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ABSTRACT
        Though Total Quality Management (TQM) usually demands
close involvement by an organization's leader, at the University of
Chicago Business School (Illinois) TQM was implemented primarily
through a series of "grass-roots" initiatives. The Dean of the School
though not personally involved in implementation, gave his full,
enthusiastic support to the grass-roots efforts. The grass-roots
efforts at Chicago were advanced by individual professors who were
champions of TQM. A list of improvements resulting from TQM
implementation includes the development of the first executive
Masters in Business Administration (MBA) program, a New Product
Laboratory Course, over a dozen MBA elective courses in Quality
Management, and systematic student involvement in quality
improvement. In addition, systematic public reporting of course
evaluations has improved teaching. Other effects included the
following: Quality Management was made a basic field of study in the
school curriculum, students were empowered as agents for change,
quality concepts began to seep into other courses, and effective use
of fast feedback from students became more widespread. Overall, the
grass-roots efforts have led to important improvements in the School,
not just in administrative supporting processes, but in its central
academic processes as well. (JB)

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Grass-Roots TQM in Education: A Case History from Chicago

Harry V. Roberts

0.   Grass-Roots TQM

An attractive model for implementation of Total Quality
Management (TQM), which might be called the CEO Involvement
Model, is that of a strong CEO (or other very senior manager) who
grasps the essentials of TQM, sees the desirability of applying
them, has the technical knowledge and leadership skills needed to
guide the deployment of TQM throughout the organization, and
spends a **substantial fraction of his or her own time** on TQM
implementation. In the 1980s, two CEOs in the business sector
who fitted the CEO Involvement Model were Robert Galvin of
Motorola and David Kearns of Xerox.

A related model is that of a TQM initiative arising in
middle levels of the organization that reaches the attention of
the CEO or other very senior manager, who then follows the CEO
Involvement Model. This might be called the "Upward Percolation
Model". Something like this happened at Procter & Gamble.

TQM champions within an organization are naturally fond of
these models. The very rationale of TQM seems to mandate CEO
Involvement. CEO Involvement seems to be present in most if not
all the really outstanding implementations of TQM.
Organizational transformation, which is the ultimate aim of TQM,
is hard to imagine in the absence of CEO Involvement.

But an examination of attempts at TQM implementation,
whether in the business sector or elsewhere, suggests that CEO
Involvement is unusual. This is certainly true of education, the
area of prime concern of this paper. I shall report an
educational case history in which much has been accomplished when
the CEO -- the Dean of the Graduate School of Business at the
University of Chicago --- felt that he had little time for
personal involvement, but gave total and enthusiastic support to
a series of local, "grass-roots", initiatives within the School.
The Chicago case history suggests both the kinds of things that

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can be accomplished by grass-roots initiatives in education and the ultimate limitations on how far these initiatives can carry.

The organizational culture of the School included a strong faculty commitment to academic research in specialized disciplines; this is in many ways inimical to the cross-functional cooperation that is so central to TQM. But the organizational culture also included a high degree of freedom to make changes; this is essential to TQM.

Much of my story is concerned with the period 1983-1993, although I refer occasionally to earlier events. From 1983-1993 the Dean was John P. Gould. From his own reading, from his frequent contacts with business leaders, and from discussions with faculty TQM champions, Dean Gould understood TQM very well. But he was not in a position to make major personal time commitments. For TQM advocates who might be tempted to insist that he should somehow have found the time, the following considerations are relevant.

1. There were no clear **organization-endangering** crises. The one serious challenge was met largely by a grass-roots effort -- the LEAD Program -- by Deputy Dean Harry L. Davis, an effort that had Gould's full support. (LEAD is described in Section 8.)

2. Fund-raising was an overriding organizational goal that absorbed an enormous share of Dean Gould's time and effort during this period.

3. Gould understood that in any university unit dedicated to research and scholarship, the academic CEO -- dean or president -- has much less clout than the CEO of a business, like Robert Galvin or David Kearns. A dean is more like the managing partner of a professional firm than the CEO of a company that makes and sells things for profit. It is even possible that intensive involvement by the dean could be counterproductive to the cause of TQM in the School.

4. Gould made a major effort to convince the senior faculty that business school academic excellence -- research and teaching in the basic disciplines-- could actually be strengthened if simultaneous efforts were made to strengthen what he called "business leadership". This effort complemented the grass-roots TQM initiatives reported below.

With this background, I turn to my story of grass-roots TQM at Chicago. I shall show what good things that can be accomplished, what conditions help these things to happen, and what are the limitations of the grass-roots approach. It will be seen that the existing organizational culture was favorable for many TQM developments, such as introducing TQM into the elective

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part of the curriculum. It was much less favorable for other TQM developments, such as redesign of TQM into the core curriculum, and these have generally not been attempted.

1. **Can TQM Help Higher Education?**

I begin with some general perspectives on what TQM might contribute to higher education, with emphasis on the central academic areas where the greatest potential lies.

Consider first a challenge posed for higher education by the Xerox Quality Forum of 1989, where attending deans and professors from business schools were urged to introduce TQM courses into MBA programs. There was agreement on the desirability of the goal, but the academics saw formidable obstacles: MBA curricula were already packed full, they said. Several other new areas were contending for inclusion: international business, business ethics, environment, diversity, regulation, etc. How could they possibly make room for TQM? What would they have to give up?

Bob Galvin, then CEO of Motorola, replied as follows:

What do you give up? I wonder if it's fair to ask of you, as we in industry have been obliged to ask of ourselves, "How efficient are you? Why can't you teach 50 percent more in a year than you're now teaching?"

Not one percent. It's this big step-function phenomenon. Why can't you in two or three years change your curricula? Decide that you're going to add all these things in two or three years, and do it. That is what we in industry are having to do to serve our customers.

How do you do it? I don't know. That's not my business. But I do know that for our business, we have to accept the challenge. You have to have the mindset that it can be accomplished. Once you start looking for the solution, you'll come close. Maybe you'll only improve it 40 percent instead of 50, but you can put out a lot more information!

Next, I quote Alan Robinson on the Training Within Industry (TWI) Program of World War II:

An early success of the TWI service was its role in eliminating the nation's critical shortage of skilled lens grinders. In late 1940, a government search for 350 such specialists for use in bombsights, periscopes, and other optical equipment, had turned up no qualified people. Unfortunately, under the existing system it took five years to train a master lens grinder. TWI was asked to study the problem. It was found that a master lens grinder was

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expected to be able to perform twenty jobs, of which only a few were highly skilled. The unskilled jobs could be assigned to less skilled workers. When these tasks were reassigned according to TWI recommendations, the problem eased tremendously. What is more, TWI specialists, using the methods from the JIT [Job Instruction Training] course, redesigned the program for new lens grinders and managed to reduce the training time from five years down to two months. **(Continuous Improvement In Operations: A Systematic Approach to Waste Reduction,** Productivity Press, 1991, 14-15.)

The example of the lens grinders suggests that Galvin's question may be on target, that the potential for improvement of education is much greater than is ordinarily imagined. The reduction of training time from five years to two months can be interpreted to mean that 97 percent of the original five-year training period was waste. Many authors have claimed that a small percentage **of all work,** perhaps only five percent, is "real work", that is, work that adds customer value to the products and services of an organization. The other 95 percent is waste. Is that true? Is it true for higher education?

I am not willing to rule out very high waste in higher education as unusual or pathological. Without committing myself to any particular percentage, I submit that even well-run colleges and universities have enormous. potential for improvement both in administrative **and** academic functions.

TQM may be one road to such improvement.

2. **Total Quality Management and Higher Education: The Chicago Route**

Total Quality Management (TQM) has not bypassed higher education. Especially in the last year or two, many colleges and universities, or units thereof, have begun to attempt its implementation. In most implementation efforts, the major emphasis has been on improvement of administrative rather than academic functioning: professors are felt to be more resistant than administrators to improvement ideas coming from the business world. Somehow professors are to be involved later, after demonstrated successes on the administrative side. But three important points need to be noted:

1. Administrative improvement is not necessarily a soft target. College administrators are often in much the same position as politically appointed heads of government agencies who have great difficulty when they try to change rigid bureaucracies. Moreover, university staff personnel are often regarded as second-class citizens, and they are much less free than are faculty to initiate improvements.

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2.   If TQM succeeds in improving administrative support but does
      not touch the central academic functions, its contribution
      will be helpful but marginal.

3.   Professors have a strong self-interest in improving teaching
      and research, and individual professors often have
      substantial freedom to act on their own in doing so.

At the Graduate School of Business, University of Chicago, a
group of TQM champions among the professors have been trying for
a decade to apply TQM ideas both to curriculum and
administration. Some of these efforts can even be traced back to
the 1970s. **The motivation has been self-interest in more
satisfying work.** Although the organizational culture would not
have been favorable for a comprehensive top-down effort, it was
highly favorable for grass-roots efforts. As explained in
Section 0, Dean Gould was **invariably** supportive to the grass-
roots initiatives.

In the balance of this paper, I shall be mainly concerned
with the specifics of these TQM initiatives. I shall try to
assess what they have and have not accomplished; both are
substantial. Although there are many roads to TQM and the best
road undoubtedly varies from organization to organization,
adaptations of our grass-roots approach can fit in with almost
TQM model, even the CEO Involvement Model.

3.   **Freedom to Change How We Do Our Jobs: the Essential
      Prerequisite for TQM**

There is one minimal requirement for grass-roots TQM: **the
organization must permit substantial freedom in how individuals
perform their own jobs and how small work-groups function.** The
organizational culture must welcome experimentation and change.
This requirement can, by itself, permit substantial TQM
implementation, because it can free up the enormous potential
energy that exists at the grass-roots level of any organization.

At many colleges and universities, this requirement is met,
especially at the faculty level. At Chicago it has led to many
improvements that were not thought of as "TQM" but that are
entirely consistent with TQM philosophy. For example, there has
been continuous improvement of teaching and curriculum even when
there are no changes of course titles or descriptions and no
curriculum committees trying to overhaul the whole curriculum.
Professors want their courses to reflect the latest research
developments in their fields. Recently a finance professor told
me that 80 percent of the readings on the current reading list
for his course were not on his reading list three years ago.
Professors also change teaching methodology. The case method is
now used very widely, even though the School has had the

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reputation of being "anti-case" in its teaching. The use of individual and group projects has grown rapidly in almost all areas of the curriculum.

There is, of course, some tension between freedom to change courses and the desirability of standardization. For example: (1) If individual professors are continually but independently changing their own courses, current best teaching practices will not automatically be diffused. (2) The curriculum may not be as well unified and coordinated as might be desirable: necessary prerequisites for more advanced courses may be lost, and coordination between courses in different specialized areas may be weaker. My personal view is that these considerations are important but subordinate to the goal of continuing improvement in individual courses. For example, there is much experience to suggest that exposure to a specific prerequisite in an earlier course has largely worn off by the time it is needed.

At Chicago, the freedom to make changes extends beyond the freedom to modify existing courses. It has been easy to introduce new courses, new programs, and even new administrative processes. This freedom has led not only to educational innovations but to administrative innovations, even though the School has only recently (late 1990) embarked on formal attempts to implement TQM administratively. In saying this, I am not trying to vaunt our School; like all Schools, it has many weaknesses. But I have observed and benefited from the School's tolerance for change, and the Chicago experience suggests what this freedom can achieve.

Here is a partial list of innovations, many of which predate the 1983-1993 period that is of primary interest here. Many individuals have contributed to these innovations. None of the innovations was seriously contested when introduced. Administrative approval was usually informal and casual. People just went ahead and acted. And all the innovations are consistent with the TQM theme of continual improvement of important processes within the organization.

Note that none of the innovations on the following list directly concerns research. For example, there is no mention of the research developments in academic finance that began in the 1960s. (I believe that there are major opportunities for applying TQM to research, but that is a separate story.)

1.   The first executive MBA program.

2.   Introduction of the meeting format of alternative
Friday/Saturday all-day class meetings for the executive MBA
program.

3.   A "Curriculum Guide" with up-to-date, detailed course
descriptions of each section of each course, written by the
instructor of that section (as contrasted with the
traditional course catalog, with its short, uninformative,
and seldom-changing official course descriptions).   The
Curriculum Guide helps to communicate course changes both to
students and other faculty, thus reducing somewhat the need
for standardization.

4.   Widespread use of interactive computing in courses,
including the development of educational software, beginning
in 1972.

5.   Computerized competitive bidding for sections of
courses and employment interviews.

6.   The New Product Laboratory Course, in which teams of
students facilitated by faculty work with organizations to
develop new product ideas.   (See Section 8.)

7.   Over a dozen MBA elective courses in Quality
Management, all the results of grass-roots initiatives
between 1982 and 1993.   (See Section 5.)

8.   The LEAD program -- a major exercise of student
empowerment to strengthen the "action skills".   (See Section
8.)

9.   Systematic student involvement in quality improvement,
from course projects to a Continuous Improvement
Organizational structure.   (See Sections 5 and 10.)

10.   Laboratory Course in Organizational Excellence,
stressing TQM implementation in companies and other
organizations.

11.   Laboratory Course in Management Processes.

12.   Laboratory Course in application of TQM to teaching,
curriculum development, and research.

13.   Staff training in Quality Management (conducted jointly
by faculty and administrative staff).   MBA students have
also permitted, either as work/ study or for course credit.

14.   Rapid changes in most MBA courses to keep up with
current research findings.

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15. Public course evaluations for all courses, dating from the late 1960s. (See Section 4.)

16. A staff-initiated Improvement Forum.

17. A suggestion system for students, faculty, and staff.

18. The Research and Teaching Supplement (RATS), in which all faculty members are given budgets to be used at their own discretion for secretarial help, computers, professional expenses, professional travel, and the like.

19. The Weekend MBA program, a Saturday MBA program staffed by regular faculty, appealing to students from a broad area of the US, who fly to Chicago once a week to take two classes a term.

20. The stock market data base of the Center For Research in Security Prices.

21. Training for faculty in presentation skills based on techniques developed in the business world by Bob Savard and Dick Beach.

22. Training for faculty in teaching based on a theatre metaphor developed by Barbara Lane Brown in which the teacher plays three separate roles: playright, director, and actor.

23. Senior scholar program for the Ph.D. program.

One individual, Professor and Deputy Dean Harry Davis, deserves major credit for several of the applications on the above list. Davis also initiated the Quality Office described in Section 11. Besides Davis, many faculty members and a few administrators have contributed to the list of innovations.

The Curriculum Guide (3 above) is an interesting example of the ease of innovation. It resulted from a recommendation of a tentative draft of the Curriculum Review Committee of 1970. Long before the final committee report was prepared and approved, the deans of the School went ahead to implement this recommendation, because it seemed like, and has proven to be, a good idea.

The RATS program (18 above) is also interesting. It is an administrative innovation, but it was introduced by faculty during their service in the Dean's office. It resulted in substantial reduction in overhead costs and a sharp alteration of the pattern of use of support resources for faculty. Most younger faculty, for example, opted for computers rather than secretaries. Bureaucratic procedures for authorization of faculty travel were eliminated.

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RATS is interesting also because it has not been widely implemented elsewhere, even though faculty members from other schools very much like the idea. This reinforces my earlier observation about the importance of freedom to experiment and to make changes.

In the next sections of this paper, I describe in more detail on innovations that are most directly tied to TQM.

4.   **The Role of Public Course Evaluations in Improving Teaching**

Since the late 1960's, the Graduate School of Business has used student course evaluations based on questionnaires in all courses, **with systematic public reporting of results.** Other business schools -- e.g., Kellogg, at Northwestern -- also have made use of public course evaluations. At Kellogg, these evaluations serve to guide a program directed at improvement of teaching, which includes substantial training support and mentoring of all new faculty by senior faculty. (Chicago also offers training support for faculty; see innovations 21 and 22 on the list in Section 3. This training involves instruction on presentation skills, in-class videotaping, and one-on-one debriefing with professional communication consultants.)

Just as grading can make students uncomfortable, course evaluations can make professors incomfortable. Even professors who usually receive high evaluations occasionally stumble, and a low evaluation is never a pleasant experience. But, in spite of minor technical reservations, faculty accept the course evaluations as the best generally available information about teaching effectiveness. Faculty members at Chicago and Kellogg do not believe that the evaluations are mere popularity ratings, or that students in later years will in the light of experience greatly modify their evaluations. When course evaluations are very low, there is usually something very wrong.

Further, although I cannot prove it, I believe that teaching at Chicago is much better than it would have been in the absence of public course evaluations. Evaluations encourage the faculty to treat students **as if** they are customers, whether or not the word "customer" is used. The essential point is that faculty take personal responsibility for sub-par performance, rather than blaming the students' motivation or deficiencies in their prior preparation.

Faculty members are usually competitive and are likely to try harder when their performance is measured. A detailed summary of teaching evaluations is included in all discussions of promotion, and I know of instances in which teaching determined the outcome. The Kellogg School actually bought out the contract

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of a tenured faculty member whose teaching evaluations were consistently below par.

5.   TQM Electives in the MBA Curriculum

A high fraction of permitted elective courses in a student's program facilitates curricular grass-roots initiatives. At Chicago this fraction is substantially greater than half. The rapid introduction of TQM electives at Chicago (number 7 on the list of innovations in Section 3) was made possible by the wide freedom of students to elect courses and by the minimal red tape for faculty who want to introduce new elective courses. If the prospective student demand is there, faculty members are encouraged to try out the new courses. To my knowledge, Dean Gould and his deputy deans accepted **all** faculty proposals for new courses during the period 1983-1993. In doing so, they were continuing a long-established tradition.

As in frequent updating of individual courses, the creation of TQM electives may lead to tension between innovation and standardization. Another TQM strategy for curriculum development is to work towards a unified, standardized curriculum for all students, with TQM concepts appearing in all or virtually all courses and with less room for electives. But there is nothing in TQM philosophy that rules out the elective strategy that Chicago has followed. A rich array of electives permits students to adapt their programs to their own needs and requirements. There is a parallel with the automotive manufacturers who provide a wide variety of options to their customers.

The first TQM electives were introduced around 1983 by Willard Zangwill and me, acting independently. Zangwill's course, "Applied Production and Operations Management", analyzed Japanese management techniques in depth, with the aim of finding the things that consistently work and consistently yield improvements. My course, "Quality and Productivity Improvement", emphasized statistical techniques, especially SPC, intervention analysis, and design of experiments, but it introduced management concepts in the spirit of Deming's Fourteen Points that must be understood if statistics is to be used effectively in organizations.

The success of these early electives has continued to the present day, and several sections of each are offered every year. The experience encouraged statisticians in the School to recruit two adjunct "practitioner-scholars", consultants Bill Golomski and Tim Fuller. Fuller's course deals with systematic application of the Deming/Shewhart "Plan-Do-Check-Act" (PDCA) cycle to bring about quality improvement at all levels. Golomski teaches several courses, including Quality and Productivity

Improvement; one of the most interesting is a course on quality policy for high-level management.

Enrollments in the newly offered quality courses rapidly expanded, thus encouraging the offering of still more quality electives. As of 1993, the total number of electives has increased to about a dozen, all of which are offered every year. There is relatively little duplication, and some students become sufficiently enthusiastic to take several of them. Roughly ten percent of students graduate with a concentration in Quality Management, which was made available in the 1980s, while about half of all students take at least one of the quality electives.

The number of faculty teaching quality courses has also grown. Some are tenured, some are tenure-track who have yet to come up for tenure, and some are adjuncts. Their backgrounds are diverse. Beside those mentioned explicitly above, they include George Bateman, Selwyn Becker, George Easton, Richard Greene, Abbie Griffin, Ananth. Iyer, Rob McCulloch, and Ruey Tsay. (It may be significant, however, that Zangwill and Roberts, who started the process, were tenured.)

As a result of these efforts, in 1990 the faculty of the School unanimously voted to make Quality Management one of our basic "fields of study", parallel to Production Management, Financial Management, and Marketing Management. Also, Quality Management has become a field of doctoral specialization, and the first three doctoral students were admitted in 1992.

6. **Empowerment: Students as Agents for Change through Projects in Elective Courses**

All the quality electives require at least one organizational quality improvement project of the student's choice. Some projects are team projects, some are individual. The project approach is an application of the principle of "Just-In-Time" education: students apply ideas and methods as they learn them. Usually, students are able to make the necessary contacts with the organizations where the projects are carried out. Among these organizations are the University of Chicago itself, both the Graduate School of Business and other university units, including the university hospitals.

As we shall explain in Section 8 in our discussion of laboratory courses, we have found that MBA students can do surprisingly good practical work when they are given the responsibility for it. Those students who select university improvement projects are beginning to influence the application of TQM to administration at the university. The students are the shock troops for change.

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The student Quality Management Group has sponsored lectures, video tapes, plant tours, and other TQM-related activities, which have increased the number of educational opportunities for MBA students. Each year several capable MBA students emerge to continue the momentum of this group and to give it continuity.

7.   Osmosis of Quality Concepts into Core Courses

One obvious way to introduce TQM into the curriculum is to build it in the required core courses. A team-taught core with heavy emphasis on quality would reduce the influence of the academic "functional silos" -- the scholarly fields of specialization that can lead to a fragmented curriculum. A complete overhaul of an MBA program, entirely team taught, was in fact launched by the College of Business Administration at the University of Tennessee, and the first new MBA class graduated in 1993. The organizational culture at Tennessee was favorable for this initiative.

The Tennessee road, attractive as it is, would probably not work in the organizational culture of Chicago, where the allegiance to the specialized academic disciplines is very strong. Hence quality champions at Chicago have not sought a TQM core course or suggested that a TQM component be built into all core courses.

But an interesting thing has happened: there has been considerable osmosis from quality electives to certain of the core courses. Beginning not long after the introduction of the first quality electives in the early 1980s, the faculty in Operations Management designed a quality control module for the core course that area; about 35 percent of that course is devoted to quality. Quality is also a major component of a new core course in Behavioral Science. Quality issues including Activity Based Costing are increasingly prominent in the core course in Management Accounting. Since students raise quality issues in many classes, faculty members are motivated to consider the impact of TQM on their disciplines. Eventually, all disciplines -- economics, finance, marketing, etc.) will be taught a little differently as a result of the quality electives.

Quality ideas, especially team skills and presentation skills, are prominent in the LEAD program (see Section 8). There are elements of quality in a number of elective courses, including especially the laboratory courses (see Section 8). All this is short of the objective of TQM concepts in all courses, or a curriculum unified by TQM, as at Tennessee, but it does insure exposure to TQM concepts for almost all students.

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8. Laboratory Courses and the LEAD Program

Independently of most of the TQM developments reported above in Sections 5-7, former Deputy Dean Harry Davis started two major initiatives -- laboratory courses and the LEAD Program -- that have greatly strengthened the School's orientation towards TQM. The following description is taken from Harry L. Davis, "Old Culture, New Culture: A Retrospective on Quality Initiatives at the University of Chicago", speech delivered at the AACSB Annual Meeting, Seattle Washington, April 19, 1993.

> ... there has been rapid growth of laboratory courses in new product development, quality, and organizational consulting that involve teams of 10-12 students working on a broad general management assignment funded by a real client over a period of six months. The laboratories fundamentally shift the role of faculty from one of knowledge expert to one of learning design engineer and coach -- and who, in these roles, support students' work at both an intellectual and emotional level. Working with **students** is the essence of the role. ...

> ... [there] has been the introduction of a highly experiential, required leadership course for all 500 entering first year campus students that is created anew each spring by a group of 48 first year students and then facilitated by these same students during the fall quarter. The LEAD Program, as it is known, is a major exercise of student empowerment to help them take personal responsibility for developing their action skills. All first year students work in cohorts of about 50 students each during the first quarter of their academic studies. Each cohort is assigned a team of four second-year students who facilitate activities and discussions around such topics as leadership, communication skills, and so forth. A faculty and staff member are assigned to each cohort and participate along with the first-year students.

> Both the LEAD Program and the management laboratories represent a very different model of education, at least in terms of Chicago's mainstream social science menu of course offerings. The objective of both initiative is to get students to become self-sufficient learners in order to achieve higher levels of personal performance. ...

LEAD, the laboratory courses, and the projects in quality electives harmonize well with TQM. They emphasize team effort. They represent student empowerment: note that LEAD, a required course in the MBA program, is designed by students, with faculty in the role of coaching and facilitation.

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Students are no longer passive recipients of wisdom who demonstrate achievement by writing acceptable but uninspiring examinations. Students have become responsible for applying what they know or are learning. They have to accomplish things in the real world. For example, I have had a chance to observe in action the Laboratory in Organizational Excellence, facilitated by Selwyn Becker and Bill Golomski (innovation 10 in Section 3). In just two quarters, the student teams typically achieve a substantial redirection of company efforts towards quality improvement. Both Becker and Golomski have been astonished to find that the students can do some things that they, the facilitators, could not have done.

LEAD has also led to a Suggestion Forum, in which a mechanism is set up to elicit and to act upon student suggestions, as well as a student Continuous Improvement Committee, with subcommittees concerned with curriculum, placement, alumni relations, and policies. Students have been prominent in carrying out frequent surveys of student satisfaction. As a result of LEAD and the quality electives, each year's MBA class includes a small group of dedicated students who help in many ways in quality improvement activities around the School. One of them -- Robert Kenmore -- served on the School's Quality Executive Council (see Section 11), not because we wanted a token student representative but because Kenmore was so knowledgeable, energetic, and helpful. (Kenmore has taken major responsibility for preparation of brochures on the School's MBA Quality Management Program and contributed to many TQM activities, including the student Quality Management Group described in Section 6.)

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9. Fast-Feedback Questionnaires

The end-of-course evaluation questionnaires discussed in Section 4 are useful, but they are general and the information is too late for the class that fills them in. As a result of experimentation in a laboratory course facilitated by Bateman and Roberts (innovation 12 on the list in Section 3), it was discovered that a simple tool for grass-roots improvement in teaching is the fast-feedback questionnaire, a formal way of finding out systematically what is working and what is not working in teaching, and making corrections as a course proceeds. The questionnaires are simple and easily tabulated; many faculty use them frequently, even after every class. As the faculty member gives feedback to students on the student feedback, a new channel of communication opens up.

There is no presumption that students can give faculty informed advice about what should be taught, but it has been learned that students are very capable of reporting when they are confused, bored, or skeptical, all of which reduce the effectiveness of learning.

Fast-feedback is also a healthy antidote for the traditional professorial paternalism that can lead to complacency, stagnation, failure to check how much is really being learned and retained, and fatalistic acceptance of poor student performance. ("More than a third of the 600,000 or so people who study calculus in college every year fail to complete the course. That's just the way it is.")

By contrast, fast-feedback encourages professors to take responsibility for success of teaching, and therefore to become interested in methods of improving teaching. They begin to try to figure out **why** students perform poorly or challenge the relevance of the subject matter. They begin to think about getting relevant data. **Professors need much more data than they usually get, and that they need it in a more timely fashion.**

Fast-feedback in various forms is now being used very widely in many other business schools and other parts of universities.

Detailed background on experiences with fast-feedback is given in George R. Bateman and Harry V. Roberts, "TQM for Professors and Students", February, 1993.

10. Personal Quality

A surprising development in TQM has had a substantial impact on the School in just the last two years. Robert Galvin of Motorola, who has appeared in two other contexts in the first two

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sections of this paper, has long been saying, "Quality improvement is not just an institutional assignment, it is a daily personal priority obligation". To my knowledge, the first person to use a systematic TQM method to implement personal quality in management was Bernard F. Sergesketter, Vice-President of the Central Region of AT&T. Inspired by Galvin's exhortation about the importance of personal quality, Sergesketter developed a simple tool called a personal quality checklist. The idea is that you make simple defect counts of failures to perform certain personal work processes in the way you desire, and then keep score. Defects suggest ways of improving quality so that they are less likely to occur.

Through the "outreach" activities in the School (see Section 12), we learned of Sergesketter's work and collaborated with him in further development of the idea. The personal quality checklist has already had some impact on teaching, since personal improvement projects requiring use of the checklist have been introduced into several of the TQM electives with considerable success, both as a teaching tool for TQM and as a specific way to help students become better students.

For details, see: (1) Harry V. Roberts, "Personal Quality Checklists for Total Quality Management", Selected Paper Number 73, Graduate School of Business, University of Chicago, 1992; (2) Harry V. Roberts and Bernard F. Sergesketter, **Quality Is Personal: A Foundation for Total Quality Management**, Free Press, 1993.

11. Quality Office

Although our TQM efforts have emphasized academic quality more than administrative quality, in late 1990 Deputy Dean Harry Davis set up an administrative quality office headed by Assistant Dean for Management, Bill Kooser. Kooser is also the executive secretary of a steering group called the Quality Executive Council, which was chaired by Davis until he stepped down from his administrative assignment in July, 1993.

In Spring, 1993, the Quality Executive Council included four faculty interested in quality (Bateman, Becker, Greene, and Roberts) and the student, Robert Kenmore, mentioned in Section 8. Whenever Davis could attend, he presided; when Davis could not attend, Kooser chaired the meeting. The Quality Executive Council has worked on all aspects of quality, academic and administrative, but has placed high priority on problems faced by MBA students in an economic climate that no longer is as benevolent to MBAs as it was in earlier decades.

Kooser's office oversees extensive staff training in quality (some of it provided by faculty, much by Kooser himself). It

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supports the dozen or more student/staff teams that are regularly working on improvement projects in the areas of student and alumni services, and carries out a quarterly exit survey of all graduating students. This office has also established procedures for following up and reporting on the more than 250 suggestions that are received each year from students, staff, and faculty. Kooser has also served as the contact person for outsiders who want to draw on the School's quality expertise; he is the coordinator of the School's "outreach" activities sketched in Section 12. He has formed alliances with industry consortiums such as the CCI and the QPMA.

On balance, however, our attempts to improve administrative quality through TQM have accomplished less than the various grass-roots efforts to improve academic quality reported in earlier sections. In part, this reflects the fact that the School is part of a university. Like many universities, ours has bureaucratic rules and well-entrenched functional departments that do not communicate especially well and that cannot take ownership of key processes that cross departmental lines.

As at many other universities and colleges, crucial administrative support activities include admissions, student aid, student housing, and placement. Within the administrative constraints under which the School operates, Chicago has tried to make progress on these problems and others besides.

12. Outreach

The TQM efforts within the Graduate School of Business have thus far had relatively small effects on the rest of the University of Chicago. The School has opened up its staff training courses to employees from other parts of the university; many individuals have responded and a few have become quality champions in their own departments. The Central Administration of the university is aware of the potential of TQM in cutting the excessive costs of paper processing, but the high priority for the University of Chicago Centennial campaign has left no room for systematic TQM efforts. Nor has any other academic unit in the university followed our lead. (The university does not have an engineering school.)

The University of Chicago Hospitals are making a major effort to enhance patient satisfaction. In part because of encouragement from the Business School, they are starting voluntary local quality improvement initiatives, while avoiding a formal "TQM Program" that might raise expectations unrealistically. However, MBA students frequently go to units of this hospital for organizational improvement projects in Quality courses with units of the hospital, and there are several TQM champions in the hospital.

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The National Opinion Research Center (NORC), with encouragement from us, has launched a sustained TQM initiative. Tim Fuller, George Bateman, and I have provided some technical support.

The School's faculty in Quality Management and Dean Kooser have frequently been invited to participate in conferences, seminars, and short courses on the application of TQM in education, mainly but not entirely at the college and university level. One of the most interesting of these has been a series of monthly TQM presentations and discussions with member companies of the Chicago Presidents' Organization (CPO). These are attended by the CEO and key senior management of several companies. The exchange of perspective, experience, and ideas about TQM among the different companies, facilitated by two of the School's faculty, has turned out to be very useful. There have also been two very successful field trips, one to Honda of America and one to the Springfield Remanufacturing Corporation.

13. Potential Extensions Beyond Business Schools

The movement towards TQM in academia in business schools is paralleled by a similar movement in engineering schools. Most of the approach in the Chicago Business School would be relevant, with only minor modification, to an engineering school with similar leadership and grass-roots tradition. Both business and engineering are oriented to action in organizations. Quality electives, practical quality improvement projects, and organizational laboratory courses fit in nicely. There may also be similar opportunities in other professional schools, such as law, agriculture, architecture, or social service.

Other academic areas are more problematic. Fast-feedback and related approaches to the improvement of teaching appear to be universal. Personal quality is widely applicable, and it can probably be effectively used in helping students to become better students in courses ranging from advanced mathematics to music performance.

14. A Personal Summing Up

The grass-roots efforts described in this paper have led to important improvements in the School. The exercise of writing this paper and describing these improvements has been encouraging. It has become apparent that we have tackled the central academic processes of the School and not confined our efforts to attempts to improve the administrative supporting processes. On the other hand, our limited attempts to improve university administration have been sobering; this task is very hard.

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Although grass-roots efforts have improved the School, they have not transformed it, and are not likely to do so. The Quality Management Group and those faculty involved in Laboratory Courses and LEAD are relatively few in number. They are accepted by the rest of the faculty as competent and sensible, and there is no tendency to deprecate TQM. But most faculty members outside the Quality Management Group and close allies are relatively unaffected by TQM and have relatively little interest in or knowledge about it. The curricular activities described in this paper almost constitute a "school within a school".

This is to be expected in an organizational culture with a strong orientation to specialized research in the various academic disciplines to which most faculty members look for recognition and approval. This recognition and approval, in turn, translate directly into promotion and salary increases, so the culture is not likely to change unless there is an external challenge. In the absence of such a challenge, it is hard for deans to do much about the culture.

One possible source of such a challenge may be seen in the "MBA bashing" that has become popular in recent years. The core of this bashing is the argument that much of specialized academic research has little immediate relevance for professional training in business. If there is any substance in this argument -- and I think that there is some -- grass-roots efforts can do little to help. A substantial shift in organizational culture would be needed.

One possible direction of organizational transformation would entail an integrated, team-taught curriculum in which traditional course boundaries disappear. As reported in Section 7, this is actually happening in the MBA program at the University of Tennessee.

Another possible TQM direction is that of shrinkage of core requirements and expansion of electives, with skilled guidance in helping students to put together programs that fit their needs and interest. However, as explained in Section 5, the fraction of elective courses at Chicago is already large, and there would probably be little faculty support for further expansion.

The future of our Business School (and of business schools generally) is less assured in 1993 than it was in 1983. The MBA degree itself is under increasing challenge. Will business schools continue to be a fruitful interface between the academic disciplines and the real world? It is clear to me that many major changes are in order, one of which is reducing the cycle time for an MBA degree from two years to one. TQM ideas, particularly those of waste reduction and reengineering, are likely to be essential in achieving such goals.

I can also offer a personal perspective. My academic specialization is statistics. The experiences with TQM reported above have altered my orientation toward statistics. In particular, statistical tools -- whatever else they contribute -- must be helpful for ordinary people to solve practical problems, like those arising in TQM. Statistical ideas must be presented to students in a form that students can understand **and apply**. Quality improvement projects in our quality courses provide an ideal vehicle for doing this. In the process, TQM has made statistics more fun for me.

Galvin's challenge was, "Why can't you teach 50 percent more in a year than you're now teaching?" I feel that the orientation towards TQM has helped me personally to respond to that challenge. In particular, in our Executive MBA Program, I have long taught a course called, "Statistics for Managers". In the last two years, the title has been changed to, "Statistics and Quality Management". I still teach all the statistics I had previously taught, but I have achieved a very substantial infusion of TQM materials. All students do two -- not just one, as before -- quality improvement projects, one dealing with personal quality and the other dealing with organizational quality. Judging from the quality of the student projects that are done in the course, I think that I am teaching at least 50 percent more in a year than I was when I first heard Galvin's challenge. (Recently I was asked by the Director of the Executive MBA program if I would consider cutting this course back from 11 to 9 weeks in order to make room for new material in business law. Even two years ago, I would have regarded this as impossible. My actual reaction was to regard it as a challenge in use of TQM ideas. I think that I can do it. I know that I am willing to try.)

On the other hand, the fast-feedback questionnaires keep pointing out major opportunities for further improvement. This is the downside of continuous improvement: the more you improve, the worse you feel about what you have done in the past. The upside is that you have the continued satisfaction of attacking the opportunities for further improvement that never cease to present themselves.