Student Assessment: A Component of Providing Quality Education

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INTRODUCTION
Student assessment is an important component of the overall educational process. Such assessment involves evaluating student progress and measuring the degree to which a student has achieved desired educational outcomes. Outcomes are results; educational outcomes are the results of an educational process. As part of an educational process, assessment must be closely linked to the stated expected outcomes of the educational program and its component courses, and those outcomes should be derived from the mission of the institution. The works of the AACP Commission to Implement Change in Pharmaceutical Education(1) and the Focus Group on Liberalization of the Professional Curriculum(2) have provided a framework for defining desired general ability and professional ability outcomes of pharmaceutical education at U.S. schools and colleges of pharmacy. The general ability outcomes include critical thinking and decision-making abilities, communication abilities, responsible use of values and ethical principles, personal awareness and social responsibility, self-learning abilities and habits, and social interaction and citizenship. Many of the professional abilities may be considered as the general abilities in the context of the practice of pharmacy and the provision of pharmaceutical care.

Many faculties are currently in the process of adapting and modifying these works to fit their institutional missions as part of an effort to implement significant curricular and

1 Presented by Dr. Jack R. Cole at the Academic Section Symposium at the International Pharmaceutical Federation (FIP) meeting, Tokyo, Japan, September, 1993.
institutional change. The next step in the process of implementing curricular change is to develop the educational program itself, including specific instructional strategies to facilitate student achievement of desired outcomes, such as traditional didactic and experiential approaches, problem-based learning, small group discussions, computer simulations, role playing, case studies, and laboratories. Methods for assessment must also be developed to guide students throughout the instructional process and to determine how well each student achieves the desired outcomes. The assessment methods must be consistent with and appropriate for the desired educational outcomes. Defining what outcome information might be used to document the success, failure, or degree of achievement of students and how to use such information to improve student learning are among the difficult, but necessary, tasks facing pharmaceutical education.

TYPES OF STUDENT ASSESSMENT
The results of assessments must be interpreted in relation to the desired outcome and, in the case of quality improvement, be used to increase the degree to which the desired outcome is achieved. Assessment may be categorized as summative or formative, based on when the assessment occurs during the instructional process and/or the purpose of performing the assessment. The categories, however, are not mutually exclusive. The results of a singular assessment may have both formative and summative uses. Summative assessment is used to measure the degree of student achievement at the end of an instructional process (e.g., a final exam for assigning a course grade or a licensing examination to determine competency to practice pharmacy). The results of formative assessments influence and serve as the motivation for constructive change. Formative assessment results are used to facilitate student improvement by identifying areas of weakness and should be conducted frequently during the instructional process to facilitate continuous improvement of the student’s learning.

Assessment data may be instructor generated, peer generated, or self generated. All provide valuable feedback to the instructional process and development of the student. Also, how students are assessed drives their learning strategies. For example, if students are only assessed using multiple-choice examinations requiring recall of recently learned information, then most students will only memorize facts. However, if students are expected to apply information learned to new situations to solve patient health care problems, either in simulations or practice settings, then they will develop the skills necessary to be effective in those situations. To facilitate student achievement of the desired general and professional abilities described by the AACP Commission to Implement Change in Pharmaceutical Education and Focus Group on the Liberalization of the Professional Curriculum, educators must develop or adapt assessment methods that require students to demonstrate those abilities. In addition to in-class assessments, approaches for the coordinated assessment of students across courses throughout an educational program are needed. For all pharmacy faculty members, a continuing challenge is the development of valid assessment methods.

PROGRAM ASSESSMENT
Results of group assessments can be used to identify deficiencies in the instructional process and facilitate continu-
ous improvement of teaching effectiveness. Outcomes assessment may also be used to facilitate improvement of program effectiveness (e.g., outcomes assessment as part of program accreditation). Outcomes assessment can also occur after a student graduates to determine program effectiveness in meeting certain stated outcomes that could not be validly measured during enrollment. For example, leadership may be an important desired outcome at a particular institution. Measurement of how well that outcome is achieved could involve a survey of graduates to determine how many hold or have held leadership positions within the profession. However, identification of reliable and valid outcome measures for long-term goals is difficult. The abilities or outcomes themselves may change over time and it becomes difficult to relate a particular characteristic, performance, or ability to the instructional program once other practice and learning experiences occur. These longitudinal outcomes data have, therefore, limited formative use. For example, a particular institution may have as a goal to have 30 percent of its graduates become practitioners who provide pharmaceutical care to residents of rural areas within the state, and to maintain those practices for at least 10 years after graduation from the professional degree program. Pertinent assessment data cannot be gathered until 10 years after students have graduated. During that time, the school and program will have changed and different students will be enrolled. Knowing that only 10 percent of the graduates from 10 years prior are currently practicing in rural areas of the state provides little formative information on how the curriculum might be changed to influence future practice patterns of current students.

ASSOCIATION INITIATIVES
During 1993-94, the AACP Focus Group on the Liberalization of the Professional Curriculum will focus on providing schools and faculty with examples of practical, effective assessment processes, linked to the general ability and professional ability outcomes desired in pharmaceutical education, to facilitate student achievement of those outcomes within and across courses in the professional curriculum. Also, AACP has initiated a major, strategic move by establishing the Center for the Advancement of Pharmaceutical Education (CAPE) (3). CAPE will focus primarily, but not solely, on assessment and competency building. Activities will include the development and testing of assessment instruments and mechanisms to determine the extent of an individual’s prior learning relative to contemporary educational outcomes.

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References