

CONTINUOUS PROCESS IMPROVEMENT PROGRAM

AT CENTRAL MISSOURI STATE UNIVERSITY:

A CASE STUDY

By

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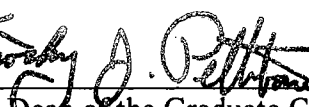
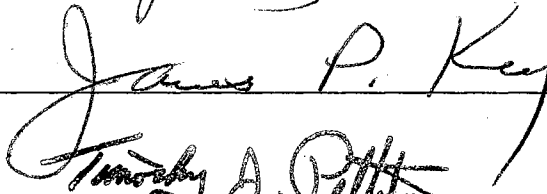
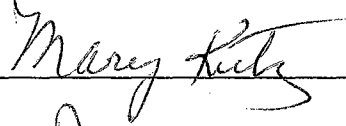
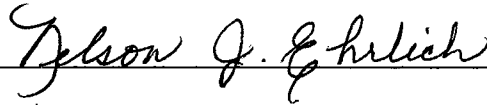
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A CASE STUDY

Thesis Approved:



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Dean of the Graduate College

DEDICATION

This dissertation is dedicated to my mother and father

Roy C. Kangas

December 21, 1912 - November 15, 1991

Marian C. Kangas

October 14, 1915 - September 29, 2002

They always believed in me and encouraged me.

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CHAPTER I

INTRODUCTION

Background

Central Missouri State University (CMSU) in Warrensburg, Missouri has been serving the educational needs of central Missouri for 130 years. During that time, its role has changed from a "normal" school to the university that it is today. It has responded to the needs of its students and community by adding to and changing its curriculum and plans of study. CMSU evolved from the early teacher-training program of the "normal" school to form a larger more comprehensive entity. The university now offers more than 150 programs and has been true to its motto, "Education for Service." CMSU developed the Continuous Process Improvement (CPI) model which focused on the changing needs of the campus community.

The CPI model was comprised of ten shared educational assumptions. The first six assumptions focus on student learning. (1) Student learning is a primary purpose of an educational institution. (2) Education goes beyond knowing to being able to do what one knows. (3) Learning must be active and collaborative. (4) Assessment is integral to learning. (5) Abilities must be developed and assessed in multiple modes and contexts.

(6) Performance assessment, with explicit criteria, feedback and self assessment, is an effective strategy for ability-based, student-centered education. Assumptions seven through ten deal with curriculum. (7) A coherent curriculum calls for faculty investment in a community of learning and judgment. (8) The process of implementation and institutionalization of a curriculum is as important as the curriculum: the process is dynamic, iterative, and continuous. (9) Educators are responsible for making learning more available by articulating outcomes and making them public. (10) Responsibility for education involves assessing student outcomes, documenting inputs, and relating student performance over time to the curriculum (CMSU Vision for Excellence, 1994).

University Challenges and Opportunities

The Continuous Process Improvement model permits the university to focus on the educational needs of the student as well as develops changes to improve the curriculum of the university. The model dictates that each program sequentially assess itself by systematically examining plans and methods that will improve its courses. This requires the faculty of each department to become an active part of criteria used in the curriculum.

The CPI criteria for classroom learning establishes the following faculty goals:

(1) Define performance-based student abilities (outcomes) to be learned and demonstrated in the course; (2) Write criteria and establish performance benchmarks which specify the expected characteristics for students; (3) Observe student performance based on the stated abilities and specific criteria; (4) Assess student performance based on expected judgment;

(5) Provide developmental feedback to the student against the specific criteria (Mullin and Wilson, 1994).

The fundamental CPI principles define the curriculum and pedagogy to create performance-based students. Comprehensive general outcomes unify the curriculum and require students to integrate knowledge, skills, and attitudes. In order for this to happen, the curriculum is defined by individual course outcomes, creating a developmental sequenced, logically coordinated program of courses. Faculty responsibility includes collaboration for the core learning process and also the individual responsibility for courses included in the process. For the model to work, the institution must focus on process improvement. Measures of student development (value-added) on their general outcomes across courses will be assessed by entry and exit assessment on performance outcomes (Elliott, 1994).

Statement of the Problem

The purpose of this study was to determine the status of the Continues Process Improvement Model at Central Missouri State University.

Purpose of the study

In 1994, Central Missouri State University's Strategic Planning Council conducted a survey to gather information regarding the institution's use of Total Quality Management, or Continuous Process Improvement. At that time the survey indicated that

the model was improving class performance, enhancing learning and growing in acceptance campus wide. A follow-up survey in 1997 was given to the departments that were actively involved with CPI suggested that the model continued to have positive effects. At that time, several departments throughout the university had implemented more complex models of CPI into their programs of study. In the fall semester of 1998, the administration de-emphasized reporting of CPI progress and in the following Spring semester, curtailed spending for the CPI model, grants and classroom related improvements essentially ending their support.

Research Questions

This paper proposes to analyze the history of the Continuous Process Improvement Model over its ten-year existence at Central Missouri State University and to determine the reasons why the model was discontinued. The research focused on the following:

1. Is the Continuous Process Improvement model still a viable dynamic program at Central Missouri State University?
2. How involved are the departments and faculty with the CPI model?
3. What type of training has been provided to faculty?
4. Does the administration financially support the CPI model at the departmental level?
5. Has the administration made a decision to de-emphasize or discontinue the CPI model on campus?

Delimitations

This study is limited to published and unpublished materials from knowledgeable experts, personal interviews from departmental chairpersons from Central Missouri State University, professional journals and materials within and through the James Kirkpatrick Library, Central Missouri State University, Warrensburg, Missouri. No basic experimental research was intended by the researcher in this study.

CHAPTER II

REVIEW OF LITERATURE

The Role of Quality in Higher Education

There may be dynamics present both inside and outside an organization which cannot be controlled during the implementation of the CPI model, and which may exert major influences on organizational climate. The continuous improvement process model is the application of a quality control management system in the educational arena. In order to write criteria and establish performance benchmarks which specify the expected characteristics for students, the university has to define their quality management system.

Definition of Terms

The following is a list of terminology that is consistent with the application of total quality principles in higher education. The definitions are congruent with the Continuous Process Improvement Model .

Activity: The tasks performed to change inputs into outputs (Lewis and Smith, 1994).

- Attitude: The stance taken as a result of the perception of reality, embodied in the judgment of the individual, and based on limited knowledge (Kubasch, 1993).
- Climate: The shared perceptions of organizational policies, practices, and procedures (Schneider, 1990).
- Continuous Improvement: The operational philosophy that makes the best use of the talents within the organization to produce products/services of increasing quality in an increasingly efficient way (Lewis and Smith, 1994).
- Culture: The systems of shared meanings, assumptions, and underlying values that define a particular group or organization, and are embodied in the structure and processes of that organization (Schneider, 1990).
- Customer: The recipient of the end result of an individual's or organization's work (products or services). Often referred to as the consumer (Lewis and Smith, 1994).
- External Customer: A customer who is outside of, the organization (Sherr, 1993).
- Internal Customer: A customer who is part of the organization and is dependent on the quality output of others within the organization (Sherr, 1993).
- Management: Individuals who supervise the work force directly, and/or hold administrative authority over individual projects and are responsible for accomplishing short term organizational objectives (Kubasch, 1993).
- Mission: The core purpose of being for an organization (Lewis and Smith, 1994).
- Process: A sequence of repeatable activities characterized by a set of specific inputs

and value-added tasks that produce a set of specific outputs (Lewis and Smith, 1994).

Quality Those attributes of a product or service to which the customer attaches value. Depending on the customer's focus, "quality" may include timeliness, size, cost, reliability, and other such factors (Kubasch, 1993).

Staff: Includes professional staff such as secretaries, clerks, security, maintenance, shipping and receiving personnel, and other non-management support staff (Kubasch, 1993).

Stakeholder: Individual or department who either has an effect on the process or is affected by it (Lewis and Smith, 1994).

Statistical Control: The use of statistical techniques to analyze a work process or its outputs, identifying deviations, and setting upper and lower limits in order to improve the capability of the process (Lewis and Smith, 1994).

Task: The basic work element of a process activity (Lewis and Smith, 1994).

Team: A group of people sharing responsibility for a process or set of processes, and working together towards the common goal of improving the quality of output (Kubasch, 1993).

Total Quality Management (TQM): The application of quality principles for the integration of all functions and processes of the organization, with the ultimate goal of customer satisfaction achieved through continuous improvement (Lewis and Smith, 1994).

Vision: The long term future desired state of an organization, intended to inspire and motivate members of the organization (Lewis and Smith, 1994).

Defining Quality Management(QM)

The continuous improvement process model is the application of a quality control management system in the educational arena. In order to write criteria and establish performance benchmarks which specify the expected characteristics for students, the university has to define their quality management system.

Quality management has been developing over many years. For the past several hundred years the idea and concept have evolved into a well documented process. Some examples of this development are: interchangeable parts and the division of labor; control limits; defective parts inspection; scientific management; Shewhart's control system; Deming and Juran's statistical methods applied to manufacturing; management by objectives; systems analysis; customer emphasis; and the movement from industrial base to service base of value. It is now necessary for educational systems to define their product as quality concerns become part of education itself.

One view of QM requires all aspects of an organization to be driven by only the principle of customer satisfaction. In this type of organization, all activities and functions are designed and carried out to meet customer/student requirements. The second way of defining QM is by identifying the expected outcomes. There are four generally accepted areas of QM outcome results. One commonly expected result is customer satisfaction in a form that exceeds their expectations. Customers become extremely loyal and act as partners with their suppliers. A third result area relates to developing a climate which permeates all aspects of the organization that will encourage teamwork, provide job satisfaction and cultivate student motivation. The fourth expected outcome of quality is

the vision of a belief in, and action toward the continuous improvement within all areas of the educational system (Ciampa, 1991).

The final way to define quality is by discussing the many tools and processes used in QM. These tools and processes would include such areas as; quality control, quality assurance, reliability engineering, just-in-time, measurement, organizational development, strategic planning, employee involvement, leadership theory, teamwork, visioning, customer focus, and re-engineering (Ciampa, 1991).

Any of these definitions of methods can be used based upon the type of organization applying Quality Management processes. It is key to remember that the meaning and content of QM is rapidly changing in its application to new types of educational organizations and processes. The basic tenets of QM remain the same.

Quality Management's Role in Meeting the Need for Change

QM has been used extensively in the private and public sectors of the world to provide a process for improving organizational performance and meeting customer requirements. Higher education is being questioned, now more than ever before, as to its value and relevance to our society and its ability to be successful in a world market. The disconnect is real between what our colleges and universities produce, in terms of learning and outcomes in their graduates, and what industry requires. Furthermore, the longer we refuse to address the gap, like the budget deficit, the more drag it will be on our economy and global competitiveness (Seymour, 1993). This deals only with the economic view. However, there is also a strong view that higher education is not relevant for even the

education of the individual person. This concern with higher education efficacy is being played out in the financial status of higher education within the extremely competitive environment of institutions acquiring money to operate. Higher education is being called to task and that task is to meet or exceed its student's expectations, thus the high interest and application of QM in higher education (Sherr, 1991).

QM in Higher Education

Total Quality Management has slowly made its way into higher education. The transition has not been an easy one, because educators are often reluctant to accept methods used in the corporate world. It has been through the introduction of TQM methods and tools in the areas of classroom assessment and institutional effectiveness that acceptance has occurred (Cross, 1993). Many educators have been won over to TQM theory because it has provided a means to face the challenge of a shortage of financial resources, and offers processes to gather data to support informed decision making.

W. E. Deming's views of quality are being used as the model in educational quality programs in many universities. His fourteen points for total quality are:

1. Create constancy of purpose toward the improvement of products and services in for order to become competitive, stay in business, and provide jobs.
2. Adopt a new philosophy. Management must learn that it is a new economic age and awakened to the challenge, learn their responsibilities, and take on leadership for change.
3. Stop depending on inspection to achieve quality. Build in quality from the start.
4. Stop awarding contracts on the basis of low bids.
5. Improve continuously and forever the system of production and service, to improve quality and productivity, and thus constantly reduced costs.
6. Institute training on the job.

7. Institute leadership. The purpose of leadership should be to help people and technology work better.
 8. Drive out fear so that everyone may work effectively.
 9. Break down barriers between departments so that people can work as team.
 10. Eliminate slogans, exhortations, and targets for the workforce. They create adversarial relationships.
 11. Eliminate quotas and management by objectives. Substitute leadership.
 12. Remove barriers that rob employees of their pride of workmanship.
 13. Institute a vigorous program of education and self-improvement.
 14. Make the transformation everyone's job and put everyone to work on it.
- (Goetsch and Davis, 1997, p. 21)

The fact that a majority of colleges in the United States are considering implementing TQM programs stands as testimony to the acceptance TQM is receiving from higher education. Ted Marchese, vice president of the American Association of Higher Education (AAHE), and one of the founders of the Academic Quality Consortium (AQC), recommends higher education focus on continuous quality improvement (CQI) rather than TQM. Marchese (1991, p. 6) identifies 12 themes on which educators can draw from TQM:

1. Focusing on quality.
2. Being customer driven.
3. Emphasizing continuous improvement.
4. Focusing on making processes work better.
5. Extending the mindset.
6. Involving the discipline of information.
7. Eliminating rework.
8. Emphasizing teamwork.
9. Empowering people.
10. Investing in training and recognition.
11. Requiring vision.
12. Requiring leadership.

Tribus (1990) suggests that Deming's 14 points be modified to accommodate the differences between higher education and the business world. He recommends that the following be incorporated to encourage continuous improvement in education:

1. Create constancy of purpose toward improvement of students and service.
2. Adopt the new philosophy, and let educational managers take on leadership for change.
3. Work to abolish grading and harmful effects of rating people.
4. Cease dependence on testing to achieve quality. Eliminate the need for inspections on a mass basis by providing learning experiences which create quality performance.
5. Work with the educational institution from which students come, thus minimizing total costs of education by improving relationships with student sources and helping to improve the quality of students coming into the system.
6. Improve constantly and forever the system of student improvement and service, to improve quality and productivity.
7. Institute education and training on the job for students, teachers, classified staff and administrators.
8. Institute leadership to do a better job.
9. Drive out fear. Encourage people to speak freely.
10. Break down barriers between departments. Develop strategies for increasing cooperation among groups and individuals.
11. Eliminate slogans, exhortations, and targets for teachers and students asking for perfect performance and new levels of productivity.
12. Eliminate work standards (quotas) on teachers and students. Substitute leadership.
13. Remove barriers that rob students, teachers, and management of their right to pride and joy of workmanship.
14. Institute a vigorous program of education and self-improvement for everyone.
15. Put everybody in the school to work to accomplish the transformation.

Heverly (1992) notes that there are significant reasons for TQM being accepted within higher education. First, TQM offers a methodology for improving quality. This is a primary concern of administrators faced with decreased funding and increased demand for accountability. Second, TQM offers congruency with the values of higher education. Ideas such as shared responsibility and active learning, continuous/lifelong learning, and data collection using empirical methodology parallel TQM theory. Finally, TQM supports emerging trends in higher education, such as assessment and classroom research.

Continuous Quality Assurance (CQA) is the model that has emerged in community

colleges. This terminology conveys that CQA is more than a management style; it is a philosophical approach to all aspects of an organization that is as applicable to a college as to business and industry. (Peterson, 1993). CQA encompasses strategic planning for institutional effectiveness, and requires continuous modification of programs to meet changing community needs.

Continuous Quality Assurance is structured on the following elements:

1. The CEO is also the chief quality officer.
2. A consistent purpose as defined in the institutional mission statement, with clear goals and objectives.
3. A leadership philosophy founded on helping people do a better job.
4. Determination of student, alumni, faculty, staff, and community needs.
5. The focus is on innovation and change.
6. Individual motivation to commit to the institutional mission.
7. Barriers between departments, groups, and individuals must be removed.
8. All employees must be empowered.
9. Systematic assessment must be employed.
10. Team building, especially cross-functional, is essential.

Brigham (1994) states that TQM is now more commonly referred to as CQI (Continuous Quality Improvement), and emphasizes being mission-driven, placing importance on serving or satisfying the customer.

There are many examples of CQI implementation in higher education. The experiences at the University of Michigan, Cornell University, and the Maricopa County Community College District typify current applications of CQI concepts.

The University of Michigan refers to its quality initiative as M-Quality. The M-Quality program is intended to make a positive change within the University, and focuses on leadership, project teams, and individuals. M-Quality involves three steps. First, the college mission is emphasized through a set of leadership activities that also bring policies and procedures into line with M-Quality principles. Second, quality improvement teams

are established to study and improve work processes. Finally, all employees are empowered to use information to implement changes in how work is done. M-Quality is based on 4 principles: (1) pursuing continuous improvement; (2) managing by fact; (3) respecting people and ideas; and (4) satisfying those being served (Brigham, 1994).

Cornell University quality initiative is the Quality Improvement Process (QIP). Quality improvement is defined in terms of needs, requirements, or expectations of those using the services, whether it be the external customer (students, community, etc.), or the internal customer (staff). Total quality is a proactive approach, and everyone involved in the process is responsible for the quality of service. CQI recognizes the dynamic nature of customer needs, thus subjecting the processes to constant change and improvement. QIP consists of the following elements: (1) quantifiable measures for quality; (2) data collection involving both process and service measures; (3) performance targets derived from analyses of the best practices; (4) total employee involvement; and (5) comprehensive data analysis skills and methods used by all staff. Cornell recognizes that QIP necessitates fundamental change in the institutional culture, changing behaviors, structures, systems, and policies and procedures so that they support QIP principles and goals (Brigham, 1994).

The Maricopa County Community College District (MCCCD) developed a CQI model referred to as Quantum Quality Management (QQM). QQM recognizes that although TQM was founded in business, it is transferrable to educational institutions, that the end product is education, the customers are students, tax payers, employees, and the governing board, and that TQM tools can be used successfully. QQM is based on the following beliefs: (1) it is a lifetime commitment with no quick fixes; (2) it takes time to

implement, but it will eliminate rework; (3) it involves a change in the culture of the organization; (4) it empowers employees throughout the organization; and (5) it examines failure in terms of processes, not people (Brigham, 1994).

In surveying the literature regarding the application of Quality Management in higher education, it is apparent that the use of QM has significantly increased since 1990. Several surveys of colleges and universities show that more than 75 percent of those higher education institutions that are trying QM, started since 1990. Forty percent stated that they started QM due to internal forces only. While 6 percent stated, they began due to external forces only. The remaining 54 percent initiated QM due to a combination of both forces (Hertzler, 1994).

Most frequently, Leadership for Quality Management came solely from the administration of the institution or in partnership with another portion of the organization. A little more than 60 percent of the organizations have developed a written plan. In the majority of these organizations, a single individual oversees the implementation of the QM plan on a part time basis. In less than 10 percent of the organizations, outside consultants are used (Hertzler, 1994).

After leadership, participant training in Quality Management procedures was cited as the most critical factor in getting started. In higher education, sharing a common understanding can help support a common culture of Quality Management and create a critical mass of participants. Within institutions, most frequently, 90 percent of the support staff is trained, followed by 85 percent of the administration and only 68 percent of the faculty (Hertzler, 1994).

The significantly lower participation of faculty should be noted.

Initial outcomes of the implementation of Quality Management seem to be in several areas. In 63 percent of the cases, the management style appears to move toward a more collegial form. More than 30 percent of the institutions indicated there seemed to be no change. Less than 10 percent of the institutions believed that the culture became more autocratic. Improved communication was cited by over 60 percent of the organizations. Communications seemed to improve not only in the organizations implementing the process but there seemed to be some spillover to others in contact with these organizations. Cooperation and improved coordination were also cited as improving in more than 50 percent of the organizations. Customer satisfaction improved in over 65 percent of the organizations using the Quality Management processes (Hertzler, 1994).

There are several problems when implementing Quality Management programs that have been identified as being potentially difficult in overcoming. It is troublesome for higher education to accept the notion that students are customers. There can be a great deal of difficulty in agreeing on whom the customers are and how they should be served. The idea of having customers is not well received by faculty who believe it reduces their teaching to no more than a business. This customer issue is critical. Especially if the QM process being implemented is based on the customer driven model.

The integration and breaking down of departmental barriers threaten the centers of expertise and the professional relationships of the faculty themselves. Implementing a process that is heavily dependent on interdepartmental teams, may cause significant change in the institution's structure and decision making process. Reward systems become questioned since customer satisfaction is the primary focus and depending on customer definition, the use and giving of rewards may need to be shifted significantly. These are

the most common areas of resistance in QM implementation in higher education (Wolverton, 1993).

The literature identifies several areas of common mistakes that institutions have made. The most common mistakes, both in higher education and in the public and private sectors, are the lack of leadership and commitment. Deming and Juran both emphasize the importance of not only leadership approval but personal and active leadership participation in all aspects of implementing the process. The next greatest mistake in implementing Quality Management is failing to develop a critical mass of support in relation to the changes taking place.

Quality Management cannot endure without training and supporting those affected. All who are going to be impacted by the change must be involved and participate. Without their involvement there can be little, if any, buy-in by the people being asked to change.

The other concern of critical mass is that there is seldom a work group that does not require input from others or having their output used by others. In either case, other entities of the organization who come in contact with the implementation of Quality Management will eventually be affected by that relationship. In addition, the organization must have a strategy to deal with organizations who are not implementing QM.

Implementing Quality Management requires resources to be expended. People have to be trained. In order for the changes to be accomplished employees must devote some of their time to learning and practicing the new methods that will reflect the new customer focus. It is difficult for some organizations to absorb the additional cost of initializing Quality Management when they may already be under other financial pressures.

In the field of education there is a tendency to focus QM in the administrative support areas and leave out the faculty areas. This then limits the impact of QM on higher education and the types of customer/student requirements that can be met (Wolverton, 1993).

In summary, Quality Management is now being used by many institutions to improve their standards of education. As it is with all other private and public sector groups, the results are mixed and provide a great deal of information on what is working. They indicate ways to improve the introduction of the process. Guidelines are also revealed for the criteria that should be used to properly apply Quality Management principles to higher education.

Continuous Process Improvement

Continuous Process Improvement centers on a shared vision of enhanced learning. The outcomes for student learning are based on a shared vision of well-educated graduates and are defined in terms of interdisciplinary learning, such as problem solving and communication skills, and essential discipline-based learning in specific content areas. Defining learning outcomes provides students and the community with an explicit definition of what the diploma represents in terms of essential learning, performance-based indicators, and standards.

The development of the curriculum, the design of instructional strategies and learning activities, and the system for assessing student learning must be aligned with intended learning outcomes. Selection of teaching strategies and learning activities is based

on their congruence with the expectations for student learning. The criteria for designing assessment strategies call for developing authentic measures of student achievement of the intended learning outcomes, not simply testing what is easy to measure.

Varying instructional time and support assure that students achieve the essential learning outcomes. These outcomes are held as a constant, while the time for learning, types of teaching strategies for learning activities and design of assessment measures are the variables in the teaching-for-learning equation. Assessment and instruction are integrated so that assessment data are analyzed to adjust instructional practice to respond better to student learning needs. The emphasis in analyzing assessment data is on using it to direct the design of interventions in behalf of student learning (Fitzpatrick, 1995).

Daniel Seymour (1991) has outlined the benefits and frustrations of TQM in the college environment:

Benefits of TQM:

1. It gives everyone a voice. This improves feelings of value, encourages input, and provides a better understanding of one's ability to make decisions and facilitate change.
2. It leads to less explaining and more listening, and this leads to greater customer satisfaction as shown by surveys and evaluations of students and employees.
3. It cuts down steps. TQM focuses on improving processes, and that usually translates into simplifying them.
4. The climate changes for the positive. TQM relies on attitudinal change, and usually results in improved morale.
5. There is a willingness to "sweat details," since TQM requires decision making based on fact, instead of "quick fixes."
6. TQM brings people together. Since teamwork is a necessary element, TQM tends to break down barriers among work groups and individuals.
7. TQM provides a common language on which all employees may rely to

- communicate, and to resolve disputes.
8. TQM focuses on the mission. All employees come to realize that the purpose of the institution is to make every effort to provide students the quality of education they deserve.
 9. Rework and "scrap" are reduced. TQM emphasizes problem prevention, and this reduces rework. By improving processes, input is more readily transformed into output, and this cuts down on waste (scrap). TQM saves time and money.
 10. TQM results in more effective use of the budget. By examining processes and strategies, often money is saved by cutting waste and implementing more cost effective methods.

Frustrations of TQM:

1. TQM takes time to implement, and tends not to deal with immediate problems
2. TQM often translates to "lip service" as administrators often say one thing, but do another in respect to empowerment.
3. There is an aversion to change in higher education, and many educators believe TQM is a fad that will pass.
4. TQM requires getting beneath the surface to effect change, and it is difficult to train everyone to translate TQM to their specific job functions.
5. Real teamwork is difficult to achieve. Departments are decentralized, team leaders are often inexperienced, and committees are often formed to ensure institution-wide representation rather than being self-managed work teams.
6. Results are not always tangible. Although TQM may be perceived as good, improvement can be difficult to quantify.

Both supporters and detractors of TQM tend to focus their remarks on how organizations can best deal with change. Peters (1987) says that we can "thrive on chaos," and that change is an everyday process. In order to address change, new ways of looking at paradigms must be found. Leaders in quality processes must help others to recognize change and "...embrace it with a positive mindset, seeing problems as opportunities..." (Marchese, 1991, p. 9). It is with this new mindset that people in organizations can work together with "...positive energy..." and change

"....synergistically..." (Seymour, 1991, p.11).

Performance-Based Students

Emphasis is placed on the relative explicitly stated outcomes and criteria. The teaching methods of assessment-as-learning demands student involvement. Students and faculty are often co-learners, and effective learning experiences include group learning, peer tutoring, and collaborating with others which are quite different from the professor-based lecture format. Curriculum changes in response to feedback and other information attained from the student. Assessment is an integral part of the learning process.

The last area of concern to be addressed in this review is the relationship of performance-based students and their outcome expectations by Deming's ideals about management of quality. The central idea in W. Edwards Deming's approach to the management of quality is the need to improve process, and the central defect of most educational models is that they do not address process (Holt, 1994). Deming's quality management concepts are a backward look from a finished product to developing process. Because of the difficulty of defining education and learning outcomes, it is nearly impossible to evaluate an outcome based on a modified process. What makes Deming work in industry is that the finished product can and is precisely defined. As a result, the manufacturing process can be fine-tuned to maximize quality. In education, the product is not defined by a specified output measure. Hence, the use of tests and assessments are crude and misleading devices that measure performance even though character and understanding matter more. If we accept assessment as a necessary evil, we could say that

education has to be outcome-aware. But to declare that education must be outcome-based allows bureaucratic evaluation to drive out professional judgment (Holt, 1994).

Organizational Culture and Climate

One of the most important aspects of an organization on which quality improvement may focus is organizational culture (Cooke, 1989). Heilpern and Nadler (1992) indicate that organizations are composed of four components: work performed; employees; formal arrangements (structures, systems, processes) to get employees to do the work; and the informal organization (values, beliefs, culture, operating style). TQM implies change in: strategy; output; work; people; arrangements; and informal organization (Heilpern and Nadler, 1992).

Heilpern and Nadler use the definition of organization culture proposed by Edgar Schein of the Massachusetts Institute of Technology. Organizational culture is the "...learned behavior of people as they cope with their external environment, environmental and internal problems..."(Heilpern and Nadler, 1992, p. 148). Schein defines three levels of culture: (1) artifacts, or observable activities, events, or rituals; (2) values, or statements about good and bad; and (3) basic assumptions, or commonly held views of the world.

Morgan (1986) uses a similar definition of organizational culture. He defines culture as "...ideas, values, norms, rituals, and beliefs that sustain organizations as socially constructed realities"(p. 113). This implies that a corporate culture exists within any given organization.

Schneider (1990) contends that organizational culture is conceptualized in two ways. First, culture is something an organization is, or as it exists within society. Second, culture is what an organization has, which is the same definition Schein proposes.

Schneider also defines the concept of organizational climate. Climate, simply stated, is the "...shared perception of the way things are..."(Schneider, 1990, p. 22). In other words, organizational climate is an employee's perception of the organizational culture.

TQM proposes changing to a quality culture. Successfully achieving this transition should also result in a more positive organizational climate, since employees should perceive that they are empowered, valued, and involved (Cooke, 1989).

Assessment of change in organizational culture may be accomplished by measuring changes in organizational climate. Some possible methods of achieving this are personal interviews, observation, performance reviews, and the administration of surveys. Descriptive research methodology is considered to be an appropriate means of assessing organizational climate, since it involves systematically describing facts and characteristics of a given population or area of interest. Merriam and Simpson (1984) conclude that this methodology may be used to describe existing conditions and practices as a means of comparison of experience between groups with similar problems, to assist in future planning and decision making. Kerlinger (1986) also suggests use of descriptive research, since the central focus is to examine the facts about people, their opinions and attitudes.

Brion (1989) states that an orderly approach to a comprehensive program of building and directing employee motivation, an element crucial to the success of total quality, would be to start with an analysis of climate, that is, employee perceptions of all

the elements and forces that have an effect on them.

Review of Faculty Surveys

In 1997, after approval was obtained from CMSU's Human Subjects Committee, a survey questionnaire was delivered to those faculty members' whose departments were involved in the CPI model. The respondents resented the following departments:

Electronics Technology, Graphics, Human Environmental Sciences, Manufacturing & Construction, Nursing, and Power & Transportation (College of Applied Science & Technology); Chemistry & Physics, Communication, English, and Mathematics & Computer Science (College of Arts & Sciences); Accounting, Computer & Office Information Systems, Graduate Programs, Internship & Co-op Education and Management (College of Business & Economics); Curriculum and Instruction, Special Services, Speech Pathology & Audiology and Physical Education (College of Education & Human Services) and the department of Educational Development Center (College of Academic Services).

Instrumentation

The survey was a constructive replication of a questionnaire designed to collect data regarding the degree of understanding and support faculty gave to the Continuous Process Improvement/Faculty Improvement P S E project at CMSU and the degree to which faculty and departments had collaborated developed outcomes for their respective programs. The ultimate return rate was thirty-one percent.

The instrument was duplicated verbatim with the inclusion of irrelevant information for this study that was used in the original survey by Wilson and Mullins (1994). A Likert-type scale was provided for raters to indicate their relative position of items 1-10, 12, 13, 15 and 16 appearing in the questionnaire. An ordinal ranking by mean scores was reported on these questions.

Result of Surveys

The questionnaire developed by Central Missouri State University was utilized again in 1997 to ascertain the existent faculty perception of CPI at CMSU after six years of involvement with the model on campus. The results indicated attitudinal and behavioral changes continue to occur on campus. The data upheld the assumptions that there was a strong agreement and support by faculty for the campus CPI model.

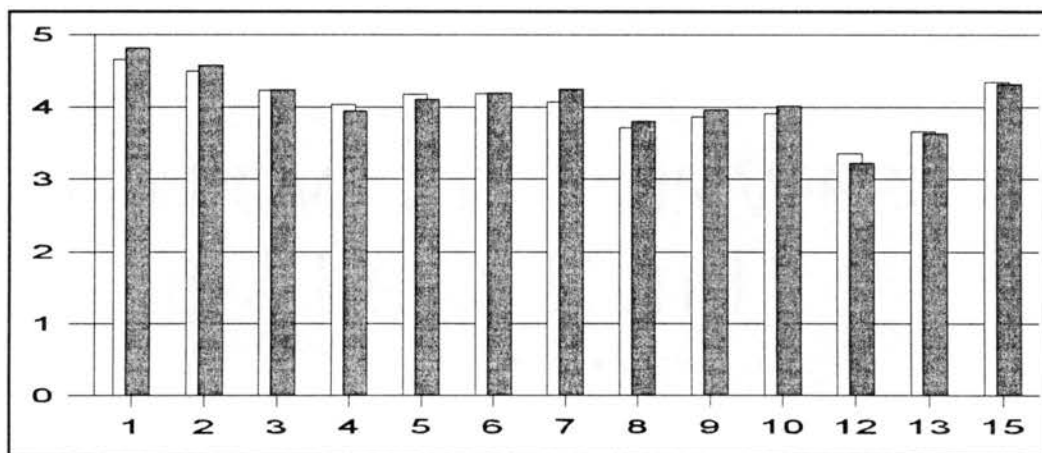


Figure 1. Understanding of CPI by Faculty

On a scale of 1-5 (Strongly Disagree - Strongly Agree), the response to items 1-10, 12, 13, and 15 had increased from a mean of 4.10 to 4.13, a growth of .03 points from the first survey. This indicated the continued agreement, understanding, and value of the CPI principles by the faculty at CMSU.

The figure on the next page illustrates the change in the data between April 1994 and November 1997. Questions 16 through 34 provided a measure of the degree of actual involvement by the faculty and departments in the CPI model. Item 16, which was the strongest point of agreement in the original survey concerning the collaboration of the development of outcome for their students, has grown from a mean of 4.11 (Department score) and 4.19 (Individual participation score) to 4.30 and 4.34 respectively. This is an indication of continued progress and departmental commitment to the project. Overall response for department collaboration and development of curriculum criteria rated high.

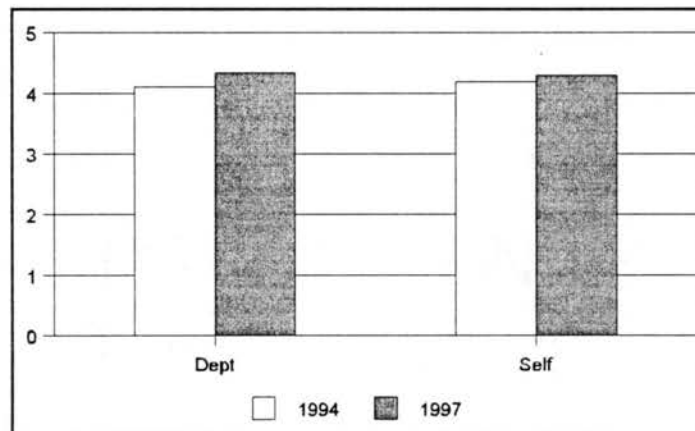


Figure 2. Survey Responses

Faculty/Department Collaboration

The data indicates a wide range of response from the faculty. The majority appear to be participating in the project. The perception of the individual faculty member was that there was more involvement individually rather than by the departments as a whole.

The results indicated a high level of commitment of the faculty to the student and generally, faculty felt the department made the same effort. Faculty who are aware of the needs of the student often agree that continuous assessment of the organization will facilitate and increase achievement. Faculty members want to be involved in decision-making which reflects in the curriculum and other student activities.

More specifically, in response to the question of whether there was "collaboration in development of a set of outcomes that define what our students should know and be able to do by graduation," the data reveals a mean of 3.74 for the individual response and a mean of 3.495. This shows a slight deviation in the efforts made by the individual faculty as opposed to collaboration made by the departments of the institution. The data shows there is a strong agreement that there is a need for planned objectives and outcomes by the individual instructor and on a departmental basis of what individuals students should know once they approach graduation.

Another significant question that bears review is whether the faculty of a department "viewed the process of outcomes development valuable in terms of thinking more about how students learn and what colleagues are doing". The responses resulted in a mean of 4.32, indicating that respondents strongly agreed that outcome development is valuable in terms of how students learn and what individual faculty members accomplish.

Data analysis revealed a strong desire for faculty members to continuously identify objective outcomes that can measure student achievement and monitor the way students learn.

Summary

The review of literature relevant to this study was limited to research and non-research sources which identified or discussed TQM and its implementation in higher education. A history of the development of TQM was presented, along with the major TQM theorists; the application of TQM concepts in higher education was then discussed, as well as some examples of TQM models currently being implemented at three colleges. Organizational culture was included because of its influence on the success of any proposed quality program an institution may wish to incorporate.

CHAPTER III

METHODOLOGY

Introduction

Two previous surveys have indicated a general acceptance of the Continuous Process Improvement (CPI) model by many of the departments at Central Missouri State University. The purpose of this study was to determine the present status of the CPI model at the university. There was a need for the study because there were no current data to determine if the Continuous Process Improvement model was making significant progress and/or continuing to gain acceptance at CMSU. This study provided an analysis of the status of the Continuous Process Improvement model, the departmental involvement with the model and how active faculty are in the model. The study was also needed to assist departments in continued development of assessment tools needed for re-accreditation from the Board of Higher Learning. This chapter includes the following:

- Selection of Subjects
- Instrument and Research Design
- Collection of Data

A questionnaire was used in this study to obtain information about the status of the CPI model within each department. The study collected and analyzed the perceptions, attitudes and comments of department chairs concerning the model.

The research focused on the following: 1. Is the Continuous Process Improvement model still a viable dynamic model at Central Missouri State University? 2.

How involved are the departments and faculty with the CPI model? 3. What type of training has been provided to faculty? 4. Does the administration financially support the CPI model at the departmental level? 5. Has the administration made a decision to de-emphasize or discontinue the model on campus?

Selection of Subjects

This study determined the direction and acceptance of the CPI model by interviewing the thirty academic department chairpersons at CMSU. The department chairpersons were chosen as subjects because they are responsible for implementing the CPI model in their department. Additionally, it is their responsibility to initiate, facilitate, and acquire budgets for the CPI model for their individual departments. Further, they are required to report annually to the administration how the CPI model is being applied in their programs.

Personal interviews were conducted with individual chairpersons (Appendix B). At the time of the interviews the university had just announced a large budget reduction. Consequently, each chairperson immediately became involved in modifying their budgets in order to maintain their programs. Those chairpersons not available for interviews were mailed a survey and asked to complete the questionnaire and return it to the researcher (Appendix A).

Instrument and Research Design

The interview instrument was in the form of a questionnaire developed by the researcher with assistance from the Testing Center at Central Missouri State University. The Testing Center established construct validity for the questionnaire. The first question of the survey determined if the departments were currently involved with the CPI model at

the university. The chairpersons whose department participated in the model were then instructed to answer a question pertaining to the extent of their involvement in the CPI model. This question was necessary because of the different levels of participation of the departments ranging from slightly involved to totally involved. The next two questions centered on classroom performance in the application of the model in individual courses. Those chairpersons whose departments were not involved with the CPI model, answered questions concerning why they chose not to implement the model. The non-participating chairpersons were asked to answer two questions; first, if the application of the model should have been administered differently and secondly had their faculty rejected the model's concepts.

A common set of questions was used in the remaining survey. Questions 4 and 5 examined the type of training faculty had or should have received. Question 6 dealt with the culture of the university and the effect it played in the success or failure of the CPI model. Question 7 asked the chairpersons if they believed the administration should have approached the application of CPI differently. Number 8 questioned the chairpersons about the administration's support of the model and the last question asked if they believed the CPI model still had a future at the university.

Collection of Data

Approval to conduct the survey was obtained from the Human Subject Review Boards of both Oklahoma State University and Central Missouri State University (Appendix C).

The nine-question survey was mailed to the thirty academic department chairs in order to determine the status of CPI (Appendix A). The data for the study was collected from interviews with academic department chairpersons as well as from the questionnaires returned by chairpersons who were unavailable for an interview. Individual opinions were

gathered from those chairs that granted a personal interview when presented with the questionnaire. Data gathered during the interview described the totality of surrounding conditions and circumstances affecting the attitudes held by individual departments in their acceptance or rejection of the CPI model. An open-ended format was used in order to accurately determine participation in the CPI model from the departments.

The questionnaire was used to guide the interviews, however, personal comments were encouraged and recorded. Notes were taken during the interviews to insure that pertinent points of information were not lost. The interview provided an opportunity to gain individual perceptions and CPI model successes from department chairpersons. The instrument was designed so that responses would reveal the amount of training received for the CPI model and its application within their departments. The instrument was used to obtain participant's opinions and/or perceptions with regard to the characteristics, circumstances and funding requirements concerning the model within the departments.

Analysis of data

After gathering the data, a number of analytical techniques were used. A spreadsheet was developed to record each questionnaire item and personal interview contribution. A database was utilized to yield frequency data for each questionnaire item and comparisons of interview answers were performed. To evaluate the responses obtained from the questionnaire and interviews, a qualitative matrix was employed. In Chapter IV, results of the study are illustrated by Pie charts to represent and help clarify this data.

CHAPTER IV

FINDINGS

Introduction

This chapter summarizes the findings of the study (Appendix A). The survey questionnaire was designed to investigate departmental involvement or lack of involvement in CPI as well as, training provided to faculty, attitudes and support perceived by the faculty. The nine-question survey utilizes six common questions and three individualized questions concerning departmental involvement. The first three questions varied as to whether the department participated or did not participate in the CPI project. The questionnaire was presented to the chairperson in an interview format. Because of time constraints, only eight individuals were available for the interviews (Appendix B). As a result of the high number of chairpersons unavailable for personal interviews the questionnaire was mailed out to the remaining twenty-two chairpersons (Appendix A). Ten additional surveys were attained by this method.

Questionnaires were returned from 18 of the 30 departments. Of the 18 responses, 13 of the chairpersons indicated involvement with the Continuous Process Improvement model. Four of the chairpersons reported limited or no involvement in the model. One chairperson that indicated no involvement with the CPI model did not answer any of the other questions on the survey.

30 Total Departments

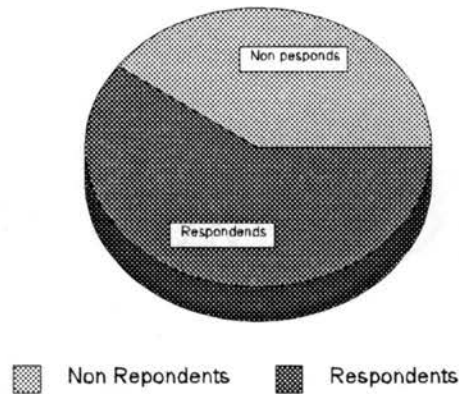


Figure 3. CMSU Departments Surveyed Response

Characteristics of Respondents

If a department was involved with the CPI project, the chairperson was directed to answer page one and two of the survey. Chairpersons whose departments were not actively involved with the model were instructed to answer the questions on page three and four. Interviews were conducted with available chairpersons after they had completed the questionnaire. These interviews detailed some of the issues and concepts in verifying the responses.

Questions for Participating Departments

When a chairperson stated that their department participated in the CPI project, *question one: on the survey asked them to describe the extent of their participation.* Thirteen of the participating departments indicated total faculty involvement in the model. One department stated that they had been totally involved in past years but are no longer participating in the project due to budgetary constraints. Six departments reported

utilizing the CPI model to totally define their departmental goals, assessment tools, matrixes, and curriculum issues. All the departments used the model to obtain additional administrative funding. The administration allocated additional funds to those departments demonstrating progress in working with the CPI model. This Financial carrot influenced the application of the model for several of the participating departments. The funds allocated for CPI were used within the departments, at their discretion, to help implement their individualized models and to provide funding for alumni relations (newsletters) and program advisement committee meetings. Two of the departments even developed promotional material for the recruitment of students into their areas of study.

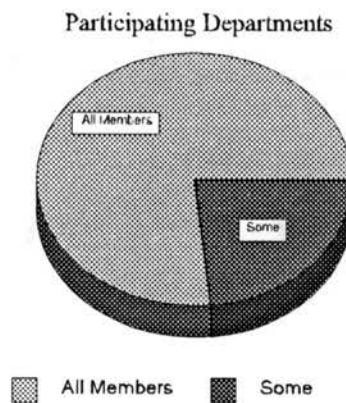


Figure 4. Faculty Involvement

Question two: Do you believe your departmental faculty members practiced CPI in their classrooms?

All of the chairpersons stated that their faculty members were implementing some aspects of CPI in the classroom. Three of the departments were unable to determine to what extent their faculty members were implementing the model in their courses. Five of the departments had totally defined their evaluation procedures used in their course offerings using the CPI model. One of the departments monitored their implementation of

the model with a departmental assessment team.

Question three: Is there a change in the classroom performance of faculty members who initiate the CPI concepts in their courses?

Most of the departments reported few changes in course concepts. If change had occurred, it was very difficult to measure. One chairperson noted that the faculty who most supported the CPI project and understood it best were his best teachers. Five of the departments believed there was evidence of enhanced classroom performance with the use of modified assessment tools. No department reported having developed an assessment tool that would clearly define a change in classroom performance with the employment of CPI.

Questions for non Participating Departments

The questions for departments not really involved with the CPI model were:

Question one: Why didn't your department become more involved in the CPI project on campus?

The five departments that responded a noninvolvement with the CPI model indicated the following problems: lack of time, faculty turnover, little awareness of the model and limited knowledge of the need or benefits to the department.

Question two: What should have been done differently in the application of CPI in your department?

These departments reported that there was a need for better documentation and follow-up. Three of the departments indicated that they were not provided the proper incentives and training to be able to properly initiate the CPI model.

Question three: Were the CPI concepts rejected by faculty and/or the department?

Only one of the five departments reported that their faculty had rejected the CPI plan. This department perceived that the plan required too much paperwork and their teaching loads overshadowed the additional time and preparation required developing a suitable model for their programs.

Common Questions for all Department

Questions four through nine were the same for both groups of respondents.

Question four queried about the amount and type of training received by the faculty. Fourteen of the respondents indicated that a varied assortment of training had been provided at the university level: CPI orientation training, workshops and continued departmental work sessions on assessment. Four of those departments not utilizing the CPI model indicated that their faculty had received no formal training in CPI. Interviews with the department chairs suggested that the CPI concepts should have been presented to new faculty at their orientation sessions as well as encouraging the continuation of campus workshops for all faculty.

Question five: What type of training should your faculty have received (if different from what was offered) in order to have successfully implemented CPI into their classrooms.

Eight of the departments responded with “not applicable”, “not sure” or “no answer”. Three departments stated that there is a need for new faculty orientation, annual updates and continued departmental assessment meetings. One department did not become involved because their faculty were overloaded. The faculty needed to be convinced that CPI was something they should be doing and not mandated from the

Question Five

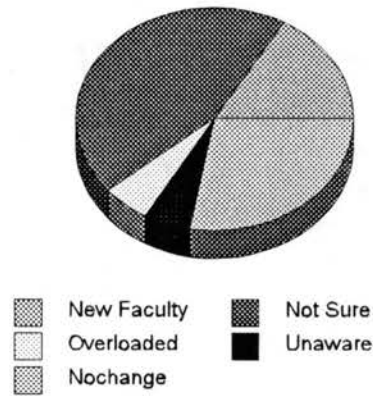


Figure 5. Type of training in CPI.

administration. One of the participating department chairpersons was unaware of specific training developed and offered by the university for CPI.

Question six: How does the university's culture play into the success or failure of the CPI project?

Three departments reported that the university culture limited implementation of CPI because of full professor's attitudes, autonomy for departments and a one-model-fits-all concept. Fifteen of the departments indicated that the administration did not aggressively support the model and was vague about the direction of CPI and they reasoned that this had happened when changes occurred in the administrative structure. Only two departments related that there was a strong commitment of support from the administration. One response was "Oh God, another paradigm! Play the game a while, it will go a way and we won't have to change".

Question Six

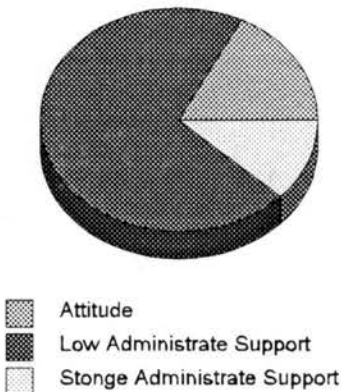


Figure 6. University's Culture

Question seven: Should the CPI model have been approached differently in its original application?

Only one department agreed with the approach taken in the original application of the project. Four were unsure of the type of approach that should have been taken, and one chairperson indicated that he had not been here at the time of implementation. Twelve of the departments indicated that the approach was flawed. The one-model-fits-all concept and the attached funding were cited as issues that limited department's commitment at the origination of the project. Two of the departments perceived that the CPI model assumed that their faculty were improperly assessing their students. The one-model-fits-all concept did not fit the varied teaching methods incorporated by the different programs. Faculty felt that they were told to participate, rather than asked.

Question eight: Do you believe the administration properly supports the CPI project?

Seventeen of the departments believed that the administration is no longer supporting the CPI project. Two departments indicated that support from the administration fluctuated. One department indicated that all programs needed to be based

on assessment and the administration was still supporting the CPI model.

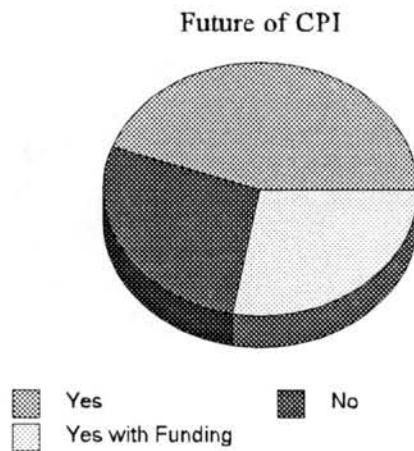


Figure 7. Future of CPI.

Question nine: Is there a future for the CPI project at CMSU?

Eight departments stated that the CPI model has a future and is important for accreditation. Five of the departments are requiring additional funding in order to continue the model. Five of the departments stated that there is a future for assessment, however, the CPI model should be redesigned to recognize department autonomy with full commitment from the administration.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

The purpose of this study was to determine the status of the Continues Process Improvement model at Central Missouri State University. Prior to this study, two separate surveys indicated that CPI was being successfully implemented on the CMSU campus. In the last three years, however, the administration has appeared to de-emphasize the Continues Process Improvement model. The questionnaire, included in Appendix A, was sent to the thirty (30) department chairpersons on campus to determine the status of the CPI model. Eighteen (18) of the thirty departments responded to the survey. Thirteen (13) departments indicated that they were involved with CPI and continue to use the model to assess students in their programs. Four (4) of the departments indicated that they did not use the CPI model but were utilizing different methods in the assessment of their students and programs. The one (1) remaining department did not indicate what type of assessment or organizational structure it was using for their program.

Discussions of Research Findings

The study's questionnaire analyzed the status of the Continuous Process Improvement Model by answering five key research questions:

1. *Is the Continuous Process Improvement model still a viable dynamic program at Central Missouri State University?* Those departments utilizing CPI have developed additional assessment tools for the classroom and created departmental goals and objectives, which modified and control their curriculum. Five of the departments used the CPI model methodology to develop goals, assessment tools, and curriculum for their programs. These programs have applied the CPI funding to assist in the development of faculty skills, capstone courses, and recruiting tools.

2. *How involved are the departments and faculty with the CPI model?* The CPI model at Central has become the key element in the assessment procedures of many of the departments on campus. This model is providing the assessment tools needed for re-accreditation from the Higher Learning Commission of North Central Association. Fourteen department chairs reported that they were using either the CPI model or an assessment tool that better fit their needs. The major criterion of the re-accreditation for the university is to be able to define the abilities of the students upon graduation. This assessment also examines the success of alumni from the university. The CPI model allows the university to properly document the assessment procedures and quality of students' learning.

3. *What type of training has been provided to faculty?* Two areas of major concern were revealed: Faculty training and continued funding of the CPI model. In the

initial phases of the CPI model, the University sponsored several workshops where most of the faculty received training. After this initial training, the administration sponsored additional workshops and in-service training for the model. In the last two years however, no update or continued training has occurred for the faculty. Only those departments totally committed to CPI continued to train their faculty and assess the direction of their individual models independently. In most instances, recently hired faculty have not been made aware that the model even exists on campus.

4. *Does the administration financially support the CPI model at the departmental level?* Reduced revenue at the state level has directly affected the funding for the operation of the university. As a result, this has restricted the addition of new programs and forced the reduction or the ultimate elimination of several existing programs. Consequently, this restriction has forced the reorganization of departments and many of those departments have had to justify their programs as well as the number of faculty members that teach them. All of the responding departments indicated that they had inadequate funding to properly maintain the CPI model in their areas.

5. *Has the administration made a decision to de-emphasize or discontinue the CPI model on campus?* In addition to the budgetary constraints, a change in administrative leadership now focuses on reorganization and departmental productivity. The lack of emphasis by the administration has reduced the visibility of the CPI model. Even those departments that have actively modeled their current program around the CPI model now find it difficult to maintain its application in the classroom and in departmental organizational goals.

Conclusion

Since its inception ten years ago, for all intents and purposes, the CPI model at Central Missouri State University has been a success. However, the lack of financial support from the administration has greatly reduced the effectiveness of the model. The CPI model has created most of the assessment tools used by the majority of the departments at the university. The CPI assessment models developed by different departments will be an instrumental part in receiving re-accreditation from the Higher Learning Commission in 2003. The assessment criteria required for re-accreditation correlates to the success that departments have enjoyed from the use of the CPI model. The CPI model has allowed departments not only to assess their curriculum, but has enabled them to obtain data from their alumni as to their perception of the quality of instruction they received. The outcome goals targeted by the programs involved adhere to the conditions required for re-accreditation. Following the model, several of the departments have developed and recorded the data required for continued accreditation. The CPI model has formed the bridge required in the development of accreditation assessment goals. The data developed as a result of this model will play a central roll in the re-accreditation procedure for the university.

The survey and interviews point out key areas that have been developed through the use of the CPI model. They are the implementation of assessment of student learning outcomes, documentation of student progress toward competency, and assessment of the results of improved learning. The departments use the model to assess students' learning outcomes as they move through their program of study. This assessment provides

feedback to students as well as faculty, by documenting their progress toward meeting learning outcomes, and provides information for program improvement. The departments document use of the assessment results to guide course design, modify curriculum and instruction, improve assessment, and evaluate their overall program effectiveness. The faculty implementing CPI have collaboratively established standards of acceptable student performance outcomes as a condition to graduation and program completion for their departments.

The budget crisis faced by the university has greatly reduced the application of the CPI model within the university. Limited funds have restricted innovative approaches to learning and reduced resources, which were providing enhance classrooms, updated laboratories and state-of-the-art multimedia presentation equipment. Funding for faculty to attend workshops and conferences has been greatly curtailed. Morale of the faculty continues to decay has the budget crisis continues. This has directly affected classroom performance and student learning.

Recommendations

The administration should revitalize the Continuous Process Improvement model at Central Missouri State University. Students' assessment of performance and program outcome goals are required performance indicators for re-accreditation. The CPI model sets forth the necessary criteria to provide the data to properly assess student's performance and outcomes. If the CPI model is eliminated, a format closely resembling the model should be created for assessing student's learning. Funding for workshops,

model development and program assessment must be a priority for re-accreditation.

It is imperative that the administration empower departments and faculty by allowing the model to be modified to fit individual curriculum needs. The ability to individualize the CPI model will provide a sense of ownership for each and every department and increase the effectiveness of the overall program. Continuous Process Improvement does, and will continue, to play an important role in the assessment and quality of instruction and programs at Central Missouri State University.

Recommendations for Future Research

A follow-up study of individual faculty members' application of the model in their courses is recommended. This would include department-to-department comparisons of applications of the CPI model, evaluations of methods of assessment and how these methods may have changed. As its name indicates, Continuous Process Improvement is just that.

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APPENDIXES

APPENDIX A

COVER LETTER AND QUESTIONNAIRE

Is your department involved in the Continuous process Improvement project on campus? If yes please answer the questions on pages 1 and 2, If not really please fill out pages 3 and 4.

1. To what extent did your department become involved?

2. Do you believe your departmental faculty members practiced CPI in their classrooms?

3. Is there a change in the classroom performance of faculty members who initiated the CPI concepts in their courses?

4. What type of training did your faculty receive?

5. What type of training should your faculty have received (if different than what was offered) in order to have successfully implemented CPI into your classroom? What type of training did you receive?

6. How does the university's culture play into the success or failure of the CPI project?

7. Should the CPI project have been approached differently in its original application?

8. Do you believe the administration properly supports the CPI project?

9. Is there a future for the CPI project at CMSU?

If No.

1. Why didn't your department become involved in the Continuous Progress Improvement project on campus?
2. What should have been done differently in the application of CPI?
3. Were the CPI concepts rejected by faculty and/or the department?
4. What type of training did your faculty receive?
5. What type of training should your faculty have received (if different than what was offered) in order to have successfully implemented CPI into your classroom?

6. How does the university's culture play into the success or failure of the CPI project?

7. Should the CPI project have been approached differently in its original application?

8. Do you believe the administration properly supports the CPI project?

9. Is there a future for the CPI project at CMSU?

Date: April 18, 2002
To: Departmental Chairpersons
From: Gerald D. Kangas
Subject: Continuous Process Improvement Evaluation Research

As a faculty member from the Department of Power and Transportation, I am gathering research data for the completion of my doctorate degree. I would very much appreciate if you would take a few moments of your time to assist me.

Would you please complete the enclosed questionnaire concerning CMSU's CPI program. I am also requesting about a half hour of your time for a personal interview to discuss any additional thoughts you have concerning the CPI project.

I will call you within the next few days to determine if you are willing to participating in this research. At that time, we can arrange an appointment for the additional interview at which time I will collect the questionnaire.

Thank you for taking time of your busy schedule to help me in my recent research.

Yours truly

Gerald D. Kangas

TRG318 phone 543-4436

APPENDIX B
INTERVIEW PROTOCOL

1. Thank the participant for taking time out of their schedule.
2. Explain the reason for the study.
3. Confirm confidentiality, data part of blind study.
4. Informed the participant that the interview will take about half an hour.
5. Ask if they have time for the interview.
6. If yes, ask questions working off the survey form.
7. If no, arrange for another appointment or asked if the participants would return the survey by mail.

APPENDIX C

HUMAN SUBJECT REVIEW APPROVAL LETTERS

Approval to conduct the survey from the Human Subject Review Boards of
Oklahoma State University and Central Missouri State University.



Office of Sponsored Research
Humphreys 410
Warrensburg, MO 64093
660-543-4327
FAX 660-543-8333

DATE: February 8 2002
TO: Gerald Kangas
FROM: David Kreiner
Assistant Dean of the Graduate School
RE: Human Subjects Clearance Form

The sub-committee approved your research entitled, "Continuous Process Improvement Program at Central Missouri State" This approval is effective until February 18, 2003.

If you need further assistance please call me at #264.

**Oklahoma State University
Institutional Review Board**

Protocol Expires: 4/8/03

Date: Tuesday, April 09, 2002

IRB Application No: 600286

Proposal Title: CONTINUOUS PROCESS IMPROVEMENT PROGRAM

Principal Investigator(s):

Gerald Kangas
300 North Cordell
Stillwater, OK 74078

Steven Marks
306 Cordell North
Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI:

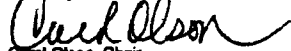
Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Baucher, the Executive Secretary to the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,



Carol Olson, Chair
Institutional Review Board

** TOTAL PAGE .01 **

APPENDIX D
INFORMED CONSENT FORM

INFORMED CONSENT FORM

TO: _____
Print name
FROM: Gerald D. Kangas, Department of Power and Transportation
DATE: April 18, 2002
RE: Voluntary Informed Consent

I am a faculty member here at Central Missouri State University conducting research on the CPI model. This research is for my doctoral dissertation at Oklahoma State University. I need your help for a case study about the progress of the CPI program here at Central. The results of this study may help to determine the direction and emphasis of our CPI program.

This study deals with the perception of chairpersons and faculty members as to the success and application of the CPI model within individual departments in the university. An interview survey form will be used to obtain personal opinions about the program and should take less than half an hour of your time. Participants may withdraw their data at the end of their participation if they decide that they didn't want to participate after all.

Participants' identity and Department will be kept confidential and will be destroyed as soon as the study is completed. The results will be published in my dissertation to the Aviation and Space Management department in the College of Education, at Oklahoma State University.

Your participation in this study is strictly voluntary. You may withdraw your participation at any time. For answers to questions pertaining to the research and research participants' rights, you may contact me directly at 543-4436 or

Dr. Carol Olson, Chair of the Institutional Review Board
202 Whitehurst Hall,
Oklahoma State University
Stillwater OK,
Phone 405 - 744 - 5700.

Please indicate your consent by signing this letter and returning it to me. A copy is available for you to keep.

I have read this letter and consent to participate.

Signature:

Date:

VITA²

Gerald D. Kangas

Candidate for the Degree of

Doctor of Education

Thesis: CONTINUOUS PROCESS IMPROVEMENT PROGRAM AT CENTRAL MISSOURI STATE UNIVERSITY: A CASE STUDY.

Major Field: Applied Educational Studies, Aviation and Space

Biographical:

Personal Data: Born in Lichfield, Minnesota, October 21, 1944, the son of Mr. and Mrs. Roy C. Kangas. Married to Fran L. Kangas from Oklahoma City, Oklahoma; two daughters, Suzanne and Kathryn.

Education: Graduated from Southwest State University, Marshall, Minnesota with Bachelor of Arts Degree - Communication in 1971 with two majors- Electrical Engineering Technology and Television Production and Communication. Completed the requirements for the Master of Science Degree - Communication from Murray State University, Murray, Kentucky, 1972 and a Master of Technology Degree Electronic Engineering Technology from Arizona State University, Tempe, Arizona, 1994. May of 1997 received an Education Specialist Degree - Education Administration from the University of Missouri-Kansas City, Kansas City, Missouri. Completed the requirements for the Doctor of Education Degree with a major in Applied Educational Studies, Aviation and Space at Oklahoma State University, Stillwater, Oklahoma in May 2003.

Experience: Broadcast Communications Engineer, 1972 -1980; Broadband Communications Consultant 1981 - Present; Associate Professor, Electronic Engineering Technology 1981 - 1995 Southwest State University, Marshall, Minnesota; Assistant Professor, Electronic Technology 1995 - Present, Central Missouri State University, Warrensburg, Missouri.

Professional Memberships: The American Society of Engineering Educators; National Association of Industrial Technology; Industrial Motor Controls National Educational Board, USA Skills Contest, Vocational Industrial Clubs of America.