**Assessment of Faculty by Civil/Construction and other Students**

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**Abstract**

An Undergraduate Assessment conference recently provided a forum for higher education professionals to exchange ideas, discover new practices and form partnerships to enhance educational experience through assessment (7). The Symposium was designed to address both practical concerns and larger policy issues by providing attendees with ideas and tools that could be immediately shared and implemented at their home institutions, which range from community colleges to large research universities. Some of these institutions are conducting a multipart quantitative and qualitative assessment of programs measuring the technologies they use, how they seek information and where they do their academic work. The findings suggest students hold various opinions in different areas of classroom teaching assessment (12). For example, an experiment with 38 graduate students from a civil/construction engineering department has revealed the developmental skills in various areas of education.

1. **Introduction**

Assessment is a process of gathering and documenting information about the achievement, skills, abilities, and personality variables of an individual. Assessment is used in both an educational and psychological setting by teachers, psychologists, and counselors to accomplish a range of objectives. These include the following:

* to learn more about the competencies and deficiencies of the individual being tested
* to identify specific problem areas and/or needs
* to evaluate the individual's performance in relation to others
* to evaluate the individual's performance in relation to a set of standards or goals
* to provide teachers with feedback on effectiveness of instruction
* to predict an individual's aptitudes or future capabilities

Since the early 2000s standardized tests have been increasingly used to evaluate performance in U.S. schools. Faced with declining test scores by American students when compared to others around the world, state and federal agencies have sought ways to measure the performance of student’s schools and bring a measurable accountability to the educational process (23). Thus, these governmental organizations have adopted standardized tests for evaluating knowledge and skills on the assumption that testing is an effective way to measure outcomes of education. One prominent program has been the No Child Left Behind Act that requires schools to meet certain performance standards annually, for their students as a group and also for individual ethnic and racial subgroups (30). The use of this type of standardized test is controversial. Many educators feel that it limits the creativity and effectiveness of the classroom teacher and produces an environment of "teaching to the test."

**2. Educational Assessments:**

The choice of an assessment tool depends on the purpose or goal of the assessment. Assessments might be made to establish rankings among individual students, to determine the amount of information students have retained, to provide feedback to students on their levels of achievement, to motivate students by recognizing and rewarding good performance, to assess the need for remedial education, and to evaluate students for class placement or ability grouping. The goal of the assessment should be understood by all stakeholders in the process: students, parents, teachers, counselors, and outside experts. An assessment tool that is appropriate for one goal is often inappropriate for another, leading to misuse of data (4).

Assessment tools fall broadly into two groups. Traditional assessments rely on specific, structured procedures and instructions given to all test-takers by the test administrator (or to be read by the test-takers themselves). These tests are either norm-referenced or criterion-referenced tests. Standardized tests allow researchers to compare data from large numbers of students or subgroups of students. Alternative assessments are often handled on an individual basis and offer students the opportunity to be more closely involved with the recognition of their progress and to discover what steps they can take to improve.

**3. Norm-Referenced Assessments:**

In norm-referenced assessments, one person's performance is interpreted in relation to the performance of others. A norm-referenced test is designed to discriminate among individuals in the area being measured and to give each individual a rank or relative measure regarding how he or she performs compared to others of the same age, grade, or other subgroup (27). Often the mean, or average score, is the reference point, and individuals are scored on how much above or below the average they fall. These tests are usually timed. Norm-referenced tests are often used to tell how a school or school district is doing in comparison to others in the state or nation.

**4. Criterion-Referenced Assessments:**

A criterion-referenced assessment allows interpretation of a test-takers score in relation to a specific standard or criterion. Criterion-referenced tests are designed to help evaluate whether a child has met a specific level of performance. The individual's score is based not on how he or she does in comparison to how others perform, but on how the individual does in relation to absolute expectations about what he or she is supposed to know. An example of a criterion-referenced test is a timed arithmetic test that is scored for the number of problems answered correctly. Criterion-referenced tests measure what information an individual has retained and they give teachers feedback on the effectiveness of their teaching particular concepts.

**5. Authentic Assessment:**

Authentic assessment derives its name from the idea that it tests students in skills and knowledge needed to succeed in the real world. Authentic assessment focuses on student task performance and is often used to improve learning in practical areas (13). An advantage of authentic assessment is that students may be able to see how they would perform in a practical, non-educational setting and thus may be motivated to work to improve their skills.

**6. Portfolio Assessment:**

Portfolio assessment uses a collection of examples of the actual student's work. It is designed to advance through each grade of school with the student, providing a way for teachers and others to evaluate progress (25). One of the hallmarks of portfolio assessment is that the student is responsible for selecting examples of his or her own work to be placed in the portfolio. The portfolio may be used by an individual classroom teacher as a repository for work in progress or for accomplishments. Portfolios allow the teacher to evaluate each student in relation to his or her own abilities and learning style. The student controls the assessment samples, helping to reinforce the idea that he or she is responsible for learning and should have a role in choosing the data upon which he or she is judged. Portfolios are often shared by the student and teacher with parents during parent-teacher conferences.

**7. Interview Assessment:**

The assessment interview involves a one-on-one or small group discussion between the teacher and student, who may be joined by parents or other teachers. Standardized tests reveal little about the test-takers thought process during testing (9). An interview allows the teacher or other administrator to gain an understanding of how the test-taker reached his or her answer. Individual interviews require a much greater time commitment on the part of the teacher than the administration of a standardized test to the entire class at one time. Thus, interviews are most effective when used to evaluate the achievements and needs of specific students. To be successful, interviews require both the teacher and the student to be motivated, open to discussion, and focused on the purpose of the assessment.

**8. Computer-Aided Assessment:**

Computer-aided assessment is increasingly employed as a supplement to other forms of assessment. A key advantage in the use of computers is the capability of an interactive assessment to provide immediate feedback on responses (2). Students must be comfortable with computers and reading on a computer screen for these assessments to be successful.

It has been mentioned that criterion referenced tests may be used to give faculty members feedback and a method to assess their teaching techniques. Specifically, in an attempt to assess the teaching effectiveness of faculty, universities have installed computer systems to assist in this process (14). All students are strongly recommended to participate in order or obtain statistical acceptable results. The participants are requested to answer various questions concerning faculty teaching effectiveness in order to rate or assess a faculty member in a particular course. Specifically, the questions taken under consideration in this study may be found in Tables 1-5.

The department of civil engineering offers graduate courses entitled engineering management that is open to civil/construction engineering majors as well as other students in the college of engineering. Recently, a study was conducted concerning the faculty assessment levels for the two groups of students enrolled in two co-listed classes. Generally, civil/construction students enroll in CVEN 5308 and the other engineering students in CVEN 6388. Normally the classes are co-listed and taught together. In this study approximately 94% of civil/construction students are enrolled in CVEN 5308 and roughly 40% enrolled in CVEN 6388.

The findings of the study are listed in the Tables 1-5. Table 1 shows that numerous assessment values are identical for the two groups such as “assignments aided learning” (4.8) and “learned a lot, over all” (4.7). Table 2 illustrates that often civil/construction students may have slightly better scores such as “learning objective explained” (4.8 versus. 4.7) and attended class 4.8 versus 4.6.

Table-1 Identical Assessment Scores:

|  |  |  |
| --- | --- | --- |
|  | Class with low % civil/construction students | Class with high % civil/construction students |
| Assignment aided learning | 4.8 | 4.8 |
| Instructor available for questions | 4.7 | 4.7 |
| Learned a lot overall | 4.7 | 4.7 |
| Grade reflects performance | 4.7 | 4.7 |
| Students treated fairly | 4.8 | 4.8 |
| Composite score based upon 5.0 = strongly agree: 4.0 = agree: 3.0 = neither agree nor disagree: 2.0 = disagree: 1.0 = strongly disagree. | | |

Table-2 Similar High Assessment Scores:

|  |  |  |
| --- | --- | --- |
|  | Class with low % civil/construction students | Class with high % civil/construction students |
| Learning objectives explained | 4.7 | 4.8 |
| Attended class | 4.6 | 4.8 |
| Strong desires to take class | 4.7 | 4.8 |
| Composite score based upon 5.0 = strongly agree: 4.0 = agree: 3.0 = neither agree nor disagree: 2.0 = disagree: 1.0 = strongly disagree. | | |

Not all civil/constructions scores are better than those of other students. For example, Table 3 illustrates that the civil/construction students rate, “opportunity for class discussion” at a lower value. Nevertheless, in contrast Table 4 shows data where civil/construction engineering students have answered assessment questions at a higher value. For example, in the area of “teaching methods aided learning” the scores were 4.8 versus 4.5.

The findings in Table 4 show that “instruction stimulated interest,” “teaching methods aided learning”, and “understood subject matter” all were highly rated by civil/construction majors.

Table-3 Various Scores:

|  |  |  |
| --- | --- | --- |
|  | Class with low % civil/construction students | Class with high % civil/construction students |
| Syllabus was accurate | 4.3 | 4.7 |
| Opportunity for class discussion | 4.7 | 4.5 |
| Composite score based upon 5.0 = strongly agree: 4.0 = agree: 3.0 = neither agree nor disagree: 2.0 = disagree: 1.0 = strongly disagree. | | |

Table-4 High Scores:

|  |  |  |
| --- | --- | --- |
|  | Class with low % civil/construction students | Class with high % civil/construction students |
| Instruction stimulated interest | 4.5 | 4.8 |
| Teaching method aided in learning | 4.5 | 4.8 |
| Understood the subject matter | 4.4 | 4.8 |
| Composite score based upon 5.0 = strongly agree: 4.0 = agree: 3.0 = neither agree nor disagree: 2.0 = disagree: 1.0 = strongly disagree. | | |

Table 5 illustrates that in the highest grouping the perceptions are 4.9 versus 4.3 for “instructor explained course material clearly”. Finally the data in Table 5 concerning “overall, the instructor is a good teacher” is rated 5.0 versus 4.5

Table-5 Highest Assessment Scores:

|  |  |  |
| --- | --- | --- |
|  | Class with low % civil/construction students | Class with high % civil/construction students |
| Instructor helped achieve learning | 4.5 | 4.9 |
| Instructor explained course  material clearly | 4.3 | 4.9 |
| Overall, the instructor is a good instructor | 4.5 | 5.0 |
| Composite score based upon 5.0 = strongly agree: 4.0 = agree: 3.0 = neither agree nor disagree: 2.0 = disagree: 1.0 = strongly disagree. | | |

**9. Summary and conclusion:**

A question may be asked if these two classes should be taught together. Overall, the course enrolling a high percentage of civil/construction students (CVEN 5308) has a score of 4.8 compared to CVEN 6388 with a lower percentage of civil/construction majors and a score of 4.6. These numbers are relatively close.

Nevertheless, civil/construction students rate “instructor explained course material” (4.9) and “overall, the instructor is a good instructor” (5.0) at considerable higher values than those in CVEN 6388 with score of 4.3 and 4.5.

Obviously, civil/construction students perceived that “the instructor helped achieve learning”. In fact they did not suggest any improvement in the class.

In conclusion, it appears that more detailed information should be obtained from students in the class who do not have a major in civil/construction engineering before a decision can be made to separate the classes.

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