Teaching Through Quality Management

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BACKGROUND

The committee was charged with developing a template for faculty to use in evaluating coursework using a total quality approach. To clarify the charge, the committee considered the following perspectives:

1. Although student assessment (outcome assessment) is an integral part of course evaluation, the report will not deal specifically with developing student assessment methods. Student assessment is also an important and integral part of the quality management process. Any attempts to implement quality management must include the development of outcome-based assessment of student ability and performance. For guidance on outcome based assessment faculty should draw from the work of other AACP committees, in particular, the work of the Focus Group on Liberalization of the Professional Curriculum. In addition, resources presented at the 1993 Teacher's Seminar by Thomas Angelo on classroom assessment techniques are also pertinent to discussions of quality in education as it relates to course assessment strategies.

2. Vision, mission, goal and performance/outcome statements are integral parts of the Total Quality Management (TQM) process. The work done by the Commission to Implement Change, other committees at AACP, and statements developed at various Schools and Colleges of Pharmacy provide adequate guidance for the development of these statements and will provide a degree of interschool and intraschool consistency.

3. TQM would view education as a process, and it is the components of that process that can be manipulated to improve quality. In manufacturing, the processes are worked out in advance, and are fairly well defined. In education, there is far less planning, a great deal of day to day inconsistency, and therefore difficulty in identifying what the components are in the process. The process is resulting in diminished quality.

4. The committee’s report should delineate a process by which faculty members can apply the principles of quality management to their coursework. An example assessment strategies should be obtained and described for inclusion into the report. A bibliography should be included in the report for faculty reference.

INTRODUCTION

There is little doubt that the quality movement has brought about a dramatic change in the quality of many of the products available on the market today. Total Quality Management (TQM) has been implemented successfully in many areas of manufacturing. The Japanese auto industry is one good example.

TQM as described by either Deming(1), Crosby(2), or Juran(3), is readily applicable to any product-oriented business. The concepts of TQM are less easily applied to businesses that are service-oriented, such as healthcare. Applying TQM to higher education is even more clouded. One reason TQM is difficult to apply in service-based industries or in education, is that the “product” is less tangible, as is the process by which the product is delivered. For example, the student can be considered a product, worker, and customer of educational systems and does in fact play each of these roles. Nonetheless, many principles of quality management are applicable in education and can provide a framework from which individual faculty can set out to improve their coursework.

There are many examples of the use of TQM principles for the management of services on university campuses (e.g., food services, physical plant, purchasing, admissions, etc.) (4-7). The application of TQM to these services is more readily accomplished, as these areas are more clearly defined in terms of the service they are providing and to whom they are providing it. There are fewer examples of using TQM to improve the quality of teaching.

Application of TQM to improve the quality of teaching brings with it a number of solutions and potential limitations. The purpose of this report is to highlight these potential solutions and problems, and discuss ways individual faculty members can implement quality management into their coursework and ways schools and colleges of pharmacy can implement quality management into their curricula. It is beyond the scope of this report to review the philosophical underpinnings of TQM or the application of TQM principles to service organizations or to the administrative aspects of higher education. The reader is directed to the reference list in the appendix for further direction in these areas.

APPLYING TQM IN THE CLASSROOM

TQM is a powerful management tool. As such, the application of TQM is most powerful when supported and initiated from the top of an organization. Most University and School/College administrators, however, have not opted to use TQM. Many, however, have seriously discussed implementing TQM, and many individual faculty have begun to use quality management principles to develop coursework (5). In addition, pressures from outside sources, particularly legislative moves to performance-based funding, have led many universities to pursue different management styles. In pharmacy, the proposed accreditation standards for the doctor of pharmacy degree are fairly straightforward in the call for assessment of outcomes based on stated abilities and performance standards. The revised accreditation standards also encourage the use of quality management principles to guide the curricular...
future trends in the profession. Regular review and revision of the course mission and goals provides guidance to faculty and students in participating in and developing individual courses. These outcome abilities must be developed with input from customers. The complete set of outcomes should pay attention to the needs of employers, students, and faculty. The outcomes should also be continually reviewed for their reflection of the needs and expectations of the customer.

A limitation to this approach is not being flexible to the individual needs and expectations of students, rather paying attention to the needs of the whole. Potentially, quality management, if taken to extreme, would promote all graduates being the same. If one pays attention to the need for flexibility in the attainment and performance of abilities, this limitation should be minimized. Another potential limitation to viewing the mission and goals of a school simply as serving the customer, is a potential to lose the impact (some would argue responsibility) education and educational institutions have for shaping the future of the profession. Indeed, pharmacy has often looked to educational institutions for defining the future of the profession. Pharmacy curriculum, a focus on the curriculum as an educational system during its design and implementation will be critical. TQM methods can facilitate the work of a faculty as they forge ahead in developing the curriculum.

Having predefined performance based outcome abilities imbedded within a school’s academic mission and goal statements provide guidance to faculty and students in participating in and developing individual courses. These outcome abilities must be developed with input from customers. The complete set of outcomes should pay attention to the needs of employers, students, and faculty. The outcomes should also be continually reviewed for their reflection of the needs and expectations of the customer.

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If TQM is not in place in the organization, individual faculty can still utilize the principles of TQM for individual coursework. The instructor in the classroom is in effect, the manager of the learning environment and can choose any approach to managing the learning environment and can choose any approach to managing the learning environment or evaluation process. There are many techniques in evaluation process. There are many techniques that can be found in Appendix A. These techniques are essentially focused on providing feedback to instructors, and in effect students, on how well the goals of a course are being met.

An essential element in assessing whether goals are being met is to have a set of predefined goals. If the “product” of education is to an extent the ability of a graduate to do something, then the goals of education have to be defined around abilities and performance. Simply knowing something will no longer suffice. The performance outcome, and a focus on continual building of the student’s ability to perform, should drive changes in coursework. While a course is in progress, the instructor can evaluate teaching, getting feedback for immediate or future course and teaching method improvements. An informal formative evaluation is proposed by Pregent(9) where the instructor simply asks students to write down two or three points each for aspects of the course which they liked, and those they felt could be improved. The data then is collated, grouped by category (teaching, text, exams, etc.) and broken down into positives and points to improve. The instructor then shares the information with students, pointing to areas in which the instructor will make improvements immediately and what cannot be changed and why. Small group instructional diagnosis is a similar process in which a portion of the students are asked to provide formative feedback to the instructor. Pregent points out that the formative evaluation process leads to an improvement in the class climate, improved ties between instructor and students, increased motivation and participation of students, improved course organization, and overall improved teaching.

Other mechanisms of formative assessment include utilizing a student ombudsman (1-2 students selected to represent the class and met regularly to discuss problems), meeting directly with the students, and inviting a colleague into the classroom to evaluate your teaching.

A caution needs to be identified for course assessment. The type of course assessment suggested in the previous discussion have a primary purpose of identifying problems with a course to improve the overall outcome of the course. The key is improvement. Often, course evaluations are used administratively in evaluation of a faculty member’s teaching ability in promotion and tenure decisions for example. Teaching evaluation and course assessment are not interchangeable terms. The administrative
question is, “Is this faculty member a good teacher?” The course assessment question is, “What about the course can be changed to improve it?” Course assessment and teaching assessment have different goals relative to the information collected and the intended use. The data from formative course improvement assessments may not be the type of data to best include in a faculty development file as an indicator of teaching performance, especially if the data is not presented from the course improvement perspective. Indeed, one might conclude that an instructor is a poor teacher if only the data from the question, “What two or three points about the course need improving?” is used to judge the instructor’s teaching performance. Data and documentation of the improvements made, or a portfolio of a course may better serve the administrative purposes of course evaluation and should be included in the evaluation of a faculty member’s scholarly contribution. A teaching evaluation does not necessarily assess the course. Indeed, one might conclude that an instructor is a poor teacher if only the data from the question, “What two or three points about the course need improving?” is used to judge the instructor’s teaching performance. Data and documentation of the improvements made, or a portfolio of a course may better serve the administrative purposes of course evaluation and should be included in the evaluation of a faculty member’s scholarly contribution. A teaching evaluation does not necessarily assess the course. That is, one may not be able to identify the problems in the educational process, if only one piece (the instructor) is considered in the evaluation.

On an individual course level, one can easily get feedback from another course customer — faculty responsible for subsequent coursework. In pharmacy education, the relatively rigid sequence of the curriculum allows a great deal of exploration of how well one is meeting the needs of students and faculty in subsequent coursework. One can easily map which subsequent courses are affected by what is taught in his or her course. Assessment may simply involve informally meeting with the instructor(s) of subsequent coursework, and discussing the preparedness of students and the expectations of the faculty in terms of student abilities and performance. One can also assess how prepared students felt to enter subsequent coursework.

The key to application of TQM in the classroom is to assess and assess regularly. Feedback on course performance helps to identify problems. These problems can be further dissected into component processes, hypotheses generated about what the root of the problem is and how to fix it, proposals generated, assessed, and implemented, and the assessment reperformed to check the impact of the intervention. A focus on continual improvement is important. In American culture, there tends to be a desire to make large sweeping changes, rather than smaller ongoing improvements. TQM focuses on making improvements to course processes on an ongoing and continual basis. Often, the changes made are relatively simple and easy to make — unlike large periodic changes. Deming proposed the “Plan-Do-Check-Act” (PDCA) cycle for planning once the decision to implement TQM has been made. Figure 1 depicts the PDCA cycle. Initially, one plans implementation on a small scale, then improves the plan for utilization on a larger scale — either more aspects of one course, or more courses.

As with any management process, information is critical. The information gathering tools of TQM as developed for use in business, can be adapted for use in the classroom. A detailed application of many TQM tools can be found in a recent publication by Cornesky(10). TQM tools can help one to visualize and prioritize problems and processes. Table I lists the types of tools that are applicable to TQM in education.

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<th>Table I. Tools to visualize and prioritize problems and processes</th>
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Am. J. Pharm. Educ., 59, 202-208(1995); received 5/2/95.

References

(5) Lewis, R.G. and Smith, D.H., Total Quality in Higher Education, St.
APPENDIX A. COURSE ASSESSMENT EXAMPLES

(Note: These have been condensed to save space.

Exam Survey Therapeutics I
Roger W. Sommi, PharmD
UMKC School of Pharmacy

Indicate your degree of agreement with the statement. 5 = High degree of agreement 1 = Low degree of agreement. DO NOT put your name on this evaluation. If you would like to discuss this exam with the course coordinator, you should call him or her as soon as possible.

ITEM
1. I felt that the exam questions were fair in general
   HI 5 4 3 2 1
   LOW
2. I felt I had enough time to complete the exam
   HI 5 4 3 2 1
   LOW
3. I was able to understand each question in terms of what was asked
   HI 5 4 3 2 1
   LOW
4. I felt prepared to take this exam
   HI 5 4 3 2 1
   LOW
5. I felt the proctors for the exam eliminated cheating
   HI 5 4 3 2 1
   LOW
6. I observed cheating during the exam
   HI 5 4 3 2 1
   LOW
7. I thought this exam was one of the best I have taken
   HI 5 4 3 2 1
   LOW
8. I found studying with others useful in preparing for the exam
   HI 5 4 3 2 1
   LOW
9. I found reading the book chapters useful in preparing for the exam
   HI 5 4 3 2 1
   LOW
10. I found reading other material useful in preparing for the exam (other books, primary literature, etc.)
    HI 5 4 3 2 1
    LOW

What things did you do that you found useful in preparing for or taking this examination?

I feel the following considerations should be made when grading this examination:

Comments to the course coordinators:

Course Participants End-of-Session Questionnaire
Pharmacy Administration 430
Pharmacy Practice: A Problem Solving Approach
Gail Newton, PhD
School of Pharmacy, Duquesne University

1. Did you get more or less out of this week’s course activities (including lecture) than you expected? If less, please explain what was missing.
2. How well were the laboratory activities coordinated with the topics covered in lecture.
3. What specific topics/activities during this week should be: a) added, b) deleted, c) emphasized more, d) emphasized less, and e) otherwise revised?
4. Which types of instruction e.g., lectures, role play, hands-on manipulation of drug products/medical devices did you get: a) the most from and why, b) the least from and why.
5. Were the directions for the laboratory in the manual helpful? If no, why?
6. Were the supplementary readings included in the manual helpful? If no, why?
7. What changes, if any, do you recommend be made in the sequence in which the laboratory activities are completed within this session?
8. In terms of time allocations, what specific laboratory activities require: a) more time and why, b) less time and why?
9. What additional equipment, if any, should be made available in the laboratory to facilitate completion of activities during this session?
10. How could the laboratory facilities be modified to expedite completion of activities included in this session?
11. What was your reaction to the methods employed to evaluate your performance this week in lecture and/or the laboratory?
12. In what specific ways could the instruction you received in lecture and/or in the laboratory this week be improved?
13. In what specific ways could the instructors improve their performance during this segment of the course?
14. Please add any other comments you would like to make about this week’s activities in class or about the course in general.

Laboratory Instructor End-of-Session Questionnaire
Pharmacy Administration 450
Pharmacy Practice: A Problem Solving Approach
Gail Newton, PhD
School of Pharmacy, Duquesne University

1. Were you satisfied with the performance of the students during this laboratory session? What specifically were the students’ shortfalls, if any? What specific actions could be taken to correct these shortfalls?
2. What specific topics/activities during this session should be: a) added, b) deleted, c) emphasized more, d) emphasized less, and e) otherwise revised?
3. In terms of time allocations, what specific activities require: a) more time and why?, b) less time and why?
4. What changes, if any, do you recommend be made in the sequence in which the laboratory activities are completed within this session?
5. What changes, if any, do you recommend be made in the instructional activities (e.g., role play, dispensing, compound- ing, discussion) employed during this laboratory session?
6. What instructional materials (e.g., materials contained in the laboratory manual, videotaped demonstrations) should be: a) added? Why?, b) deleted? Why?, c) revised? Why?
7. What equipment, if any, should be: added? Why?, b) eliminated? Why?
8. What changes, if any, do you recommend in the strategies employed to assess student performance during this laboratory session?
9. What other ways could the laboratory session be made more effective?
10. How would you modify the laboratory facilities to enhance student completion of activities included in this session?

Course Survey
Communication Skills for Pharmacists
Mary Piasek, PhD
College of Pharmacy, University of Kentucky

This survey will help guide the instructors in revising the course for future classes. Rate the following items on the scale given below with regard to your opinion of the usefulness of this material to your future pharmacy practice:

5 = Essential; 4 = Quite Useful; 3 = Somewhat useful; 2 = Little
usefulness; 1 = Not at all useful. For those questions where usefulness to practice does not apply, use the same scale where 5 = most positive toward question and 1 = least positive toward question.

Lecture portion of class
Lab portion of class
Textbook readings

Individual Lab Exercises:
- Medication history taking
- Patient counseling practice
- Dealing with medication errors
- How to interact with physicians
- Special populations counseling
- Alternate dosage form counseling
- Critiquing patient counseling competition
- Critiquing final counseling projects of classmates
- Hot topics discussions

Class Assignments:
- Drug information exercise
- Introduction of classmate
- Weekly readings and quizzes
- Written project on alternate dosage forms
- Written project on pharmaceutical care
- Lab grades/criteria for lab
- Final videotaped project

What areas covered in this class do you think should be expanded?
What relevant topics would you like to have discussed that were not included in this course?
Topics to be dropped from class?
Should the method of grading be changed? Suggestions?
Major gripe?
Anything we did really well?
Other comments?

**Introduction to Pharmacy and Pharmacy Law**

**Student Feedback and Evaluation Form**
Roger W. Sommi and Wayne M. Brown
UMKC School of Pharmacy

It is important for us to continually improve the coursework we provide to students, and you play an important role in this endeavor. Please be honest and critical on the following evaluation (of course, positive feedback is always welcome). Your help is greatly appreciated. If you would like to talk with either Dr. Brown or Dr. Sommi about the course experience, we would be happy to meet with you.

We used a number of learning methods in this course. Please rate each one on the following scale:
A = Excellent, the course would not be worthwhile without it
B = Good, it was a big help in my learning
C = Okay, it didn’t help my learning much
D = Waste of time, I didn’t learn much of anything from this activity

1. Law Discussions
2. Law Cases - written
3. Large Group Discussion of Chapter Topics
4. The Pharmacy Law Book
5. The Pharmacy Cadence Book
6. Minute Papers
7. Weekly Group meetings
8. Group Project
9. Faculty Facilitators for small groups
10. Group presentations
11. Midpoint assessments of self and each other in small group
12. Final assessments of self and each other in small group
13. Presentation assessment form
14. Dr. ______ discussion on change
15. Dr. ______ discussion on professional organizations
16. Dr. ______ discussion on pharmaceutical care
17. Dr. ______ discussion on ethics
18. Dr. ______ discussion on postgraduate opportunities
19. Dr. ______ discussion on clinical toxicology
20. Dr. ______ discussion on current issues in pharmacy
21. Dr. ______ discussion on career planning

Please comment on your ratings below with a reference to the specific learning experience:

The goals of this course are to improve your understanding and abilities related to a number of issues. Mark your degree of agreement using the scale below with the following statements:
A = Strongly Agree, B = Agree, C = Neither Agree nor Disagree,
D = Disagree, E = Strongly Disagree

22. I have a good understanding of practice law.
23. The law cases used in class will help me in practice to identify and avoid potential legal problems.
24. I am more comfortable writing short essays on professional topics.
25. I have a better understanding of the profession of pharmacy.
26. I can envision the future roles pharmacists can/will play in healthcare.
27. I have a better understanding of potential career paths pharmacists have.
28. If asked what pharmaceutical care is, I could explain it
29. I could give a short speech on the authority and responsibilities pharmacists have.
30. I can now work more effectively in groups.
31. I can express how I will be able to help the profession of pharmacy change to meet new healthcare responsibilities.
32. I have a better understanding of why I am taking the courses required in the pharmacy curriculum.
33. I envision myself being a leader in pharmacy.
34. I have a better idea of how to find data/information about professional issues in pharmacy and healthcare.
35. I know where pharmacy journals are in the Health Sciences Library.
36. I know where the Drug Information Center is located.
37. I know how to use at least one of the following: LUMIN, Medline, Silver Platter, Grateful Med.

Please comment on your ratings:

Using the rating scale below, please respond to the following statements regarding your experience in the small group activities:
A = Strongly Agree, B = Agree, C = Neither Agree nor Disagree,
D = Disagree, E = Strongly Disagree

38. Working in groups was an effective way of learning about the authority and responsibilities of pharmacists.
39. The groups experience helped me learn about the problems with the current healthcare system.
40. The group was able to come up with more ideas about solutions to the specific health issue we chose than I would have if I were working alone.
41. I liked the open structure of the small group.
42. Our group met more often than an average of 1 hour per week.
43. The group usually listened to what I had to say.
44. Our group worked together effectively.
45. Our group was usually able to work out problems in a way that was agreeable.
46. I am proud of the work our group did.
47. The group’s final project was as good as it could be.
48. I would be willing to present our group’s project outside of class.

Please comment on your ratings:

The faculty facilitators played an important role in the small group activities. On the scale below, rate YOUR small group facilitator...
with regard to the following statements:

A = Strongly Agree. B = Agree. C = Neither Agree nor Disagree, D = Disagree, E = Strongly Disagree

Drs. Brown and Sommi.

APPENDIX B. DESCRIPTION OF THE NOMINAL GROUP PROCESS

One simple and powerful tool is the nominal group process. As described by Cornesky (10), nominal group process can help identify and prioritize strengths and weaknesses, while giving everyone equal voice. The process involves the development of a consensus around a question. The outcome is a list of prioritized items which guides course/program development. The process is a follows.

After introducing the concept to the group, a facilitator (usually the instructor) asks each group member to generate a list of answers to the question. For class assessment purposes, the question posed may simply be, “What problems inhibit quality in the course?” The group would then identify a list of perceived problems with the course. After the group has had 15-20 minutes to generate answers to the question, the facilitator asks each participant to share one problem or idea at a time with the group. There is no discussion, and a master list of responses is generated by the facilitator. Sufficient time is given to allow each participant to share all ideas with the group.

After the master list is generated, time is allotted to clarify the master list. In doing so, the facilitator asks the group if they understand each item on the list. If not, the individual who presented it is asked to clarify the point. After the master list is clarified, the participants are asked to rank the top five issues. The results of the rankings are tallied and presented to the group. These rankings are then discussed. Participants can elaborate on their point, defend their position on an issue, dispute the importance of a highly ranked issue or the neglect of a lower ranked item, persuade others on the importance of an issue, and simply express their opinions. Similar items on the list can be combined.

After the items are discussed, a final ranking is made in similar fashion to the initial ranking. In ranking, the facilitator can ask the participants to again rank the items from 1-5, or could opt to give each participant 5 votes which can be placed in any fashion (i.e., five votes for one issue, to one vote for five different issues, or any combination of votes for issues totaling five). Final ranks are tallied and shared with the group.

The nominal group process will generate a list of prioritized issues to guide further development. Often, an instructor or team of instructors cannot focus on what is most important. Using nominal group technique can focus efforts in a meaningful way as the process involves the people who have an investment in the course.

APPENDIX C. TQM IN EDUCATION - A BIBLIOGRAPHY OF RESOURCES

23. Tipton, J., Folsatt, R., “The Journey To Total Quality Man-