DESIGNING ASSESSMENTS THAT DEEPEN LEARNING

PART ONE:

CREATING A FRAMEWORK OF ESSENTIAL OUTCOMES & ENGAGED LEARNING PRACTICES

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Carol Geary Schneider, "Liberal Education Takes a New Turn," *The NEA 2008 Almanac of Higher Education* (Washington D.C.: National Education Association, 2008), 29-40.

A Guide to Frequently Confused Terms

LIBERAL EDUCATION: A philosophy of education that empowers individuals, liberates the mind, cultivates intellectual judgement, and fosters ethical and social responsibility.

LIBERAL ARTS: Specific disciplines (humanities, arts, social sciences, and sciences)

LIBERAL ARTS COLLEGES: An institutional type–usually small and residential–with close interaction between faculty and students; strong focus on liberal arts disciplines.

ARTES LIBERALES: Historically, the medieval basis for the modern liberal arts; the *trivium* (grammar, logic, and rhetoric) and the *quadrivium* (arithmetic, geometry, astronomy, and music).

GENERAL EDUCATION: The part of a liberal education curriculum shared by all students. Provides broad study in the liberal arts and forms the basis for developing important intellectual and civic capacities. May also be called "the core curriculum" or "liberal studies."

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The Essential Learning Outcomes

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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 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: *Greater Expectations: A New Vision for Learning as a Nation Goes to College* (2002), *Taking Responsibility for Quality of the Baccalaureate Degree* (2004), and *Liberal Education Outcomes: A Preliminary Report on Achievement in College* (2005).

LEAP

Liberal Education and America's Promise (LEAP) was launched in 2005 as a Centennial Initiative of the Association of American Colleges and Universities (AAC&U). The outcomes and principles come from the key LEAP report: *College Learning for the New Global Century*, (AAC&U, 2007). For more on LEAP: www.aacu.org/leap

Percentage of Employers Who Want Colleges to "Place More Emphasis" on Essential Learning Outcomes

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Knowledge of Human Cultures and the Physical and Natural World

• Science and technology	82%
• Global issues	72%*
• The role of the United States in the world	60%
• Cultural values and traditions (U.S./global)	53%*

Intellectual and Practical Skills

• Teamwork skills in diverse groups	76%*
• Critical thinking and analytic reasoning	73%
• Written and oral communication	73%
• Information literacy	70%
• Creativity and innovation	70%
• Complex problem solving	64%
• Quantitative reasoning	60%

Personal and Social Responsibility

• Intercultural competence (teamwork in diverse groups)	76%*
• Intercultural knowledge (global issues)	72%*
• Ethics and values	56%
• Cultural values/traditions—U.S./global	53%*

Integrative Learning

• Applied knowledge in real-world settings	73%

Note: These findings are taken from a survey of employers commissioned by the Association of American Colleges and Universities and conducted by Peter D. Hart Associates in November and December 2006. For a full report on the survey and its complete findings, see www.aacu.org/leap.

*Three starred items are shown in two learning outcome categories because they apply to both.

The Principles of Excellence

Preparing Students for Complexity and Change

Aim High—and Make Excellence Inclusive

Make the Essential Learning Outcomes (Table 1) a Frame for the Entire Educational Experience, Connecting School, College, Work, and Life

Give Students a Compass

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

Teach the Arts of Inquiry and Innovation

Immerse All Students in Analysis, Discovery, Problem-Solving, and Communication, Beginning in School and Advancing in College

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

Connect Knowledge with Choices and Action

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

Foster Civic, Intercultural and Ethical Learning

Emphasize Personal and Social Responsibility, in Every Field of Study

Assess Students' Demonstrated Ability to Apply Learning to Complex Problems

Use Assessment to Deepen Learning and to Engage Faculty, Teachers, Staff and Students in a Culture of Shared Purpose and Continuous Improvement

Source: *College Learning for the New Global Century* (Association of American Colleges and Universities, 2007)

Table 2. Engaged Learning Reforms

These widely tested teaching and learning innovations show substantial benefits, especially for college students from historically underserved backgrounds. But these practices remain optional rather than expected on most campuses.

First-Year Seminars and Experiences
Many schools now build first-year seminars or programs into the curriculum. These experiences regularly bring small groups of students together with faculty or staff. First-year experiences typically emphasize skills such as critical inquiry, frequent writing, information literacy, and collaborative learning that develop intellectual and practical competencies. First-year seminars can involve students with cutting-edge questions in scholarship and with the research of faculty members.

Common Intellectual Experiences
The older idea of a "core" curriculum has evolved into modern forms—a small set of required common courses, for example, 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—technology and society, or global interdependence, for example—with an array of curricular and co-curricular options.

Learning Communities
Learning communities aim to encourage integration of learning across courses and to involve students with "big questions" that matter beyond the classroom. Students work closely with one another and with their professors in two or more linked courses. Many learning communities explore a common topic and/or common readings through the lenses of different disciplines. Some learning communities deliberately link "liberal arts" and "professional courses;" others feature service learning (see below).

Writing-Intensive Courses
These courses emphasize writing at all levels of instruction and across the curriculum, including final-year projects. Students are encouraged to write for different audiences in different disciplines. The effectiveness of this repeated practice has led to parallel efforts in 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 students with different backgrounds and life experiences. Approaches range from forming study groups within a course, to team-based assignments and writing, to cooperative projects and research.

"Science as Science Is Done"/Undergraduate Research
Scientists are reshaping their courses to connect key concepts and questions with early and active student involvement in systematic investigation and research. The goal, strongly supported by the National Science Foundation and the research community, is to involve students with contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from addressing important topics. These reforms are part of a broader movement to provide research experiences for students in all disciplines.

Diversity/Global Learning
Many colleges and universities 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 examine "difficult differences" such as racial, ethnic, and gender inequality, or continuing struggles around the globe for human rights, freedom, and power. Experiential learning in the community and/or study abroad frequently augment intercultural studies.

Service Learning, Community-Based Learning
These programs use field-based "experiential learning" with community partners as an instructional strategy, and often as a required part of the course. The goal: give students direct experience with issues they study in the formal curriculum and with efforts to analyze and solve problems in the community. The programs teach 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, another common form of experiential learning, provide students with direct workplace experience—usually related to their career interests—and with supervision and coaching from professionals in the field. Students complete a project or paper that is approved by a faculty member if the internship is taken for "course credit."

Capstone Courses and Projects
These culminating experiences, sometimes called "senior capstones," require students to create a project—a research paper, a performance, a portfolio of "best work," or an artwork exhibit—that integrates and applies what they've learned. Capstones are offered in departmental programs and, increasingly, in general education as well.

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Fostering and Assessing Liberal Education Outcomes Across the Curriculum

Within the college or university context, a comprehensive accountability and assessment framework should include the following elements:

1. **Orientation should be provided for the student during the first year about the institution's expectations for important learning outcomes**, and a diagnostic assessment of each student's demonstrated accomplishment and expected further progress in relation to these outcomes should be made.

2. **A plan of study**, constructed with the student's advisor, should transparently connect the expected outcomes to the student's choice of courses and major field(s).

3. **Milestone assessments** as students progress in their studies in both general education and the major that are tied to key outcomes with timely feedback to the student and his or her advisor. These assessments should be aligned between two-year and four-year campuses so that successful transfers are possible, and they can be compiled in a portfolio that demonstrates each student's progress.

4. **Capstone or culminating experiences in the major field(s)** are experiences in which the student actively demonstrates and is assessed for his or her cumulative accomplishments in liberal education. The capstone or culminating experiences are a critical element of this framework because they provide a **designated place in the regular curriculum where students do their best work**. The capstone should be conceived as both a culminating integrative experience and as the centerpiece of the effort to assess sophisticated learning.

Source: *Our Students' Best Work: A Framework for Accountability Worthy of* Our *Mission* (Association of American Colleges & Universities, 2004)

Employers' Views on Assessment
Key Findings from Recent Public Opinion Research

Employers Find College Transcripts of Limited Use in Evaluating Graduates' Potential

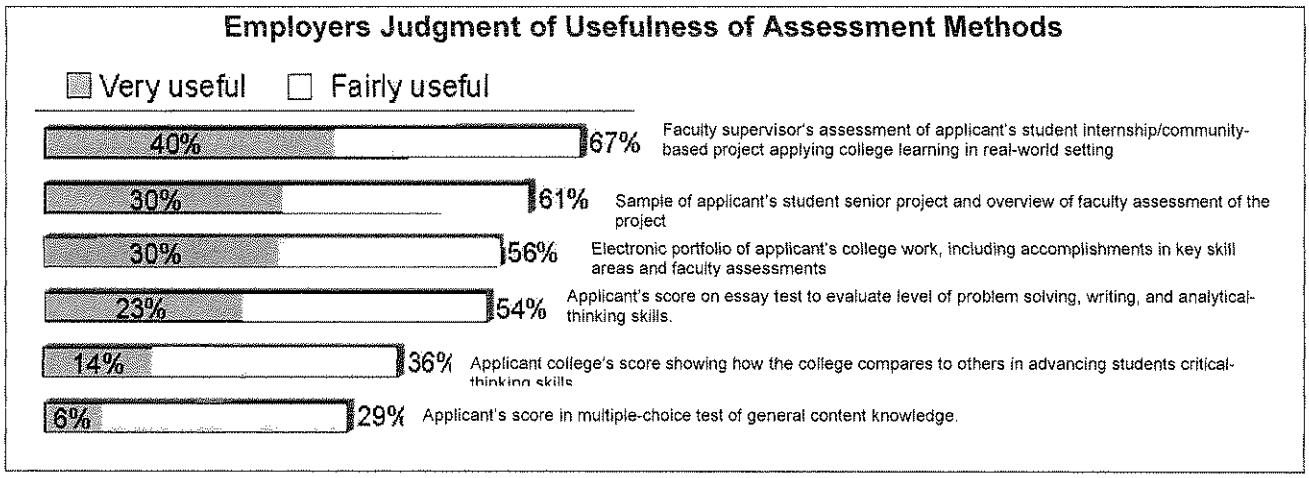
Fewer than three in 10 employers find college transcripts very (13%) or fairly (16%) useful, while fully 67 percent find transcripts just somewhat or not useful in helping them evaluate job applicants' potential to succeed at their companies.

▸ Employers Seek Assessments That Demonstrate Graduates' Ability to Apply Learning to Real-World Challenges

More than two-thirds of employers believe that a faculty supervisor's assessment of a students' internship or community-based project would be very or fairly useful to them in evaluating college graduates' potential for success. More than half of employers also would find useful assessments of senior projects, e-portfolios, and individual scores on essay tests of problem-solving, writing, and analytical-thinking.

▸ Employers Deem Multiple Choice Tests and Institutional Comparisons of Limited Value

Only 6 percent of employers believe that an applicant's score on a multiple choice test of general content knowledge would be very useful in evaluating their potential for success. This compares to 50 percent who would recommend that institutions invest resources in assessments of internships and community-based projects.



▸ Employers Advise Colleges to Devote Resources to Qualitative Assessments That Demonstrate Students' Abilities to Apply and Integrate Their Learning

When asked to select two assessment practices to which colleges should devote resources, half of those surveyed chose faculty-evaluated internships or community-based learning experiences. In addition, about one-third chose either essay tests that measure students' problem-solving, writing, and analytical-thinking skills; electronic portfolios including assessments of students' work; or faculty evaluated comprehensive senior projects as worth of campus investment.

Source: *How Should Colleges Assess and Improve Student Learning? Employers' Views on the Accountability Challenge*, 2008. Report on national survey of 301 business executives commissioned by AAC&U and conducted by Peter D. Hart Research in November and December, 2007; www.aacu.org/advocacy/leap/public_opinion_research.

DESIGNING ASSESSMENTS THAT DEEPEN LEARNING

PART TWO:

SOME METHODS AND CRITERIA FOR ASSESSING INTEGRATED LEARNING

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Note: Material presented in this keynote will be integrated into Maki's 2nd Edition of *Assessing for Learning*. **Stylus Publishing, VA. Projected date: Jan., 2009**

Assessing Integrated Learning

"...too often, our testing system rewards students who will be good at routine work, while not providing opportunities for students to display creative and innovative thinking and analysis" (Executive Summary from "Tough Choices; Tough Times." New Commission on the Skills of the American Workforce, 2007).

Performance-Based Methods of Assessing Integrated Learning

- **Situated Experiences along the Chronology of Learning**
  - Community-based projects (research) launched in the first year
  - Internships
  - Experiments
  - Research launched in the first year to solve a relevant problem
  - Research with faculty
  - Solo or team projects launched in the first year
  - Co-designed projects with a mentor or mentors (curricular-co-curricular projects, for example)

- **Chronological use of a case study at significant points in the GE curriculum to assess students' abilities to transfer and apply new knowledge, concepts, etc., to a complex, muddy problem**
  - Use of learning communities
  - Use of interdisciplinary teams
  - Use of wikis

- **Chronological Use of Complex Problems that Necessitate the Integration of Quantitative Literacy**
  - "Quantitative literacy, the ability to discriminate between good and bad data, the disposition to use quantitative information to think through complex problems—these are capacities that educators across fields should be helping students develop." (Burke, 2007)

- **E-Portfolios that Store Evidence of Integration over Time against The Background of the Curriculum and Co-curriculum. E-portfolios Should also Include Chronological Self-reflection on How One's Perspectives, Knowledge, Performance, etc., Changed over Time**

- **Smaller Projects over Time that Lead to a Final "Capstone Project"**

Assessment via Technology

- Team work across media (digital media and interfaces) and modes of communication
- Authorship of a simulation or a webpage
- Performance in virtual environments—virtual reality
- Threaded discussions online
- Creation of Wikis
- Gaming accompanied with one's analysis
    - *"critical thinking," "probing," "telescoping"* (Holbert, 2008)
- Podcasts
- Clickers to assess transfer of or new application of learning

Some Examples of Performance-Based Criteria for Integrated Learning Tasks

- Observation--identifies patterns, associations, relationships, linkages ("associational webs of representation"), nested issues within larger issues (Dede, 2005)
- Perspective-taking—views issue or problem or state of things with varying degrees of magnification (power of observation across GE and the disciplines "a la Swift")
- Imagination leading to innovation--identifies new possibilities (from past developments or ways of thinking to new developments and ways of thinking)
- Deconstruction— identifies smaller decisions, actions, or inactions that lead to larger situations, such as the present economic situation or the state of our global environment--Reconstruction
- Self-reflection—engages in "thinking about thinking" (solo, group, community)
- Flexibility in Communication--moves from written to visual to aural modes and across multiple media for different audiences and purposes
- Visual representation— creates concept maps, mind maps, decision maps, graphs, charts, images, spreadsheets, etc
- Conversion--converts one form of representation into another form of representation, such as into numerical or statistical, scientific, humanistic, sociological, psychological, or artistic forms of representation
- Data mining--collects, records, analyzes, and interprets data (Merlot)

- Problem identification/solution—identifies a new or unique problem or poses a new or unique way to view or solve a problem (Here's a problem and the solution; are there other solutions?)

- "Conceptual collisions" (Federation of American Scientists)—brings "previously disconnected knowledge sources into contact for the first time."

- Projection: identifies consequences, results, resulting conditions, challenges, actions, responses

- Strategic Reading: uses different strategies for reading various kinds of texts that lead to critical analysis and interpretation

- Adaptation to Technology: learns to use emerging new technologies to solve and represent problems; and to communicate

Dispositional Criteria

- Open-mindedness

- Flexibility and Adaptability

- Self-discipline (sees a project through to completion)

- "Facility with the use of ideas and abstractions" (Executive Summary from "Tough Times; Tough Choices")

- Ethical astuteness

- Engagement

"This is a world in which a very high level of preparation in reading, writing, speaking, mathematics, science, literature, history, and the arts will be an indispensable foundation" Report of the New Commission on The Skills of The American Workforce (2007).

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