According to the AACP Bylaws, the Academic Affairs Committee shall consider

the intellectual, social, and personal aspects of pharmaceutical education. It is expected to identify practices, procedures, and guidelines that will aid faculties in developing students to their maximum potential. It will also be concerned with curriculum analysis, development, and evaluation beginning with the preprofessional level and extending through professional graduate education. The Committee shall seek to identify issues and problems affecting the administrative and financial aspects of member institutions. The Academic Affairs Committee shall extend its attention beyond intra-institutional matters of colleges of pharmacy to include interdisciplinary concerns with the communities of higher education and especially with those elements concerned with health education.

Specifically, AACP President Jordan L. Cohen charged the committee to:

• Clarify the various terms related to outcome measures and assessment applied to health professions educational programs and produce a primer and glossary for use by the academy to assure a common language relative to assessment; and
• Discuss assessment from the perspective of its role and importance in the continuation of the curricular transformation process stimulated by the work of the AACP Commission to Implement Change in Pharmaceutical Education. Consider how colleges and schools can institutionalize comprehensive student and program assessment processes in their professional programs and offer suggestions that will stimulate discussion and debate within the Association.

GLOSSARY

Recognizing that terms associated with the processes of assessment and evaluation have already been defined within higher education and pharmaceutical education and that related concepts range from basic to complex and technical, the committee chose to provide a small number of basic definitions only. Links to other resources and more detailed information are provided in Appendix A for those interested in more extensive information. Also, because confusing and sometimes duplicative or conflicting definitions exist, the committee suggests that colleges and schools not view or use the confusion over definitions and jargon per se as a barrier to establishing a process to assure the quality and effectiveness of the educational programs they design, implement, and monitor.

Outcome: An outcome is the result of a particular activity or program. Statements of desired outcomes may be derived from answers to the following questions:

• What do we want to accomplish?
• What is it we say we do?
• What is it we want our graduates to be able to do?(1)

In 1998, the AACP Center for the Advancement of Pharmaceutical Education (CAPE) Advisory Panel on Educational Outcomes, prepared a revised version of the CAPE Educational Outcomes, originally published in 1994. The Educational Outcomes were intended to guide pharmacy college and school faculty in assessing and revising their curriculums.

Outcomes Assessment: Outcomes assessment is the process of collecting information about the attainment of a stated desired outcome of an academic endeavor; analyzing that information by comparing and contrasting it with previously established statements of mission, goals, and objectives; then using that information to validate the existing effort or to make recommendations to guide improvement(2).

Formative: use of data to modify (form or reform) an activity with the intent of improving it before the activity is completed or repeated(1).

Summative: use of data to show the degree to which goals are attained at the conclusion of an activity, as in summarizing the success of the activity(1).

Program Evaluation: determination of the adequacy of the program in fulfilling its mission, goals, and objectives.

Assessment: The American Council on Pharmaceutical Education (ACPE) Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree(3), refer to assessment in Guideline 3.1:

Information regarding the effectiveness of the professional program in pharmacy, particularly in the form of student achievement, should be gathered systematically from sources such as students, alumni, state boards of pharmacy and other publics, professional staff of affiliated practice facilities, and a variety of other practitioners. The results of student exit interviews, preceptor evaluations, alumni surveys, and standardized licensure examinations should be appropriately employed in the assessment system of the College or School; other indicators of programmatic and student achievement that assess the extent to which the mission, goals, and objectives are being achieved should be developed and appropriately applied.

INSTITUTIONALIZATION OF SYSTEMATIC ASSESSMENT

In considering how colleges and schools can institutionalize comprehensive student and program assessment processes in their professional programs, the committee chose to provide a model (Appendix II) that illustrates the components of an effective learning system

1Committee members: Diane E. Beck (Auburn); Patricia A. Chase (Western); Patrick J. Davis (Texas at Austin); David W. Fielding (British Columbia); R. Gary Hollenbeck, (Maryland); Victoria F. Roche (Creighton). Liaison Member: Steven A. Haist, (Kentucky, College of Medicine)
(including assessment and evaluation). Derived from that model and provided as Appendix III is a multi-step tool to facilitate local consideration of an institution’s mission and objectives, learning environment, assessment and evaluation processes. Appropriate groups of faculty and administrators at individual colleges and schools are encouraged to discuss the model and use the tools to develop an institution-specific plan for continuing the curriculum transformation process.

Because institutionalization of comprehensive student and program assessment processes can occur only at the local level, the committee chose to provide this tool rather than prepare an extensive, general report. Three members of the Academic Affairs Committee (R. Gary Hollenbeck, Diane E. Beck, and Patricia A. Chase) served as facilitators at the 1999 AACP Institute. The model served as the basis for much of the Institute and the tool was used as the focus of two hands-on activities for institution-specific teams to focus on their local environment.

Am. J. Pharm. Educ., 63, 7S-13S(1999); received 9/1/99.

References

APPENDIX A. GLOSSARY

Assessment and Evaluation Dictionary Web Sites:
http://www.cse.ucla.edu/CRESST/pages/glossary.htm
http://www.hhbem.com
http://ericac.net/edo/ed315430.htm
http://macweb.soe.umich.edu/plus/

Ability-Based Outcome. Statement of student performance that describes what the student should be able to do or perform. These statements should meet five criteria: (i) characterize the performance as multidimensional (i.e., requires integration of knowledge, attitudes, and skills); (ii) describe something the student can use in personal and/or professional situations; (iii) correspond to the pharmacy college or school mission; (iv) be stated so that it is applicable to varied contexts; and (v) embody multiple levels of development as the student progresses across the curriculum.

Assessment. The process of gathering, describing, or quantifying information about performance. (http://www.cse.ucla.edu/CRESST/pages/glossary.htm).

Competency Test. An achievement test that measures the level of skill or knowledge possessed by test takers in relation to some defined domain of skills or knowledge.

Classroom Assessment. Production of information to determine effectiveness of learning in courses. Classroom assessment presupposes establishing learning goals and includes gathering and analyzing evidence about how students and teacher are progressing toward the goals and interpreting the evidence to maintain or modify learning and teaching strategies to enhance achievement of the goals(1).

Classroom Research. “Ongoing and cumulative intellectual inquiry by classroom teachers into the nature of teaching and learning in their classrooms. Classroom research is characterized by being learner-centered, teacher-directed, context-specific, and continuous.”(2)

Evaluation. Determination of the adequacy with which a goal has been achieved. Goals and their objectives provide the standards against which to make judgments. Information developed through assessment data is used as evidence in the evaluation process(1).

Objective. The consistency of evaluation results...Reliability is a necessary but not a sufficient condition for validity(5).

Validity. The extent to which the results of an evaluation procedure serve the particular uses for which they are intended...Validity is always concerned with the specific use to be made of the results and with the soundness of [the] proposed interpretations(5).

References

APPENDIX B. MODEL

The Academic Affairs Committee presents the following workshop template for consideration by colleges and schools of pharmacy as the basis of an active learning process for faculty and administrators seeking to:

• Clarify the various terms related to outcome measures and assessment applied to health professions education;
• Discuss assessment from the perspective of its role and impor-
tance in the continuation of the curricular transformation process stimulated by the work of the AACP Commission to Implement Change in Pharmaceutical Education;

- Consider how they can institutionalize comprehensive student and program assessment processes in their professional programs; and
- Assess, analyze, and manage the elements of an effective learning system for students at their institution.

A set of instructions is included here for the use of the template in a faculty retreat and/or development program; however, the committee encourages each college or school to use and modify the template as necessary to serve their own needs.

It is envisioned that a facilitator will be identified and that the workshop will be structured so teams of five to six individuals work together. Consideration should be given to the most effective choice of facilitator and the best way to constitute the teams.

**Step 1: Learning the Model and Definitions.** The initial page of the template includes a dynamic model for an effective learning system, characterized by the following components: Mission/Objectives; Outcomes; Learning Environment; Assessment; and Evaluation. Each of these components is interrelated in the model, and defined in succinct annotated statements.

Step 1 may be conducted in a didactic manner (e.g., presentation of the model and the definitions) or an active process may be employed where each group can be given time to read, review, and discuss the information, followed by questions and consensus building. In either case, the following are key points relative to the model:

- Outside the “circle” rest the system or institution’s goals and objectives (Mission/Objective) and the periodic determination of the adequacy with which these are being achieved (Evaluation).
- The linked elements inside the “circle” are the desired results of the program (Outcomes), the experiences directly under the control of the institution designed to produce those outcomes (Learning Environment), and the formative process of collecting, analyzing, and using information (Assessment).
- Assessment and Evaluation are confounded terms.
  - Assessment, as used in this model, is dynamic and formative — Data collected through assessment processes is continuously analyzed and used (e.g., feedback to students) to facilitate learning and improve the system. This process is sometimes referred to as “Assessment as Learning.”
  - Evaluation, as used in this model, is summative — At a particular point in time or location in the program, a conclusion is reached regarding the degree to which the program is achieving its goals.

**Step 2: Specific Example.** After completion of Step 1, participants are given the following instruction: “In the context of your institution, write a concrete example for each element of the model.” Step 2 is an assessment process—each team member should complete the form. This actual application of the model to the college or school will generate a set of data. Once completed, the teams should be encouraged to discuss, analyze, and validate each example. It may be beneficial to share some of the specific examples and/or discussions with the entire group of participants to further clarify understanding of the model and terms.

**Step 3: Application of the Learning System Assessment Tool.** Each team is asked to consider the various elements of the learning system at the institution, and determine an overall grade (e.g., A, B, C, D, F) for each element. The group should reach consensus on the grade for each element by identifying the relevant criteria, considering what is in place and working, and what remains as a challenge.

An optional worksheet, included on the next page, has been designed to facilitate this process. This worksheet has been designed as a guide for analysis of the elements of the Effective Learning System Model. A set of questions is included for each element. These questions are intended to stimulate the assessment and evaluation process. Each team’s discussion should not necessarily be defined by or limited to these questions. Whatever approach the team uses, establish criteria for the grade. This can be facilitated by answering the following question: How would you know if this element of the system were working?

This process will require a significant amount of time, and it will generate important information for the college or school. To make sure that all the information is collected, it may be advisable to collect the completed sheets. One approach to bring closure to the session is to provide a one-minute report identifying the institution’s primary need and the basis for that determination.

To finalize the assessment development plan, the project management chart, identifying what needs to be done, by whom, and when, should be completed. This process will provide an additional level of prioritization and a number of alternatives for further consideration by faculty and administrators.
Assessment and Evaluation Across the Curriculum Model and Definitions

**Mission/Objective (M/O)**
Goals and objectives established for the system or institution (vision).
- Fundamental purpose of the organization.
- Must be realistic
- Includes a sense of priorities
- Describes the customers to be served
- Includes unique elements of the institution

**Outcomes (OUT)**
Results of a particular activity or program.
- Desired outcomes are goals and objectives (subsets of the mission) that are established prior to implementing the activity or program.
  - What do we want to accomplish?
  - What is it that we say we do?
  - What is it that our graduate to be able to do?

**Learning Environment (ENV)**
Experiences during the activity or program that are directly under the control of the institution.
- Teaching techniques
- Curriculum content
- Course materials
- Course assignments
- Physical facilities
- Qualifications of professors
- Students

**Effective Learning System**

**Assessment (ASSM)**
Process of collecting, analyzing, and using information.
- Collecting information about the attainment of a stated desired outcome;
- Analyzing that information by comparing and contrasting it with previously established statements of mission, goals, and objectives;
- Using that information to validate the existing effort or to make recommendations to guide improvement.

**Evaluation (EVAL)**
Determination of the adequacy with which a goal has been achieved.
- Teaching techniques
- Curriculum content
- Course materials
- Course assignments
- Physical facilities
- Qualifications of professors
- Students
- Goals and their objectives provide the standards against which to make judgements.
- Information developed through assessment data is used as evidence in the evaluation process.
  - Are we accomplishing what we intend to accomplish?
  - How well/to what degree do we do what we say we do?
  - How well are students/graduates able to do what we want them to be able to do?
### APPENDIX C. TOOL

#### Assessment and Evaluation Across the Curriculum
Specific Examples - In the context of your institution, write a concrete example for each element of the model.

<table>
<thead>
<tr>
<th>Mission/Objective (M/O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals and objectives established for the system or institution (vision).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcomes (OUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of a particular activity or program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Environment (ENV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiences during the activity or program that are directly under the control of the institution.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effective Learning System</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram of Effective Learning System" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment (ASSM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process of collecting, analyzing, and using information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation (EVAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determination of the adequacy with which a goal has been achieved.</td>
</tr>
</tbody>
</table>
Assessment and Evaluation Across the Curriculum

Learning System Assessment Tool

<table>
<thead>
<tr>
<th>Effective Learning System</th>
<th>Institutional Report Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission/Objective</td>
<td>Consider the various elements of the learning system at your institution, and determine an overall grade (e.g., A, B, C, D, F) to each element. Your group should reach consensus on the grade for each element by identifying the relevant criteria, considering what is in place and working, and what remains as a challenge. (The optional worksheet on the next page has been designed to facilitate this process.)</td>
</tr>
<tr>
<td>Outcomes</td>
<td></td>
</tr>
<tr>
<td>Learning Environment</td>
<td></td>
</tr>
<tr>
<td>Assessment</td>
<td>Element</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Grade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/O</td>
<td></td>
</tr>
<tr>
<td>OUT</td>
<td></td>
</tr>
<tr>
<td>ENV</td>
<td></td>
</tr>
<tr>
<td>ASSM</td>
<td></td>
</tr>
<tr>
<td>EVAL</td>
<td></td>
</tr>
</tbody>
</table>

Summary of Key Comments/Realizations

Identify the #1 Need and Rationale

<table>
<thead>
<tr>
<th>Top Priority Project Management</th>
<th>What NEEDS to be done?</th>
<th>By Whom?</th>
<th>When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUT</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ENV</td>
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<td></td>
<td></td>
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<tr>
<td>ASSM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVAL</td>
<td></td>
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</tr>
</tbody>
</table>
### Effective Learning System

![Diagram of the Effective Learning System Model with Mission/Objective, Outcomes, Learning Environment, Assessment, and Evaluation]

### Worksheet

This worksheet has been designed as a guide to facilitate analysis of the elements of the Effective Learning System Model. A set of questions is included for each element. These are intended to stimulate the assessment and evaluation process; your discussion should not necessarily be defined by or limited to these questions.

Whatever approach you use, establish criteria for the grade. This can be facilitated by answering the following question: How would you know if this element of the system were working?

<table>
<thead>
<tr>
<th>M/O</th>
<th>Criteria/Evidence</th>
<th>Grade</th>
</tr>
</thead>
</table>
| Do you have a mission statement that faculty “buy into”?  
Is there a common, agreed upon understanding of pharmaceutical care among faculty?  
Are environmental changes causing a need to revisit the mission/redefine niche? | Criteria/Evidence | Grade |

<table>
<thead>
<tr>
<th>OUT</th>
<th>Criteria/Evidence</th>
<th>Grade</th>
</tr>
</thead>
</table>
| Has your faculty developed, approved, and embraced a set of professional practice-based and/or general ability-based outcomes?  
Are these outcomes linked to the M/O?  
Have faculty members constructed discipline and/or course specific outcome statements related to these outcomes? | Criteria/Evidence | Grade |

<table>
<thead>
<tr>
<th>ENV</th>
<th>Criteria/Evidence</th>
<th>Grade</th>
</tr>
</thead>
</table>
| Does the ENV allow achievement of the goals and objectives in the OUT and the M/O?  
Are you using appropriate instructional strategies to facilitate learning?  
How are faculty empowered and rewarded for efforts to improve the ENV? | Criteria/Evidence | Grade |

<table>
<thead>
<tr>
<th>ASSM</th>
<th>Criteria/Evidence</th>
<th>Grade</th>
</tr>
</thead>
</table>
| Is there an assessment plan for the program? For the curriculum? For courses?  
Are multiple assessment strategies used?  
How does assessment drive student learning? | Criteria/Evidence | Grade |

<table>
<thead>
<tr>
<th>EVAL</th>
<th>Criteria/Evidence</th>
<th>Grade</th>
</tr>
</thead>
</table>
| What goals and objectives are evaluated?  
What are the components of EVAL?  
Is EVAL discrete or continuous?  
Does EVAL include all customers (e.g., students, faculty, staff, employers)? How is feedback provided to each constituent?  
Are criteria established and public? | Criteria/Evidence | Grade |