

Learning Outcomes Assessment at IUPUI

2008-09 Annual Report

Introduction

Since the 1980s, IUPUI has steadily increased attention to assessment of student achievement of both discipline-specific learning outcomes and the campus-wide Principles of Undergraduate Learning (PULs). Our extensive assessment efforts have helped us to understand, not only what students are learning, but what methods and interventions support student success. When we identify an opportunity for improvement, we make adjustments and continue to measure progress. Assessment findings have resulted in curriculum revisions, as well as structural changes in particular courses. Assessment outcomes have also led to new or expanded student services and to changes in the ways services are provided.

The first purpose of assessment is to assure ourselves and our students that their learning experience at IUPUI meets, if not exceeds, internal and external standards. In addition, we recognize that many of our external stakeholders are interested in IUPUI students' learning and success. We regularly report to the Board of Trustees and other constituencies and make these reports available to others on request. Since 1996, we have published an annual IUPUI Performance Report, and, since 2001, that report has been published online, as well as in print. When in 2003 the Indiana Commission for Higher Education adopted its "Framework for Policy and Planning Development in Higher Education," which included a goal to promote statewide discussion of ways to enhance and measure postsecondary student learning, IUPUI began publishing this annual campus-wide assessment report in response. In June 2008, the Commission adopted a new plan, "Reaching Higher," which refocuses public policy on a revised set of system-wide outcomes. We continue to publish this report as a record of the ways in which our assessment activity leads to improvement of student learning.

At an institution with over 30,300 students pursuing more than 300 certificate and degree programs offered by 120 different departments, assessment is necessarily multi-faceted and complex. While summary risks oversimplification, this report is meant to highlight the nature and range of the assessment cycle at IUPUI, from establishing desired learning outcomes through strengthening practice based on assessment findings.

Structure and Practice of Assessment at IUPUI

Assessment of What?

Assessment gauges *whether* students are learning, *what* they learn and *how well*, and *how* they learn. Assessment also measures factors, such as engagement, known to affect or strongly correlate with students' academic success and progress toward achievement of their educational goals. Assessment also incorporates evaluation of operating efficiencies that improve the

learning environment for our students. Examples of all these forms of assessment are included in the IUPUI 2008-09 academic unit reports. (The final section of this document provides a summary of these unit-level reports.)

Learning outcomes for all IUPUI undergraduates. The Principles of Undergraduate Learning, adopted by the IUPUI Faculty Council in 1998, are the essential ingredients of the undergraduate educational experience at IUPUI. The PULs provide a conceptual framework for all students' general education and link general education with the disciplinary learning outcomes of individual majors. Students thus have the opportunity to gain increasing mastery of the PULs, not only during their first two years of college, but across their entire undergraduate experience, including courses in their major fields of study. Expectations related to the PULs, from the first year through graduation, speak to what graduates of IUPUI will know and be able to do upon completing their degrees and, in this way, define the meaning of an IUPUI baccalaureate degree, regardless of major.

1. **Core Communication and Quantitative Skills**—the ability of students to express and interpret information, perform quantitative analysis, and use information resources and technology—the foundation skills necessary for all IUPUI students to succeed
2. **Critical Thinking**—the ability of students to engage in a process of disciplined thinking that informs beliefs and actions, remaining open-minded, reconsidering previous beliefs and actions, and adjusting their thinking, beliefs, and actions based on new information
3. **Integration and Application of Knowledge**—the ability of students to use information and concepts from studies in multiple disciplines in their intellectual, professional, and community lives
4. **Intellectual Depth, Breadth, and Adaptiveness**—the ability of students to examine and organize discipline-specific ways of knowing and apply them to specific issues and problems
5. **Understanding Society and Culture**—the ability of students to recognize their own cultural traditions and to understand and appreciate the diversity of the human experience
6. **Values and Ethics**—the ability of students to make sound decisions with respect to individual conduct, citizenship, and aesthetics

In the complete statement on the PULs, the definition of each of these principles further articulates specific outcomes or objectives that help, not only to explain the principle's importance, but also to assure commonality in measurement across the campus, even though each school or department assesses the PULs through the lens of its own disciplinary standards.

RISE to the IUPUI Challenge. IUPUI's academic plan calls for all IUPUI undergraduates to participate during their college careers in two experiences captured in the acronym RISE—**U**ndergraduate **R**esearch, **I**nternational Learning, **S**ervice Learning, or other **E**xperiential Learning (such as internships, practica, and clinical or field experiences). Some of these experiences occur within courses; others are not associated with specific courses, but are still represented on students' transcripts. The faculty, administrators, and units responsible for the RISE to the IUPUI Challenge Initiative have agreed to focus these experiences on the PULs. Many RISE experiences include a reflective component that is incorporated, along with other relevant materials, into students' ePortfolios or other records to facilitate assessment of PUL learning outcomes across the campus.

Accreditation standards. Regional accrediting bodies, such as the Higher Learning Commission of the North Central Association (IUPUI's regional accreditor), generally do not mandate the particular learning outcomes that institutions should adopt. Rather, they require that an accredited institution specify outcomes appropriate to its mission and that the institution regularly assess those outcomes and make needed improvements. Numerous professional bodies separately accredit programs that prepare students to enter those fields, offering an additional external validation of quality. Thus, many IUPUI schools or departments assess and respond to two (or more) sets of standards, complicating their assessment work, but also strengthening their students' educational experience. Sometimes the standards overlap; see the unit report summaries below for examples of especially creative ways in which IUPUI schools have combined internal and external standards for increased efficiency of assessment and enhanced clarity for faculty and students.

Best Practices and the First-Year Experience. One of IUPUI's mission commitments is that each of its core activities, including teaching and learning, will be characterized by, among other values, the pursuit of best practices. These "best practices" are intended to support students' success in achieving their educational goals, particularly by enhancing engagement and improving retention and graduation rates. Consequently, IUPUI has invested substantial resources in a variety of first-year experiences to assure that students get off to a good start. Students are introduced to the PULs in their First-Year Seminars and Themed Learning Community courses; they also develop their PUL-related knowledge and skills in Gateway courses (introductions to a field of study that account for over 30 percent of all undergraduate credit hours). Advisors and faculty work with new freshmen in First-Year Seminars to create a Personal Development Plan that includes academic and career goals that are integrated with the PULs. Assessment of these practices typically focuses on analyses of engagement levels, surveys eliciting student perceptions, and data about percentages of students who persist into their second semester and second year.

Program and project evaluation. Some assessment approaches resemble the kinds of customer satisfaction surveys or program evaluations common in the for-profit and non-profit sectors. Programs (as well as the institution as a whole) have good reasons to measure student and alumni satisfaction. They want to understand student perceptions of roadblocks to completing their education, to check for disparities between what students think they are learning and what faculty believe students are learning, and to find explanations that shed light on why students encounter difficulties with particular courses or concepts. Similarly, when an intervention to improve some aspect of student academic support is implemented, a program evaluation approach is often the best means to follow up to assure the desired improvement. Forms of indirect assessment that go beyond ascertaining academic competencies are thus necessary and useful in helping academic programs function more effectively and efficiently.

Assessment Structures

In revising the PULs in 2007, the IUPUI Faculty Council re-emphasized that responsibility for assessing student learning of the PULs rests with program faculty. Similarly, University College and its faculty are responsible for assessing outcomes of first-year experiences like Themed Learning Communities, even when these are taught jointly with other schools. Thus, primary

responsibility for assessment of learning is properly decentralized. Coordination is achieved through the work of three standing institutional groups: the Council on Retention and Graduation, the Program Review and Assessment Committee (PRAC), and the Undergraduate Curriculum Advisory Committee. Administrative support for and coordination of assessment are provided through the Division of Planning and Institutional Improvement, particularly its offices of Information Management and Institutional Research (IMIR) and Institutional Effectiveness and the Testing Center. The Office of the Executive Vice Chancellor for Academic Affairs provides academic oversight and also assures that the Centers for Teaching and Learning, Service and Learning, and Research and Learning are engaged and ready to assist faculty in acting on any identified needs for improvement.

Several procedures are employed to assure timely reporting of assessment processes and results. Comprehensive academic program review is conducted at IUPUI in a seven-year cycle and helps ensure that general education and discipline-specific instruction and assessment are occurring according to plan. In preparation, each unit develops a self-study, which is reviewed first by a faculty subcommittee of the Program Review and Assessment Committee (PRAC). Then a review team, composed of internal reviewers from other IUPUI schools and external specialists in the discipline, conducts a site visit, in which members meet with faculty, students, community members, and school and campus administrators as appropriate for the particular program. Review teams are directed to comment on the quality of curricula, methods of instruction, and the evidence of student learning in general education (based on the PULs), as well as in the major field of study. In 2008-2009, teams conducted reviews of programs in Philosophy, Nursing, Campus and Community Life, Philanthropic Studies, and Physical Education. The systematic process resulted in identification of strengths and concerns as well as constructive recommendations for growth and improvement. In addition, PRAC and staff planned three reviews to take place in 2009-2010 and organized follow-up meetings with the five educational units reviewed in 2007-2008 to ensure that the units are fully supported in their efforts to address the outcomes of the reviews.

IUPUI has also developed performance indicators designed to chart progress on ten mission-critical goals, including student learning outcomes. Underlying each of the macro-indicators related to teaching and learning is a set of sub-indicators based on direct and indirect evidence. A standard red/yellow/green dashboard on the IUPUI *Performance Report* web site provides a quick overview of progress for each indicator. Dashboard “colors” for the indicators are determined by committees of appropriate faculty members and administrators convened annually to review the past year’s data. The IUPUI *Performance Report* is published early each calendar year in print and online. (See www.iport.iupui.edu.)

Finally, each academic unit and some administrative units prepare Annual Assessment Reports, often including information broken down by department. These reports to PRAC provide the main foundation for this report on learning assessment at IUPUI and may be accessed at <http://planning.iupui.edu/43.html>.

Assessment Tools

Grades. While assignment and course grades may not be considered to be direct evidence of learning for program or institutional assessment purposes, they do represent essential direct feedback from instructor to learner on individual progress and achievement. Since low grades can cause students to be underprepared for later courses, faculty members pay close attention to unusually high rates of low grades in classes so that necessary interventions can be undertaken. Grades in “capstone” courses and experiences (culminating experiences that offer students opportunities to integrate and apply learning of both content and skills) can often provide direct evidence of student learning. These courses and experiences typically include research projects, honors theses, creative exhibitions or performances, and internships or practica. Grades in these courses or experiences may bear directly on program assessment.

Surveys. Indirect evidence of student learning is collected annually through a variety of surveys administered to representative samples of enrolled undergraduates. The locally developed IUPUI Continuing Student Survey was administered annually from 1995 until 2001, when it was moved to biennial administration to permit use of the National Survey of Student Engagement (NSSE) in alternate years. Comparison of average responses of lower- and upper-division students provides an indication of how experiences at IUPUI contribute to learning and development. National surveys like the NSSE allow IUPUI to benchmark its performance on learner engagement over time and against a set of peer institutions and other participating institutions. Other surveys can be particularly valuable in identifying student awareness of the PUL skills and knowledge they are expected to master.

Another example of survey-based indirect evidence is the survey of alumni employment and satisfaction conducted since 1996-97. Several subsets of questions probe how well students believe their education at IUPUI prepared them for their careers and/or graduate study; direct experience in a job or graduate program may provide alumni with perspectives on their learning that are more realistic than their perceptions prior to graduation. School-level results of both locally developed surveys and the NSSE are provided to IUPUI schools to enable them to compare themselves to other schools on campus and to aggregated results for similar units at other institutions that administer NSSE. In addition, program-level results of the Continuing Student Survey are provided to individual programs in years when those programs undergo their seven-year program reviews.

External sources. External audiences also contribute directly to our understanding of our undergraduates’ learning outcomes. For example, many of the schools that prepare students for employment in particular fields (e.g., nursing, business, engineering) periodically survey employers of their graduates to assure that students are indeed learning the kinds of abilities and knowledge needed to thrive professionally. In other cases, graduates must pass a state- or nationally-normed examination or other review process in order to enter a profession (e.g., teachers, nurses and allied health professionals, some kinds of social workers, and others). Pass rates of IUPUI graduates on these exams provide important feedback to faculty about areas showing solid learning and opportunities for improvement. Similarly, student scores on various graduate entrance examinations or acceptance rates into graduate school can provide helpful external validation for many departments.

Portfolios. Portfolios of student work also provide direct evidence of learning outcomes. Some degree programs continue to rely on traditional methods of assembling and evaluating portfolios. Other programs have been drawn to the flexibility of IUPUI's ePortfolio. IUPUI's system has been designed to serve both assessment and instructional purposes, with a particular view to assessment of the PULs as they are learned in varied contexts, from first-year experiences, through courses and projects in the major, to RISE experiences and senior capstone courses. Data derived from authentic evidence (that is, evidence drawn from varied learning experiences rather than one-time-only examinations) collected, reflected upon, reviewed, and evaluated in IUPUI's ePortfolio system can increasingly be aggregated via software reporting mechanisms to provide information at program and campus levels. As departments incorporate the ePortfolio into their curricula, they refine courses and entire programs to address desired learning outcomes ever more deliberately and effectively. Thus, the ePortfolio supports improvement in learning outcomes at the same time that it demonstrates these outcomes.

Assessment Impact in 2008-09

Trends across the Institution

Review of the 2008-09 PRAC Reports reveals a striking variety of assessment methods in use, with a balance of direct and indirect evidence used regularly across the institution. Direct assessment, which focuses on *what* students are learning, includes such methods as student skills ratings by field experience supervisors, pass rates on licensure or certification exams or other published tests, capstone experiences like research projects or performances, portfolios of student work, employer ratings of graduates' skills, analyses of electronic discussion threads, and student reflections on experiences. Indirect assessment provides indications *that* students are learning, but with less specificity about what or how much, and includes methods such as course grades, admissions into graduate programs, career placements of graduates, alumni and student surveys, and honors or awards earned by students and alumni.

All of these assessment techniques and more are cited regularly throughout the year's school and departmental reports, providing assurance that assessments are avoiding the weaknesses of too-heavy reliance on any single approach. For example, the School of Education can point to solid student pass rates on Indiana teacher qualifying examinations, but also makes extensive use of student ratings by field experience supervisors, faculty teams, and students' own reflections. While the Department of Computer and Information Science has adopted a Major Field Test published by ETS to provide external validation that students are learning core principles of computer science, CIS faculty also monitor course grades and provide opportunities for undergraduate research experiences. Graduates in Mechanical Engineering take the Fundamentals of Engineering field exam, but the department also uses jury evaluations of capstone design projects. The Herron School of Art and Design makes use of both gateway and capstone experiences to track student learning at entry into and exit from its programs. The school also monitors student exhibits and art sales and draws on supervisors of student internships for individual and collective feedback.

Similarly, growth has occurred across campus in the number of senior capstone courses offered, the variety of experience-based learning opportunities available through RISE, and the use of electronic portfolios as authentic methods of demonstrating, through reflection and work samples, that students are integrating the full range of their undergraduate learning. Almost every school report refers to the use or development of senior capstone courses or experiences and to new service learning or undergraduate research or international study opportunities. Portfolios have been used regularly by Herron, Informatics, and other programs to document student development and capabilities. Increasingly, programs such as Visual Communications, Organizational Leadership and Supervision, Tourism, Conventions, and Event Management, and Transition to Teaching, as well as three divisions at IUPU Columbus, are implementing electronic portfolios because of their usefulness in fostering integration of learning through reflection, as well as in showcasing examples of student learning outcomes. University College is also planning to use the IUPUI ePortfolio as a platform for first-year students in developing their Personal Development Plans. An extensive body of research on higher education demonstrates that all of these learning experiences, along with first-year seminars and learning communities, increase student engagement and promote student learning.

Another very notable general trend is the careful attention over several years to integrating the PULs with outcomes in the major field of study. The School of Science, for instance, began four years ago with a focus on common outcomes across the science disciplines, but within two years broadened that work to align those science learning outcomes with the campus PULs. The Kelley School of Business translated the PULs into Principles of Business Learning to help students understand that critical thinking, ethics, international perspectives, appreciation for diversity, clear oral and written communication, and other elements of the PULs are as important a part of their undergraduate learning as is the discipline-specific knowledge they develop in accounting or marketing or management. The School of Social Work is using a new set of competencies mandated by its professional accrediting body in alignment with the PULs to strengthen international perspectives throughout its curricula.

Perhaps the most significant development represents a milestone in campus-wide assessment of the PULs. PRAC and other committees fostered discussion in nearly every undergraduate program that led, by the end of the year, to a process wherein every department assesses the PULs most emphasized in every course over a five-year cycle. The Office of the Registrar created a matrix to capture all these data so that, for example, department curriculum committees can easily cross-reference PUL inclusion in required major courses taught by other departments, providing a comprehensive view of PUL coverage throughout the full curriculum for each program. These campus-wide PUL assessment discussions helped the IUPUI Center for Teaching and Learning and related units identify needs for further professional development workshops in areas like curriculum mapping and rubric development. Based on earlier work, some departments have taken the additional step of identifying particular assignments used to assess learning of the PULs in each course. For example, the senior design capstone in Mechanical Engineering Technology provides specifically for direct assessment of critical thinking, knowledge integration, and oral and written communication. The Office of Information Management and Institutional Research (IMIR) and University Information Technology Services (UITS) began work on using the Student Information System to bring PUL ratings on those assignments into a database for tracking campus-wide PUL learning outcomes.

Responsive Improvements: Acting on What We Learn from Assessment

Several of the above examples illustrate the types of actions taken in response to assessment findings. The reports summarized below contain numerous examples of such responsive action, though the sheer variety of these activities makes generalization about them difficult. Program review often leads to the addition or revision of particular courses to strengthen a program, though current budget restrictions limit the ability to hire faculty needed to teach new courses. Often, faculty will note a potential problem, but wait for a second year's data to confirm a pattern before making any changes. Sometimes, particularly when change appears required at the curriculum, rather than the course, level, response may be slow because consensus must be reached among faculty teaching many courses or all the instructors teaching a single course. In other cases, such as an instance cited by the Psychology Department last year, simply moving a course earlier into a sequence so that one is taken prior to, instead of concurrently with, another is enough to assure that students are better prepared for the second course. And in a number of cases, changes result not so much from an apparent flaw as from an interest in improving performance—from “good to great” in an academic context.

The Division of Education at IUPU Columbus, which in 2008-2009 successfully completed its first independent review by the National Council for Accreditation of Teacher Education (NCATE) for its baccalaureate program in elementary education, illustrates the complexity of measurements and responses even for a single program. IUPUC's education program is part of the Indiana University School of Education Core Campus, which also includes the campuses at Indianapolis and Bloomington. The program is a cohort-based block program that admits students at the end of their sophomore year; students must pass all three divisions of the national PRAXIS I examination (in reading, writing, and mathematics) to be eligible for admission. (Those interested in learning more about the curriculum and overall assessment framework can learn more by reading the full report online at <http://www.planning.iupui.edu/64.html#09>.)

The division has undertaken a range of actions in response to assessment findings. For example, assessments of the elementary education program at IUPUC provided evidence that most teacher candidates do develop an acceptable to exemplary level of content knowledge through their program coursework and field experiences. As is the case at many institutions, performance scores in math, language arts, physical education, health, and the arts tended to be higher than those for science and social studies. More perplexing was comparatively weak performance in using that content knowledge to demonstrate pedagogical knowledge for a subject area. Faculty hypothesized that a lack of conceptual connections across core content classes might contribute to students' difficulties in applying concepts to practice.

Faculty thus selected several interventions intended to help students make connections and think broadly about applying one domain of learning to others. One response was development of an ePortfolio project to promote dialogue across disciplines and increase students' metacognitive skills. Another was to add a second writing course (with a multicultural theme) to the core content curriculum. To improve performance in science, faculty in both science and education are working to share materials and laboratory facilities and to align learning outcomes. Education and mathematics faculty collaborated on development of an after-school K-6 tutoring program to

promote critical thinking and learning of concepts from two of the three core math courses among teacher candidates. A similar program was started at the local Boys and Girls Club for education majors enrolled in Introduction to Scientific Inquiry. Faculty will begin more focused work on issues related to social studies in the next year.

These changes reflect only one of three domains which the Education Division assesses and on which it must report outcomes to NCATE. Other adjustments were made in the domains of professional and pedagogical knowledge, skills, and dispositions and of student learning (that is, ability to foster learning among the candidates' students). All of this carefully considered fine-tuning to assure continually improved learning has helped IUPUC students score consistently better than the state and national averages in all but one category of the PRAXIS II exams for teacher certification.

A second illustrative case highlights the cyclical and integrated nature of assessment for performance improvement. The most commonly used external assessment data at the campus level are drawn from the National Survey of Student Engagement (NSSE), which surveys first-year and senior students to measure levels of "engaged learning" behaviors. These quality measures include such activities as time spent preparing for class, work with other students on projects, discussion of career plans with an instructor or advisor, and participation in a culminating senior experience. IUPUI had begun systematic attention to improving the experience of first-year students in the mid-1990s, with University College showing promising internal assessment results within a few years. When NSSE was launched in 2000 to examine these effects on a national level, IUPUI was an early participant. Initial results showed somewhat higher engagement levels than would have been predicted by IUPUI's size and student composition, and these results were shared with campus leadership groups, with each school, and particularly with University College. Many academic units closely analyzed the NSSE results then and in subsequent years, making a variety of improvements with each cycle. The most recent testing cycle, in 2009, documented noticeable and significant increases in scores, not only for first-year students, but for graduating seniors as well.

Review of NSSE results stimulates interest in pedagogy across campus and provides a consistent mechanism to track improvements over time, so that faculty, advisors, and administrators can see long-term and emerging trends and effects. The institution pays close attention to comparisons with other research universities and urban peer institutions, not for institutional one-upmanship, but to understand what these outcomes might have looked like absent our interventions. The key successes can be attributed specifically to the development and continual improvement of first-year Themed Learning Communities (TLCs), service learning initiatives, and capstone experiences that are now widespread across the campus. In 2008-09, University College used NSSE data, in addition to grade-point averages, to compare first-year students in TLCs with peers enrolled in stand-alone First-Year Seminars. The former group had significantly higher levels of engagement on twelve major engaged behaviors, significantly higher GPAs, and significantly higher retention rates. These results were fed back to TLC instructional teams to guide continuous improvement efforts and to advisors to support increased targeted recruitment efforts encouraging more students to choose TLCs, especially the conditionally admitted students who appear to benefit most strongly from the TLC experience.

School Reports for 2008-09

Each year, educational units are asked to prepare reports of their assessment activities for the Program Review and Assessment Committee. Complete 2008-09 reports are available on the IUPUI web site at <http://www.planning.iupui.edu/64.html#09>.

Center for Service and Learning

The Center has institutionalized a broad range of surveys, focus groups, interviews, written and oral reflections, and course evaluation forms for frequent communication with and feedback from students, faculty, community partner organizations, and workshop participants. Results are used regularly to improve implementation of the Center's wide range of programs. For example, focus groups documented the value of community-based work-study, so plans are under way to expand such opportunities in 2009-10. Similarly, student interviews and oral reflections are leading staff to increase the options for alternative spring break programs. The end-of-course student evaluations for service learning courses inform improvements to Center faculty development programs and are provided to individual faculty for their own course improvement and documentation of teaching excellence.

School of Education – Elementary and Secondary Education

The program in elementary education identifies three general outcomes for Block I (of four) in the curriculum, each with carefully articulated learning objectives. At the end of the block, the team of instructors who have had the students in class during that semester meets as a group to evaluate each student on each objective. In addition to transmitting direct feedback to individual students about strengths and areas for improvement, faculty enter evaluation results into a database that supports longitudinal program review. Over the past three years, faculty teams have identified needs to improve students' writing skills before they begin the program as well as to provide opportunities for students to improve depth of reflection and abilities as critical thinkers. The faculty has implemented Benchmark I on a repeat basis, providing students with feedback about their progress on prior concerns and any new areas of concern to address.

Elementary education students complete Benchmark II at the end of Block II. The Benchmark II projects are blindly scored by faculty members who have completed scorers' training. Students who receive a failing score must complete a follow-up to the assessment during Block III. The school pays particular attention to inter-rater reliability, with periodic recalibration by reviewers to assure consistency over time.

Within Secondary Education, the school is piloting a benchmark in Block IV designed to assess teacher candidates' abilities to assess and positively affect their students' learning, using the resulting data to provide feedback to students, inform instruction, and improve educational decision-making. Data from the pilot were under review at the end of the year.

School of Engineering and Technology

Each department in Engineering and Technology completes its own assessment report, reflecting some variety in approach, but overall consistency in progress. The School undertook a major reorganization of departments and realignment of programs in 2007-08, restructuring the forty certificate and degree programs into eight departments. This necessitated some realignment of assessment processes as well. Most of the programs, however, are accredited by one of three

specialized accreditors, so the commonalities of professional standards helped ease the transition in many cases. All departments use a rich blend of direct and indirect assessment methods, including student self-reports, alumni and employer surveys, senior capstone projects, industrial advisory boards, portfolio reviews, national examination results, final presentations, and tracking of retention and graduation data. Most departments have also mapped professional accreditation standards to the IUPUI PULs to coordinate assessment overall.

Prompt action on assessment findings is the rule, rather than the exception, whether at the course or program level. Some programs are comparatively new and still undergoing continuous adjustment in preparation for a first professional accreditation. For example, the baccalaureate program in Biomedical Engineering was not launched until 2004. Thus, when student performance and feedback consistently indicated a need, course content in sophomore- and junior-level courses was assessed and streamlined to provide clearer and more cohesive development of ideas across the curriculum. In particular, junior-level courses now include more writing and open-ended problem-solving.

Several departments routinely ask faculty to complete an end-of-semester reflective survey for each course in order to capture while fresh the instructor's observations about needed changes in course objectives or texts, areas where students showed difficulty in mastering specific content, new practices tried and their level of success, and the need for new laboratory equipment or software. This timely feedback is then reviewed at department meetings to address patterns across courses.

The Technical Communications Program (in the Department of Communications Technology) provides an example of the way programs assist one another within the School. TCM offers both its own certificate and service courses taken by majors in other departments. Three of its classes use random sampling for assessment of student work by faculty other than the course instructor. For TCM 360, engineering (not TCM) faculty serve as jurors for students' oral presentations. For TCM 220, TCM administrators collect a random sample of final written projects. And for TCM 340, TCM administrators collect a random sample of students' Business Correspondence Portfolios, which include various kinds of class assignments. For each course, TCM has developed a comprehensive rubric; rubrics for oral presentation and written communication have been shared with the entire Engineering and Technology faculty in order to begin standardizing the assessment of those types of assignments for PUL1.

Several other departments make consistent use of rubrics. For example, in planning for use of the ePortfolio to structure assessment of student learning of the PULs, the Organizational Leadership and Supervision program (Department of Computer, Information, and Leadership Technology) began with a detailed rubric for scoring student work at the 300 level. This level was selected to represent the intermediate range of PUL competences. The specific language of the PULs was used on the scoring sheet returned to students to bolster their understanding of expectations and help them take responsibility for their learning. The Department of Electrical Engineering has prepared a rubric for use by faculty, staff, students, and industry representatives who serve as jurors for design project reports.

Attention to input from industry professionals is particularly important for this group of departments, who draw on these professionals' perspectives not only for input from employers of our graduates, but also for advice about emerging competences needed for successful careers. For example, the Electrical Engineering Advisory Board suggested that understanding the business side of the profession, specifically economics, is increasingly vital to success for engineers and that project management background leads to improved career opportunities. As a

result, two new classes were developed. One is in engineering economics and is part of a new economics requirement for the Plan of Study, while the other is a general education elective in engineering project management. In Mechanical Engineering, jury evaluation of capstone design projects led to increased emphasis throughout the curriculum on prototyping and evaluation, project management, and project presentation.

Careful attention to student feedback is evident as well, usually when consistent patterns appear across student surveys, exit interviews, and student advisory committees. For instance, Electrical Engineering students in a lower-division programming sequence complained that too much time was spent in review during the second course in the sequence, causing them to feel overburdened with work for the two-credit course. Faculty, however, had determined that students were retaining too little information from the first course and needed the review. Faculty thus decided to revise the two courses, combining them into a single four-credit course covering the same material over a shorter time span. Similarly, feedback from students expressed a need for earlier information about resume writing and graduate school and career opportunities, so the Senior Seminar was discontinued and reconstituted as a Sophomore Seminar to give students more timely exposure to these topics and also to help them to prepare for internships.

School of Health and Rehabilitation Services

The School does not currently offer undergraduate programs, but the strategic plan includes development of three undergraduate certificate programs and one undergraduate degree program. For the latter, plans already include incorporation of the PULs. The graduate programs all maintain full accreditation status with appropriate professional bodies, the programs are fully enrolled, and graduates of all programs exceed the average pass rates on national licensure examinations.

Herron School of Art and Design

The Herron faculty has tightly integrated the PULs with its own requirements for knowledge and abilities at graduation in its ten baccalaureate degree programs. All first-year students must take a Foundations course. The Herron Themed Learning Community has adopted a new text to address concerns about the strength of the linkage between English composition and the Foundations courses. Sophomore advancement reviews include student oral presentations, written artist's statements, and portfolios. Students who pass on probation are provided specific feedback about what improvements are needed and are assigned a faculty mentor. Since departments began providing students a performance rubric to prepare for their advancement-review presentations, these presentations have increasingly reflected better preparation and fuller integration of knowledge and skills. The Visual Communication Design (VCD) rubric for advancement review continues to be refined for even greater consistency in evaluating student readiness to advance into the major.

Once admitted to the major, students continue to add to their portfolios (some traditional and some electronic). Senior capstone courses provide integrative learning opportunities for students as well as sites for faculty to assess students' cumulative development, along with school-specific and PUL outcomes. International study, internships, service learning and other field experiences provide additional venues for students to learn and demonstrate proficiency in the PULs that address diversity and civic engagement on local and global scales and to practice core communication skills. VCD students are now required to take a speech course. Evaluations are sought from students' supervisors in external experiences. At a program level, Herron alumni

are surveyed to assure that students continue to believe that their education has prepared them well for their careers. Exhibits of fine arts students' work and student artwork sales provide other opportunities for direct public feedback about student learning at Herron.

School of Informatics

The Health Information Administration program uses data on student achievement in five domains prescribed by its accrediting commission, as well as two external sources of data, for assessment. Program graduates generally score above the national average in a majority of the competencies on the national certification examination. Surveys of both recent graduates and their employers verify that students possess the qualities and skills to be proficient in the field of health information management. The HIA faculty evaluates course curricula annually as part of the program accreditation evaluation process. Revisions to current course content and development of new courses are based on analysis of the registry examination results for each of the five domains as well as the results of employer and graduate surveys and individual course evaluations.

Students majoring in Informatics undertake capstone projects or theses to demonstrate mastery of discipline-specific and PUL outcomes, and many prepare student portfolios documenting their proficiency. The school surveys students, alumni, and employers; solicits feedback from advisory boards; and tracks such external validation as awards won by students and admissions to graduate programs. Data from such assessments show that students are finding jobs or gaining admission to graduate schools, but may need more international experiences.

Responsive improvements implemented in 2008-09 include a new service learning course, development of a 2+2 program with Sun Yat-Sen University, and the addition of new courses in business skills, such as project management. To provide earlier introduction to critical thinking, pair problem-solving was introduced in two lower-division courses. More courses are being converted to online or hybrid formats, and faculty are experimenting with alternative scheduling, such as twelve-week courses. Based on student and employer feedback, the undergraduate Informatics curriculum was thoroughly analyzed this year; one result is a list of courses to develop in order for the school to remain at the top of the field. Another outcome is complete revision of the school web site to provide, among other improvements, clearer paths to information about graduation and career opportunities.

Faculty members in Media Arts and Science spent much of 2008-09 carefully aligning the PULs with program and course learning strategies and assessment methods. The curriculum was also under review, with revisions planned to rearrange content into more effective learning sequences. Instructors report some success in using blog and journal writing to improve students' communication skills through additional practice. Because informal assessment suggests that students generally respond well to projects involving community partners, a course dedicated to community engagement has been added, and other courses will continue to emphasize projects with community partners.

Kelley School of Business Indianapolis

The Kelley Assessment Committee mapped its Principles of Business Learning (PBLs) to the IUPUI PULs in order to demonstrate how the PULs connect to the standards of the American Association of Collegiate Schools of Business (AACSB), Kelley's external accrediting body. The whole curriculum was reviewed to assure that all students receive multiple exposures, at increasing levels of complexity, to the Principles as they advance in their programs. In 2008-09,

each course coordinator or instructor identified desired results on targeted exercises or exam questions that would demonstrate particular kinds of PBL learning. Far more than isolated test questions, these techniques included, for example, monitoring the quantity and quality of responses in course discussion forums, as well as pre- and post-tests on such tasks as writing assignments and oral presentations. When these course-level assessments indicate a need or opportunity for improvement, appropriate actions are taken. For instance, exam scores improved as students adjusted to introduction of new software, while creation of instructor-developed videos of problem-solving processes permits repeated student viewing to improve learning. Providing samples of excellent written cases and reports helps students better understand instructor expectations.

Adoption of two different student surveys has furthered program improvements. The Kelley Career Planning Office (CPO) has initiated an electronic point-of-service evaluation system immediately following a counseling session, while students' perceptions are fresh. The office learned more about students' reasons for seeking counseling, their satisfaction levels (95.2 percent were very satisfied), and their preferred types of interaction. The CPO can thus expand resources in those areas of greatest interest to students and expand the types of delivery that will accommodate the largest number of students. At a broader level, the senior exit survey, after four years' administration, provides both statistics and narrative comments about students' opinions of their curricular and co-curricular experiences at Kelley. Generally, the findings are good and trending higher in virtually all categories; several significant changes in courses and majors offered, office procedures, and other areas have been implemented as a result of the survey.

Several Kelley Indianapolis courses have developed internally and externally verifiable methods for tracking and certifying student learning. One example is the Business Simulations class, a capstone required of all senior undergraduate business majors. Not only do the students participate in a team business simulation, but they also take the Comp-XM individual assurance of learning assessment. Both of these measures allow comparison with a broader group of students at other business schools. With 366 Kelley students running 94 simulated businesses in 16 industries, with 5 or 6 teams per industry, Kelley students have performed very well: 49 percent of the Kelley teams have ranked in the top 10 percent internationally, and 51 percent of individual Kelley students score in the top 20 percent of performance in comparison to peer teams and students.

School of Law

As a graduate/professional school, the School of Law is accredited by the American Bar Association (ABA). Success in professional licensing processes is the primary cumulative measure of student learning. On the Indiana bar examination (one of three parts of the licensing process adopted by the Indiana Supreme Court), school graduates pass at rates consistent with pass rates for all takers and they continue to meet or exceed the ABA accreditation standard. The school also closely tracks employment rates of its graduates: 94 percent of its 2008-09 graduates found employment in the field within a year. In preparation for an ABA site visit in October 2009, the school conducted a comprehensive self-evaluation according to ABA accreditation standards in 2008-09. That review and the results of the site visit are expected to be the basis for strategic planning in 2009-10.

School of Library and Information Science

SLIS is a graduate-only core school with campuses in Bloomington and Indianapolis. Curricular matters require the agreement of the faculty as a whole. Individual faculty members use aggregated data on student learning to make course-related changes, most recently to improve an online course and to identify systemic issues in an evaluation course. In 2008-09, the SLIS-wide Curriculum Steering Committee explored various options for a new approach to program-level student learning outcomes assessment (required for both institutional and special accreditations). In spring, the Indianapolis program proposed and was awarded a grant for a pilot project that will use the ePortfolio for program assessment.

School of Medicine

Though known primarily as a professional school, the School of Medicine offers eight programs in six fields at the undergraduate level (e.g., Radiation Therapy, Cytotechnology). Five common undergraduate learning outcomes have been developed; the first of these incorporates the PULs. Carefully mapped competencies, teaching strategies, measures, benchmarks, and tracking improvement needs all support school-wide assessment. In 2008-2009, students successfully achieved the 90 percent or 95 percent pass rates established as benchmarks for clinical experiences or exams.

School of Nursing

The School of Nursing has mapped its professional BSN program outcomes to the IUPUI PULs. The program uses a mix of internal and external measures to assess its baccalaureate program outcomes and student achievement of PULs. Foremost as an internal, direct assessment is the capstone evaluation conducted among clinical preceptors, students, and faculty. Over the past four years, outcomes have exceeded the benchmark performance level. Nonetheless, faculty continued in 2008-09 to improve the program by incorporating simulation into their clinical teaching and by developing scenarios that require students to make decisions based on analysis of patient data and needs. In addition, though students feel competent in their communication skills, the faculty has made changes to emphasize computer skills, consistent with the needs of practice partners who are implementing computer record-keeping systems. Implementation of an early-warning system and tutoring for students at risk of dropping out has helped the school exceed its goals for class graduation rates.

The school uses the EBI Core Knowledge Survey as an external assessment in order to benchmark against other schools nationally. Another tool, the ATI RN Comprehensive exam, has had limited usefulness due to sporadic participation levels. The Kaplan assessment package will replace this exam in 2009-10. In addition, faculty decided to seek improvement in alumni survey participation by sending the survey directly from the school 2009-10. Employer surveys report 90 percent agreement that graduates are competent care providers. Performance of BSN graduates on the annual RN-CLEX state examination exceeds the school benchmark, with pass rates ranging from 93 to 97 percent. And although scores in the domains of cultural competence and ethical practitioner are very high, attention continues to focus on ways to improve in these areas. A new director of diversity will work to increase diffusion of diversity within the school and its curricula, and the faculty continues to explore values and ethics with students, especially in practice settings.

School of Physical Education and Tourism Management

The Department of Tourism, Conventions, and Event Management (TCEM) assesses both the PULs and specific domains of disciplinary knowledge. Important sources of summative assessment data include evaluations of student work in the senior capstone course and industry professionals' feedback on TCEM student interns. Senior exit surveys provide additional data for program improvement even when results are positive. Based on the combined findings from these sources over the past several years, the department has revised its internship program and developed a new evaluation instrument in the ePortfolio that incorporates student reflection, TCEM learning domains, and PUL learning.

Similarly, the Department of Physical Education assesses learning according to published standards of professional bodies, the PULs, and acceptance of its students into graduate and professional schools. Both formative and summative written assessment from capstone experience placement sites documents that students are well-versed in their fields and skilled with the PULs. Students preparing to teach score well above the national average on the PRAXIS 2 exam for Teacher Education (a 95 percent pass rate compared to the national average of 75 percent). The core faculty members of each track (teacher education and exercise science) nonetheless meet regularly to improve the curriculum in keeping with best practices in the field.

School of Public and Environmental Affairs (SPEA)

Each of the SPEA majors has carefully articulated areas of competence and learning outcomes; these are also linked to the PULs. The competencies and outcomes for the Environmental Science and Health major are also mapped to national competencies for specialized accreditation. The faculty identifies which PULs are addressed in each course, with outcomes linked to appropriate forms of assessment. In addition, all students take capstone experiences, and all majors except one require an internship, providing opportunities for direct external feedback to support assessment. The school uses a range of direct and indirect methods of assessment to track program effectiveness. Student performance continues to improve, though a recent review of one program identified concerns about students' writing skills. Overall performance of student interns was rated as excellent by 83.9 percent of supervisors. SPEA's retention rate has steadily increased (to 83 percent in 2007-08).

In response to specific opportunities for improvement identified in previous years, the school developed an exit survey for both undergraduate and graduate students, administered for the first time in May 2009, to gather additional information about student satisfaction. The faculty continues to work on enhancing students' writing skills. The BS in Public Affairs has added a foreign language option and another research methods course option as well as requiring all majors to enroll in an internship. The Health Services Administration program now requires all students either to take Introduction to Careers in Health Care or to acquire experience in the field; in addition, the major was reorganized to focus on areas of competence. The Public Safety Management program faculty similarly realigned the major around competencies, and both the Environmental Health Minor and Environmental Studies Certificate were updated. The school also developed a new course on career development and planning, which will be offered for the first time in Fall 2009.

School of Science

In 2005, the School of Science Assessment Committee adopted a six-stage plan for assessment of all eight undergraduate programs. Several of the departmental reports for 2008-09 discuss assessment work in terms of these stages, which include:

1. Identifying Science Learning Objectives (SLOs) in the specific field of study;
2. Mapping the objectives throughout the curriculum;
3. Defining desired outcomes;
4. Identifying appropriate assessment methods for each outcome;
5. Conducting the assessment;
6. Taking whatever corrective actions might be needed.

Departments in the school have made varying degrees of progress within this model. The Biology Department, for example, had conducted Stages 1 and 2 and had begun Stage 3, but the introduction of new courses and instructors required stepping back to revise earlier stages of work. The Chemistry Department had previously completed a proficiency-based Stage 1 and took extra time with Stage 2 to incorporate the PULs into its program matrix. Similarly, the Physics Department completed Stages 1 and 2 in 2007-08 and in 2008-09 completed Stage 3, including mapping the PULs into each course. The Department of Forensic and Investigative Sciences has also completed Stages 1 and 2 and, while addressing Stages 3 and 4 in 2008-09, mapped its SLOs to the campus PULs.

The Department of Computer and Information Science, on the other hand, finished Stage 5 in 2008-09 and began work on Stage 6. The department had decided to use the ETS Major Field Test to assess student learning outcomes. IUPUI students scored better on average than all takers and students at selected peer institutions, but the department decided to add a course in computational theory to the core requirements to address an area of comparative weakness for department seniors. The Psychology Department also took time in 2008-09 to articulate its SLOs with the PULs, while continuing its assessment of the SLOs in an ongoing cycle. Of the SLOs assessed, 87 percent were being accomplished successfully. Several interventions based on previous assessments proved successful in improving targeted learning outcomes; those which did not succeed will see further modification next year.

School of Social Work

All degrees (baccalaureate, master's, and Ph.D. in Social Work, plus associate and baccalaureate degrees in Labor Studies) are system-wide programs and are thus planned and assessed by faculty at all IU campuses. The social work accrediting body, the Council on Social Work Education, has recently adopted new standards emphasizing competencies. Beginning in Fall 2009, therefore, faculty task groups will work to make these ten core competencies operational, which will enable focus on outcomes assessment.

Of the many projects undertaken in 2008-09 to improve program effectiveness, two related to the PUL on understanding society and culture illustrate the kinds of actions taken. Faculty had previously analyzed all 124 course objectives in the BSW curriculum and had identified 58 as potentially useful in guiding inclusion of content relevant to this PUL. In 2008-09, faculty committees worked on identifying possible topics to address those objectives (for instance, "effects of globalization on various populations at risk" and "nonprofit organizations and their role in countries of the Global South"). The faculty has begun to incorporate several of the themes into course content, and will implement final changes in course syllabi in the next year.

Another group of improvement projects focuses on improving support and communication in online teaching and learning. In order to partially address a set of student concerns, one instructor implemented audio lectures, cell phone usage, text messaging, and forum discussions into an online practicum seminar. Students responded very favorably, and the new features will continue to be provided. In another online course, bringing students together for poster presentations to showcase group projects provided multiple benefits: students gained experience with peer evaluation as a professional practice; instructors used the peer evaluations as an element in grading final projects; and the presentations helped students see themselves as professionals. Support for students in service learning courses was strengthened by adding more partner locations, providing increased flexibility for student scheduling. Adding a web-based system for practicum placements in social work greatly improved the placement process for students and field coordinators.

Similar to the undergraduate programs, extensive assessment activity took place within the master's and doctoral programs in social work. Ongoing evaluation of the MSW curriculum and year-to-year comparisons show meaningful progress in several areas, including increased opportunities for practical application of course material and reduction of content overlap among courses. Careful review by the faculty suggested a likelihood of some grade inflation within the program; faculty will work systematically over the next several years to correct this, beginning in Fall 2009 with faculty training on how to develop and use grading rubrics. Like their baccalaureate counterparts, MSW students reported improvements with their field practicum experiences and high levels of satisfaction with the program. A course-sequence adjustment, addition of a new graduate course on international social development, and a new opportunity for students to participate in an institute offered through the School of Nursing all contributed to strengthening support for students seeking or nearing completion of the Ph.D. program.

Faculty in both the Labor Studies programs worked on a rubric template to assess implementation of the PULs in specific courses, as well as a program template for PUL distribution across the programs. With nearly all Labor Studies courses taught online, the faculty also undertook an extensive review of its use of online student assistants, leading to a redefinition of the role.

Solution Center

The IUPUI Solution Center serves as the primary nexus to facilitate collaboration between IUPUI and Indiana's business, nonprofit, and government sectors. The Center regularly evaluates its progress against organizational outcomes and goals, emphasizing partner surveys and interviews as well as monitoring numbers of student placements and community research partnerships. Among many other responsibilities, the Solution Center works to increase the number of students in academically relevant internships, working with faculty in all departments to develop internships and class project opportunities worthy of designation as Experiential learning courses under the RISE Initiative. Using mid- and end-point reflections of students engaged in these projects, the Center is able to track development of PUL capabilities and improve student, faculty, and community workshops.

University College

University College is at the heart of much of IUPUI's work in improving retention rates and, ultimately, graduation rates. Both rates have steadily improved over the past ten years, in part because University College conducts frequent, wide-ranging assessment and program

evaluation, acts promptly on the results, and continues measuring and fine-tuning. Assessment addresses such issues as student performance in first-year learning experiences, efficiency and effectiveness of the various tutoring and advising services, orientation and Summer Bridge Programs, the Upward Bound and Twenty-first Century Scholars Success Programs, and other student support services. Meaningful action has been taken to address all identified areas of weakness, ranging from items as seemingly small as delays in scheduling appointments with tutors to improvement of orientation programs that aim to prepare entering students for their first year of college.

Among the many assessment methods used, University College administrators and faculty track student grade point averages (GPAs) as important indicators of successful outcomes in several contexts. For example, one way of documenting the value of the Summer Bridge Program is the higher GPA attainment for participants than for non-participants. Similarly, participants in Themed Learning Communities attain higher GPAs than non-participants, especially in the case of selected populations such as conditionally admitted students. Similarly, data from the National Survey of Student Engagement (NSSE) are used to compare students who enrolled in a Themed Learning Community with peers enrolled in a stand-alone First-Year Seminar. Results document significantly favorable differences for TLC students, supporting continuous improvement of both the TLCs and First-Year Seminars. For the Bepko Learning Center and the Math Assistance Center, careful tracking assesses the extent to which tutoring support appears to have helped students' GPAs or course grades. Twenty-First Century Scholars who participated in IUPUI mentoring programs throughout high school had notably higher GPAs at the end of the first year than did Scholars who did not participate (2.74 vs. 1.92), reinforcing the value of early intervention prior to matriculation.