Toward Improving Student Learning: policy issues and design structures in course-level outcomes assessment

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ABSTRACT Conscientious instructors at all levels are constantly making decisions about how to improve their teaching. This is a natural, intuitive part of being a good instructor, but even faculty who value student learning and work hard to improve their teaching can fail to make the connection between what they do in the classroom and the continuous improvement philosophy of outcomes assessment. The connection can be missed because understanding course-level outcomes assessment requires understanding evaluation policies and structures that differ markedly from those employed for unit-level program accreditation. The purposes of this paper are two-fold: first, to address policy issues that impede adoption of systematic, course-level outcomes assessment for improving student learning; and second, to describe a design structure for applying outcomes assessment that addresses factors under control of the instructor that affect students’ learning. The paper concludes with observations on the crossed purposes of collecting information for judging faculty merit in the annual review process as opposed to collecting information for course improvement in the outcomes assessment process.

Overview, Purpose and Background Information

Conscientious instructors at all levels are constantly making decisions about how to improve their teaching. Even during a class meeting an instructor will observe facial expression, note body language, ask probing questions, and make decisions from this information about how to adjust the progress of the class session to ensure that students ‘get it’. That same instructor may make a mid-course correction to spend extra time on a topic after disappointing class performance on an examination. In an informal sense, the instructor is using outcomes assessment; that is, he or she has developed a good idea of what the students are to learn, measures are being taken of how well it is being learned, and the results are being applied for guiding and improving learning. This is a
natural, intuitive part of being a good instructor, but the moment the term outcomes assessment is mentioned, visions come to mind of accreditation teams, paperwork, and faculty effort that seldom result in better teaching/learning technology, resources for the classroom, teaching conditions, merit raises, promotion or tenure. Outcomes assessment is sometimes viewed by faculty as one of those unfunded administrative mandates that is above and beyond the real job of teaching, research and service. Even faculty who value student learning and work hard to improve their teaching seldom make the connection between what they do in the classroom and the continuous improvement philosophy of outcomes assessment. The connection is not made because understanding course-level outcomes assessment requires understanding evaluation policies and structures that differ markedly from those employed for unit-level program accreditation. The purposes of this paper are two-fold: first, to address policy issues that impede adoption of outcomes assessment at the course level for improving student learning, and second, to describe a design structure for applying outcomes assessment.

Neither the philosophy nor the tools of outcomes assessment are new. Strategic planning and quality management tools have been used for years in both public and private sector enterprise, and higher education has shared and adapted many of the tools used in business, industry and government. Carey et al. (2001) provide a historical overview of the development of outcomes assessment thinking in American education. Ralph Tyler (1949) pioneered the thinking when he conceptualized an objectives-based approach to educational evaluation in the 1930s and operationalized his theories in an eight-year study of alternative teaching methods in secondary education from 1933 to 1941, and later expanded his work to call for:

(1) defining appropriate learning objectives;
(2) establishing useful learning experiences;
(3) organizing learning experiences to have a maximum cumulative effect;
(4) evaluating the curriculum and revising those aspects that did not prove to be effective. (Worthen & Sanders, 1987)

In the mid 1950s Bloom et al. (1956) published The Taxonomy of Educational Objectives as a framework for classifying student learning outcomes, and behavioral psychologists and the programmed instruction movement gave us narrowly prescribed performance objectives. In the 1960s some educational psychologists began to take a systems view of teaching and learning in which a set of components interacted to produce learning outcomes. These components included goals and objectives, the learners, the teacher or learning manager, instructional materials, student performance assessments and the learning environment. A critical systems concept included by these ‘instructional designers’ was the idea of feedback; that is, system performance could be improved by collecting data and feeding it back into the system to regulate and refine the system. Dick and Carey (1978) describe the role of feedback for course improvement in an early model of instructional systems design. Data typically collected for course improvement included student performance, student attitude and information about instructional management and logistics. Measurement and evaluation specialists Cronbach (1963) and Scriven (1967) saw the need to distinguish this type of evaluation for improving learning outcomes and described what has come to be known as formative evaluation. In the mid 1960s Tyler et al. (1967) made functional distinctions between summative and formative evaluation that are still used today. The concepts of instructional systems and formative evaluation are largely what we now call outcomes assessment, and pieces of this thinking can be found in the minimum competency testing
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movement of the 1970s, the standards movement of the 1980s, and the educational accountability movement that gained momentum in the 1990s and continues to this day.

The maturation of outcomes assessment has followed two parallel, and somewhat independent paths. One is characterized by the application of outcomes assessment processes in institutional and programmatic strategic planning. This path is represented in higher education in the current outcomes assessment philosophy of the six US regional agencies that accredit colleges and universities and the many boards that accredit academic programs within colleges and universities. For example, the Southern Association of Colleges and Schools accredits the University of South Florida (USF), while the American Library Association accredits the School of Library and Information Science at USF. The second path in outcomes assessment is characterized by application at the course level for improvement of teaching and student learning. Two leading proponents of this second path are Thomas A. Angelo and K. Patricia Cross, who began developing a ‘Teaching Goals Inventory’ in 1986 as a first step in classroom assessment. The first edition of Classroom Assessment Techniques: a handbook for faculty was published in 1988 (Angelo & Cross, 1988). Over the next four years in their Classroom Research Project, they found research on student learning outcomes objectives, but a lack of research or guidelines for helping educators take the next step toward implementing an outcomes assessment process. A second edition of the Handbook (Angelo & Cross, 1993) reflected the work of the Classroom Research Project.

The theory and philosophy of outcomes assessment in these two parallel paths of development are remarkably similar, and thus a natural tendency for those charged with governance of higher education at many levels can be to incorporate the two paths into uniform accountability policies and regulations. This is where a key difference bears analysis. Outcomes assessment at institutional and programmatic levels is faceless; that is, reward or reprimand, accreditation or probation are not born by individuals. Outcomes assessment at the course level, however, is personal; that is, student learning—rightly or wrongly—can be viewed as a direct result of teaching, and teaching is a prominent criterion used in faculty evaluation for promotion, tenure and merit salary increases. Chapters 10, 11 and 12 of the book by Walvoord and Anderson (1998) Effective Grading: a tool for learning and assessment include thoughtful discussion of these distinctions regarding purposes for utilization of outcomes assessment data.

Policy Issues in Course-level Outcomes Assessment

Procedural and technical considerations can be impediments to effective application of classroom-level outcomes assessment, but policy issues can be deadly. As legislatures and boards of regents become more and more focused on accountability, a tendency is to tie all things named ‘assessment’ to faculty evaluation. One general caveat in current literature is that student learning outcomes assessment should not be used in faculty evaluations. The usual reason behind this warning is that using assessment outcomes in faculty evaluations and rewards will lower faculty acceptance for the entire assessment process. For example, the assessment guideline’s booklet developed by the Student Outcomes Assessment Committee (2000) at the College of DuPage states:

This type of assessment [student learning outcomes] is not for the purpose of evaluating an individual student or faculty member’s performance. Feedback developed through outcomes assessment should not be included in evaluation
Thus, outcomes assessment should not be used to refer to faculty evaluation. (emphasis in original)

These guidelines are typical of the stated use of student learning outcomes assessment results in higher education.

Peterson and Einarson (2001) conducted a study to understand how higher education institutions have approached, supported and promoted undergraduate student assessment and what institutional uses and impacts have been realized from the results of student learning outcomes assessment activities. Their study included in its initial stage an extensive review of the literature on student assessment in higher education. Their review notes three studies (Ewell, 1984, 1988; Jones & Ewell, 1993), the most recent of which specifically tackles the linkages between outcomes assessment and faculty evaluation and rewards. Based on a survey of 2,523 institutions in the 1993 study (with a 55% return rate), they found that institutions rarely use student performance indicators to reward academic units in the budget process. The institutions seldom linked faculty evaluation and reward policies to assessment involvement or results (p. 645).

Because there has been a certain level of faculty resistance to assessment activities, most institutions have decoupled assessment from faculty evaluation and rewards. Institutions of higher education have most often used assessment information in decisions about programme review (Barak & Sweeney, 1995) and least often in decisions regarding faculty rewards (American College Testing Program, 1990; Steele & Lutz, 1995).

In the years since regional accrediting agencies have begun requiring outcomes assessment as a means of judging institutional effectiveness, faculty on the whole are still not excited about the process. Holyer (1998) states:

Up to a point, their [faculty members] lack of enthusiasm is easy to understand. Like most people these days, faculty members are already over-scheduled, and assessment is simply one more thing to do. Worse still, it is the kind of work that we [faculty members] are not particularly good or practiced at.

With all the other pressures in faculty life, it is easy to postpone or argue against doing yet another seemingly bureaucratic procedure.

In addition to accrediting agencies, another strong push for assessment in higher education is coming from state legislators, who are, no doubt, viewed by most faculty as the ones who are not giving public higher education enough funding to provide quality education. Legislators view the outcomes assessment movement as a means to establish increased public accountability to taxpayers which should result in a sufficient level of funding for higher education. By 1997, more than 75% of the states had adopted some form of assessment policy, 'yet little systematic knowledge has been available to measure the extent and scope of publicly mandated outcomes assessment at the postsecondary level' (National Center for Postsecondary Improvement, 1998).

The nature of many assessment policies and procedures mandated by both accrediting agencies and state legislatures has the effect of setting up a situation where many faculty members’ first, automatic response may be simply to resist. To get these faculty members to go along with the process, administrators may feel the need to make assessment a non-threatening activity to faculty. Divorcing assessment from faculty evaluation and rewards is seen as one way to try to win more faculty support for course-level outcomes assessment activities, and thus improve the ‘bottom line’ of student learning. From a management perspective, however, the vexing aspect of this
divorce is that the faculty evaluation and reward system is often the most powerful incentive for performance improvement that is available to an administrator.

A Design Structure for Course-level Outcomes Assessment

Reading from left to right in the design structure depicted in Figure 1, a first and obvious component is student learning outcomes. A driving design feature of all outcomes assessment schemes is predetermining measurable outcomes so that assessments can be made of whether outcomes have been achieved and the results can be used for improvement. Student learning outcomes depicted in Figure 1 could include some of the outcomes identified by an academic department for unit-level outcomes assessment as well as outcomes identified by an instructor that are unique to a particular course. The developmental processes and characteristics of well-written student learning outcomes are not discussed in this paper because the topic is adequately addressed by authors such as Angelo and Cross (1993) and Carey et al. (2001).

The centre section of the design structure in Figure 1 generally represents factors under control of the instructor that affect students’ learning. Granted, many aspects of learner characteristics and the learning environment are not managed by the instructor, particularly in distance learning, but within limits the instructor does have flexibility to plan for accommodating characteristics of different learners and can manage aspects of physical facilities, instructional technology and distance learning delivery systems. The content of the course is sometimes dictated by common course syllabi but even then an instructor typically has great flexibility in choosing instructional content and materials within the learning outcomes that have been specified. The factors of primary interest in the center section are the four bulleted entries listed under essentials for learning, because these are the heart of the teaching/learning process. These four essentials are distilled from, and are shared by, a variety of diverse psychological orientations to learning. Different schools of thought may implement the essentials differently, but from behaviorism to objectivism to constructivism, they all include these four. Foundational
thinking about these four essentials is rooted in Gagné’s (1984) work on events of instruction, and Merrill (2001) provides a good description and discussion of essentials for learning across a number of instructional theories, models and methods.

Learner characteristics, the learning environment, course content, and the four essentials for learning are ideally considered during the design of a course before it is offered for the first time. This would follow the pattern of a typical model of instructional systems design (Dick et al., 2001) for the purpose of maximizing the probability of a successful course offering. These same considerations, however, can be employed profitably after a course has been completed to solve teaching and learning problems when results of outcomes assessment are below expectations.

The assessment box on the right side of Figure 1 represents the compilation of course outcome information that is collected by the instructor. It could include results on quizzes, examinations, projects, papers, case study analyses, attitude surveys, formalized end-of-course evaluations, summaries of an instructor’s personal notes and observations, and whatever else might have been collected that would provide useful information for diagnosing problems and prescribing improvements. It should be noted that to be useful in course improvement, measures of students’ mastery of learning outcomes must be valid; that is, they must align with the student learning outcomes with regard to content, level of learning, performance criteria and performance conditions. For example it is not useful to administer a pencil-and-paper test of database terminology to assess mastery of a learning outcome that specifies utilization of the features and functions of database software. Terminology is certainly a part of utilizing database software effectively, but a test of information recall is not a valid assessment of the intellectual problem solving skills required for mastery. The dotted feedback line across the bottom of Figure 1 is a visual representation of the continuous cycle of improvement in student learning which is the goal of course-level outcomes assessment.

Application of the Design Structure for Course-level Outcomes Assessment

Let us assume the scenario that an instructor has specified student learning outcomes for a course, prepared and taught the course, collected assessment information on students’ mastery of the outcomes, and found disappointing results. A common first reaction from the instructor is often to question the students’ roles in the teaching/learning process: their intellectual capability, their preparation, their motivation, their perseverance, and so forth. This may be a good place to start, but it is a narrow perspective that ignores other determinants of the quality of the teaching/learning process. The final part of this paper is a checklist representation of how the considerations in the center section of the design structure in Figure 1 can be used to diagnose problems that can cause poor student performance.

Table 1 is a list of factors that can be used to guide the analysis and revision of a course that has not met student learning outcome expectations. Sections A through D in Table 1 correspond to the center section of the design structure in Figure 1. The entries in Table 1 are largely self-explanatory, with the exception of the entry in D.1, ‘Motivation’. This conceptual view of academic motivation is taken from Keller’s (1990) model wherein motivation is viewed as a complex, multi-dimensional construct composed of the four dimensions of attention, relevance, confidence and satisfaction (ARCS).

To use Table 1 an instructor would analyse a course by thinking through the indicators of a quality teaching/learning experience listed in the first column and entering in the second column either a ‘✓’ signifying that the indicator is adequately addressed in the
<table>
<thead>
<tr>
<th>Indicators of a Quality Teaching/Learning Experience</th>
<th>✓ or ?</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>A. Learner Characteristics</strong></td>
<td></td>
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</tr>
<tr>
<td>1. <strong>Ability</strong>: Do students possess the intellectual aptitude for mastery of the course content?</td>
<td></td>
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<tr>
<td>2. <strong>Exceptionality</strong>: Does the course provide accommodations as appropriate for known student exceptionality(ies)?</td>
<td></td>
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<tr>
<td>3. <strong>Achievement</strong>: Have students completed prescribed prerequisite courses and mastered appropriate general knowledge?</td>
<td></td>
<td></td>
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<tr>
<td>4. <strong>Motivation</strong>: Do students possess sufficient motivation for learning to maintain engagement in the course?</td>
<td></td>
<td></td>
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<tr>
<td>5. <strong>Maturity</strong>: Have students ‘learned how to learn’?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Learning Environment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. <strong>Content requirements</strong>: Are instructional facilities, equipment, and supplies sufficient for teaching course content?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <strong>Instructional requirements</strong>: Do delivery methods, facilities, and technology enable essentials for learning (see D below)?</td>
<td></td>
<td></td>
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<tr>
<td>3. <strong>Learner requirements</strong>: Do time(s), location(s), and delivery method(s) meet learners’ needs?</td>
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<tr>
<td>4. <strong>Performance requirements</strong>: Does learning environment enable transfer of skill to a ‘real world’ performance environment?</td>
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**TABLE 1—continued**

<table>
<thead>
<tr>
<th>Indicators of a Quality Teaching/Learning Experience</th>
<th>✓ or ?</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td><strong>C. Course Content</strong></td>
<td></td>
<td></td>
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<tr>
<td>1. <strong>Outcome requirements</strong>: Are new knowledge and skills a logical, relevant extension of stated student learning outcomes?</td>
<td></td>
<td></td>
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<tr>
<td>2. <strong>Learner requirements</strong>: Are new knowledge and skills relevant and appropriate for learners’ needs and characteristics?</td>
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<td></td>
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<tr>
<td>3. <strong>Quality requirements</strong>: Is course content accurate, authoritative, current, and free of bias?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. <strong>Performance requirements</strong>: Will new knowledge and skills transfer to a ‘real world’ performance environment?</td>
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<tr>
<td><strong>D. Essentials for Learning</strong></td>
<td></td>
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</tbody>
</table>
| 1. **Motivation**: Focus learners’ **attention** on critical content?  
   Demonstrate **relevance** to learners’ own goals?  
   Inspire **confidence** in performance of new skills?  
   Foster intrinsic **satisfaction** with course experience? |        |       |
| 2. **Learning guidance**: Present new content using variety of relevant examples, scenarios, case studies, authentic problems, etc? |        |       |
| 3. **Active participation**: Provide opportunities for active engagement in learning new skills with guided, corrective feedback? |        |       |
| 4. **Content integration**: Link new content to the learners’ existing knowledge and integrate into the learners’ broader world? |        |       |
course, or a ‘?’ signifying that the indicator is not addressed, is inadequately addressed, or that more information is needed to answer the question. After this cursory look at the course, very careful consideration must be given by the instructor to address the extent to which the question mark indicators are under his or her control, and to initiate action on the question mark indicators where the greatest potential for course improvement exists. For example if several question marks were entered in section ‘A’ of Table 1 indicating a mismatch between learner characteristics and the course as it is currently being taught, then an instructor might work through the following analysis:

‘Are the expectations that I have set in this course unreasonably high for the typical profile of students that I teach? Am I just out of touch with reality?’ If the answer is ‘yes’, then perhaps many course problems can be fixed by adjusting standards. But often the answer will be, ‘no, the expectations in my course correctly represent the level of work that students must do to be prepared for other courses in our curriculum and for adequate “real world” job performance’. If I cannot adjust standards, then the question may be, ‘can I maintain high expectations and still get good results by developing interventions that will ameliorate deficiencies with which students entered the course?’

If the answer is ‘yes’, then the instructor must set about a diagnostic and prescriptive program to determine students’ needs and provide or recommend compensatory interventions. If neither adjusting standards nor providing interventions is a realistic option, then the path to improving course results may be an administrative solution of tighter screening to block mismatched students from enrolling in the course, or a pretest of necessary entry skills at the beginning of the course for counseling mismatched students into an alternative, compensatory course offering. In like fashion an instructor would work through other question mark indicators in Table 1, carefully considering options, perhaps gathering additional information, and setting high priorities for actions that would address teaching/learning problems that (1) have quick, simple solutions, and (2) hold the greatest potential for course improvement. After simple solutions have been implemented, the instructor would move on to address more complex teaching/learning problems.

Appendices 1 and 2 are a set of sample forms that could be used to manage the implementation of a course-level outcomes assessment plan. Note that the forms clearly indicate that they are departmental documents intended for internal use, rather than forms for college or university level reporting. Form A in Attachment 1 establishes the institutional relevance of the student learning outcomes under consideration, and Form B in Attachment 2 provides a record of the use of assessment data for course-level improvement.

Summary and Conclusions

As noted in the beginning of this paper, informal outcomes assessment at the course level is a natural, intuitive part of effective teaching; but planned, systematic outcomes assessment for improving student learning is less frequently seen in higher education. Administrative mandate was required to overcome many barriers to adoption of outcomes assessment for institutional and unit-level accreditation in higher education, and adoption to date in many instances is still in name only. Proven technology for course-level outcomes assessment exists, but widespread adoption does not. Impetus for adoption could be spurred by mandating policies that require faculty members to use an outcomes assessment process for improving student learning in their courses. Such policies would soon find their way into faculty annual review and place the faculty
member’s participation in an outcomes assessment process at crossed purposes. Faculty annual review and reward is an evaluation process that necessitates judgment; while formative data collection at the course level is an assessment process whose purpose is to inform and improve rather than judge. Perhaps an equitable step toward institutionalizing course-level outcomes assessment could be acknowledgment in the faculty reward system of participation in outcomes assessment while guaranteeing privacy of the assessment results. This avenue could enable a desirable process for improving student learning without casting a shadow on the precept of academic freedom and the professor’s right to choose instructional content, methods and materials.

Notes on Contributors

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Appendix 1

University of South Florida

OUTCOMES ASSESSMENT FORM A

STUDENT LEARNING OUTCOMES

Library and Information Science
(Instructional Degree Program)

Master of Arts
(Degree Level)

Academic Year: 2001-2002
(Assessment Period Covered)
(Date Submitted)
(Signature)

Statement of Institutional Purpose Linkage:

Institutional Mission Reference:
The University of South Florida is a multi-campus national research university that supports the
development of the metropolitan Tampa Bay Region, Florida, the United States and the world. This
university is dedicated to excellence in:

- Teaching and lifelong learning in a student-centered environment

College/University Goals Supported:
The University of South Florida will develop into a premier research university through:

- Improved undergraduate and graduate academics which promote intellectual development and student
  success through a diverse, student-centered environment

Educational (Student) Outcomes

1. E-1. Students will use strategic planning processes to guide the direction and progress of an
   organization.

2.

3.

4.

5.
### Intended Educational (Student) Outcome:

Note: There should be one Form B for each intended outcome listed on Form A. The intended outcome should be stated in the box immediately below.

**E-1. Students will use strategic planning processes to guide the direction and progress of an organization.**

### Means of Assessment Number 1

**Criteria for Success:** On the LIS-7000 midterm exam, the group mean for the strategic planning case study will be 90% or greater.

**Summary of Assessment Data Collected:** In the spring 2001 LIS-7000 class, the group mean for the midterm exam was 87%.

**Use of Results to Improve Instructional Program:** In the fall 2001 LIS-7000 class, a simulation was developed of the midterm exam strategic planning case study. The simulation was assigned as homework and both peer and instructor feedback were given in the following class session. The group mean for the midterm exam improved to 94%.

### Means of Assessment Number 2

**Criteria for Success:** On the School's online Exit Interview Survey, 90% of graduating students will rate their knowledge and competency in leadership and management as "Very Comfortable" or "Comfortable."

**Summary of Assessment Data Collected:** Data summarized across the Fall, 2001 and the Spring 2002 Exit Interview Surveys indicate that 88% of students responding to the survey were either "very comfortable" or "comfortable" with their knowledge and competency in leadership and management.

**Use of Results to Improve Instructional Program:** No action is required.