

Quality Improvement in higher Education Through Skilled Based Programs for New India

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1. Introduction

The need for change in higher education is becoming urgent. Increasingly, students are frustrated with their experiences as education consumers. Seymour (1992) demonstrates that students want "quality" to extend beyond the size of their school's endowment or the research credentials of senior faculty. He cites the front-page **Chronicle of Higher Education** article, "Undergraduates at Large Universities Found to be Increasingly Dissatisfied," (Wilson, 1991) as evidence of the need to develop a service orientation on college campuses. A disenchanted University of Texas at Austin so pho more is quoted as saying, "Here, it's not what the system can do for you, but what you can do to make the system work for you. You have to fight it.

National Science Foundation assistant director John S. White's questions to a room of educators make explicit that businesses could not tolerate higher education's high rates of "rejected parts" (attrition), late deliveries (delayed graduations), price raises (tuition increases); and "rework" (students having to take courses over again): "How long would a firm be in business if it rejected parts and subassemblies at an overall rate of 35 percent and rejected a critical component at a rate of 65 percent? but instead raised prices at a rate considerably above the cost of living while competitors entered the market with lower prices?"

Given that undergraduate attrition rates in the U.S. are approximately one-third, that failure rates for courses are often one-tenth, that absentee rates for relatively large lecture courses are sometimes over one-half, and that most universities have low alumni retention rates (about one-quarter), colleges and universities clearly need to examine how they can better meet the needs of their students and alumni.

University students in other countries have similar complaints about large courses, lack of access to faculty, and haphazard teaching. These are systematic problems that are difficult to change without budgetary means. However, an overall concern for continuous Quality Improvement (CQI) on college campuses could significantly improve higher education and the satisfaction of its students and alumni. While the educational "product" is not the same as that of industry, higher education can improve the way it offers and delivers courses, provides student services, and manages and conducts research.

TQM can help universities find solutions as it stresses continuous improvement of processes and products by listening to the stakeholders (customers, employees, investors,

suppliers, society) of any organization. Since, however, the words, management and to some extent total, sound too businesslike to the faculty, we suggest the expression Continuous Quality Improvement (CQI). CQI is often used in health care as physicians find this expression more acceptable.

2. The Role of Business

In general, Business, Industry, and Government (BIG) are not happy with U.S. college and university graduates. In statistics, for example, they feel that students should work on more projects from inception to completion. Improvement of the communication skills of students would also be welcomed by BIG. Some businesses are trying to help higher education do something about its problems..

They proposed that presidents, deans, and faculty leaders attend week-long sessions at each of the six companies to study ways to:

- 1) identify the core knowledge specific to TQM;
- 2) develop a research agenda in TQM; and
- 3) develop faculty understanding of and commitment to TQM.

These six companies did this for the first time in 1992, each taking about 100 university people in their sessions. In 1993, another six companies participated in this "University Challenge" program. In addition, IBM has awarded one million dollar grants to eight colleges and universities around America to implement TQM in the Continuous Quality Improvement in Higher Education curriculum.

It is important to note that every organization implementing CQI must define it in a way that fits its culture. Instead of "customers", "workers" and "products", university personnel might prefer to simply speak of "students". Students, like customers, are provided a service; like workers, they are asked to produce research papers,

3. Definition of CQI (TQM)

The term "Total Quality Management" suggests managing quality in an overall way. What, however, is meant by "quality"? Deming (1986) relates it to "satisfying the needs of the consumer, present and future". Juran (1989) suggests quality is "fitness for use". Roberts' (1993) definition is worth noting as well: "Continually serving customers better and more economically, using the scientific method and team-work,.

Managers

Managers must define an organizational mission and vision. They must recognize the need to change to improve substantially, which often means adopting new paradigms to achieve major improvements. Managers should become

coaches and facilitators, build trust, drive out fear, benchmark, take risks, and eliminate waste. Rather than sub-optimize leaders must coordinate the optimization of the total system

Customers

Managers should listen to internal and external customers, recognize the high cost of losing them, and try to delight them by exceeding their expectations. It is often valuable to use customers as members of quality improvement teams. However, in education, we gather very little useful data about our curricula from students, alumni, and employers. Worthwhile alumni and student surveys are needed to measure customer needs and expectations.

Employees

Employees must see how they contribute to an organization's final product or service. This ultimately contributes to a healthier staff morale and a healthier work environment in general. Employees must have proper training and be given necessary tools and resources, after which they can be empowered to make decisions and correct errors within the limits established by the system. time, on the right topics, and in the right amount. Often much training is a waste if it is not used, or if it is a "quick fix".

Suppliers

Suppliers should become trusted members of decision-making teams or even partners in business, which makes possible programs like "just-in-time" delivery of goods and services. Secondary schools are definite suppliers of college students; thus they should be included in partnerships

Statistics

The importance of basing decisions on data and using the scientific method cannot be overemphasized. Often, in the beginning of an organization's CQI implementation plan, simple measures or metrics like number of defects, cycle time, costs, absenteeism, market share and simple statistical summaries can bring great improvements. In higher education too often, the numbers are there (as in survey results) but nothing is ever done with these metrics. Data should lead to action..

4. The Role of Statisticians and Statistics

Our personal experiences suggest statisticians should be well-acquainted with TQM ideas and philosophies and be leaders in their worldwide implementation in higher education. During the 1991 fall semester, RVH took a "quality journey", visiting 20 companies and 8 universities and attending major quality improvement meetings. He tried to determine what produces quality products and services and what statisticians' roles are in those processes. He also wanted to understand how to apply TQM techniques to higher education MCH took her own "quality journey" for her dissertation research on TQM in higher education, visiting two community colleges

Deming's analytic studies and emphasis on prediction computational statistics messy and large data sets advanced topics such as design, time series, multivariate analysis, regression (including nonlinear), response surfaces, reliability, and basic stochastic processes. In addition to the technical and

theoretical components listed above, statistics students should be well-trained in the following non-technical areas

In a sense, we are suggesting that a certain percentage of statisticians become "quality scientists". These statisticians should study the organizations that will employ college graduates. They should also acquire management and people-oriented skills. University courses in statistics would then better represent expected behaviors in organizations at large to students.

5. Colleges and Universities using CQI

Some major universities in the United States are starting to use principles of quality improvement in daily operations and customer service to students; among those are Georgia Tech, Maryland, North Dakota, Oregon State, Penn State, Purdue, Rochester Institute of Technology, and Wisconsin. For example, "Penn State University's Integrated Model adopts Deming's systematic view of organizations,

Two-year colleges have also done some ground-breaking work in the implementation of CQI processes throughout their organizations. Fox Valley Technical College (FVTC) in Appleton, Wisconsin has been the leader in this effort. FVTC has pursued CQI for more than seven years. Their "Total Quality Leadership Council" is a multi-level team that makes decisions affecting the entire college.

Those who want to consider CQI should begin with background reading before starting any implementation effort. The book, *Quality: Transforming Postsecondary Education*, by Ellen Earle Chaffee and Lawrence A. Sherr (1992) provides a good start for any university that wants to consider such a major transformation in culture. Two books by Mary Walton (1986,1990) also serve as a good starting place.

Two titles that are beneficial in terms of learning about changes in leadership, changes in thinking about customers, and general organizational change are: *Thriving on Chaos*, by Tom Peters; and *Re-Engineering the Corporation*, by Hammer & Champy (1993). Nonacademic Improvements Frequently, CQI projects are more successful on the nonacademic student services side of a university's operation than they are on the academic side. Several examples follow.

6. Continuous Quality Improvement in Higher Education

Flowcharting an entire process can call attention to many areas that might need improvement. The College of Business at Rochester Institute of Technology uses a "process mapping" procedure with administrative support staff and gives the staff more control over their work. One example is in the course withdrawal procedure.

The person who is accountable should do the paperwork and that should be the termination of the process. Many schools work hard at recruiting and retraining students, yet this process could often be improved. After a student's acceptance, schools frequently overlook the cost of losing that, student to another college or university or through attrition. Many students become "lost in the shuffle" of higher education. For whatever reason, they transfer or drop their registration.

Average duration of remodeling jobs reduced by 23 percent; 2) "Budget-status-at-a-glance" form improved to meet customers' needs and cut preparation time by 50 percent; 3) Number of journal vouchers returned to departments to correct errors decreased by 94 percent; 4) Time to process grant I contract documents decreased by 10 percent; 5) Number of phone calls getting initial human response increased by 40 percent" At the University of Maryland-College Park, an exemplary CQI program in the Student Health Services Center is worth noting.

7. Academic Improvements

On the academic side of CQI at colleges and universities, there is more resistance to its implementation for several reasons. One is that faculty individualism and academic freedom are part of the 42 R.V.HOGG and M.C. HOGG nature of being a faculty member. Another is that faculty tend to believe that business should not interfere with education, and some dislike the idea of being "managed and use of the term "customer" when referring to students. Third, faculty are given inconsistent expectations..

8. CQI in Colleges: Curricular Improvements

One step toward meeting the demands of the public is for colleges and universities to examine their curricula, particularly in the areas of business, statistics, and engineering. For example, a few years ago, the College of Business at Rochester Institute of Technology (RIT) was experiencing a higher than average attrition rate at around the junior year.

RIT's College of Business also requires two quarters of cooperative education (internship) credit in every undergraduate business major's program of study. The College of Business has a Placement Office, which assists students in locating suitable internships. Both of these curricular innovations (the Business Concepts course sequence and the internship requirement) deserve praise and recognition.

Curriculum and instruction are the areas most likely to be affected by change through CQI Continuous Quality Improvement in Higher Education 43 processes. New degree programs, revamping outdated degree programs, CQI seminars for credit, and faculty development opportunities are four additional suggestions to consider when making departmental and/or college-wide improvements.

In addition to exploring new degree programs, consider that certain degree programs may be outdated enough that a major transformation is needed. For example, during the last two years, the University of Tennessee has had a team which radically revised their complete Masters of Business Administration (MBA) program, in order to be thoroughly aligned with philosophies of quality improvement. Statistician Bill Parr played a major role in the revision of the MBA degree.

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9. CQI in Departments: Grass-Roots Improvements

Typically, as projects are implemented throughout a college or university, the primary commitment to CQI comes from top administration. Two excellent examples are found in John Byrne, President of Oregon State University, and Donna Shallala, formerly the Chancellor at the University of Wisconsin, and currently a cabinet member in the Clinton Administration. Once the

R.V. HOGG and M.C. HOGG

A few teachers and students from different sections of the same course could brainstorm about ways to improve the course. Different rates and ways in which students learn. Perhaps ask a guest speaker to address issues associated with different learning styles, as not many academicians understand these. Strategies to incorporate student feedback. Often, complaints are "blessings from the sky".

Discuss grading philosophies, and how grading should be handled under a CQI system. Grading is a sensitive issue and should be handled with care. Students in any class should understand that all of them can get "A's", and that students are not competing for "A" grades.

10. Personal Quality: Personal and Professional improvements

At the most elementary, most basic, and yet most important level, persons who are interested in CQI tend to be people who possess the interest in ability to develop a vision of personal quality. Before discussing CQI at the individual instructor, department, college, and university levels, faculty may want to formulate their own personal quality vision first. Personal quality can best be defined as making continuous improvements in an individual's personal and professional life. One data-collecting activity which can contribute to a person's quality vision is the "personal quality checklist" (PQC), an idea discussed in Quality is Personal

11. Continuous Quality Improvement in Higher Education

12. Conclusion

The suggestions submitted in this paper are some that have worked at a few colleges and universities thus far. If an institution, college, department, or individual instructor is just beginning to look at CQI as a way to operate on a day-to-day basis, the key is to never lose sight of customer satisfaction. Those who initially are successful in team projects can be trainers for others to follow. When the enthusiasm for CQI on campus becomes contagious, it will not stop: it becomes a way of life. However, individuals in a department, college, or university, cannot sustain a CQI effort over time.

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