

I *The pathways to learning no longer lead automatically to traditional institutions of higher education. Instead they lead most directly to learning opportunities in which competencies are defined explicitly and delivery options are multiple. This new paradigm will ultimately redefine the roles of faculty, institutions, and accreditors.*

Competency-Based Learning Models: A Necessary Future

Richard A. Voorhees

We are in the early stages of a learning revolution. New learning pathways have been forged by intense competition from organizations whose sole purpose is to deliver learning (anytime and anywhere) and by rapid advances in information technology. Forged by expediency, these paths no longer lead automatically to institutions of higher education. Instead they lead most directly to learning opportunities that are intensely focused and are populated by learners and employers who are chiefly interested in the shortest route to results. In this paradigm, learning products are defined explicitly, delivery options are multiple, and a level of granularity not captured by traditional student transcripts (which display only credit hours and course titles) drives assessment. Most postsecondary institutions have been slow to accept these emerging realities, preferring instead to continue to package curricula in the standard lengths of the academic term and in traditional delivery formats. The bridge between the traditional paradigm, which depends on traditional credit hour measures of student achievement, and the learning revolution can be found in competency-based approaches. At a minimum, the shift in how potential students view their expanded learning options—especially issues connected to convenience—should cause most institutions to examine the menu of their current offerings. There is, however, often a considerable gap between intentions and actions. The difference creates an emerging field in which institutional researchers can play a major role.

The threat to traditional postsecondary institutions brought about by the movement toward competencies has not gone wholly unrecognized. The demand for certification of competencies that is not met by traditional higher educational providers defies measurement because there is no reporting

mechanism for institutions that fall outside the U.S. Department of Education's Integrated Postsecondary Data System (IPEDS) from which to aggregate participation numbers. However, at least one source (Adelman, 2000) estimates the volume of worldwide certification in one employment sector—information technology—at 1.6 million between 1997 and 2000. These certifications, like others built to meet specific industry demand, are based solely on the learner's ability to demonstrate that specific competencies have been attained, regardless of where or even how they were mastered.

Institutional researchers and other campus administrators are probably very familiar with describing what their institutions produce in terms of *outcomes*. Student learning forms one distinct, but increasingly critical, corner of what most often are referred to as outcomes. Peter Ewell's (1985) edited *New Directions for Institutional Research* issue on assessing educational outcomes, now more than fifteen years old, remains this series' all-time best-seller. If anything, the interest in outcomes has accelerated over this time, as accountability schemes now in place in most states demand proof of institutional performance. This evidence is typically expressed in terms of retention rates, graduation rates, and placement rates—outcomes that typically are not direct measures of what students know or can accomplish. In contrast, competencies and the learning that they seek to measure operate at a much more granular level and require precise description and measurement of learning. Despite the advances and general interest in outcomes throughout higher education over the past decade, state indicator systems have only been able to approximate learning outcomes.

An International Movement

The interest in competencies and measuring specific learning is accelerating throughout the world. In the United States, interest in the skills needed for employment was heightened with the establishment of the National Skills Standards Board of the United States, an entity created under the Goals 2000: Educate America Act of 1994. Under this legislation, a twenty-eight-person board serves as a catalyst in the development and adoption of a voluntary national system of skill standards and of assessment and certification of attainment of skill standards. The Dearing Report (1997) captures the debate in the United Kingdom about lifelong learning and the necessity for portability of skills. An outgrowth of this study was the recent establishment of a quality assurance agency to work with institutions to establish small, expert teams to provide benchmark information on standards, in particular threshold standards, operating within the framework of qualifications. The result of these national discussions has been the establishment of the Learning Skills Council, a government partnership that is responsible for planning, funding, and improving the quality of post-sixteen, or postsecondary, learning up to university level, based on standards designed to provide articulation between educa-

tional providers and to provide a match between curriculum and employment opportunities.

Competencies and skill standards also have occupied considerable attention in Australia. Technical and further education (TAFE) courses provided by subuniversity providers offer programs leading to national qualifications. Several universities also offer TAFE programs, but because of their competency-based nature these programs do not appear to articulate well with university programs (Faris, 1995). New Zealand, in contrast, appears to address competency attainment from a wider perspective. The National Qualifications Framework in New Zealand contains eight different levels, leading ultimately to postgraduate certificates, diplomas, and degrees. This framework ensures that all students who meet the required standards, whether at schools or tertiary institutions, or in community, government, or private training establishments, or in the workplace, can gain recognition of their achievements (Faris, 1995).

One might surmise, at least from some of the foregoing discussion, that competencies are the exclusive domain of vocational education and that competency-based models have no application at baccalaureate-level or higher-level institutions. Early practice in the United States and aspirations in Europe would indicate otherwise. Of the five higher education institutions selected for study during the NPEC project (U.S. Department of Education, 2001), three were baccalaureates or higher institutions: Kings College, Northwest Missouri State University, and Western Governors University. Alverno College is often cited as a national model for competency-based baccalaureate education. Although it is true that the competency-based movement traces its roots to entities and institutions outside traditional four-year colleges and universities, especially community colleges, its benefits are beginning to be recognized by cutting-edge institutions, and the boundaries between sectors are becoming increasingly blurred. Voluntary standardization of content and corresponding length of degrees offered among European nations are also now under early discussion (Haug, 1999). These wide discussions have centered on the introduction of new curricula (instead of a mere repackaging of existing ones), a guaranteed level (gauged on the basis of knowledge and competencies acquired rather than time spent), and connections to the labor market.

A National Perspective on Assessing Learning

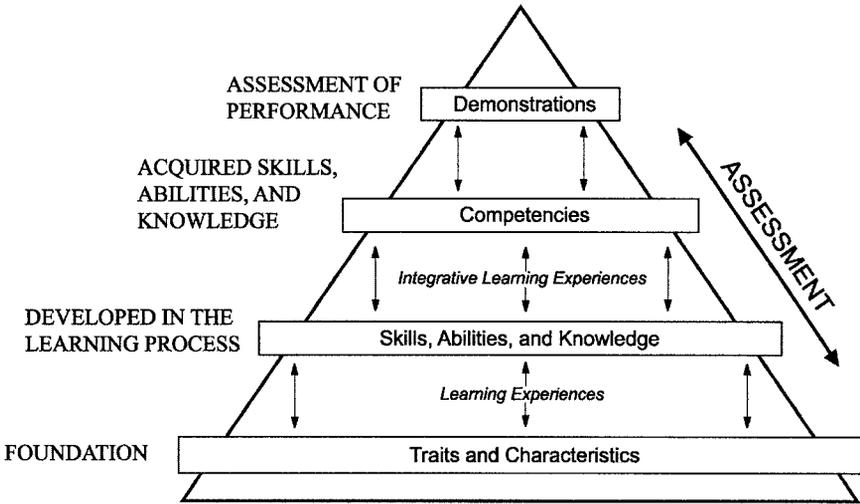
A recent report by the National Center for Public Policy and Higher Education (2000), entitled *Measuring Up 2000: The State-by-State Report Card for Higher Education*, was not able to grade student learning across the United States. This report, prepared by an independent national panel of experts, assigns traditional letter grades to each state, based on quantitative criteria. States were graded on preparation, participation, affordability, completion, and benefits. Each state, however, received an incomplete grade in

student learning—conceptualized as measurable student learning at the end of lower-division study and again when students receive a baccalaureate degree, as well as the attainment of workplace skills. As Ewell explains, fewer than ten states administer a common test to a large number of college students (National Center for Public Policy and Higher Education, 2000, p. 174). The underlying reasons for lack of national benchmarking in student learning are even more complex. Coming to agreement on what core skills all college graduates ought to have is problematic, given the diversity of programs and institutions across the United States. Further, the creation of accurate assessments is not simple work. Employers and academicians alike agree that paper-and-pencil tests do not fully capture the complexity of performance that is commonly associated with college graduates. Ewell (2000) notes that the current inventory of national tests dates from the beginning of the national assessment movement, which began more than a decade ago. Considerable effort would need to be expended to create new assessments, some from scratch and some including new tests, which can address shortcomings in efforts to provide estimates of student learning. Of course, other factors limit state-by-state comparisons of student learning, including disparities in student motivation to score well and lack of political willpower and resources to adequately fund statewide testing. However, these issues are not likely to go away anytime soon, particularly given the emergence of a state-by-state report card and future efforts to incorporate student learning measures. Prudent institutional researchers will need to sharpen their awareness of these dynamics as well as their individual skills to be of value to their institutions as the national debate unfolds.

A Common Language

When dealing with learning outcomes, a common language set is critical. There are multiple definitions of student learning outcomes, objectives, skills, and ultimately the focus of this volume, competencies. To eliminate confusion, this volume uses the NPEC work group's definition of competency—namely, a *competency* is “a combination of skills, abilities, and knowledge needed to perform a specific task” (U.S. Department of Education, 2001, p. 1). The term *performance-based learning* is also used in this volume as a framework for learning systems that seek to document that a learner has attained a given competency or set of competencies. To aid the reader, Figure 1.1 depicts the hierarchical relationships between key terms used throughout this volume.

Figure 1.1 seeks to differentiate among terms commonly used in this area by depicting their interrelationships with competencies. Each of the rungs of this ladder is thought to influence those rungs that appear above and underneath. The first rung of this pyramid consists of *traits and characteristics*. These constitute the foundation for learning and depict the innate makeup of individuals on which further experiences can be built.

Figure 1.1. A Conceptual Learning Model

Source: U.S. Department of Education, 2001.

Differences in traits and characteristics help explain why people pursue different learning experiences and acquire different levels and kinds of skills, abilities, and knowledge. The second rung consists of *skills, abilities, and knowledge*. These are developed through learning experiences, broadly defined to include, among other possibilities, work and participation in community affairs. *Competencies*, then, are the result of integrative learning experiences in which skills, abilities, and knowledge interact to form learning bundles that have currency in relation to the task for which they are assembled. Finally, *demonstrations* are the results of applying competencies. It is at this level that performance-based learning can be assessed.

Bundling and Unbundling

A single competency can be used in many different ways. For example, measuring distances is important to both professional golfers and surveyors. Of course, different measuring skills may be involved in carrying out these two tasks, but the skill involved in performing measurement, irrespective of technique or method, should produce the same result. It is in their context, however, that competencies have their greatest utility. Competencies within different contexts require different *bundles* of skills and knowledge. It is this bundling and unbundling that drives competency-based initiatives among postsecondary entities. The challenge is to determine which competencies can be bundled together to provide different types of learners with the optimal combination of skills and knowledge needed to perform a specific task.

Leadership in a surgery suite is different from leadership on the basketball court. For example, motivating teammates is more important to leadership in basketball, whereas superior knowledge of the procedure is more important to leadership in surgery. In both contexts, however, an ability to effectively coordinate the roles, timing, and contributions of coworkers is critical. When skill bundles are labeled identically, there is often difficulty in achieving a common understanding of what a given competency (like leadership) is and then what it means to assess it. Knowing how to package the right set of competencies to effectively carry out a given task is in itself a competency. We sometimes refer to individuals as having great skills but seemingly being unable to apply them. With experience and experiment, people combine gestures, phrases, eye contact, pace of speech, and so forth in ways that allow them to give better speeches. It is easy to see that maturation, motivation, and opportunities to practice are keys to understanding the bundling and unbundling processes.

Obviously, one would do well not to mistake the definition and assessment of competencies for easy work. Efforts to define and assess competencies based on performance standards face a number of challenges. For example, what methodologies will be used to assess performance? Choices must be made among tests, portfolios, teacher or employer ratings, and benchmarks or exemplars of performance. Who will be responsible for assessment? Stakeholders and recipients of results must be defined among schools, admission offices, and employers. How will assessments of competencies be used? The potential uses (and misuses) by credentialing bodies, admissions and placement offices, and the recruitment arms of employers need careful consideration. These issues have ramifications for new data priorities as states and education and training providers encounter uncharted territory in developing performance standards and assessing competencies. This volume is intended to assist institutional researchers to identify the underlying as well as the more obvious issues in their efforts to assist others at their institutions to work with competencies.

Challenges to Competencies

In organizational life, all innovations foster resistance. Competency-based learning models are certainly no exception. Opponents view the movement toward competency-based systems, especially in general education areas, as reductionist and prescriptive (Betts and Smith, 1998). Nowhere is this controversy felt as much as in the assessment arena. There has been substantial progress and increased faculty involvement across higher education in assessment in the United States over the past decade. However, most of this activity is bounded and contained; it has been built on the assessment of academic programs, most often using the traditional course as the unit of analysis. It has not been conducted at the more malleable level of measurement necessitated by competencies. Course-based assessment always is dominated by the professional judgment of individual faculty. In contrast, competency-

based learning models most often rely on the judgment of those external to the learning process and employ assessment strategies that are based on units of analysis that are smaller, and certainly more granular and addressable, than those used to assess traditional courses.

Competency-based models ultimately rely on measurable assessment. In other words, if a proposed competency cannot be described unambiguously and subsequently measured, it probably is not a competency. Given these fundamental attributes, all parties to the learning process—faculty, external experts, administrators, and students—should be able to understand with clarity the outcomes of the learning experience. Under these circumstances, competencies are transparent. Learning outcomes hold no mystery, and faculty are freed from the burden of defending learning outcomes that are verified only by professional judgment.

There are clear advantages for students in competency-based learning models. Because learning can be described and measured in ways that are apprehended by all parties, competencies permit the learner to return to one or more competencies that have not been mastered in a learning process rather than facing the unwelcome prospect of repeating one or more traditional courses. Competencies also provide students with a clear map and the navigational tools needed to move expeditiously toward their goals. In an ideal world, competencies would logically and clearly build on other competencies. In this world, time horizons become more manageable, providing students with certain flexibility. The current architecture of higher education in the United States does not easily promote the open exchange of learner competencies across sectors—for example, community colleges to four-year colleges and universities—and between providers—for example, nonaccredited institutions to accredited institutions. In the meantime, institutions and students are often left to navigate issues of transportability of learning experiences in uncharted waters.

Faculty and administrators, too, would realize more flexibility and options in educational delivery systems. These options, though, require fundamental reengineering of current delivery systems, inviting debate about the traditional academic structure, the standard length of academic terms, and the very process for certifying student learning. In many important ways, competency-based systems have the potential to redistribute the power relationships between teachers and those taught (Betts and Smith, 1998). Fortunately, there exists some practical guidance to those institutions that wish to pursue competency-based models.

Strong Practices

The NPEC report sought to provide practitioners and policymakers with a hands-on guide to developing, implementing, or refining competency-based learning models. This sourcebook draws on the strong practices identified from the case studies found in this final report (U.S. Department of Education, 2001). These practices are identified in the following list. At first blush,

the accumulation of these principles together may seem overwhelming to faculty and administrators who are wondering whether to create a competency-based system. However, the NPEC working group examined at least some institutions that have been working at competency-based learning models for many years. Accordingly, although the following list may seem overwhelming, it is drawn from achievements over many years. One of the greatest overriding lessons learned from the NPEC work is to provide sufficient amounts of time and guidance to help faculty develop, implement, and evaluate their competency-based educational initiative. The strong practices uncovered in the NPEC research (U.S. Department of Education, 2001) include these fundamentals:

- A senior administrator is the public advocate, leader, and facilitator for creating an institutional culture that is open to change, is willing to take risks, and fosters innovations by providing real incentives for participants.
- The appropriate stakeholders fully participate in identifying, defining, and reaching consensus about important competencies.
- Competencies are clearly defined, understood, and accepted by relevant stakeholders.
- Competencies are defined at a sufficient level of specificity that they can be assessed.
- Multiple assessments of competencies provide useful and meaningful information that is relevant to the decision-making and policy development contexts.
- Faculty and staff fully participate in making decisions about the strongest assessment instruments that will measure their specific competencies.
- Precision, reliability, validity, credibility, and costs are all considered and examined in making selections of the best commercially developed assessments or locally developed assessment approaches.
- The competency-based educational initiative is embedded in a larger institutional planning process.
- The assessments of competencies are directly linked with the goals of the learning experience.
- The assessment results are used in making critical decisions about strategies to improve student learning.
- The assessment results are clear and are reported in a meaningful way so that all relevant stakeholders fully understand the findings.
- The institution experiments with new ways to document students' mastery of competencies that supplement the traditional transcript.

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RICHARD A. VOORHEES is associate vice president for instruction and student services for the Community Colleges of Colorado System.

