportunity to explore openly all of the issues basic to their community with their fellow students and with guidance from mentors. They should have many occasions to clarify and apply their own sense of ethical, professional, and civic responsibilities as they move forward in their chosen course of study.
THE PRINCIPLES IN PRACTICE

Assess Students’ Ability to Apply Learning to Complex Problems

Pace University, a large multi-campus metropolitan university in New York, has made a comprehensive commitment to assessment as a way of strengthening both teaching and learning. Pace works to provide evidence of students’ actual learning over time as a counter to rankings that look mainly at reputation and resources. One strand in its approach is a strong emphasis on senior capstone courses and projects designed to integrate and evaluate students’ learning in the major. Over 70 percent of the senior class completes capstones, and Pace wants to make this requirement universal. Balancing locally designed assessments with national measures, Pace also uses the Collegiate Learning Assessment, which assesses students’ critical thinking, analytic reasoning, and written communication abilities using performance tasks and writing rather than multiple-choice questions.

★ Principle Seven

Assess Students’ Ability to Apply Learning to Complex Problems

Use Assessment to Deepen Learning and to Establish a Culture of Shared Purpose and Continuous Improvement

As affirmed throughout this report, the essential learning outcomes provide a shared framework for both intentionality and accountability, across the entire educational system, within the various sectors of higher education, and in students’ own educational planning. Recommendation 4 calls on educators to create diagnostic, interim, and capstone assessments in order to give individual students feedback on their progress in achieving the expected outcomes in the context of their chosen course of study.

Especially in light of the high-stakes-testing movement in the schools, many will want to act immediately to identify standardized tests that can be used to establish how well students are doing on the recommended learning outcomes. The 2006 report from the federal Commission on the Future of Higher Education took this tack, recommending that every campus measure students’ learning with standardized tests, and that the states aggregate and compare the results of various standardized measures.

For two reasons, a rush to adopt standardized testing for higher education would prove to be a “low-yield” strategy. First, the essential learning outcomes can be described in common, easily accessible language (see p. 12), but they are—in practice—complex capacities that are fostered and expressed quite differently in different fields. For example, both a teacher and a chemist will need skills in inquiry, information literacy, and writing, but their competence in applying these skills will be manifested in different ways. Thus, general tests of the recommended learning outcomes will not provide evidence about students’ field-related achievement and competence. Field-specific tests, while available in many disciplines, do not generally assess students’ mastery of higher-level intellectual, problem-solving, collaborative, and integrative abilities. The broad area of assessing civic, intercultural, and ethical capacities languishes even farther behind in terms of test development. Yet we cannot afford to neglect these essential outcomes just because there are no standardized measures to assess them.

Second, standardized tests that stand outside the regular curriculum are, at best, a weak prompt to needed improvement in teaching, learning, and curriculum. Tests can, perhaps, signal a problem, but the test scores themselves do not necessarily point to where or why the problem exists or offer particulars as to solutions. In practice, it takes a combination of valid, reliable instruments and local, grassroots assessments, across a broad array of curricular, pedagogical, and campus activities, to determine the precursors and particulars of academic shortfalls and to determine whether intended interventions are achieving real results.

The right standard for both assessment and accountability at the
college level is students’ demonstrated ability to apply their learning to complex, unsupervised problems in the context of their advanced studies. Far-reaching change is needed to ensure that students work consistently over time on the kinds of higher-order learning—analytical and applied—that prepare them to meet this standard. The best possible way to foster that needed change is to design “milestone” and culminating assessments within the expected curriculum that help students and faculty focus together on the intended level of accomplishment and on what students need to do to improve. These milestone assessments can be designed in ways that check students’ intellectual and practical skills as well as their knowledge in a given area. And they can also include dimensions that address social and ethical attentiveness.

Curriculum-embedded assessment, when carefully done, is itself a potential “high-yield” educational reform because, by design, it focuses both faculty and student attention on students’ cumulative progress and actual level of attainment. Many campuses already are experimenting with locally designed assignments that show whether students are developing the expected knowledge and skills, and especially, whether they can apply their knowledge to complex problems. This grassroots approach is the most promising way to focus student effort, to engage faculty with evidence about students’ cumulative progress, and to inform institutional decisions about needed change.

Standardized tests, administered periodically, can supplement such grassroots approaches. They can, for example, provide useful warning signals when a campus is setting its sights too low. But standardized assessments—especially those that stand outside the curriculum and that rely on a sample of students only—are much too distant from student and faculty attention to serve by themselves as a forceful catalyst for significant educational change.

Recommendation 13

The National Leadership Council recommends that assessments be linked to the essential learning outcomes identified in this report, that assessments be embedded at milestone points in the curriculum—including within students’ major fields—and that assessments be made part of the overall graduation requirement.

Students should know from the time they enter college that they will be expected to complete milestone and culminating projects—“authentic performances”—to demonstrate both their progress in relation to the essential outcomes and their ability to use the learning outcomes in the context of their chosen fields. These assessments may consist of portfolios showing a range of student work, or they may center on required student experiences—such as a senior project or supervised student teaching—that are integral to their chosen area of focus. They may include comprehensive examinations in the students’ chosen major.

However the assessments are constructed—and this will vary, appropriately, across different fields—the framework for accountabil-
THE PRINCIPLES IN PRACTICE

Assess Students’ Ability to Apply Learning to Complex Problems

Carleton College uses writing portfolios to ensure that undergraduates can write competently in a range of styles and contexts. By encouraging students to reflect on—and revise—their writing, the portfolios themselves constitute an important educational experience. To meet the portfolio requirement, students at the end of their sophomore year must submit three to five papers demonstrating their ability to write effectively in different rhetorical and disciplinary contexts; each portfolio must represent at least two of the college’s four curricular divisions (Arts and Literature, Humanities, Social Sciences, and Mathematics/Natural Sciences) and must include at least one paper from the “writing requirement” course. Instructors then certify that the papers were written for their classes and indicate if they have since been revised. Finally, students write reflective essays about their writing to introduce the portfolios. Together, the papers must demonstrate mastery of each of several key writing skills—the ability to report on observation, to analyze complex information, to provide interpretation, to use and document sources, and to articulate and support a thesis-driven argument. The writing portfolios have led Carleton faculty to talk about using the portfolios to assess other liberal education outcomes such as quantitative literacy and critical thinking.

Universality should be students’ demonstrated ability to apply their learning to complex problems. Standards for students’ expected level of achievement also will vary by field, but they should all include specific attention to the quality of the students’ knowledge, their mastery of key skills, their attentiveness to issues of ethical and social responsibility, and their facility in integrating different parts of their learning.

The National Survey of Student Engagement reports that 60 percent of graduating seniors do some kind of culminating work in college. These culminating activities—whether courses or projects—are already are embedded in the expected curriculum; they are already part of the teaching and learning budget. These activities can be structured to show how well students can integrate their knowledge and apply it to complex problems, and students’ level of performance on them can be aggregated and made public.

Making students’ actual performance the framework for accountability would require, of course, new attention to the 40 percent of college students who do not do culminating work and who earn their degrees by passing the requisite number of courses. But if the intention is to raise the level of students’ preparation for twenty-first-century challenges, there is no better place to begin.

Recommendation 14

The National Leadership Council recommends that each campus analyze its assessment findings to ensure that all groups of students are progressing successfully toward the expected learning goals.

This report calls for a new approach to fostering and promoting student success. But in moving toward this needed shift, it is important to attend to lessons already learned with existing metrics of student achievement. Almost everywhere, “college success” is currently documented through reports on enrollment, persistence, degree completion, and sometimes, grades. Probed in more detail, these metrics for success make it indisputably clear that college attainment is stratified by income level, and that there are also significant disparities in attainment between white students and specific groups of racial and ethnic minorities: African Americans, Latinos, and American Indians/Alaskan Natives. Asian American students run the gamut, with some subgroups forging ahead on the traditional measures of success, and others clearly lagging.

As they devise more educationally productive ways of defining and assessing student achievement, educators also need to study closely how different groups of students are progressing within these new standards for success. This will require two levels of analysis. First, each campus can study whether different groups of students are participating equitably in programs and practices—such as first-year experiences, writing-intensive courses, learning communities, and capstone experiences—that have been designed to enrich and strengthen students’ academic achievement. On many campuses, such programs disproportionately serve students from more advantaged backgrounds.
By studying the data, campuses can move toward more equitable participation in what they determine to be their most effective educational practices.

Second, as assessments focus more centrally on students’ milestone and culminating performances, faculty and staff should also ask whether all groups of students are reaching the expected level of attainment on the essential learning outcomes. By disaggregating emerging data, colleges and universities can hone in on the patterns and likely causes of achievement problems and do a much better job of identifying needed changes in curriculum, teaching quality, academic support, and the larger educational environment.

**Recommendation 15**

The National Leadership Council recommends that broad-based leadership be developed in order to create campus cultures marked by an unwavering focus on the quality of student learning, by an ethic of continuous improvement, and by structures and rewards that support faculty and staff leadership on these issues.

Faculty and staff on hundreds of campuses are already implementing elements of the Principles of Excellence outlined above. But too often their work touches limited numbers of students or is concentrated in a few areas of the curriculum. Those experimenting with innovative, engaging pedagogical practices are often isolated from one another, unaware that there are kindred spirits just around the corner. Existing reward systems—geared almost exclusively to faculty scholarship and the quality of *individual* teaching—are incompatible with the scope of *collaborative* change and organizational learning that will be needed to raise the quality of all students’ educational achievement.

A contemporary framework for educational excellence and its assessment requires new leadership structures and incentives to advance the intended changes. In particular, new organizational practices are needed to both support and reward faculty and staff efforts to foster students’ cumulative progress across different parts and levels of the college experience.

Drawing from work by Pat Hutchings and Mary Huber of the Carnegie Foundation for the Advancement of Teaching, we propose that each campus create its own version of a “Teaching and Learning Commons” where faculty, administrators, and student life professionals can come together—across disciplinary lines—to create a culture of shared purposes, to audit the extent to which the educational environment is successfully advancing the expected learning for all groups of students, and to benefit from existing and new efforts to foster student engagement and high achievement.

To foster shared purposes, each campus needs to develop its own vision of the expected learning outcomes (see recommendation 1). By making good use of assessment evidence from many sources, by building widely shared knowledge about successful educational innovations within the community, and by creating a culture of continuous attention to these matters, the Teaching and Learning
Commons can probe the relations between what is intended and what is actually happening. The commons also can serve as a continuing catalyst for effective practices and far-reaching change. In addition, participation in this commons can become an important way of helping new faculty and staff translate the broad aims described in the essential learning outcomes to their particular disciplines and roles. The commons, in short, can play a far-reaching role, creating a culture that consistently “aims high” and that steadfastly focuses—across divisional lines—on campus progress toward making excellence inclusive.