

***INSTRUCTIONAL EFFECTIVENESS THROUGH  
ASSESSMENT OF STUDENT PERFORMANCE***

by

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Abstract

Effective instruction requires effective assessment. Three elements combine to make effective assessment possible: course objectives, learning activities, and performance measures. Course objectives that are meaningful, measurable, and achievable provide a foundation for the development of learning activities. Learning activities that are varied, progressive, and skill-building develop competencies assessed by performance measures. Performance measures that assess practical knowledge and skills in the context of a realistic setting provide the student and instructor with the clearest assessment of current abilities and identification of strengths, weaknesses, and areas for growth. The systematic development of instruction (beginning with the identification of critical job tasks through the design of related course objectives, learning activities, and performance measures) makes the assessment of instruction and learning a natural consequence.



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Instructional effectiveness relies on the frequent assessment of student performance. Assessment consists of evaluating a variety of student activities and products over a long time to determine the level of competency in the performance of critical classroom objectives. Objectives should reflect real-world knowledge and skill requirements that students must master to be successful after graduation. The criteria used to measure student performance also form the basis for the diagnosis, improvement, and evaluation of instruction. Assessment answers the questions: "How am I doing?" and "How can I do better?" for both the student and instructor. Assessment enables the instructor to continually adjust the manner and content of instruction to meet the needs of the students and achieve the objectives of the course.

Unfortunately at many colleges and universities, an emphasis on non-teaching activities, along with a tradition of academic freedom, tend to minimize interest in assessment. Instructors find teaching to be only one of many activities that compete for their time and attention. Other activities (such as research, consulting, grant work, and administration) sometimes take precedence. Instructors aspiring for tenure often devote considerable effort to non-teaching activities. Also, academia's tradition of academic freedom tends to minimize interest in the monitoring of

instruction. In higher education the assessment of instruction and student performance receives relatively little interest compared in comparison to its importance in secondary schools and especially in elementary schools.

Given the importance of the initial years of formal education, teachers of the elementary grades frequently collaborate to plan instructional and assessment activities. These teachers' foremost concern is often the assessment of their students' development. In contrast, secondary-school teachers tend to plan more independently and structure their content-centered instructional activities around the textbook and its related materials. Textbook tests frequently become the measures of student performance rather than the broader measures of student assessment. Another reason for the reduced interest in assessing older students is the belief that as students progress through school and college, the responsibility for student learning becomes increasingly the responsibility of the student. Therefore, instructors of older students feel less compelled to perform assessment activities.

Extending this trend of increased interest in subject matter and decreased interest in student development at the higher grade levels, college and university instructors often focus so intently on their subject matter that the study of teaching,

instruction, and learning, which forms the basis for assessment, is frequently neglected. Also a "learning by doing" approach to the training of college instructors tends to minimize any formal instructor development. Given this situation (along with the importance of non-teaching activities, the tradition of academic freedom, and the belief that learning is the students' responsibility), is it surprising that assessment is used least at the college level?

#### **Need for Assessment**

The public's demand for educational accountability, which initially focused on the elementary-school level, is now pressuring colleges and universities to adopt new educational practices, such as competency testing. At the 1991 Assessment in Higher Education conference, sponsored by the American Association for Higher Education (AAHE), B. Wright, director of the AAHE Assessment Forum, discussed a survey of 368 colleges and universities. The study revealed that 80% of the schools did some assessment. This consisted mostly of classroom assessment conducted by instructors to evaluate their own teaching and make adjustments for student learning. Only 33% used a comprehensive program (which included classroom assessment, surveys, interviews, and testing) to measure student learning and development. Of these, 94% assessed basic skills, 67% assessed general subjects, and 62% assessed major subjects.

#### National Education Goals

Why should college and university instructors be concerned with creating competence in their students? In 1993, the National Education Goals Panel (NEGP) identified the problem:

This year's Goals Report presents new data showing that Americans actually do not read and write well, despite their self-perceptions. Even college graduates, on average, have only middle-level literacy skills. More alarming is the finding that the average literacy skills of young adults are lower than they were seven years ago.

These data do not bode well for American business. Overseas competitors are showing us that greater productivity depends upon higher worker skills and the creation of a high-performance work environment. Still, the American public is not sure how higher literacy relates to their own standard of living. They are worried about the economy and our competitiveness, but often they fail to see the link between further adult learning and either their own security or that of the country. New information shows how direct those links are. In 1992, adults scoring at the highest levels of literacy were much more likely to have been employed than those scoring at the lowest levels; their weekly wages were more than double those of adults with the lowest literacy levels. (p. 114)

Goal 5 of NEGP's six National Education Goals addresses the role of colleges and universities in keeping the United States competitive:

By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global

economy and exercise the rights and responsibilities of citizenship. (p. xi) NEGP challenges every instructor by the year 2000 to make the following objective of Goal 5 a reality: "The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially" (p. xi).

#### Secretary's Commission on Achieving Necessary Skills

In 1992, the Secretary's Commission on Achieving Necessary Skills (SCANS) also expressed the need for competency-based education:

Teaching should be offered in context. "Learning in order to know" should not be separated from "learning in order to do."

Improving the match between what work requires and what students are taught requires changing how instruction is delivered and how students learn.

High-performance requires a new system of school administration and assessment. (p. 12)

#### Use of Assessment

Assessment involves an instructor's use of student projects, portfolios of student work, and performance evaluation to form a judgment of the student's performance relative to the entry-level skills and the goal competencies. Assessment requires an instructor's analysis and evaluation of the processes of learning as well as its products.

#### Instructor Assessment Activities

Herman, Aschbacher, and Winter (1992) list instructor activities that foster effective assessment.

Ask student to perform, create,

produce, or do something.

Tap higher-level thinking and problem-solving skills.

Use tasks that represent meaningful instructional activities.

Invoke real-world applications.

People, not machines, do the scoring, using human judgment.

Require new instructional and assessment roles for teachers. (p. 6)

Herman et al. (1992) summarize what is known about effective testing.

1. Specify the nature of the skills and accomplishments students are to develop.

2. Specify illustrative tasks that would require students to demonstrate these skills and accomplishments.

3. Specify the criteria and standards for judging student performance on the task.

4. Develop a reliable rating process.

5. Gather evidence of validity to show what kinds of inferences can be made from the assessment.

6. Use test results to refine assessment and improve curriculum and instruction; provide feedback to students, parents, and the community. (p. 8)

Jaschik (1992), Cappelli (1992), and Schilling and Schilling (1993) encourage college and university educators to adopt assessment techniques. The Task Force on Assessing the National Goal Relating to Postsecondary Education is developing a national assessment program. K. P. Cross, director of The Classroom Project

(University of California at Berkeley), has published handbooks and conducted workshops to assist college instructors in identifying student learning problems encountered during instruction (Blumenstyk & Magner, 1990). Schilling and Schilling (1993) describe Miami University's Portfolio Assessment Project, which began in 1990. Striving for continual improvement, Miami University uses written evaluative descriptions from faculty and students, assessments of student portfolios, and student interviews to develop a comprehensive picture of the university's academic environment.

One area that is most under the control of the instructor and will produce the most growth in student competency is the use of curriculum development, instructional methods, and educational assessment. An instructor's effectiveness in these areas can bring the United States closer to achieving Goal 5 of the National Education Goals.

#### Classroom Assessment

Classroom assessment provides the quickest, most direct feedback to the student and the instructor concerning "How am I doing?" and "How can I do better?" This level of assessment allows the student and the instructor to make immediate effective responses to assessment information to create better, faster learning. Consistent assessments within one class of students or between several classes would alert the instructor to a situation that can then be addressed to maintain the best possible learning environment.

The effectiveness of instruction depends largely upon the instructor's abilities in three areas: curriculum development, instructional methods, and

educational assessment. Curriculum development involves the creation of the content and flow of the course activities. Curriculum development products include: the course syllabus; quizzes and tests; assignments for reading, writing, speaking, research, and group work; outline of instructor activities; and assessment instruments (such as assessment questions, survey forms, and evaluation criteria). The remaining areas, instructional methods and educational assessment, relate to the delivery and evaluation of the instruction respectively, in other words, the execution of the syllabus. A poor course plan is difficult to instruct and assess. Hence, improvement in assessment begins with improvement in curriculum development.

Curriculum development is a critical area of instructor activity that, to a large extent, determines the effectiveness of a course. The products of curriculum development address three elements: course objectives, learning activities, and performance measures. The more the instructor can integrate these three elements throughout the course, the more focused and effective the course. The remainder of this article deals with issues instructors should consider when planning their courses.

#### Course Objectives

Course objectives should be performance-based and measurable. Objectives should derive from tasks that are critical to effective job performance. This linkage between school and jobs allows for long-term assessment using feedback from past graduates to update objectives based on current and projected job conditions. Because of this school-job linkage, objectives should focus on practical

knowledge and skills that will make the student more effective on the job.

Given the job-related objectives related to the course of instruction, the instructor reworks the objectives to make them teachable and measurable. Also, the objectives may best progress in a particular sequence, and additional enabling objectives may need to be written to provide intermediate objectives, which support a more complex, more difficult objective. The result is a series of objectives that promote the development of the student toward job competency. This series of objectives make instruction and assessment more manageable and effective by breaking the course into smaller objective-based blocks.

Another consideration the instructor should be aware of during the preparation or review of objectives is to ensure that the objectives involve a variety of physical activities (such as reading, writing, speaking, and group work) as well as a variety of mental activities (such as recall, analysis, and synthesis). This mix of physical and mental skills supports a central goal of assessment: evaluate the student in terms of long-term complex projects that are realistic and require the student to use a variety of knowledge and skills.

#### Learning Activities

A progressive list of measurable course objectives, which involve a variety of physical and mental skills, is the starting point for development of the learning activities. Considering the sequence, schedule, and type of course objectives, the instructor develops a sequence of instructor and student activities that support the achievement of these objectives. The

learning activities will incrementally develop the student toward job-related competencies. The instructor should ensure that the activities address a range of competencies and that objectives, especially critical ones, involve various types of activities, such as recalling, using, and applying information. Next, the instructor prepares the materials to support the learning activities.

Given the learning activities and the supporting materials for the course, the instructor arranges the learning activities into an order of presentation. Frequently, learning activities related to various course objectives will progress in parallel, so that the students will develop integrated, increasingly complex competencies. The instructor coordinates the arrangement of learning activities with the dates and times of the class meetings to produce the course syllabus. The instructor evaluates the time requirements for the various activities and modifies the syllabus accordingly. The syllabus should reflect a progression of activities beginning with the comprehension of basic information; to using the information in testing, writing, and speaking; to applying the information in case studies, to research involving out-of-class resources and personnel. Formative assessments, those performed during the course, will document the progress of the students through the variety of learning activities. The summative assessment, which is performed at the end of the course, will compare the students' final competencies, in absolute terms, to the course objectives and, in relative terms, to the students' initial level of competency.

#### Performance Measures

Given the progression of measurable

course objectives and learning activities, the instructor schedules performance measures into the syllabus. The instructor should frequently assess the students to determine how well the students and the instruction are progressing. Performance measures may include quizzes, papers, presentations, examinations, and feedback from students concerning the instruction. The instructor should use a variety of performance measures.

Quizzes should be used frequently. They focus the students on the topic to be discussed and provide assessment information to the instructor and the students. Quizzes may be written or part of a class discussion. The form of the questions may be multiple choice, matching, or short answer.

Papers may be a variety of lengths and written for a variety of purposes, but primarily the student is required to synthesize, summarize, and communicate information. A 1-page paper, either written in or out of class, is used for a response to a specific topic. A 3-page paper contains a more complete treatment of a broader topic, to include an introduction, major points, important concepts and authors, and a summary. A 5-page paper uses the three-page format but includes student analysis and examples to demonstrate student comprehension. A 10-page paper is used to report research, which may include literature searches, interviews, observations, and case studies. During a course the instructor should use a variety of papers to assess student analytical and communicative skills.

Presentations may consist of speaking to the class either individually for 15 minutes, or in a panel discussion lasting 45

minutes. Public speaking develops a critical job-related skill. The purpose of presentations is to develop student confidence, but presentations also add variety and interest to the class, and communicate considerable information. The panel discussion format may be used earlier in the course as an interim step towards individual presentations. Presentation should include an introduction, a presentation of the main points, a summary, and time for questions.

Examinations cover a broad portion of course content and are similar to quizzes, only longer. Examinations may be used as transition points in the course to review and bring to closure a segment of the course. Examinations are important assessment items because of the amount of content addressed and the cumulative nature of examinations. However, examinations should not be the sole assessment item in a student's portfolio.

Feedback from students concerning the instruction may be written or discussed. Instructors should solicit feedback throughout the course, not just at the end. Feedback at the beginning of the course helps determine student expectations. Feedback during the course can identify the activities that are effective and those that are not. Most importantly, the solicitation makes the students part of the instruction and empowers them to recommend changes that may make the instruction more effective.

#### Curriculum Development Concerns

Instructors should consider the following questions when developing a course syllabus to facilitate classroom assessment:

Which knowledge and skills learned

in this course would make students more effective on the job?

Which course objectives are specific, measurable, and feasible?

Which course objectives could be rewritten to become specific, measurable, and feasible?

When in the syllabus should quizzes occur, and what material will the quizzes address?

When should examinations occur, what material should be addressed, and how will the material be tested?

What other student activities will be assessed?

What type of student papers will be required, and when will they be due?

Will any student presentations be required?

Will group work be required?

Have the learning activities of the course developed the students' knowledge and skills described in the first question? If not, reevaluate the answers to all questions.

#### Conclusions

The global economic competitiveness of the United States depends on the education of its citizens. Improving education is critical to our economic survival. The public's demand for accountability in education has reached the colleges and universities. Assessment, an essential element in improving education, answers the questions: "How am I doing?" and "How can I do better?" for both the student and instructor.

Frequent assessment of student performance enables the instructor to quickly identify student learning problems. Consequently, the instructor can adjust the manner and content of instruction to meet

the needs of the students and achieve the objectives of the course, thereby creating instructional effectiveness. Effective assessment requires course objectives that are meaningful, measurable, and achievable; performance measures that assess practical knowledge and skills in a realistic context; and learning activities that are varied, progressive, and skill-building. Effective assessment leads to effective instruction.

Author Notes

I wrote this article in response to a call for papers from Embry-Riddle Aeronautical University's College of Continuing Education for a symposium on teaching effectiveness. The use of assessment techniques in my college teaching has helped me determine student abilities and instructional effectiveness within the class time available.

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