SUMMARY The role of performance assessment in outcome-based education is discussed emphasizing the relationship and interplay between these two related paradigms. Issues of the relevance of assessment to student learning are highlighted in the context of outcome-based education. The importance of defining assessment premises and the role of institutions in defining their educational philosophy as it pertains to student learning and assessment is also presented. A brief description of implementation guidelines of assessment programs in outcome-based education are presented indicating the key features of such programs.

Introduction

Higher education institutions have been responding to a growing concern for the adequacy of students’ professional and career preparation by specifying the outcomes or abilities critical for future professional performance (Friedman & Mentkowski, 1980). Such outcomes are educational programs focus on assessing performance as well as knowledge as a key to bridging the gap between college and career.

Institutions of higher education who set pre-defined learning outcomes in behavioral objectives demonstrate advanced educational reform in teaching, learning and assessment. These programs demonstrate a unique approach to education by designing a comprehensive systemic (school wide) and systematic curricula which goes beyond knowing.

Outcome-based education and performance assessment are closely related paradigms. They are bound by simple educational principles: (1) assessment methods should match the learning modality; (2) in all fairness, students are entitled to learning experiences which will adequately represent the assessment methods. Consequently, outcome-based programs are faced with the need to develop non-traditional teaching and assessment techniques, which capture both the learning and performance of broad abilities. Recent developments in assessment methodology have focused on performance assessment, and somewhat neglected the related paradigm of outcome based education. Ideally, at the didactic phase of medical education, where the full scope of professional development is considered, the two are inseparable. In such programs, a comprehensive assessment will be integrated with all stages of the curriculum from its initial conception. Furthermore, assessment activities are integrated with learning to enhance student learning from their own assessment experience (Loacker, 1993). Medical schools have unique opportunities to observe students through their learning and assessment over a prolonged period of time. Students are eager to demonstrate their professional growth, and to monitor their own learning. Thus, clear outcome objectives, assessment-feedback and student self-assessment are central to outcome-based education.

The call for performance assessment by US national organizations is actually a call for outcome-based education. Proposals of the National Educational Goals Panel (1991) and the National Council on Educational Standards and Testing (1992), have both called for national examinations with performance assessment as a featured concept with an emphasis on testing complex ‘higher order’ knowledge and skills in the setting in which they are actually used (Swanson et al., 1995). In order to respond to these proposals, ‘higher order’ knowledge and skills need to be defined and incorporated in the instructional design along with performance assessment methods. Abilities may be defined as short-term behaviors, which are prerequisite to the next stage of learning; as long-term behaviors linked to the work place; or both. However, common to all outcomes based curricula is the desire to demonstrate the credibility of the program in terms of what graduates know and can do.

The purpose of this paper is to highlight important concepts of assessment in outcome-based education along the following three topics:

(1) the interplay between assessment and outcome based programs;
(2) assessment premises in outcome-based education;
(3) implementation of assessment programs in outcome-based education.

The interplay between outcome-based education and assessment

The design of outcome-based education and student assessment must include consideration of expected student outcome as viewed by different consumer groups. These views reflect different needs and expectations. Examples of consumer perspectives are found in faculty expectations from students, future employers or licensure/certification bodies. Faculty may expect students to master the learning material, future employers may expect readiness to enter specialized programs and licensure/certification bodies may expect demonstration of general professional competencies. By whichever perspective the outcome objectives are defined, from an assessment perspective, the stakes are not similar. Thus, the school decision to satisfy the needs of one or more consumer groups will dictate the nature of the outcome objectives and the assessment program.

For example, Brown University School of Medicine (Smith & Fuller, 1994), have developed a competency-based curriculum which defines nine activities: effective
communication; basic medical skills; using basic science in the practice of medicine; diagnosis, management and prevention; lifelong learning; self-awareness, self-care and personal growth; social and community contexts of health care; moral reasoning and ethical judgment; and problem solving. In addition to the nine abilities, knowledge-based requirements are grouped into nine categories. Assessment criteria are developed for each activity according to the level of performance. In contrast, the Society for General Internal Medicine in its 1996 annual meeting (Holmboe et al., 1996) conducted a workshop to explore current methods in the evaluation of clinical competence. They present the components of the definition of a certifiable internist as clinical judgment; medical knowledge; clinical skills; humanistic qualities; professionalism; medical care; moral and ethical behavior.

The abilities defined by the medical school and the certification body present similarities as well as differences. Differences may stem from the short-term/long-term definitions of abilities, the specific values of the medical school and its educational philosophy, abilities defined for the undifferentiated physician and the link between education and practice. The clearer the definition of outcome-based objectives the more effective are the assessment techniques. The clarity of the definition allows the specification of the nature of the abilities and the setting in which they are assessed and, most importantly, how results should be interpreted (Messick, 1994).

Assessment premises in outcome-based education

The assessment premises adopted by the medical school are the reflection of its institutional values. Institutions need to define their education and assessment premises prior to the design of assessment material. Examples of assessment premises are: assessment is integral to learning; abilities must be assessed in multiple modes and contexts; content is the stimulus for learning and it also provides a context to demonstrate one’s ability; performance assessment implies explicit criteria, feedback and self-assessment; core abilities must be assessed repeatedly over time to measure growth; assessment should be cumulative and comprehensive; deficiencies should be remediated (Loacker, 1993).

The New Mexico School of Medicine has defined in their assessment manual (1992) guidelines for planning and implementation of assessment programs in an ability-based curriculum. The guidelines state that a well-defined and well-managed system of formative and summative assessment should be developed and implemented. It recognizes the importance of developing assessment expertise among faculty and students to enhance the quality of assessment. Students should assume the responsibility of monitoring their own learning progress and a mastery approach to learning is implemented. Faculty will define standards and students are expected to meet those standards.

Implementation of assessment programs in outcome-based education

In planning an assessment program in outcome-based education, faculty are undertaking multiple tasks. Examples of faculty activities are listed here in chronological order. The list is not inclusive, but it contains important aspects of assessment program development and implementation.

1. Assessment premises—Outline the assessment premises and the educational philosophy of the institution and define the relationship between students and faculty, as well as the responsibilities students are expected to take to monitor their own learning. On the other hand, the school will define its responsibility to allow students to meet their educational goals.
2. Principles of outcome-based education—Establish outcome behavior principles, which will consider consumer groups, short vs long term abilities, the link between education and practice and the institutional goals.
3. Define methods—Select the methods by which outcome behaviors are defined, such as critical incidence techniques, job analysis, Delphi techniques, national/professional surveys, faculty/expert judgment or others.
4. Assessment criteria—Develop assessment criteria for each of the abilities defined. The criteria should include a description of the instructional methods employed for this ability and the setting in which behavior should be demonstrated. If abilities are described in developmental terms, the specific levels should be outlined.
5. Assessment taskforce—Establish an assessment taskforce, which will include an assessment expert. The taskforce will coordinate the development of assessment materials and will recruit faculty for the various tasks. Have faculty from different disciplines work together to allow integration of abilities across disciplines.
6. Systemic assessment program—Work towards establishing an ‘assessment oriented faculty’ which will assist in creating a systemic assessment program. One which will reach all institutional aspects—administrative as well as educational.
7. Systematic assessment program—Design a systematic assessment program, which will ensure uniformity of assessment across programs.
8. Flow of assessment information—Indicate the flow of assessment information, lines of communications and how do promotion decisions and remediation fit into the loop—and make sure the students are not lost in the process. In an outcome-based program often students may feel they are over tested and under informed.

Summary

The list of activities is certainly overwhelming. Faculty willingness to engage in such an undertaking is the first indicator of institutional values. Faculty understand that outcome-based education ensures that students are better able to meet their learning goals and faculty gain more insight into the nature of professional behaviors and the related learning activities. Faculty may take on an expert role in evaluating student performance. Sampling their subjective judgments over time and over judgments may provide the statistical confidence that the evaluation of clinical abilities is not a matter of an expert’s personal judgment but rather reflects the examinee’s consistent behavior (Friedman & Mennin, 1991). It is indeed a win/win situation.
Notes on Contributor

Dr Miriam Friedman Ben-David is an International Consultant in Medical Education, 129 Woodpecker Road, Jenkintown, PA 19046, USA.

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