More for Less?
The Quality Imperative in the "Brave New World" of Higher Education

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October 2013

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The Essential Learning Outcomes

Beginning in school, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by gaining:

Knowledge of Human Cultures and the Physical and Natural World

- Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts

Focused *by engagement with big questions, both contemporary and enduring*

Intellectual and Practical Skills, including

- Inquiry and analysis
- Critical and creative thinking
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving

Practiced extensively*, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance*

Personal and Social Responsibility, including

- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundations and skills for lifelong learning

Anchored *through active involvement with diverse communities and real-world challenges*

Integrative and Applied Learning, including

- Synthesis and advanced accomplishment across general and specialized studies

Demonstrated *through the application of knowledge, skills, and responsibilities to new settings and complex problems*

Note: This listing was developed through a multiyear dialogue with hundreds of colleges and universities about needed goals for student learning; analysis of a long series of recommendations and reports from the business community; and analysis of the accreditation requirements for engineering, business, nursing, and teacher education. The findings are documented in previous publications of the Association of American Colleges and Universities: *College Learning for the New Global Century* (2007) and *The LEAP Vision for Learning* (2011). For more information, see www.aacu.org/leap.

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Selected Data on Student Achievement of Essential College Learning Outcomes

Knowledge of Human Cultures and the Physical and Natural World

- **79 percent** of students in a study done by the Wabash Center of Inquiry in the Liberal Arts recorded **no growth or decline on measures of scientific knowledge** while in college.
- Only **28 percent** of college students surveyed by the Higher Education Research Institute (UCLA) reported in 2010 that their "**understanding of global issues**" was much stronger than when they began college.
- The average score on a **civic literacy** exam administered in 2007 to 14,000 college seniors was **50 percent** (an **F grade**).
- ETS data suggests that only **10 percent** of college seniors test **proficient in mathematics**.

Intellectual and Practical Skills

- ETS data suggest that only **8 percent** of college seniors test **proficient in critical thinking.**
- ETS data suggest only **9 percent** of college seniors test **proficient in written communication.**

Personal and Social Responsibility

- In a multi-institutional study using the Personal and Social Responsibility Inventory (PSRI), only **33 percent** of students report that their campus experience "helped expand their awareness of the importance of being involved in the community and **contributing to the greater good."**
- PSRI data show that about **53 percent** of college students report that they developed in college "an increased ability to **learn from diverse perspectives**."
- PSRI data show that **47 percent** of college students report that they "expanded their capacity for **ethical and moral reasoning** while in college."

Integrative and Applied Learning

- According to data collected in 2012 by the National Survey of Student Engagement (NSSE), only **20 percent** of college seniors report having worked with a faculty member on a **research project**.
- NSSE data show that **49 percent** of seniors report doing **internships**.
- NSSE data show that **33 percent** report participating in a **senior culminating experience** (capstone project).

For summary of data on student achievement, see Making Progress? What We Know About the Achievement of Liberal Education Outcomes *by Ashley Finley* (AAC&U, 2012); *for additional data on students' civic knowledge, see* A Crucible Moment: College Learning & Democracy's Future (AAC&U, 2012).

Key Findings from 2013 Survey of Employers

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• **Innovation a Priority:** 95% of employers say they give hiring preference to college graduates with skills that enable them to contribute to innovation in the workplace.

• **It Takes More than a Major:** 93% of employers say that a demonstrated capacity to think critically, communicate clearly, and solve complex problems is more important than a candidate's undergraduate major. More than 75% want higher education to place more emphasis on critical thinking, complex problem solving, written and oral communication, and applied knowledge.

• **Broad Learning is Expected:** 80% of employers agree that, regardless of their major, all college students should acquire broad knowledge in the liberal arts and sciences.

• **Students Need Liberal and Applied Learning:** Employers strongly endorse educational practices that involve students in active, effortful work—practices including collaborative problem solving, research, internships, senior projects, and community engagements.

• **E-Portfolios Would Add Value:** 83% of employers say an electronic portfolio would be useful to indicate that job applicants have the knowledge and skills they need to succeed.

Employer Priorities and Consensus on College Learning Outcomes

Knowledge of Human Cultures and the Physical and Natural World

• Broad knowledge in the liberal arts and sciences	80% ■
• Global issues and knowledge about societies and cultures outside the US	78% ■
• Knowledge about science and technology	56% ❖

Intellectual and Practical Skills

• Critical thinking and analytic reasoning	82% ❖
• Complex problem solving	81% ❖
• Written and oral communication	80% ❖
• Information literacy	72% ❖
• Innovation and creativity	71% ❖
• Teamwork skills in diverse groups	67% ❖
• Quantitative reasoning	55% ❖

Personal and Social Responsibility

• Problem solving in diverse settings	91% ■
• Ethical issues/public debates important in their field	87% ■
• Civic knowledge, skills, and judgment essential for contributing to the community and to our democratic society	82% ■
• Ethical decision making	64% ❖

Integrative and Applied Learning

• Direct experiences with community problem solving	86% ■
• Applied knowledge in real-world settings	78% ❖

NOTES:
■ indicates percentage of employers who "strongly agree" or "somewhat agree" that, "regardless of a student's chosen field of study," every student should attain this area of knowledge or skill.
❖ indicates percentage of employers who say they want colleges/universities to "place more emphasis" on this area of knowledge/skill.

Source: Hart Research Associates. *It Takes More Than a Major: Employer Priorities for College Learning and Student Success* (Washington, DC: AAC&U, 2013), www.aacu.org/leap/public_opinion_research.cfm

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High-Impact Educational Practices

First-Year Seminars and Experiences

Many schools now build into the curriculum first-year seminars or other programs that bring small groups of students together with faculty or staff on a regular basis. The highest-quality first-year experiences place a strong emphasis on critical inquiry, frequent writing, information literacy, collaborative learning, and other skills that develop students' intellectual and practical competencies. First-year seminars can also involve students with cutting-edge questions in scholarship and with faculty members' own research.

Common Intellectual Experiences

The older idea of a "core" curriculum has evolved into a variety of modern forms, such as a set of required common courses or a vertically organized general education program that includes advanced integrative studies and/or required participation in a learning community (see below). These programs often combine broad themes—e.g., technology and society, global interdependence—with a variety of curricular and cocurricular options for students.

Learning Communities

The key goals for learning communities are to encourage integration of learning across courses and to involve students with "big questions" that matter beyond the classroom. Students take two or more linked courses as a group and work closely with one another and with their professors. Many learning communities explore a common topic and/or common readings through the lenses of different disciplines. Some deliberately link "liberal arts" and "professional courses"; others feature service learning.

Writing-Intensive Courses

These courses emphasize writing at all levels of instruction and across the curriculum, including final-year projects. Students are encouraged to produce and revise various forms of writing for different audiences in different disciplines. The effectiveness of this repeated practice "across the curriculum" has led to parallel efforts in such areas as quantitative reasoning, oral communication, information literacy, and, on some campuses, ethical inquiry.

Collaborative Assignments and Projects

Collaborative learning combines two key goals: learning to work and solve problems in the company of others, and sharpening one's own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences. Approaches range from study groups within a course, to team-based assignments and writing, to cooperative projects and research.

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Undergraduate Research

Many colleges and universities are now providing research experiences for students in all disciplines. Undergraduate research, however, has been most prominently used in science disciplines. With strong support from the National Science Foundation and the research community, scientists are reshaping their courses to connect key concepts and questions with students' early and active involvement in systematic investigation and research. The goal is to involve students with actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions.

Diversity/Global Learning

Many colleges and universities now emphasize courses and programs that help students explore cultures, life experiences, and worldviews different from their own. These studies—which may address U.S. diversity, world cultures, or both—often explore "difficult differences" such as racial, ethnic, and gender inequality, or continuing struggles around the globe for human rights, freedom, and power. Frequently, intercultural studies are augmented by experiential learning in the community and/or by study abroad.

Service Learning, Community-Based Learning

In these programs, field-based "experiential learning" with community partners is an instructional strategy—and often a required part of the course. The idea is to give students direct experience with issues they are studying in the curriculum and with ongoing efforts to analyze and solve problems in the community. A key element in these programs is the opportunity students have to both *apply* what they are learning in real-world settings and *reflect* in a classroom setting on their service experiences. These programs model the idea that giving something back to the community is an important college outcome, and that working with community partners is good preparation for citizenship, work, and life.

Internships

Internships are another increasingly common form of experiential learning. The idea is to provide students with direct experience in a work setting—usually related to their career interests—and to give them the benefit of supervision and coaching from professionals in the field. If the internship is taken for course credit, students complete a project or paper that is approved by a faculty member.

Capstone Courses and Projects

Whether they're called "senior capstones" or some other name, these culminating experiences require students nearing the end of their college years to create a project of some sort that integrates and applies what they've learned. The project might be a research paper, a performance, a portfolio of "best work," or an exhibit of artwork. Capstones are offered both in departmental programs and, increasingly, in general education as well.

Table 1

Relationships between Selected High-Impact Activities, Deep Learning, and Self-Reported Gains

	Deep Learning	Gains: General	Gains: Personal	Gains: Practical
First-Year				
Learning Communities	+++	++	++	++
Service Learning	+++	++	+++	+++
Senior				
Study Abroad	++	+	+	++
Student–Faculty Research	+++	++	++	++
Internships	++	++	++	++
Service Learning	+++	++	+++	+++
Senior Culminating Experience	+++	++	++	++

+ $p<0.001$, ++ $p<0.001$ & Unstd B > 0.10, +++ $p<0.001$ & Unstd B > 0.30

Table 2

Relationships between Selected High-Impact Activities and Clusters of Effective Educational Practices

	Level of Academic Challenge	Active and Collaborative Learning	Student–Faculty Interaction	Supportive Campus Environment
First-Year				
Learning Communities	+++	+++	+++	++
Service Learning	+++	+++	+++	+++
Senior				
Study Abroad	++	++	++	++
Student–Faculty Research	+++	+++	+++	++
Internships	++	+++	+++	++
Service Learning	+++	+++	+++	+++
Senior Culminating Experience	++	+++	+++	++

+ $p<0.001$, ++ $p<0.001$ & Unstd B > 0.10, +++ $p<0.001$ & Unstd B > 0.30

Source: *Ensuring Quality & Taking High-Impact Practices to Scale* by George D. Kuh and Ken O'Donnell, with Case Studies by Sally Reed. (Washington, DC: AAC&U, 2013). For information and more resources and research from LEAP, see www.aacu.org/leap.

Employer Support for Inquiry and Engaged Learning Practices

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- **91%** of employers say that, whatever their major, all students should have experiences in solving problems with people whose views are different than their own.
- **83%** of employers say an electronic portfolio demonstrating a student's work and key skill and knowledge areas would be useful in evaluating potential candidates for hire.

Employer Endorsement of Select Practices

Among ten existing and emerging educational practices tested, employers believe several have the potential to improve the education of today's college students and prepare graduates to succeed in the workplace. These include:

	Will Help a Lot/ Fair Amount
Research Expecting students to develop the skills to research questions in their field and develop evidence-based analyses	**83%**
Senior Projects Expecting students to complete a significant project before graduation that demonstrates their depth of knowledge in their major AND their acquisition of analytical, problem-solving, and communication skills	**79%**
Internships Expecting students to complete an internship or community-based field project to connect classroom learning with real-world experiences	**78%**
Collaborative Research Expecting students to develop the skills to conduct research collaboratively with their peers	**74%**
Scientific Inquiry Expecting students to acquire hands-on or direct experience with the methods of science so they will understand how scientific knowledge is developed	**69%**
Ethical Questions Expecting students to work through ethical issues and debates to form their own judgments about the issues at stake	**66%**
Flipped Classroom Using new approaches that deemphasize lectures in the classroom and instead have students listen to lectures online and devote classroom time to dialogue, debate, and problem solving, in groups or alone, and with guidance from the instructor	**59%**

Source: Hart Research Associates. *It Takes More Than a Major: Employer Priorities for College Learning and Student Success* (Washington, DC: AAC&U, 2013), www.aacu.org/leap/public_opinion_research.cfm

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