

PERFORMANCE STANDARDS IN COMPETENCY-BASED EDUCATION*

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The purpose of my presentation is to provide some historical perspective and to identify some models for the setting of standards in a competency-based educational setting. Competency-based education and performance standards have been around for a long time. They are not a creation of the 1970's. Phillip H. DuBois in his 1964 presentation at the Educational Testing Service Invitational Conference on Testing Problems told of the existence of 3,000 years of examinations in the Chinese empire. About 2200 B.C., the Emperor of China was examining his officials every third year to determine whether or not they should be reappointed. In 1115 B.C., formal examination procedures existed for candidates for office. Job sample tests requiring "proficiency" in music, archery, horsemanship, writing, and arithmetic were administered to the candidates.

It appears that most, if not all, of our Civil Service Testing used the Chinese system as a model. Congressman Thomas Jenckes, writing in 1868, used the Chinese system for his arguments for the Civil Service System in the United States and is considered to be one of the fathers of our present system.

Hence, it is easy to conclude that performance standards have been here for many years. One might argue that competency-based education was somewhat newer. We don't have any evidence that schools, as we know them, existed three thousand years ago to train potential leaders during the Chan dynasty. However, competency-based education is not a recent invention. For example, this author spent 20 weeks in the U.S. Navy Radio Operators School more than 30 years ago. We learned to type, to copy Morse Code, to translate the code into plain language, to tune receivers and transmitters, etc. Competencies and standards were established—type 35 wpm without error, OR ELSE, copy code at 26 wpm, OR ELSE (the "OR ELSE" meant transfer to the fleet as an ordinary seaman and served as an excellent motivating device).

Apprenticeship programs in printing, bricklaying, plumbing, carpentry, and other trades have been around for more years than some of us are old and are, in fact, competency-based educational programs with established performance standards. Guild/professional societies have existed for several hundred years. Some of our earliest silversmiths and watchmakers learned their trade in apprenticeship programs where the competencies were fairly well-established and performance standards are known to have existed. Factory workers are trained to operate machines and then are paid on the basis of production. Football and basketball coaches operate within competency-based settings with well-defined performance standards called score touchdowns, make baskets—win!

When we move to the arena of public schools and talk of competency-based education and performance standards, two questions come to mind. First, what are the competencies? And second, who establishes or how are performance

standards established? Our primary concern here is not on the competencies but on the models one can use to establish the performance standard.

There seem to be two ways that standards have been and are established: judgmental and empirical. There may well be important distinctions within these categories and I will mention a few. But it would appear that those two categories are all inclusive.

Judgmental

Within this category there appear to be two distinct methods or models for establishing performance standards. One we could call the professional judgment model, and the other, the externally imposed standards model. Operationally, or from a measurement point of view, there may be no difference between the two, but I would like to point out one or two distinct characteristics of these two models.

The professional judgment model would assume that there is some number, probably greater than 1, of competent professionals that have agreed on the standards to be met by the learner. Doctoral supervisory committees may function in this kind of standard-setting. Typically, the committee meets and decides the courses in which the student will enroll, agrees that a minimum grade point average shall be maintained, and upon completion of course work, examines the student in both written and oral fashion to determine whether s(he) has "learned" the required material. If the student meets the performance standards established by the committee, permission is granted to proceed to the dissertation stage. Licensing boards in medicine, psychology, etc., may represent another type of professional judgment model. The distinctive characteristic here is that the judges are members of the profession which the learner aspires to join.

The other type of judgment model is perhaps just a variation of the professional judgment model. This model would apply when some group external to the profession, such as a legislature, mandates standards for members of the profession. Several states now have legislation which calls not only for state assessment programs but which also identifies the standards which are to be met by the pupils in the schools. Other states have or are contemplating what are being called survival skills tests. These are tests which will be taken by any student who has reached the age of 14 or 15 years, and if the student "passes" the test, a high school equivalency diploma will be awarded. Following the awarding of the diploma the student may, with parental permission, terminate school attendance.

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The distinction here is the fact that the "judges" in this case are external to the school system rather than part of the school system.

Empirical

To talk of empirical models for performance standards seems to imply that someone has examined performance of students with respect to some criteria. Hence, it would seem that most, if not all, empirical models would resolve into some sort of a statistical prediction situation. I would like to point out, as Guilford did many years ago, that there are at least four general prediction situations:

1. prediction of attributes from attributes
2. prediction of attributes from measurement
3. prediction of measurement from attributes
4. prediction of measurements from measurements

Each of these, I suspect, exists in both the single and multiple variable situation. Each may have special measurement problems and differing implementation problems.

In summary, then, it appears that standards have existed for many generations. Probably most of the early standard-

setting followed the judgmental model. For example, judges rated essays or poems, or they counted arrows hitting the target (as in Kendall's "Hiawatha Designs an Experiment"). As our knowledge about the measurement of behavior and our understanding of statistical analysis increased, the setting of standards became more empirical than judgmental. As more and more groups outside the formal educational system become involved in establishing standards for use, it may be that the pendulum is swinging back towards an emphasis on the judgmental model.

Whether we are dealing with judgmental models or empirical models, we need to be aware of the characteristics and problems associated with that. This may prove critical if you have no choice in which model to use. There are problems associated with implementation, i.e., it is hard to get more than one-half the students to score above the median regardless of what the legislation requires. Finally, there are measurement problems associated with different models.

Having reached the point of confronting problems, I yield to my colleagues for the presentation of the solutions.

References

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