EVALUATION, ASSESSMENT, AND OUTCOMES IN PHARMACY EDUCATION: THE 2007 AACP INSTITUTE

Creating and Sustaining a Culture of Assessment

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Accreditation standards require that colleges and schools of pharmacy establish and conduct ongoing assessment of their programs. A case study of the University of Kentucky College of Pharmacy's experience developing and implementing an assessment program is described. A historical perspective of the School, implementation of an office of education, and steps taken to establish a college culture of assessment are discussed. Successful aspects of the program, including student course/instructor evaluations and curriculum committee review of individual courses, are outlined. Finally, roadblocks encountered while establishing the assessment program and lessons learned that may benefit other schools currently in the process of developing an assessment program are discussed.

Keywords: assessment, course assessment, student assessment, culture

BACKGROUND

There are many motivations for establishing an assessment program. A primary motivator is the Accreditation Council for Pharmacy Education (ACPE) Accreditation Standard 15, Assessment and Evaluation of Student Learning and Curricular Effectiveness.¹ This standard requires a systematic and sequential process to evaluate the curricular structure, content, organization, and outcomes of the curriculum. Furthermore, it requires colleges and schools to utilize assessment data for program improvement. Other motivations may include an institutional commitment to teaching improvement, a full-scale curriculum revision, or existence of a faculty development program.

At the University of Kentucky College of Pharmacy (UKCOP), the establishment of an assessment program was spurred by the decision to move to an "all PharmD" (doctor of pharmacy degree) program beginning in 1992. At this time, the curricular philosophy, structure, content, and teaching methodology were entirely redesigned via a faculty-driven process over an 18-month period. The faculty steering committee recognized the importance of a strong assessment component to ensure implementation of a quality first-professional degree PharmD program.

Integral to the development of an assessment process was the support of the Dean and Associate Dean for Academic Affairs. Financial support was provided by the

administration to establish an Office of Education and hire an education specialist to oversee development and implementation of the process. Administrative support also signaled to the faculty that participation in the program, including faculty development seminars, curriculum committee course reviews, student course evaluations, and student liaison meetings, were valued faculty activities. The initial step of strong administrative support has been cited in the literature as a critical foundational step to ensure the success of an assessment program.^{2,3}

The assessment program is currently administered by the Office of Education working in conjunction with a faculty assessment committee. The Office of Education was created by the Dean of the College of Pharmacy in 2002 to serve several purposes, one of which was to assist college administration and faculty members in maintaining continuous quality improvement by ensuring compliance with the accreditation standards and university program review standards.

The Assistant Dean for Education reports to the Executive Senior Dean and oversees the operations of the Office of Education. The Assistant Dean is a member of the College leadership team and represents the College in all areas associated with the delivery of education-related programs including faculty development, evaluation, and fostering of scholarship. The Assistant Dean for Education is also involved in accreditation-related issues and interfacing with the College's Office of Continuing Education. This individual serves as an ex officio member of the curriculum committee and the assessment committee.

The Director of Assessment is responsible for overall program assessment including the development of

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assessment instruments and techniques, coordination of assessment procedures, analysis of data, generation of reports, and support for faculty members and administrators in assessment and evaluation of desired educational outcomes. This individual serves on the college assessment committee and the curriculum committee (ex officio), in addition to several university committees for assessment and evaluation.

The Director of Distance Learning and Information Technology assists faculty members and the administration in matters of instructional design, faculty development, and instructional technologies. This individual serves as an ex officio member on the curriculum committee. The Office of Education administrative services assistant plays a significant role in supporting the various activities of the office.

The infrastructure that supports the assessment program is shown in Figure 1. The assessment committee, working closely with the Office of Education, is charged with college-wide oversight of course and programmatic assessments. This includes suggesting the research questions to be considered, the assessment methods that will be used, development of assessment instruments, review of assessment data, and formulating suggested follow-up action based on results of assessments conducted. While the committee relies heavily on the expertise of the Office of Education, final decisions regarding assessment activities are the purview of the faculty.

The assessment committee has a broad-based composition that includes faculty members from both pharmaceutical sciences and practice departments, Office of Education personnel, the curriculum committee chair, and representatives from the student body, residents, and practitioners. Projects the assessment committee

has recently undertaken include drafting new curriculum outcomes for faculty consideration, creation of an online student course evaluation, and development of an assessment of teaching process including a peer assessment process. Projects can originate from within the committee as a result of needs identified via assessments, or can be referred from the curriculum committee or the Office of Education.

ESTABLISHING A CULTURE OF ASSESSMENT

Faculty Development

Faculty development is an essential building block in achieving faculty understanding of the elements and importance of assessment. Faculty members are provided with regular updates on trends in higher education and Accreditation Council for Pharmacy Education (ACPE) accreditation standards¹ during faculty meetings, retreats, college web site announcements, and faculty development workshops. An increased awareness of the accountability demands and related assessment issues enhances faculty support for creating a culture of assessment. Faculty members are provided with numerous opportunities to attend development workshops. A list of topics of interest was generated from a faculty survey. Subsequently, the Office of Education began to compile and offer a series of workshops to meet these needs. The success of these workshops is evident in the creation of a new “Teaching Toolkit Series” offered to faculty every month by the Office of Education, covering topics such as the following:

- Beyond Lecturing: Engaging Students in a Large Classroom Setting
- Learning Styles (a facilitated “roundtable” to discuss why they matter)
- PowerPoint “Polish”
- Demonstration of “Turning Point” Audience Response System
- Test Item Writing

An “Assessment 101” series is currently in development for next year. Experts and faculty engage in collegial dialogue often conducive to implementation of new teaching and learning methods in the classroom.

Course Directors’ Meetings

Prior to the beginning of each semester, course directors’ meetings for professional years 1 through 3 (PY1-PY3) are conducted by the Office of Education. These meetings are designed to ensure integration of course content in a systematic manner and to avoid duplication of subject material. Following these organizational meetings, the Office of Education develops a document for each professional year that is referred to as the master

Figure 1. Organizational structure for assessment used at the University of Kentucky College of Pharmacy

calendar. These documents provide a week-at-a-glance listing of course meetings, topics, instructors, and locations. The document can be used by faculty members to improve integration of material between courses. Faculty members have responded favorably to the course directors' meetings as an efficient mechanism for keeping all course directors informed about general issues as well as instructional material in concurrent courses.

Beginning in fall 2003, in addition to their course syllabi, course directors were asked to complete a course assessment plan form (Table 1), requiring identification of the College's outcomes and abilities to be addressed in each course and the subsequent student learning objectives. Faculty members are also asked to include assessment methods and evidence of student learning. The assessment plan form serves 3 purposes. First, a quick review of the student learning objectives in the syllabus affords an opportunity to identify individual faculty members who may need assistance in writing good, measurable objectives and to ensure that reliable assessment methods are used. Second, the process of working through the form provides faculty members an opportunity to evaluate how well students are learning in their course(s), and finally, faculty members become familiar with the college outcomes and abilities documents. This process serves as a valuable tool to enhance teaching and student learning. In order to consolidate the workload and provide individual guidance to faculty members, this process was incorporated into the course review process discussed later in this article. Integrating this activity into the course review provides an opportunity for individual discussion about writing course goals and objectives, using various teaching methods to accomplish the goals and objectives, and choosing valid and reliable assessments to determine

whether students are learning what is intended. This approach has been effective in assisting faculty members to think through their course(s) and discuss what is working well and what needs improvement in a nonthreatening and encouraging environment.

Educating Students

Another critical issue in creating a culture of assessment is educating students regarding the importance of their role in the process. Assessment and evaluation are an integral part of this College's culture, but particular emphasis on helping students recognize their responsibilities in providing timely and constructive feedback on their learning has proven to be quite successful. This process begins during the PY1 professional orientation, where significant time is allocated to introducing ACPE standards relating to student learning,¹ college outcomes and abilities statements, and expectations of students in the assessment process. Case scenarios and group discussions are used to demonstrate the concepts of providing constructive feedback not only to faculty members and administrators but also to their peers. Participation in assessment activities is framed in the context of the role of a professional to engage in self-, peer, and institutional assessment.

IMPLEMENTATION

The first step in implementing the assessment plan was development of a curriculum outcomes document. Sample documents were collected from colleges and schools with a similar mission, structure, and program. A team with broad faculty representation was sent to an American Association of Colleges of Pharmacy (AACP) institute to draft a set of outcomes. The final document consisted of a set of patient care outcomes and a set of general abilities outcomes (Table 2). The general abilities were not integrated with the patient care outcomes to provide greater visibility to faculty members and students regarding the importance of developing professional skills and attitudes. These include critical thinking, leadership, professionalism, and communications. The CAPE outcomes document has been mapped to the College outcomes document to ensure that all outcomes outlined in accreditation standards are also present in the outcomes document. The draft document was reviewed by the curriculum committee and approved by a faculty vote.

Next, the Office of Education, created to be the home for College assessment, conducted an inventory of existing assessments. During 2003-2004, departments and faculty members were asked to submit a brief description of data they collected for assessment including the following information: person or department responsible for collection;

Table 1. Curriculum Outcomes

Professional Outcomes

- Medication Distribution
- Patient Care
- Management
- Teaching
- Research

General Abilities

- Foundation Knowledge
- Critical Thinking Skills
- Information Management
- Communications
- Professionalism
- Social Interaction, Citizenship, Leadership
- Lifelong Learning

Table 2. Curriculum Committee Course Review Process

Section I: Reflection by Course Coordinator
<ul style="list-style-type: none">● Demonstration of how the course contributes to the curriculum outcomes. This includes student learning outcomes, assessment methods linked to outcomes, evidence that the outcome is met, how results are used for course improvement.● How does this course relate to other courses in the curriculum? List those courses that precede or follow this course in related topic areas.● How does the course coordinator communicate with the coordinators of the courses listed above to coordinate content across the curriculum?● Describe the interactions between instructors who participate in this course (eg, discuss lectures topics, work together to prepare exams, prepare an activity for the class)● Describe the teaching methods used in this course and estimate the percentage of total class time spent using each of these methods.● Describe the formative and summative assessment methods used in this course.● Describe recent changes to this course (eg, changes to course content; changes made in response to student course evaluations, liaison reports or curriculum committee reports; student performance; faculty development seminars).● Describe the strengths of this course.● What do you perceive as the areas in need of improvement in this course?
Section II: Representative Materials from the Class
<ul style="list-style-type: none">● Course Syllabus● Sample lecture materials for each instructor with significant teaching time● Choose one or two activities/teaching methods that are representative of the best work in this class. Provide all available supporting documents for this activity/method. This may include the outcomes for the activity, a copy of an assignment, instructions to students, assessment for the student activity.● If not included in the section above, provide some examples of your assessment activities.
Section III: Student Materials
<ul style="list-style-type: none">● Distribution of letter grades in the course – last 2-3 years● Student course evaluation, liaison meeting reports - last 2-3 years

timeline for collection; and plans for dissemination, analysis, and use of data.

Although the Office of Education collected the majority of the student and course assessment data, it was surprising to discover the extent of assessment throughout the College. The list stretched to 20 pages. Apparently, too many assessments were being conducted and the results were not effectively utilized. Each assessment was evaluated according to how and why it was collected. As a result of this process, many assessment activities were eliminated that were deemed to have little value in program evaluation and improvement. A plan was developed to ensure continuous quality improvement via systematic review of assessment results, development of recommendations for curriculum improvement, implementation of changes, and follow-up on results.

We cannot be satisfied with merely maintaining the status quo but should constantly be reflecting on goals and outcomes, looking for new ways to enhance student learning. Faculty members are genuinely interested in how their students learn and the impact their teaching has on

learning. The Office of Education has begun a program to encourage faculty members not only to ask these questions but also to engage in educational research with innovative approaches to teaching. In addition, the role of the Office is to use collected data to answer questions such as:

- Which educational experiences/environments maximize student learning during the first year of pharmacy school?
- Which students' input characteristics can best predict student confidence?
- Which educational experiences can best predict student learning?⁴

This philosophy ensures that “assessment is always a work in progress ...to increase meaningful student learning.”⁵

SUCCESSFUL COMPONENTS OF THE ASSESSMENT PROGRAM

The greatest successes to date have been achieved in the areas of student assessment of courses/program and

course evaluation by the curriculum committee. These processes will be described in detail.

Student Course Evaluation

A key component of the College's success with student assessment was the implementation of an online course evaluation system (CoursEval) in fall 2004.⁶ Online accessibility and ease of use have enhanced the quantity and quality of student assessments. For example, students have approximately 7 days to respond to individual course and instructor evaluations that can be accessed from home as well as campus. Student comments are generally constructive and thoughtful. As discussed in the following paragraph, the response rate is greater than with our previous pencil-and-paper system, and the length of time between student completion of evaluations and distribution of results to faculty members and administrators has greatly diminished.

During orientation, students are introduced to the online system by completing the Motivated Strategies for Learning Questionnaire (MSLQ), and later, a student opinion survey on the orientation process. Each semester, course and instructor evaluations are completed using CoursEval, with a 100% response rate. Every student is required to login and answer the first question, "Are you willing to complete this course and/or instructor evaluation?" Students who answer "no" must justify their response by giving a valid reason, and students are informed that their response to this question is reviewed by the Dean of the College. Few students, having logged into CoursEval, opt out of the evaluations. The total number of students who choose not to take the evaluation and provide a reason is approximately 3% and is being closely monitored for significant changes. The orientation process and emphasis on professionalism and communication skills throughout the curriculum have enhanced students' ability to provide constructive feedback.

Implementation of the electronic system has allowed the Office of Education to gather student feedback throughout the semester. When a course module is completed and an instructor has finished teaching in a given course, the instructor evaluation is posted immediately. This allows students to provide feedback while that module is still fresh in their minds and spreads the assessments throughout the semester. This eliminates the problems that may occur when all course evaluations are conducted during the last few weeks of the semester. Students may not be able to recall events from early in the semester, thus decreasing the quality of input received. Students may experience survey fatigue when asked to complete many course evaluations within a short timeframe.⁷ This decreases both the quantity and quality of the feedback.

To ensure student participation and accurate feedback, students must see evidence that assessments are used for quality improvement and must know that their ideas and opinions are heard. Communication and shared collaboration among administration, faculty members, and students is needed to determine which improvements can and will be made and which are unreasonable expectations. Open dialogue between faculty members and students regarding student input can highlight the different viewpoint each brings to student learning. Ultimately, students' involvement in assessment contributes to their accepting responsibility for their own learning.⁸

Types of Student Assessments

Overall, the College has been quite successful with gathering and utilizing student assessment data for program evaluation. Numerous survey instruments are used to measure student attitudes, opinions, behaviors, and other issues throughout their academic years in the College of Pharmacy. For example, during first-year orientation, students are asked to complete the Felder-Silverman Index of Learning Styles (ILS),⁹ Hammer's Behavioral Professionalism Assessment,¹⁰ Health Sciences Reasoning Test (HSRT),¹¹ Defining Issues Test (DIT),¹² and Motivated Strategies for Learning Questionnaire (MSLQ).¹³ These survey tools are instrumental in tracking student development and enhancing teaching and learning. Course and instructor evaluations are completed online using CoursEval. Students also complete an evaluation at the end of each academic year to provide information used to improve course and curriculum outcomes. In addition, 10 to 12 students are randomly selected from each academic year to participate on a Student Liaison Committee. A facilitator from the Teaching and Learning Center encourages students to discuss what enhances and hinders their learning. Students are expected to provide constructive feedback and possible suggestions for improvement. This information is provided to their classmates and the faculty.

Course Review Process

The course review process provides ongoing oversight of each course within the required PharmD curriculum. Courses are reviewed on a 3-year cycle. The curriculum committee has developed a format to be used by course coordinators in preparing documents for course review. The course review document is intentionally designed to stimulate reflection on how and why each course is designed and taught. It also promotes interaction between faculty members within and outside of an individual course.

The curriculum committee chair and assessment director from the Office of Education meet with each

course coordinator prior to the course review to orient them to the nature of the review and how to prepare the requested materials. The meeting focuses on the formative nature of the review. The meeting is also an opportunity for faculty development. For example, if a course is found to have no student learning outcomes or inappropriately designed outcomes, assistance is offered to the course coordinator in preparing those items. Faculty members can be introduced to new active-learning methods or formative assessment practices. For example, at a meeting with the course director for the medicinal chemistry course, the course director disclosed that poor or forgotten organic chemistry knowledge was a problem in the course. One suggestion provided to the faculty member was to conduct a formative assessment at the beginning of the course and have a teaching assistant provide refresher sessions in organic chemistry for those students who score poorly on the assessment.

Coordinators are asked to prepare materials in conjunction with other faculty members who participate in teaching the course. Areas addressed in the course review are listed in Table 3. In-depth review of the documents prepared by the course coordinator is conducted by a subcommittee composed of one faculty member from the pharmaceutical sciences department and one from the pharmacy practice and science department, and either a student, resident, or practitioner member of the curriculum committee. If needed, an additional reviewer with content expertise can be added to the review team. A draft of the review is prepared by the review team and presented at a curriculum committee meeting. Following a committee discussion, the chair prepares a final report that is sent to the course coordinator and department chair. The course coordinator is asked to provide a response to the report within 1 month. The response should address any suggestions for course improvement contained in the report and should outline changes that will be made in the course. A follow-up with the coordinator on planned changes to the course should be conducted after the course is taught and should address the impact of those changes on student learning and performance.

If a faculty member is not cooperative, the department chair is asked to intervene and request the cooperation of the faculty member. As ex officio members of the curriculum committee, the chairs understand the importance of the course review process.

Classroom Assessment Methods

Generally, teaching faculty members have the most familiarity with summative assessment methods. Through faculty development activities, course instructors have been introduced to formative assessment

methods that are easy to use with ever-increasing class sizes. For example, individual faculty members have piloted use of audience response systems in the classroom for a variety of purposes including:

- to determine mastery of background information for upcoming lectures
- to conduct quizzes that allow both faculty members and students to evaluate the class's level of understanding at the end of a lecture
- to incorporate active learning during a lecture
- to gather opinions from students about ethical issues in pharmacy
- to practice solving problems using principles presented in lecture

As a result of faculty development activities demonstrating potential uses for the Turning Point audience response system, PY1 students are now required to purchase their own audience response devices for use throughout PY1-PY3 activities. Faculty members from both the pharmaceutical sciences and pharmacy practice and science departments have agreed to incorporate activities into class sessions.

Hands-on skills assessments or performance-based assessments have been incorporated throughout PY1-PY3 coursework in the patient care laboratory sequence over 6 semesters. A variety of activities utilizing standardized patients have been developed for first- and second-year students to practice communication skills, patient assessment and monitoring, staffing a community or hospital pharmacy, and documentation of care plans. PY3 students participate in integrated performance-based assessments that incorporate all of the previously learned skills, utilizing patient problems drawn from therapeutics courses taught concurrently with the laboratory sequence. Rubrics have been developed to assess student performance. Remediation and repeat assessment is available to students who fail to meet the performance standard.

PROGRAM ELEMENTS UNDER DEVELOPMENT

Curriculum Mapping

Initial steps in curriculum mapping of outcomes have been completed. As indicated earlier, course directors were originally asked to provide the Office of Education with their course outcomes at the beginning of each semester. Since this was a duplication of efforts for the course review process, it was determined that as courses in the curriculum are reviewed by the curriculum committee, the course coordinator must identify those curriculum outcomes to which the course contributes. The college is currently reviewing software packages to manage outcomes and provide enhanced reporting features.

Comprehensive Assessment of Teaching

Assessment of teaching has traditionally been conducted by 2 methods: student course evaluations and preparation of a teaching portfolio. Feedback from department chairs and results of a faculty survey revealed 2 problems with this process. Faculty members reported that the portfolio process was not working for a number of reasons. Many faculty members did not know how to construct a quality portfolio, failed to prepare a portfolio, or believed that the portfolio was not used by administrators or committees in making decisions for promotions and raises. Department chairs requested additional information about the quality of faculty teaching to be used as part of personnel decisions. In addition, the assessment committee believed that a formative teaching assessment process was essential, particularly for junior faculty members, to improve the quality of the professional program.

A 3-part assessment of the teaching system is currently in development. The student online course and instructor evaluation is fully implemented and working well as previously described. Faculty development to assist in preparation of a quality teaching portfolio that can be used as a formative tool to improve teaching will be conducted. A peer assessment process will be piloted and implemented during the 2007-2008 academic year.

Student Portfolios

The Office of Education is evaluating a number of products available for implementing an electronic student portfolio throughout the curriculum. Currently, a portfolio is used only during the PY4 year for advanced practice experiences. Full implementation of a student portfolio is expected during the 2008-2009 academic year.

ROADBLOCKS ENCOUNTERED

Abate et al classified the barriers and challenges that schools face in establishing a quality assessment program as 3 types: faculty-related, resource-related, and student learning-related barriers.³ The primary faculty-related barriers experienced in our program include lack of education/training of faculty in assessment practices, lack of appreciation of the need for conducting an assessment program, and turnover in faculty members and administrators. A perceived lack of expertise in assessment is most often cited among those faculty members who are primarily clinically or research trained. Faculty members who receive high praise from student course evaluations are likely to question why they should change.

The primary resource-related issue encountered is lack of time for faculty members to train and participate in assessment processes. In addition, an ever-increasing student population slows the process. The time required to

conduct formative and summative assessments for an additional 30-50 students often leads to a decrease in the number of assessments conducted or quality of the existing assessments.

Few student barriers have been encountered in developing the assessment program. As previously described, the steps taken to educate students about the importance of providing quality feedback, training students on the elements of good feedback, and a streamlined process for providing their feedback has reaped many benefits in the quality and quantity of feedback currently received from students.

Other barriers to establishing and maintaining a quality assessment program include the rapid pace of change in health care in general, the profession of pharmacy, pharmacy education (content and teaching methods), and ACPE accreditation standards. The continuous evolution of all areas of health care education and practice has made assessment a continually changing target. Schools were still adjusting to the requirements of Standards 2000 when a revised set of standards with many additional assessment requirements was released only 7 years later.

LESSONS LEARNED

An essential underlying principle of quality assessment is the buy-in of administrators, faculty members, and students.^{2,3} Administrative support at the highest level has been strong from a financial standpoint. However, it is essential that department chairs support the process by valuing the contributions of faculty in the classroom and participation on education-related committees at the time of performance evaluation. Inviting participation from all stakeholders is important. Faculty members, professional students/graduate students/residents, administrators, staff members, and alumni/practitioners should all be involved in the assessment process.

Faculty development is essential in creating and sustaining a culture of assessment. Faculty buy-in has been the most difficult to achieve in our experience. Outside of administrative support, the most important factor in achieving buy-in is educating the faculty about the importance of quality assessment—both for program improvement and to meet accreditation standards. Our faculty development program is delivered via regular 1-hour workshop sessions with lunch provided. Other methods of faculty development may include presentations at faculty meetings, faculty retreats, or working one-on-one with interested faculty members through the Office of Education.

Turnover of faculty members and administrators can undermine the progress made in educating the faculty. To

address this issue, a faculty orientation program is under development. This program will include an orientation to the philosophy and structure of the curriculum so that faculty members will understand how they fit into the big picture. It will also address the curricular outcomes, teaching, and learning methods commonly employed including active-learning strategies, and the assessment program. For non-pharmacist faculty members, an orientation to the profession is already in place.

Establishing an assessment program is a daunting task. The process is more manageable if the program starts small and builds over a period of several years. A good initial step is writing or updating the curriculum outcomes document. Subsequent steps may focus on a single area of assessment such as student course evaluations, peer-teaching assessment, performance-based classroom assessment, or curriculum mapping. Developing an assessment plan allows the program to lay out the necessary elements and the order in which topics will be addressed. Examples from the literature were valuable in establishing an effective assessment program.¹⁴⁻¹⁷

Sharing successes and failures when working with other schools and sending teams to the annual AACP Institute are strategies for accelerating development and implementation of an assessment program. Schools with similar characteristics can share their successes including procedures and forms. For example, development of both our curriculum outcomes document and a teaching assessment process were aided by requesting information from schools that already had success in developing and implementing these items. Sharing struggles and strategies that have not worked can be just as useful in helping schools avoid making the same mistakes.

Remember to celebrate and reward successes. When faculty members achieve success in assessment-related activities, their efforts should be publicized via announcements at faculty meetings and/or inclusion in college publications. Establish an award for innovative practices or funding for projects related to assessment.

Finally, we learned that it is important to use the information that is collected. Close the loop and strive to spiral to a higher level by using and reflecting upon assessment data for improvement. Initially most of our effort was expended in collecting data. However, the data were not regularly analyzed and used for program improvement. Switching to a shorter, carefully selected list of assessments with analysis of the results has been more productive. A great deal of effort has been redirected into developing recommended changes, implementation of those changes, and monitoring the effectiveness of the changes. Sharing the assessment data with faculty members contributes to faculty buy-in when the

research questions addressed are of interest to the faculty. Furthermore, the ability to assist faculty members in making changes that improve student learning and the overall satisfaction of faculty members and students contributes to improved faculty cooperation with future projects.

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Appendix 1. Course Assessment Form.

Course Assessment Plan Form University of Kentucky College of Pharmacy				
Course: _____		Semester: <u> Fall </u> <u> Spring </u>		Academic Year: _____
<u>Professional Outcomes</u> I. Medication Distribution II. Research III. Patient Care IV. Teaching V. Research		<u>General Abilities Outcomes</u> A. Foundation Knowledge B. Critical Thinking Skills C. Information Mgmt. D. Communications E. Professionalism F. Social Interaction, Citizenship, Leadership G. Lifelong Learning		
Professional Outcomes/General Abilities	Student Learning Objectives	Assessment Methods	Evidence	Use of Results
Critical Thinking Skills	1. Identify and define the problem, case, or issue. 2. Develop a strategy to obtain relevant information. 3. Identify the relevant facts. 4. Formulate the relevant options and select an appropriate option. 5. Justify the decision based on the information available.	Drug Consults Writing Activity/Simulated Patient Care Activity (2 drug consults per semester)	Written Case-Based Drug Consults	Student consults are each individually read by faculty member and constructive feedback and grading provided. Feedback is provided both in terms of writing skills and critical thinking skills used to respond to the drug consult request for information.
(1) List the Professional Outcomes/General Abilities (2) List the student learning objectives (3) List assessment methods implemented during the current semester/year in column one (4) Indicate the evidence obtained from the assessment process (5) Indicate how the evidence/results will be used (6) Submit the completed form to the Office of Education				