December 1998


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PERCEPTIONS OF THE APPROPRIATENESS OF THE 1998 MALCOLM
BALDRIGE NATIONAL QUALITY AWARD EDUCATION CRITERIA FOR
ASSESSING VIRGINIA COMMUNITY COLLEGES

A Dissertation
Presented to
the Faculty of the
Department of Educational Leadership and Policy Analysis
East Tennessee State University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education
in Educational Leadership and Policy Analysis

by
Dixon Brent Joyce
December 1998
APPROVAL

This is to certify that the Graduate Committee of

DIXON BRENT JOYCE

met on the

29th day of October, 1998.

The committee read and examined his dissertation, supervised his defense of it in an oral examination, and decided to recommend that his study be submitted to the Graduate Council, in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership and Policy Analysis.

[Signatures]

Chair, Graduate Committee

Signed on behalf of the Graduate Council

Dean, School of Graduate Studies
ABSTRACT

PERCEPTIONS OF THE APPROPRIATENESS OF THE 1998 MALCOLM BALDRIGE NATIONAL QUALITY AWARD EDUCATION CRITERIA FOR ASSESSING VIRGINIA COMMUNITY COLLEGES

by

Dixon Brent Joyce

The purposes of this study were: (a) To determine whether full-time teaching faculty and full-time administrators perceive the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) to be appropriate for assessing Virginia community colleges, and (b) To determine if differences in perceptions exist regarding demographic variables among full-time teaching faculty and among full-time administrators in the use of these criteria to assess Virginia community colleges.

Data were collected from a random sample of 129 full-time teaching faculty and 57 full-time administrators using the seven categories and 18 items of the 1998 ECPE. Demographic factors included years of teaching experience in education, years of administrative experience in education, major teaching area, highest degree level earned, college enrollment, and age.

A mean was calculated on the perceived appropriateness of each of the 18 items of the 1998 ECPE for faculty and administrators. A t test or an analysis of variance was conducted on the scale means for faculty and administrators to determine if differences exist regarding demographic variables and the perceived appropriateness of the 18 items of the 1998 ECPE by faculty and administrators. The Scheffe post hoc analysis revealed a significance difference for administrators in the college transfer and the technical classifications of major teaching area.

The major conclusions were: (1) faculty and administrators perceived the 1998 ECPE as “somewhat appropriate” for assessing Virginia community colleges, (2) faculty and administrators perceived each of the 18 items of the 1998 ECPE as “somewhat appropriate” for assessing Virginia community colleges, (3) the major teaching area was not a factor in full-time teaching faculty members’ perceptions of
the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges; however, the major teaching area was a factor in full-time administrators' perceptions and this statistically significant difference could possibly be attributed to their low rate of response with only 47.4% of administrators surveyed responding to this question, and (4) years of experience in education, highest degree level earned, college enrollment, and age were not factors in full-time teaching faculty members' or full-time administrators' perceptions of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.
INSTITUTIONAL REVIEW BOARD APPROVAL

This is to certify that the following study has been filed and approved by the Institutional Review Board of East Tennessee State University.

Title of Grant or Project _Perceptions of the Appropriateness of the 1998 Malcolm Baldridge National Quality Award Education Criteria for Assessing Virginia Community Colleges______________________________

Principal Investigator Dixon Brent Joyce

Department _Educational Leadership and Policy Analysis__________________________

Date Submitted March 23, 1998 ________________________________

Institutional Review Board, Chair ________________
DEDICATION

To my family for their encouragement and support throughout this lengthy process and to that special person for her continuous help and sacrifice to see this study to completion.
ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the following members of the doctoral committee for their encouragement, support, and assistance.

Dr. Terrence A. Tollefson, Committee Chair, for his guidance and inspiration throughout my studies at East Tennessee State University and for his valued contributions to this dissertation.

Dr. Nancy Dishner for sharing her professionalism, enthusiasm, and encouragement throughout this lengthy process.

Dr. Gunapala Edirisooriya for sharing his knowledge of the dissertation process and for lending his statistical expertise to this study.

Dr. John V. Quigley from the College of Business for his encouragement, support, and valuable suggestions.

Additionally, I would like to thank the faculty and administrators in the Virginia Community College System who participated in this study.
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CHAPTER 1
INTRODUCTION

During the late 1970s and early 1980s, American businesses encountered stiff competition from Japan. This competition was in substantial part due to a lack of quality in United States manufactured products. Many U.S. companies adopted continuous quality improvement models to help solve their problems. These companies needed to adopt a new management philosophy to effectively implement these models.

In the 1990s, American educational institutions are confronting problems similar to those faced by the Japanese businesses in the 1950s and American businesses in the 1980s. The successes attributed to continuous quality improvement models in helping to bring about improvements in American industry encouraged many colleges to consider the merits of adopting continuous improvement management models for education. Wallin and Ryan (1994) indicated that colleges must improve quality for the following reasons: "competition, accountability, increased expectations of external customers, and the need to properly serve internal customers" (pp. 9-10). Wallin and Ryan found that colleges that had adopted quality improvement programs reported both
early successes and difficulties with the implementation process.

**Statement of the Problem**

Virginia Community College administrators must search for effective management models to meet state regulatory agencies' demands for accountability, accreditation organizations' call for institutional effectiveness, the increasing cost of operating educational institutions, and competition from other colleges. The success of continuous quality improvement models in Japanese and American industries has increased colleges' interest in using continuous quality improvement models to improve educational services and programs. It was not known if full-time teaching faculty and administrators in Virginia's community colleges perceive the Malcolm Baldridge National Quality Award (MBNQA) - 1998 Education Criteria for Performance Excellence (ECPE) as an appropriate assessment of improvement. The support of faculty and administrators is required for the success of any continuing improvement initiative (Brigham, 1994; Entin, 1993; Thor, 1993).

**Purposes of the Study**

The purposes of this study were: (a) To determine whether full-time teaching faculty and full-time
administrators perceived the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) to be appropriate for assessing Virginia community colleges, and (b) To determine if differences in perceptions exist regarding demographic variables among full-time teaching faculty and among full-time administrators in the use of these criteria to assess Virginia community colleges.

Research Questions

This descriptive study tests the following research questions:

1. To what degree do full-time teaching faculty in Virginia's community colleges perceive the 1998 Education Criteria for Performance Excellence (ECPE) an appropriate instrument for assessing Virginia community colleges?

2. To what degree do full-time administrators in Virginia's community colleges perceive the 1998 ECPE an appropriate instrument for assessing Virginia community colleges?

3. Do full-time teaching faculty in Virginia's community colleges perceive each of the 18 items of the 1998 ECPE appropriate for assessing Virginia community colleges?
4. Do full-time administrators in Virginia community colleges perceive each of the 18 items of the 1998 ECPE appropriate for assessing Virginia community colleges?

5. Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on years of teaching experience?

6. Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on years of administrative experience?

7. Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on major teaching area?

8. Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on major teaching area?

9. Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on highest degree level earned?
10. Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on highest degree level earned?

11. Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on college enrollment by full-time equivalent (FTE) students?

12. Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on college enrollment by full-time equivalent (FTE) students?

13. Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on age?

14. Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on age?

15. Is there a difference between the perceptions of full-time teaching faculty and full-time administrators with
regard to the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges?

16. What additional or revised criteria, if any, are recommended by full-time teaching faculty and full-time administrators to be added to those criteria contained in the 1998 ECPE for the assessment of Virginia community colleges?

Significance of the Problem

The visiting Committee of the Southern Association of Colleges and Schools (SACS) determined that some colleges in the Virginia Community College System (VCCS) did not have effective means for assessing and documenting continuous improvement. This prohibits these colleges from demonstrating their compliance with SACS which calls for institutional effectiveness, demonstrating accountability to state regulatory agencies, controlling cost of education, and establishing viable plans to compete for students. Conducting this study will determine if full-time teaching faculty and administrators perceive the 1998 Education Criteria for Performance Excellence (ECPE) as an appropriate instrument for assessing the college and providing useful data and documentation for the above requirements.

If survey participants exhibit support for the 1998 ECPE for assessment and view the criteria appropriate for
use in their colleges, then community colleges in Virginia could use these criteria to identify current strengths and areas requiring improvement. Information derived from this model could be used to document how the college has progressed. The colleges, students, taxpayers, and Virginians would benefit if using the 1998 ECPE in community colleges proved to be successful in meeting these demands.

**Limitations**

The limitations of this study are as follows:

1. The study is limited to a sample of full-time teaching faculty and administrators in Virginia’s community colleges, so generalizations may not be made to other populations.

2. The study is limited to the categories and items contained in the 1998 ECPE.

3. The study is limited to the data collected from the survey instrument.

**Definitions**

1. Quality - Quality is a dynamic state associated with products, services, people, processes, and environments that meet or exceed current expectations (Goetsch & Davis, 1995).
2. System - A series of functions or activities (subprocesses, stages) within an organization that work together for the aim of the organization (Deming, 1986).

3. Customer - Person or entity that either purchases a product or service or receives a product/service in the production process. Customers can be either internal or external to the organization or process (Scholtes, 1988).

4. Client - A person who engages the professional advice or services of another (Woolf, 1977).

5. Deming’s 14 points - Fourteen principles developed by W. Edwards Deming essential to management for quality (Deming, 1986).

6. Seven deadly diseases - Seven lethal situations that W. Edwards Deming said companies must avoid to achieve quality and stay in business (Deming, 1986).

7. Statistical tools - Data evaluation techniques available to the quality control analyst which allow for process diagnosis and decision making for improvement (Scholtes, 1988).

8. Supplier - Person or entity that passes a product/service to customers who will use the product/service either to add further value to the product/service or use the same (Scholtes, 1988).
9. Management by results - A system of management wherein emphasis is placed on the organizational chart and attempts are made to reach targeted end results and goals (Scholtes, 1988).

10. Variation - The range a process or procedure varies within when monitored and observed. Two types of variation are common and special (Scholtes, 1988).

11. Common variation - Variation of process due to many circumstances involved in the process whose sum total may result in a high level of undesired defects or mistakes (Scholtes, 1988).

12. Special variation - Causes that are not unique to the processes all of the time. They occur because of specific circumstances that arise, usually unexpectedly (Scholtes, 1988).

**Overview of the Study**

Chapter 1 contains an introduction to the study, statement of the problem, purpose of the study, research questions, significance of the problem, limitations, definitions, and an overview of the study.

In Chapter 2 a history of quality improvement, early total quality management (TQM) theorists and their writings, early use of TQM, Deming's philosophy gains acceptance in the U.S., Baldrige national quality award, TQM applied to
education, criticism of TQM, the Baldrige award criteria for the education community, and education criteria for performance excellence are reviewed.

In Chapter 3 an introduction, description of the study, population/sample, data collection, instrumentation, pilot study, hypotheses, and data analysis are presented.

In Chapter 4 the introduction, response rates, characteristics of respondents, and addressing research questions are presented.

Chapter 5 contains a summary, findings, conclusions, implications, and recommendations for further research.
CHAPTER 2
REVIEW OF LITERATURE

History of Quality Improvement

The origin of quality improvement (QI) can be traced to the Industrial Revolution. A shortage of skilled labor at the beginning of the 20th century led to the development of scientific management. Write and Noe (1996) defined scientific management as the "school of management based on developing a standard method for each job, training workers in the method, eliminating interruptions, and offering wage incentives" (p. 12). Frederick Winslow Taylor, recognized as the father of scientific management, developed methods for managers to systematically study the way work was being done and to identify a more efficient approach. Taylor (1911) implies that the purpose of scientific management was to develop every branch of the business to its highest possible level of excellence.

Frank B. Gilbreth, an early advocate of scientific management, was a leader of time and motion studies and promoted the use of process charts to record, group, and visualize information. Hays (1994) revealed that "Gilbreth used principles found in today's control charts to graphically determine quality levels" (p. 89). Scientific
management and QI emphasized that errors should be prevented instead of being corrected and that the continuous improvement of products and services should never cease. QI methodologies in use today are similar in many ways to scientific management.

Wallin and Ryan (1994) stated that interest in QI had increased exponentially in the last decade. QI is referred to by a variety of names, such as total quality (TQ), total quality management (TQM), total quality improvement (TQI), continuous quality improvement (CQI), continuous quality education (CQE), continuous quality assurance (CQA), total quality control (TQC), and quality education management (QEM). Regardless of the terminology used, the philosophy of QI remains basically the same. Burgdorf (1992) described TQ as "a customer-oriented philosophy of management that utilizes total employee involvement in the relentless, daily search for improvement of quality of products and services through the use of statistical methods, employee teams and performance management" (p. 1).

Early TOM Theorists

Two works (Dobyns & Crawford-Mason, 1991; Juran, 1997) support Blanton Godfrey's contention that the quality improvement movement started on May 16, 1924, when Walter A. Shewhart gave his boss at Bell Labs a one-page memo that
included a drawing believed to be the first control chart. While working as a statistician at Bell Telephone Laboratories in New York, Shewhart developed techniques to bring industrial processes into what he called statistical quality control (SQC). Shewhart defined the limits of random variation in any aspect of a worker's task and set acceptable highs and lows so that any points outside those limits could be detected and their causes studied (Walton, 1986). Workers would be trained to do this charting themselves, thus giving themselves control over their jobs and permitting them to make adjustments on their own. Shewhart is known for using statistics to determine when to act and when to leave a process alone. He developed the Shewhart Cycle, also known as the Deming Cycle, of Plan, Do, Check, Act (PDCA), which is now a staple in the planning process of TQM (Walton, 1986). Today, PDCA is also referred to as the Plan, Do, Study, Act (PDSA) cycle.

W. Edwards Deming is probably the most familiar name to the casual student of TQM (Wallin & Ryan, 1994). Deming was born in Iowa in 1900 and grew up in poverty in Wyoming. He began his higher education at the University of Wyoming and continued his studies at Yale, where he received his Ph.D. in physics. In 1927, Deming began working for the U.S. Department of Agriculture, where a colleague introduced him
to Walter A. Shewhart. "In the '30s Deming had used Shewhart's statistical approach to train clerks at the U.S. Census Bureau and to establish sampling techniques for census work" (Dobyns & Crawford-Mason, 1991, p. 57). Deming was recruited to head the new sampling program for the 1940 census, and he developed sampling techniques that were used for the first time in the 1940 census. In 1947, Deming was invited by the Supreme Command for the Allied Powers (SCAP) to be a statistical consultant to help prepare for the 1951 Japanese census (Walton, 1986). During his work on the Japanese census, Deming became known to the Japanese. He was later asked to help revitalize Japan's production capabilities. In March, 1950, the Union of Japanese Scientists and Engineers' (JUSE) Director, Kenichi Koyanagi, wrote Deming asking him to deliver a lecture course to Japanese research workers, plant managers, and engineers on quality control methods to improve the quality of Japanese products. The Japanese adopted Deming's teachings and, as a result, their products became a symbol of quality and dependability.

Deming is widely recognized as the father of quality management. His quality improvement management philosophy and practices helped revitalize a devastated Japanese economy at the end of World War II, enabling Japan to become
one of the most productive economies in the world today. The Japanese adherence to the Deming philosophy of placing emphasis on quality has reaped lasting benefits in market share and profitability. Today, Japan is a world power in manufacturing, banking, and finance, with the economic clout to create and influence world markets for its products. The Deming philosophy, which is based on the principles that exhort managers to create an organizational culture that is quality driven, customer conscious, and continuously seeking to be better, helped bring this phenomenal growth. Statistical quality control techniques were used to improve processes and procedures to bring about continuous improvement (Walton, 1986). Japan’s success in its implementation of the Deming philosophy added credibility to Deming’s theory.

Another early TQM theorists was Joseph M. Juran. Juran was born in 1904. He was educated as an engineer before beginning his career in the inspection branch of the Western Electric Hawthorne Works in 1924. Juran also served as a consultant to the Japanese during the postwar years, when they were conceiving and implementing the Japanese quality revolution. He developed the Juran Trilogy: quality planning, quality control, and quality improvement (Hertzler, 1994). According to Juran (Peterson, 1993),
quality planning begins by determining the identity and needs of customers. Quality control consists of evaluating actual performance, comparing that performance to quality goals, and acting to correct any deficiencies. Quality improvement is accomplished by establishing a structure for improving quality, identifying needs for improvement as specific projects, establishing project teams with clear responsibility for their actions and accountability for their successes, and providing the resources and training required for the success of each team. Hertzler (1994) reported that Juran had advised against mandating change; because, management edicts could produce reactions against the proposed changes. Juran advised managers to study behavioral science to identify practices that would motivate participants in the change process in positive ways. The "key to motivating for quality, says Juran, is the involvement of all workers in both the planning and execution of change" (Peterson, 1993, p. 7).

Though perhaps not as widely known as Deming and Juran, Philip B. Crosby is also widely recognized for his contributions to TQM. Crosby was born in 1926. He received his degree in podiatry but chose to work in the manufacturing field. Crosby started working for the Crosley Corporation in 1952. He later moved to Martin-Marietta, and
finally to International Telephone and Telegraph (ITT) (Dobyns & Crawford-Mason, 1991). Crosby created the “Zero Defects” movement at Martin-Marietta in the 1960s, and he popularized the slogan, “Do it right the first time,” that was first used in the mid-1930s at Western Electric. This led to his belief that “quality is free” and that the lack of quality is what costs money. While at ITT in the 1960s, Crosby searched for a systematic way of guaranteeing that organizational activities would occur as they had been planned. Crosby believed that the following assumptions were erroneous and prevented the achievement of consistent quality: “that quality is not measurable, that quality is too expensive, that all problems originate with workers, and that quality is exclusively the province of the quality control department” (Peterson, 1993, p. 9). To overcome these problems, Crosby advocated that quality become the obligation of every individual, and each person be encouraged to “act now on situations that may cause problems some time from now, or, in other words, act now for reward later” (Crosby, 1979, p. 29). Crosby developed the “Four Absolutes of Quality Management”: (a) Quality means conformance to requirements, (b) Quality comes from prevention, (c) Quality performance standard is Zero Defects
(or defect free), and (d) Quality measurement is the Price of Nonconformance (Hertzler, 1994).

A review of the work of early TQM theorists would be incomplete without the inclusion of Armand V. Feigenbaum. He was born in 1920 and worked for General Electric during college and after graduation. Feigenbaum taught that quality was a fundamental way of managing an organization and that “quality leadership is the key to business success in the 1990s” (Feigenbaum, 1991, p. xvii). He defined total quality control as:

an effective system for integrating the quality-development, quality-maintenance, and quality-improvement efforts of the various groups in an organization so as to enable marketing, engineering, production, and service at the most economical levels which allow for full customer satisfaction. (p. 6)

Feigenbaum stressed that effective human relations are basic to quality control. He listed ten benchmarks of a total quality imperative:

1. Quality is a company wide process.
2. Quality is what the customer says it is.
3. Quality and cost are a sum, not a difference.
4. Quality requires both individual and teamwork zealotry.
5. Quality is a way of managing.
6. Quality and innovation are mutually dependent.
7. Quality is an ethic.
8. Quality requires continuous improvement.
9. Quality is the most effective, least capital-intensive route to productivity.
10. Quality is implemented within a total system. (pp. 828-829)
Early Use of TOM

Only a few companies used quality control techniques prior to World War II. During the war years, more companies began to use aspects of quality control, either on their own or at the insistence of the federal government.

In truth, it was only during the war, when America was desperate for reliable war production, that quality control was considered important, and its importance was more with the U.S. government than with private industry. Both before the war and after, American industry considered quality a secondary issue at best. (Dobyns & Crawford-Mason, 1991, p. 55)

In the 1950s, a majority of U.S. businesses returned to the quantity theory of production, while Japan was placing emphasis on quality in the production of its products. This lack of emphasis on quality in the production of U.S. products did not go totally unnoticed.

As early as 1966, Joseph M. Juran told a European conference on quality control that “the Japanese are headed for world quality leadership and will attain it in the next two decades because no one else is moving there at the same pace.” (Dobyns & Crawford-Mason, 1991, p. 39)

American companies, especially automobile manufacturers, were not standing idle during this period; they were trying to achieve the equivalent of the Japanese standards of quality.

The Japanese continued to embrace Deming’s philosophy and theories of quality control. So successful was the Deming philosophy in helping to rejuvenate the Japanese
economy that the Japanese established the Deming Prize in 1951, that has become Japan's highest award for industrial productivity and quality. In 1960, Deming was awarded the Second Order of the Sacred Treasure. He was the first American to receive this award, the highest award Japan can bestow on a foreigner (Walton, 1986).

While the Japanese were avid followers of the Deming management philosophy of quality, they sought and learned the quality teachings and theories of a variety of individuals. Marchese (1992) summarized the Japanese pursuit of quality, as follows:

They listen also, in 1954, to Joseph Juran ("management for quality"); they devour Armand Feigenbaum's 1951 classic, *Total Quality Control*, and later the writing of Philip Crosby (*Quality Is Free*). They struggle, adapt, develop their own gurus (Ishikawa, Imal), pursue the quality ideal relentlessly . . . . The rest, as they say, is history. (p. 3)

While these individuals' management philosophies were incorporated into the Japanese quality management model, the Deming management philosophy remained the primary theory followed by the Japanese.

Today, the management philosophy and statistical quality control techniques that Deming taught the Japanese is best known as TQM. TQM emphasizes quality improvement throughout an organization as the basis for achieving lasting benefits in market share and profitability. Armand
V. Feigenbaum is credited for originating the term TQC in his 1961 book, *Total Quality Control: Engineering and Management* (Walton, 1986). Marchese (1992) credited the U.S. Navy with coining the phrase Total Quality Management. While Deming never used TQM to describe his philosophy, TQM is often used to identify the Deming management philosophy.

**Deming's Philosophy Gains Acceptance in the U.S.**

The growth of Japan's economy, the flat growth of U.S. industries' productivity, and W. Edwards Deming became known to the American public in June, 1980 with the televising of the network's documentary entitled, *If Japan Can, Why Can't We?* This documentary compared industrial productivity in Japan and the United States. Also in this documentary, Deming stated his philosophy to the American public that improving quality automatically increases productivity.

Deming was convinced that if American manufacturing firms were to continue to play a leading role in the post-World War II economy, it would be necessary for them to radically change their philosophy of leadership (Bonser, 1992). The Deming management philosophy stressed that the more quality was built into anything, a product or service, the less it cost. "As you produce quality, productivity automatically goes up and costs automatically go down" (Dobyns & Crawford-Mason, 1991, p. 2).
Today, a growing number of U.S. businesses, government agencies, and service organizations are adopting a TQM philosophy. "TQM or SLI (Something Like It) is now at work in more than half of the Fortune 1000 firms" (Cross, 1993, p. 15). In the 1980s, American firms began to pay attention to the need for quality and a change in their management systems. Motorola in 1982, Ford in 1984, and a host of U.S. corporations soon afterward began to incorporate a TQM philosophy into the management of these organizations. Marchese (1992) reported that many companies had not fully committed to a TQM philosophy due to the lack of pressure felt by Ford and Motorola years ago. TQM is often viewed as too great a change to make without a company feeling the need of urgency. "In 1988, the Department of Defense mandated the use of TQM for itself and all its contractors: a Federal Quality Institute starts to implement TQM across all departments and agencies" (Marchese, 1992, p. 3).

The Deming Philosophy

Deming (1986) saw the business organization structured as a system whose purpose was to delight the customer. He wrote that quality "should be aimed at the needs of the customer, present and future" (p. 5). Deming's management philosophy is based on his "system of profound knowledge" and his 14 points or principles of management. According to
Deming (Deming, 1993), the system of profound knowledge is based on an understanding of business as a system, the theory of variation, an understanding of psychology, and the theory of knowledge. The elements of the system of profound knowledge are interdependent, and a study of one of the four components without an understanding of the other three components would be incomplete. His philosophy of profound knowledge is the knowledge necessary to successfully manage and improve an organization. Deming’s system of profound knowledge flows from his view of business, while his 14 points for management have become a methodology for operationalizing the four elements of profound knowledge (Roehm & Castellano, 1997). Deming never suggested an order of implementation for his 14 points. The 14 points for management create the environment necessary for a commitment to continual improvement, innovation, and satisfaction for the customer.

Deming’s 14 Points for Management

The Deming management philosophy is structured around 14 vital points that include the following requirements:

1. Create constancy of purpose for improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on price tag. Instead minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
6. Institute training on the job.
7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company.
9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.
11a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.
12a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
12b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and management by objectives.
13. Institute a vigorous program of education and self-improvement.
14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job. (Deming, 1986, pp. 23-24)
Deming discussed the need to eliminate slogans, exhortations, and targets for the workforce in point number 10 but appears to have violated this point when he stressed the Shewhart Cycle of PDCA. However, Deming used PDCA to describe a process rather than a slogan.

**Seven Deadly Diseases**

To supplement his 14 points, Deming outlined "Seven Deadly Diseases" that he said impedes the implementation of his management philosophy. He stated that management must endeavor to overcome these diseases. The Seven Deadly Diseases are:

1. Lack of constancy of purpose.
2. Emphasis on short-term profits.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs.
7. Excessive costs of warranty, fueled by lawyers that work on contingency fee. (Deming 1986, pp. 97-98)

In his list of Seven Deadly Diseases, Deming expressed the need to eliminate evaluations by performance, merit rating, or annual review of performance. Deming asserted that merit pay encouraged employees to concentrate on satisfying the short-run criteria of the merit systems, rather than on the long-term goals of the companies (Roehm & Castellano, 1997). According to Deming, if something was not working properly, it was the process that was at fault, not
the employee. He contended that it was management's responsibility to see that the process was working properly; so, evaluating an employee's performance over a process for which the employee had no control was foolish.

**Twelve Additional Obstacles**

In addition to the Seven Deadly Diseases, Deming presented 12 additional obstacles that he said management must overcome. Those obstacles included:

1. Neglect of long-range planning and transformation.
2. The supposition that solving problems, automation, gadgets, and new machinery will transform industry.
3. Search for examples.
4. Our problems are different.
5. Obsolescence in schools.
7. Quality by inspection.
8. False starts.
9. The unmanned computer.
10. Meeting specifications.
11. Inadequate testing of prototypes.
12. Anyone that comes to try to help us must understand all about our business. (Deming, 1986, pp. 93-95)

Deming indicated that a person could know everything about a business except how to improve it. He indicated that help toward improvement could come only from some other kind of knowledge. He referred to this kind of knowledge as "profound knowledge." Deming also encouraged management to adopt and communicate a new philosophy that clearly asserted that defects were not acceptable (Hittman, 1993).
Deming was an avid advocate of statistical quality control (SQC). He stressed the need to base decisions on sound data. As reported by Walton (1986), Deming often said, "In God we trust. All others must use data" (p. 96). In addition to advanced statistics, Deming advocated the use of some basic tools and illustrations to aid problem solving. Some of the charts that companies find helpful do not employ statistical methods but are useful to organize one's thoughts.

Seven Statistical Tools

Walton (1986) reported Deming's belief that all people in management should be educated in simple but powerful statistical techniques. She illustrated and discussed seven helpful charts that are often used in TQM. Goetsch and Davis (1995) presented these seven charts, which they termed statistical tools or TQ tools. These charts are easy-to-use analytical tools that could be used by all workers to organize their thoughts and aid problem solving (Lewis & Smith, 1994).

Cause-and-effect diagrams are commonly known as fishbone diagrams because they resemble fish skeletons. These diagrams are also called Ishikawa diagrams, after Kaoru Ishikawa, who originated the diagram. Cause-and-effect diagrams are used in brainstorming sessions to identify
possible causes of a specific problem or condition. These diagrams help identify the root causes and their cause-and-effect relationships.

The flow chart is a second type of chart used in quality improvement processes. Flow charts are used to diagram a process from beginning to the end in order to more fully understand the process. The pictorial diagram of the steps in a process are useful for discovering how a process works. Flow charts can be a valuable tool to use when looking for ways to improve a process.

A third statistical tool is the Pareto chart. Pareto charts are among the most commonly used graphic techniques used in industry (Walton, 1986). A Pareto chart is usually in the form of a bar chart. This chart is used to determine priorities by separating the important from the unimportant. Pareto charts are founded upon the Pareto principle that “80 percent of problems arise from 20 percent of potential causes” (Brigham, 1994, p. 10).

The run (trend) chart is another useful statistical technique. The run chart is a statistical tool used to record and chart data over a period of time to look for trends. Observation of activities over time allows the data collector to determine trends and patterns useful in the improvement process. A run chart can be “used to monitor
shifts in long-range averages and graph results of a process such as enrollment, admissions, machine downtime, or phone calls" (Lewis & Smith, 1994, p. 98).

The histogram is the fifth statistical tool discussed by Walton. A histogram is used to display the frequency distribution of data and aid its interpretation. Histograms are used to measure how frequently something occurs. There is a distinct curve on a histogram. "The shape of a histogram's distribution is especially helpful in understanding variability" (Brigham, 1994, p. 10).

A scatter diagram is a sixth useful statistical tool. The scatter diagram is used to chart the relationship between two variables. On a scatter diagram, the two variables show a distinct relationship. A scatter diagram can be used to determine the correlation between two characteristics.

The final statistical technique is a control chart. Shewhart invented the control chart in 1924 (Juran, 1997). A control chart "monitors the ongoing performance for a process, showing variances from a standard of objective" (Lewis & Smith, 1994, p. 98). Walton (1986) defined a control chart as "a run chart with statistically determined upper and lower limits drawn on either side of the process average" (p. 114). Control charts show graphically the
variability in every process. There are two kinds of variation. First, "common causes" arise from various situations such as minor variations in the worker’s ability, clarity of procedures, and limitations of the equipment. This form of variation is usually easy to eliminate. Second, "special causes" are occurrences such as defective materials arriving from a vendor. "Special causes" show up on control charts as points outside the acceptable limits. Control charts are important instruments of Statistical Process Control (SPC).

These seven simple statistical tools are available to aid problem solving. A variety of these tools combined with additional, often more advanced statistical techniques may be used to help make decisions on ways to improve processes based on data instead of guess work or intuition. Though elementary in nature, workers can be easily educated in using these statistical techniques to help processes run smoother.

Baldrige National Quality Award

The Malcolm Baldrige National Quality Award (MBNQA) was established in 1987 by Congress when it enacted public law 100-107. The award is made annually by the National Institute of Standards and Technology (NIST), an agency of the Commerce Department. The MBNQA was named for the late
Malcolm Baldrige, who was a popular Secretary of Commerce in the Reagan administration. The Baldrige Award was designed to "encourage American companies to improve themselves and continue to improve themselves . . . . Officially the Baldrige has three aims: to promote quality awareness, to recognize the quality achievements of U.S. businesses, and to publicize successful quality strategies" (Dobyns & Crawford-Mason, 1991, pp. 175, 179). The award program is a joint public-private program administered by the government through an outside contractor, financed by private business and industry, and conducted as a partnership. This partnership approach between government and companies was designed to limit adversarial relationships while emphasizing quality improvement. The Baldrige Award is the most prestigious award given for quality in business and industry in the United States and is normally presented to as many as six winners in the late fall by the President of the United States.

The original Baldrige Award criteria had seven categories and 32 items. Companies wishing to be considered for the Baldrige Award had to complete detailed assessments of their efforts and to document their quality improvement plans based on these categories and items. The Board of Examiners is composed of individuals from industry,
professional and trade associations, universities, health care organizations, and government agencies (Dobyns & Crawford-Mason, 1991). Examiners make recommendations to the commerce secretary who announces the current year’s winners. Only two awards are given in each of three categories: manufacturing, small business, and service. If no company is judged worthy of quality standards, no award is given. The first two awards in manufacturing were presented to Motorola and Westinghouse Electric Corporation’s Commercial Nuclear Fuel Division in 1988. Also in 1988, Globe Metallurgical received the first award in the small business category. Federal Express received the first service award in 1990.

The original Award Criteria are now called the Criteria for Performance Excellence (CPE). This name change reflected the view that criteria are more than a set of rules for a contest and that the criteria are used by many different types of companies for self-assessment and training. The criteria can also be used as tools to develop performance and business processes (Brennan, 1997). This was the original purpose of the Baldrige Award. The award was not intended to tell a company what to do but was to be used as a yardstick to help the company become aware of its strengths and deficiencies.
There are possible drawbacks to using the word "quality" to describe an improvement process. Using the word "quality" leads many workers to believe that management feels they have not been working hard enough. This unintended message can lead to mistrust of leaders by workers who are already doing quality work (Brennan, 1997).

The word began to drop out of the criteria in 1995 when Category 3 became "Strategic Planning" as opposed to the original category title "Strategic Quality." This change clearly signaled a new direction the Baldrige Award criteria were taking: providing business leaders with a model that emphasized performance excellence relevant to a company wide strategic direction. (p. 57)

As previously presented, the substitution of the word "planning" for "quality" is similar to Deming’s decision not to use the phrase TQM to define the continuous improvement process (Wallin & Ryan, 1994).

The MBNQA’s 1995 CPE contained many attributes of quality theorists such as Deming’s 14 points. These criteria serve as both a guide for self-assessment of current performance and as a basis for continuous improvement. Many foreign countries are basing their national awards on the Baldrige Award Criteria. "Even Japan is creating a Baldrige Criteria-based national award to complement the Deming Prize" (Frank, 1996, p. 389).
TQM Applied to Education

Some writers contend that educational practices in the United States historically have followed changes in industrial production models. Therefore, it is reasonable to assume that the emerging changes in corporate models and culture will affect the ways colleges and universities organize themselves to teach and learn (Godbey, 1993; Marchese, 1992). "As schools struggle to address the public's concern for accountability, educators have been willing to explore new strategies such as total quality management (TQM)" (Horine, 1992, p. 33).

In Quality or Else: The Revolution in World Business, Dobyns and Crawford-Mason (1991) said, "the single worst problem Americans now face is education" (p. 6) and their belief that quality can improve education. However, many people do not rate education as the number one problem in America or share Dobyns and Crawford-Mason's sense of urgency. Peterson (1993) stated "the lack of perceived crisis of the magnitude which spawned quality revolutions in business and industry makes it difficult to obtain a commitment to quality enhancement as a primary focus in most colleges and universities" (p.17).

In a business environment, a company employing a TQM system works closely with its supplier(s) to improve the
quality of the products furnished to the company. Viewing
the secondary school system as the supplier to higher
education presents an interesting question for colleges. How
can colleges improve the quality of high school graduates?
While colleges can improve their teacher education and
academic programs, which should eventually provide more
qualified teachers and improve the quality of education at
the secondary level, it is unrealistic to expect colleges to
influence improvements in the quality of high school
graduates to the extent that companies can influence or
force suppliers to improve the quality of their products.
Politically and realistically, colleges have only extremely
limited influence over their feeder high schools.

A frequently stated prerequisite for TQM or any
management philosophy to be accepted by the workforce is the
commitment and full support of top management. Caudron
(1993) stated that "without a doubt, the most important
contributor to the successful implementation of any
quality-improvement effort is top-down leadership" (p. 163).
If top management does not fully believe in the philosophy
or fails to actively participate in its implementation,
TQM's chance for success is minimal. Johnson (1994) reported
Juran's principle that "senior management has to take a
leadership role. Some of them are too busy and think they
can delegate (quality programs). A lot of them have tried that and it hasn't worked" (p. 26). Without having proper knowledge of TQM, it is doubtful that college administrators possess the commitment or ability to implement a successful TQM program at their institutions. Few college administrators sense the need or urgency for the drastic changes required to implement a successful TQM program.

Cross (1993) revealed that higher education was facing problems similar to those faced by industry in the past decade and found evidence that research institutions and community colleges were restructuring to meet the public's demand for higher quality at less cost. Gonzales (1989) reported that California Community Colleges were in a reform process initiated by Assembly Bill 1725. In 1992, Chancellor Paul Elsner of Maricopa Community College in Arizona formed a Commission on Quantum Quality and charged it with investigating TQM programs in higher education and in government and industry (Assar, 1993). A 40-hour TQM training program for employees was begun in 1991 at Rio Salado Community College by its president (Thor, 1993). Fram and Camp (1995) reported that “currently, colleges and universities are focusing TQM on processes outside the classroom—the peripherals in higher education—such as food service, bursar operation, and registration processes”
Colleges and universities have begun applying TQM to improve classroom instruction (Brigham, 1994; Zollers & Fort, 1996).

Burgdorf (1992) gave examples of applying TQ principles to community, junior, and technical colleges. Based on the teachings and philosophy of Deming, Burgdorf devised this definition for TQ, "Total Quality is a customer-oriented philosophy of management that utilizes total employee involvement in the relentless, daily search for improvement of quality of products and services through the use of statistical methods, employee teams and performance management" (p. 2). Burgdorf viewed implementing TQ in education using the systems approach described by Deming that begins with the supplier, moves through the production process, and concludes with the customer. Burgdorf modified Deming's process for educational purposes and defined the secondary school system as the supplier and society as the ultimate customer. Following the Deming philosophy, the leader is responsible for continuous improvement of the system, and "Total Quality redefines the teacher as a leader, coach and helper - a person who listens and stimulates intrinsic motivation on the part of a learner to experience the joy of learning" (p. 2). His system followed
the Deming philosophy of emphasizing leadership instead of management.

In Seven Tips for Implementing TQM: A CEO's View from the Trenches, LeTarte (1993) outlined and discussed seven main points of Deming's 14 points of TQM and related them to education. A systems approach to management was stressed. LeTarte stated that "if you don't understand the key principles undergirding all of the TQM activity that will emerge, you will be burning the house down with every issue you tackle" (p. 19). Tampering with a system solves one problem while creating other, often more severe problems.

Needham, Lee, and Others (1992) list three underpinnings of TQM: (a) a focus on customers, (b) an attitude of continuous improvement of a system and (c) involvement of everyone. They emphasized the Shewhart Cycle of PDCA. Some of the changes required in implementing TQM are readily adaptable for institutions of higher education. According to Peterson (1993), "empowerment of all workers, however, is one aspect of implementation in which colleges and universities are far ahead of business and industry" (p. 11).

TQM has been implemented by institutions of higher education (Brigham, 1994). However, educational institutions
implementing quality management systems have taken different approaches and have given a variety of names to the process.

During the 1980s, community colleges began to initiate a TQM approach at their institutions. In 1986, Delaware County Community College (DCCC) became "one of the first colleges in the country to adopt Total Quality Management (TQM) and to see beyond TQM's applications in manufacturing to its potential for transforming an educational environment" (Entner, 1993, p. 29). Richard DeCosmo, president of DCCC, and his executive staff enrolled in a one-year total quality (TQ) seminar resulting in the development of three goals for TQ implementation at DCCC. The three goals for TQ at DCCC were:

1. To transform our philosophy of administrative management to TQ.
2. To develop training curricula and programming in TQ for business in our service areas; and
3. To incorporate the concepts and philosophy of TQ into our curriculum and into classroom management. (p. 29)

DCCC developed plans and established time tables for implementing each of its three major goals. After developing and implementing strategies to accomplish and measure these goals, DCCC adopted a system approach to assure continuous quality assurance.

DeCosmo, Parker, and Heverly (1991) reported on ways that DCCC used TQM to conserve resources, improve
effectiveness, capture the quality niche, and to increase participation in decision making. They reviewed how DCCC used the PDCA cycle and simple statistical tools to improve the telephone registration system at the college.

Brigham’s (1994) research revealed DCCC’s conclusion that “the major obstacles to CQI implementation are (1) old habits, and (2) old ways of managing, both of which are difficult to change” (p. 31). Institutional leaders must realize that a change under CQI is often gradual and the tendency will be to revert back to the old culture, especially in times of crisis. Since implementing its CQI imitative, DCCC reportedly has recognized the following successes:

1. Improvement in the budgeting process.
2. New state-of-the art copy machines reduced the secretarial time devoted to copying by 96 percent.
3. Sorting mail in zip-code order for mail delivered to the post office led to a $200 per month savings. (p. 32)

Brigham (1994) reported that CQI activities in the academic areas at DCCC included the following: a 15-credit certificate program in CQI was developed, CQI concepts are taught in business-related courses, and 30 percent of full-time instructors and 15 percent of part-time instructors used TQ concepts to manage the teaching and learning process. Also, academic administrators at DCCC are expected to use TQM philosophy and techniques.
Brigham (1994) concluded that implementing CQI at DCCC had enabled the college to gain an understanding of the linking of processes required to provide the services that support its mission to provide accessible and quality education to its target population. DCCC does not report having the measures in place to provide reliable feedback that documents the effectiveness of what the institution is doing. DCCC’s future plans are to “focus on developing and using viable outcome and process measures’ for the college’s key processes” (p. 33).

In 1986, Fox Valley Technical College (FVTC) started applying TQM principles and tools in its management, service, and instructional processes. Tyler (1993) described how FVTC applied various TQM tools to reduce the five to seven days that it was taking to get applications to counselors to 24 hours. FVTC used Pareto charts to help identify accidents that were the most costly, departments where the accidents occurred, the types of accidents and the frequency of occurrence of each type of accident. These steps reportedly led to “reduced worker compensation premiums by $51,000 and improved the college’s preventive proactive safety program” (p. 60).

Faculty at FVTC are trained to focus on the direct applications of TQM to the teaching and learning process. A
self-managing class was developed that replaced the traditional grading structure with "collaborative learning projects; teach-to-learn and learn-to-teach projects; and classroom time for long-term course projects" (Tyler, 1993, p. 62). The redesigning of the course led to developing active learners, creating a relaxed environment, and helping to promote teamwork (Tyler). Brigham (1994) reported the following key successes with TQM at FVTC: created awareness of TQ among all employees; improved the products, processes, and services; documented upward trends over a four-year period in enrollment, graduate placement, revenues from contracted training, and organizational climate.

Oregon State University (OSU) began its implementation of TQM in 1989. To create a "critical mass" of top management people, OSU invited visitors from Ford, Hewlett-Packard, and Dow Chemical on campus to explain and give support for its TQM initiative. Deming visited the campus and presented his management philosophy. Finally, top administrators reviewed the criteria for ways that MBNQA was used to gain a better understanding of how to implement and evaluate a TQM program (Coate, 1991). A nine-phase process was developed for implementing and evaluating its TQM system. OSU's first test of its TQM system was the changing of the basic structure of the physical plant, with resulting
changes in work relationships and attitudes of physical plant staff. Coate (1991) reported that OSU’s experience suggested that the successful implementation of TQM in a college or university setting depends on observing six key principles: support from the top, find a champion, act, teams are everything, breakthrough planning helps, and try the service side first.

Lewis and Smith’s (1994) book, *Total Quality in Higher Education*, provided a detailed summary on the development, implementation, and the results obtained from OSU’s adopting a TQM system. They reported that the TQM Pilot Team Results revealed substantial percentages and dollars savings for the institution. Lewis and Smith discussed the following uses of TQM to improve the academic side of higher education.

1. A professor of forest engineering had students form a total quality management team to help him improve his teaching.
2. Through a “nominal group” technique, the instructor helped the class identify the instructional techniques they most want (speakers, videos, lectures, etc.).
3. Student government leaders have participated in total quality classes and have used the total quality management manual to write a sample case study on the work of the student program council.
4. Research projects in total quality management applications are being conducted in the College of Business and OSU’s Extension Service.
5. The College of Business conducted a comprehensive study to evaluate its mission and develop a “vision to guide critical decisions and processes through 2005. Central to the new strategy is the fundamental TQM philosophy that the output of the college (graduates and research) must be responsible to the needs of its customers.” (p. 254)
Zollers and Fort (1996) presented their views on learning and how they used TQM in their classes at Syracuse University and the University of Michigan, respectively. They expressed their belief in Pareto analysis, which suggests that 20% of a universe of events comprise 80% of those things that create defects, and they recommended asking students to identify things that historically had inhibited their learning. Zollers and Fort developed a TQM instrument, which was administered the first day of class to determined what the students wanted from the course. Results from the survey were tabulated and the aggregated results were used to establish the course requirements. A “consulting group” approach was used where “groups of four students each report back to the class at regular intervals about whether we are meeting the requirement” (p. 8). A variety of assessment techniques including muddiest point cards and one minute papers were used to determine what students were learning and what material was causing trouble.

Zollers and Fort (1996) concluded the following benefits from using their TQM approach to designing and teaching a course:

1. We can use class time more effectively and efficiently because we know what is working and what is not.
2. The requirements are routinely stated in terms of
process, not content.
3. We have learned that students can hear "no" and be satisfied. Occasionally a requirement emerges that the professor can not meet for professional, institutional, or pedagogical reasons. (p. 12)

Although the TQM instrument has been used for several semesters, Zollers and Fort considered the instrument a work in progress. The TQM instrument was viewed as an early warning system for potential barriers to learning and was only useful if the professor was willing to take the information seriously and make necessary mid-course corrections.

Paradigm Shift

Many of the changes required during the implementation process of TQM will be as difficult for colleges as it has been and continues to be for business and industry. "TQM requires a paradigm shift throughout the institution, but to date, TQM as applied in higher education has ignored the single most critical element in educational change - the faculty" (Cross, 1993, p. 16). To accomplish a paradigm shift, "we need to be prepared to drop old ideas and understandings, question old assumptions, and open ourselves to very different ways of thinking and acting" (LeTarte, 1993, p. 18). The change in management philosophy required when initiating a TQM program in industry is similar to what is labeled a paradigm shift in higher education. If the
change is to be effective, the faculty is the most critical element in this paradigm shift. The faculty must be willing to change from the old ways of doing things, and the administration must be willing to permit faculty the freedom to change. It will take a major effort on the part of a majority of the faculty to switch to the philosophy required in TQM, and the bureaucratic administration system in most colleges makes it difficult to accomplish the changes required for TQM to be successful.

TQM and Assessment

Today, continuous quality improvement is closely linked to assessment in higher education (Ewell, 1991; Akers, Giacomino, & Trebby, 1997). Institutional assessment programs are often required by regional accreditation associations and state governments. Akers et al. emphasized that "assessment is not driven purely by external pressures. Many universities, like businesses, are now realizing that processes must be assessed in order to improve the quality of the product provided" (p. 259). Initial faculty concerns that assessment was equivalent to teaching evaluations were overcome when faculty came to realize the assessment process focused upon measuring outcomes while only indirectly measuring teaching. Akers et al. (1997) stated, "the primary purpose of assessment is to improve processes and
outcomes . . . to be effective, the assessment process must be continuous and adaptable to change" (pp. 260, 261). The assessment process is strengthened when assessment outcomes are tied to the mission of the institution. Assessing the process to improve the quality of the process, overcoming faculty resistance, perceiving the need for having a continuous process that adapts to change, and tying the assessment process to the institution’s mission statement are qualities shared by assessment and TQM.

Peterson (1993) stressed, "assessment is of little value if it does not lead to systematic and continuous planning for the future" (p. iv). The assessment process used in education is often criticized for being conducted at or near the end of a course. This is similar to industry’s mistake of relying on inspection to improve quality in the production process. "Discovering weakness in student learning at mid-term, or worse yet, in the final exam, is wasteful in the extreme" (Cross, 1993, p. 18). Another weakness of traditional assessment is "the accreditation guidelines, while mandating assessment, offer no indication of how the data thus generated is to be used" (Peterson, 1993, p. 3).

"Both supporters and critics have drawn parallels between Total Quality Management (TQM) and the current
assessment movement in higher education" (Ewell, 1991, p. 39). Examples of the parallels between TQM and assessment include: both arose in part from a perception of crisis, each searches for the "best practice," both perceive the need for data collection, each have the workers collect quality control information continuously, and both use familiar tools of statistical quality control (Ewell, 1991). Unlike the recognized objective of TQM programs, "the majority of institutions that practice assessment do not make it part of an overall, coordinated, institutional improvement strategy" (p. 47).

Defining the Customer or Client

An important step in any TQM process is the defining of one's customers. This may present a problem in higher education in which the definition of customer is not as clear as it is in industry. Fram and Camp (1995) discussed the difficulty of determining the customers in higher education. The needs of the student customer often differ from the needs of society as the customer. It is often more difficult to convince students that they need a particular course than to convince business customers that they need a particular product or service. Brigham (1994) expressed his belief that the word customer is an inadequate term for higher education. "There is a big difference between
education designed to supply what students want and education based on informed judgments about individual student needs. Educating for the commonweal is not the same as satisfying students” (Chickering & Potter, 1993, p. 35). Hittman (1993) expressed the belief that conflicts in the needs and expectations of different customers should be resolved in favor of the student.

Zollers and Fort (1996) reported their desire to avoid the language of student-as-customer. “In higher education, however, there is no one determinative final customer” (p. 5). In addition to students, employers, colleagues, accrediting institutions, alumni, donors, and government could be considered customers of the institution. Instead of defining a student as a customer, they proposed viewing the student as a stakeholder in the process of creating and transmitting knowledge. Zollers and Fort stated:

the student-as-stakeholder approach seeks to create a community of trust in which the participants are empowered to be involved in the solving of classroom problems and become responsible to one another (and themselves) in a way that does not foster scapegoating of classroom problems, but makes problems a legitimate topic of collective problem-resolution. (p. 6)

Lewis and Smith (1994) shared their views on the language used in TQM. They reported that phrases used in TQM are readily understood in industrial settings, but “in academia, suspicion is always aroused when jargon-laden
language is used" (p. 255). Lewis and Smith reported that the word "client" is often substituted for "customer" in educational organizations. However, they expressed no preference for the use of "client" or "customer."

Bonser (1992) used the word "client" instead of customer. Akers et al. (1997) supported substituting the term "client" for "customer." They viewed the student as the primary "client" of the educational product and the employer as the secondary "client."

Doctors, lawyers, and accountants provide services based on their analysis of clients needs, but not always precisely in accord with the client's desires. Educators provide similar services when advising and providing educational services to students.

**Institutional Effectiveness**

The success of TQM in Japanese industry and the widespread implementation of TQM in U.S. business and industry has fostered awareness of the potential benefits TQM offers for increasing quality in higher education. "Unquestionably, the most promising implication of the Continuous Quality Assurance (CQA) model for a community college is the potential for enhanced instructional effectiveness through both curriculum development and instructional innovation" (Peterson, 1993, pp. 35, 36). "As
the costs of higher education increasingly are transferred from taxpayers to students and parents, the pressures to 'find out what students want and deliver it' are likely to grow" (Chickering & Potter, 1993, p. 36).

There is no single factor creating the problems confronting the American educational system; rather, there is a complex interplay of elements that have evolved over time and that cannot be effectively remedied in the short term. Despite the compelling need to fix problems immediately, educators should use a holistic, systemic approach to improve educational quality . . . While it takes more time to implement this approach, the rewards are more satisfying and permanent. (Hittman, 1993, p. 79)

Following the reported success in industry, several institutions of higher education have experimented with implementing TQM in their organizations. Several studies (Brigham, 1994; Coate, 1991; Fram & Camp, 1995; Tyler, 1993) reported that TQM has improved the quality of services and helped to lower costs at these institutions. Many additional obstacles, such as faculty and administrator's resistance to change, remain to be overcome before a TQM system can be successful in institutions of higher education. "TQM is one possible response that appears bold enough - at least in concept - to meet the challenge" (Cross, 1993, p. 20).

Criticism of TQM

TQM has often been referred to as a gimmick or the latest fad (Entin, 1994; Goetsch & Davis, 1995; Marchese,
1992; Seymour, 1994). Shearer (1996) said, "while TQM might be considered a short-term phenomenon, CI can never be called a fad . . . most of the products people use, the buildings they live in, and the ways they communicate have all been continuously improved over time" (p. 98). Seymour (1994) recommended that bottom-line results: saving money, reducing cycle time, and increasing customer satisfaction were the most effective way to evaluate the fad theory of TQM.

When the consulting firm of Rath and Strong surveyed Fortune 500 executives on the effectiveness of TQM, the results were mixed (Seymour, 1994). TQM had a significant impact on many corporate objectives, including increased competitiveness and market share. However, the results also suggested that TQM accomplishments fell short of management's goals for TQM in many companies.

Wallin and Ryan (1994) presented four common complaints about TQM programs. These complaints are: "TQM is too complex. TQM is too costly, in both money and time. TQM takes too long, with no immediate results. TQM diverts resources and attention from other organizational needs" (p. 4). While expressing their strong support for implementing TQM programs in institutions of higher education, Wallin and Ryan expressed their belief that a
full-blown TQM program could not be accomplished by colleges with limited financial and human resources.

Seymour (1994) presented three studies reporting negative conclusions on TQM. First, a qualitative review of client companies by Booz Allen and Hamilton revealed that TQM efforts had been abandoned or redefined in many instances. Second, a Arthur D. Little survey of 500 institutions concluded that only one in three respondents indicated that TQM caused a significant impact on the firm’s competitiveness. Finally, a survey of 100 British firms by A. T. Kearney revealed that 80% of the respondents indicated that TQM had failed to achieve tangible results.

By some accounts, TQM has not fared well in higher education. Entin (1994) discussed his visits in 1992 to 10 Boston-area institutions of higher education that were just beginning to implement TQM programs. By the winter of 1994, Enter found that “five of the ten institutions had stopped, delayed, or were not implementing TQM” (p. 4). Four of the remaining institutions were working on some form of TQM while at the tenth college, TQM was becoming a way of life. One college reported the failure of TQM to fit its culture. Another college reported that implementing TQM was placed on hold while they dealt with other, higher priorities.
Bensimon (1995) expressed several criticisms of TQM. She confronted the stated philosophy and beliefs of TQM for a variety of reasons. Bensimon rejected the assumption that language such as customer satisfaction defined quality. She asserted that TQM appeared to be a move toward increased administrative and corporate control of the academic workplace. According to Bensimon, TQM equates quality with conformance and nonquality with nonconformance, which devalues naturalistic inquiry. Bensimon concluded her criticisms of TQM by stating, "the academy needs a theory of administration based on 'difference' rather than on 'sameness' . . . that TQM should be rejected on the grounds that, as a philosophy and theory, it is unfit for the academy" (p. 608).

Baldrige Award Criteria for the Education Community

Many colleges are said to be interested in initiating programs to assist them with the many challenges they are facing: budgetary crises, requirements from regional accrediting agencies, and state mandates for assessment. Several educational institutions have used the MBNQA criteria to help them assess the current and potential performance of their operations. In 1995, pilot programs were begun in education and health care by the NIST as part of its MBNQA program. Ensby and Mahmoodi (1997) reported,
"in the education pilot program, the primarily business-oriented terminology of the Baldrige Award criteria was adapted specifically for use in primary, secondary, and postsecondary education environments" (p. 85). The MBNQA 1995 Education Pilot Criteria (EPC) was developed to permit educational institutions to assess their quality.

The objectives of the EPC were:

1. to determine the interest and readiness of education organizations to participate in a national level recognition program based upon the ability to demonstrate overall performance improvement;
2. to evaluate the Pilot Criteria;
3. to determine the capability of the evaluation system, including volunteer experience, availability, and time commitment;
4. to determine the value of the feedback given to Pilot Program participants;
5. to determine whether or not there should be subcategories of eligibility, taking into account school size and type; and
6. to determine the likely influence of the Award on: (1) sharing of best practices information; (2) cross-sector cooperation; and (3) elevation of educational standards. (NIST, 1995, p. 2)

NIST (1995) reported that the EPC goals were designed to help schools improve their educational services through focus on dual, results-oriented goals; delivery of ever-improving educational value to students, contributing to their overall development and well-being; and improvement of overall school effectiveness, use of resources, and capabilities. Using a self-assessment approach, an educational institution evaluates each item based on the
percentage of approach, deployment, and results observed throughout the organization.

In 1995, criteria for the EPC were distributed to educational leaders for their review and comment on the appropriateness of the core concepts. Nineteen educational organizations submitted applications in the 1995 pilot program, and each applicant received written feedback on its performance management system, including strengths and areas for improvement (NIST, 1997).

The 1995 EPC did not survive budget cuts in the subsequent years, but the prospects for funding are improving. The 1998 budget request submitted to Congress for the NIST requests funds of $2.3M for Award categories in education and health care (NIST, 1997). Three directors were added to the Foundation for the MBNQA, two from education and one from health care. The Foundation has initiated an endowment fundraising campaign of $15M to assist in paying the expenses of the expanded program for education and health care. This fundraising will permit the government to be a partner in these programs as it is in the Business Award Program.

**Education Criteria for Performance Excellence**

In 1998, the 1995 Education Pilot Criteria was revised and the name was changed to the 1998 Education Criteria for
Performance Excellence (ECPE) (NIST, 1998). This change reflects the evolving process of MBNQA and aligned the Education Criteria with the 1998 Criteria for Performance Excellence used for the Business Award. The seven categories and 18 items for the ECPE are:

1. Leadership
   1.1 Leadership System
   1.2 Public Responsibility and Citizenship
2. Strategic Planning
   2.1 Strategy Development Process
   2.2 School Strategy
3. Student and Stakeholder Focus
   3.1 Knowledge of Student Needs and Expectations
   3.2 Student and Stakeholder Satisfaction and Relationship Enhancement
4. Information and Analysis
   4.1 Selection and Use of Information and Data
   4.2 Selection and Use of Comparative Information and Data
   4.3 Analysis and Review of School Performance
5. Faculty and Staff Focus
   5.1 Work Systems
   5.2 Faculty and Staff Education, Training, and Development
   5.3 Faculty and Staff Well-Being and Satisfaction
   6.1 Education Design and Delivery
   6.2 Education Support Processes
7. School Performance Results
   7.1 Student Performance Results
   7.2 Student and Stakeholder Satisfaction Results
   7.3 Faculty and Staff Results
   7.4 School-Specific Results. (p. 2)

A major benefit of the Baldrige Award assessment is that there is no passing score. Assessments are formed to point out strengths and areas for improvement. Further evaluation indicates how the institution has progressed. There are
dynamic relationships among the core values and concepts embodied in the seven categories of the ECPE.

Summary

The quality improvement model and philosophy taught by Deming is recognized as helping to revitalize Japan's economy after World War II. Global competition forced many U.S. industries to adopt and successfully implement their own quality improvement programs, which encouraged educational institutions to adopt successful industrial quality improvement models. In 1987, the U.S. government created the MBNQA, which included many characteristics of the Deming model, to encourage companies to improve and continue to improve themselves. The recorded success of the Baldrige Award in increasing quality for industry led to the development of pilot programs for education and health care in 1995. In 1998, the 1995 Education Pilot Criteria was revised and the name changed to the 1998 Education Criteria for Performance Excellence. "Non-profit education and health care organizations are currently not eligible for the Award. However, these organizations are encouraged to self-assess against the Criteria and may be eligible for their state or local award" (NIST, 1998, p. I). The ECPE is an assessment and improvement model that possibly could aid educational institutions in dealing with budgetary restraints, meeting
regional accrediting agencies demands of documenting institutional effectiveness, and state demands for assessment. "Applicants, evaluators, and other users of the Criteria agreed that a Baldrige Award Program for education and health care could help these organizations improve overall performance and capabilities" (NIST, 1997, p. 1). The ECPE program could enable participating institutions to identify their strengths and areas needing improvement, which encourages problem solving and permits decisions to be based on data instead of hunches. Chapter 3 presents the methodology used to determine the perceptions of Virginia Community College's full-time teaching faculty and administrators concerning the appropriateness of the ECPE for assessing and improving the educational process.
CHAPTER 3
METHODOLOGY

Introduction

Research procedures used in this study are presented in this chapter. The procedures include a description of the study, population/sample, data collection, instrumentation, pilot study, hypotheses, data analysis, and summary. An explanation of each procedure follows.

Description of the Study

This descriptive study was conducted to determine the perceptions of full-time teaching faculty and full-time administrators on the appropriateness of the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) for assessing Virginia community colleges.

Population/Sample

The population was comprised of full-time teaching faculty and full-time administrators in the 23 community colleges in the Virginia Community College System (VCCS). The Vice Chancellor of Academic Services and Research for the VCCS granted permission to conduct the study. The Director of Academic Service and Research for the VCCS

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compiled a file and provided the names of the community colleges in the VCCS, addresses, and the names of full-time teaching faculty and full-time administrators at each community college based on the October 1997 Personnel Management and Information Service file. Using the file provided by the VCCS, a systematic-random sampling with a random start was used to select 360 individuals for survey participation, 270 full-time teaching faculty and 90 full-time administrators, from a total population of 1,857 teaching faculty and 272 administrators.

Data Collection

A version of the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) was the survey instrument mailed to the sample population of 360 individuals representing the 23 community colleges in Virginia (see Appendix A). Full-time teaching faculty and full-time administrators were encouraged to participate and respond by providing information on their perceptions of the 1998 ECPE. A cover letter and a self-addressed, stamped envelope were included with each survey instrument mailed (see Appendix B). A follow-up letter was mailed to persons being surveyed who did not respond to the original request until a 50% response rate had been obtained (see Appendix C).
**Instrumentation**

A review of the literature was used to determine components of the survey instrument. The survey instrument was developed from the 1998 ECPE with questions on demographic data and an additional question on the overall perceived appropriateness of the 1998 ECPE. The 1998 ECPE consists of seven major categories and 18 items. Items number 4, 5, and 13 were subdivided into parts A and B with the word college substituted for school and assessing substituted for describing. These changes were recommended by participants in the pilot study. The procedures used in developing the survey instrument followed current research theory. DeVellis' (1991) recommended steps, which are listed below, were followed to prepare the instrument.

1. Determine clearly what it is you want to measure.
2. Generate an item pool.
3. Determine the format for measurement.
4. Have initial item pool reviewed by experts.
5. Consider inclusion of validation items.
6. Administer items to a development sample.
7. Evaluate the items.
8. Optimize scale length. (pp. 51-90)

The descriptive survey instrument was developed to gather information about the research questions presented in Chapter 1.

The Acting Deputy Director of the National Quality Program granted permission to use the 1998 Baldrige Education Criteria as the basis for the survey instrument.
(see Appendix D). Additional copies of the 1998 ECPE are available from the Malcolm Baldrige National Quality Award web site at www.quality.nist.gov or by contacting the National Quality Office at (301) 975-2036.

Pilot Study

A limited pilot study was conducted. The 1998 ECPE survey instrument was administered to a panel of professionals: administrators, professors, an institutional effectiveness director, and graduate students in the Educational Leadership and Policy Analysis program at East Tennessee State University. As a result of the pilot study, the wording of the instrument’s questions was refined.

Hypotheses

The null hypotheses tested in this study are as follows:

H1: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 Education Criteria for Performance Excellence (ECPE) for assessing Virginia community colleges based on years of teaching experience in education.

H2: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community
colleges based on years administrative experience in education.

H3: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on major teaching area.

H4: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on major teaching area.

H5: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on highest degree level earned.

H6: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on highest degree level earned.

H7: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on college enrollment.

H8: There is no difference in perceptions among full-time administrators of the appropriateness of the 18
items of the 1998 ECPE for assessing Virginia community colleges based on college enrollment.

H9: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on age.

H10: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on age.

H11: There is no difference between the perceptions of full-time teaching faculty and full-time administrators with regard to the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges.

Data Analysis

Numerical data were collected and enter into the Kedit data management software program. The Statistical Package for Social Sciences (SPSS) was used for the analysis of data. An alpha level of .05 was used for all statistical tests. The following statistical methods were used: frequency distribution, percentages, means, t test, analysis of variance (ANOVA), and the Scheffe post hoc test for multiple comparisons.
Frequency distribution and percentage were used for the descriptive data on the number of surveys mailed and returned, faculty members' and administrators' response rate per community college, major teaching area for faculty and administrators, highest degree level earned by faculty and administrators, and college enrollment by full-time equivalent (FTE). Means were used to describe responses to research questions number 1, 2, 3, and 4. To compare the scale means for research questions number 5, 6, 13, 14, and 15, t tests were used. An analysis of variance (ANOVA) was conducted on research questions number 7, 8, 9, 10, 11, and 12. A narrative was used to report respondents' comments to Research Question 16.

Response Data

A table was developed listing the sample surveyed, the number of returns, and the percentage of returns. This information can be found in Chapter 4.

Demographic Data

Demographic information was derived from the survey based on years of teaching experience in education, years of administrative experience in education, major teaching area, highest degree level earned, college enrollment, and age. In Chapter 4 these data are displayed in individual tables with
category, frequency, and percent of total. The demographic variable gender was omitted from the study at the request of the Vice Chancellor of Academic Services and Research for the VCCS.

**Research Questions**

The survey instrument was designed to collect data for the 16 research questions developed in Chapter 1.

**Summary**

The research methodology and procedures were presented in this chapter. The instrument for this study was developed and based on the MBNQA 1998 ECPE outlined in the Baldrige Award Criteria for the Education Community. Low power is a threat to validity in that it prevents the discovery of differences that are important, even though they may have small effect sizes. Based on a review of the literature, no validity or reliability has been determined for the instrument. Power by testing will always be increased if more subjects are used. This was a major factor for including both full-time teaching faculty and full-time administrators in this research.
CHAPTER 4
PRESENTATION AND ANALYSIS OF THE DATA

Introduction

This study was conducted: (a) To determine whether full-time teaching faculty and full-time administrators perceive the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) to be appropriate for assessing Virginia community colleges, and (b) To determine if perceptions differ among full-time teaching faculty and among full-time administrators in the use of these criteria to assess Virginia community colleges.

Response Rates

Two hundred seventy surveys were mailed to full-time teaching faculty, and 129 completed surveys were returned. Ninety surveys were mailed to full-time administrators, and 57 completed surveys were returned. Results from respondents are tabulated in Table 1.

Responses By Community Colleges

Full-time teaching faculty returned 129 usable surveys. Full-time administrators returned 57 usable surveys. The number of surveys mailed to full-time teaching faculty, the number of surveys returned, and the percent of surveys

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TABLE 1
CATEGORIES OF SURVEYS MAILED AND RETURNED

<table>
<thead>
<tr>
<th>Categories</th>
<th>Surveys Mailed</th>
<th>Surveys Returned</th>
<th>Percent Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time Teaching Faculty</td>
<td>270</td>
<td>129</td>
<td>47.8%</td>
</tr>
<tr>
<td>Full-Time Administrators</td>
<td>90</td>
<td>57</td>
<td>63.3%</td>
</tr>
<tr>
<td>Total Return</td>
<td>360</td>
<td>186</td>
<td>51.7%</td>
</tr>
</tbody>
</table>

returned from each community college are presented in Table 2. Similar information for full-time administrators is presented in Table 3.

Characteristics of Respondents

Demographic information collected in Part VIII of the survey included information on the following variables: years of teaching experience in education, years of administrative experience in education, major teaching area, highest degree level earned, college enrollment, and age. These data provide a general description of the respondents, and for the statistical analysis portion of the study as it pertained to the perceptions of full-time teaching faculty and full-time administrators. Characteristics of the
<table>
<thead>
<tr>
<th>Community College</th>
<th>Surveys Mailed</th>
<th>Surveys Returned</th>
<th>Percent Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Ridge</td>
<td>6</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td>Central Virginia</td>
<td>8</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>D. S. Lancaster</td>
<td>4</td>
<td>1</td>
<td>25.0%</td>
</tr>
<tr>
<td>Danville</td>
<td>7</td>
<td>4</td>
<td>57.1%</td>
</tr>
<tr>
<td>Eastern Shore</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>Germanna</td>
<td>6</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>J. S. Reynolds</td>
<td>20</td>
<td>12</td>
<td>60.0%</td>
</tr>
<tr>
<td>John Tyler</td>
<td>9</td>
<td>4</td>
<td>44.4%</td>
</tr>
<tr>
<td>Lord Fairfax</td>
<td>6</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>Mountain Empire</td>
<td>7</td>
<td>5</td>
<td>71.4%</td>
</tr>
<tr>
<td>New River</td>
<td>8</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Northern Virginia</td>
<td>68</td>
<td>27</td>
<td>39.7%</td>
</tr>
<tr>
<td>Patrick Henry</td>
<td>6</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>Paul D. Camp</td>
<td>3</td>
<td>1</td>
<td>33.3%</td>
</tr>
<tr>
<td>Piedmont</td>
<td>7</td>
<td>3</td>
<td>42.9%</td>
</tr>
<tr>
<td>Rappahannock</td>
<td>3</td>
<td>2</td>
<td>66.7%</td>
</tr>
<tr>
<td>Southside Virginia</td>
<td>8</td>
<td>6</td>
<td>75.0%</td>
</tr>
<tr>
<td>Southwest Virginia</td>
<td>16</td>
<td>7</td>
<td>43.8%</td>
</tr>
<tr>
<td>Thomas Nelson</td>
<td>13</td>
<td>5</td>
<td>38.5%</td>
</tr>
<tr>
<td>Tidewater</td>
<td>34</td>
<td>13</td>
<td>38.2%</td>
</tr>
<tr>
<td>Virginia Highlands</td>
<td>8</td>
<td>8</td>
<td>100.0%</td>
</tr>
<tr>
<td>Virginia Western</td>
<td>12</td>
<td>3</td>
<td>25.0%</td>
</tr>
<tr>
<td>Wytheville</td>
<td>9</td>
<td>8</td>
<td>88.9%</td>
</tr>
<tr>
<td>Community College</td>
<td>Surveys Mailed</td>
<td>Surveys Returned</td>
<td>Percent Returned</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Blue Ridge</td>
<td>3</td>
<td>1</td>
<td>33.3%</td>
</tr>
<tr>
<td>Central Virginia</td>
<td>3</td>
<td>3</td>
<td>100.0%</td>
</tr>
<tr>
<td>D. S. Lancaster</td>
<td>1</td>
<td>1</td>
<td>100.0%</td>
</tr>
<tr>
<td>Danville</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>Eastern Shore</td>
<td>2</td>
<td>2</td>
<td>100.0%</td>
</tr>
<tr>
<td>Germanna</td>
<td>2</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>J. S. Reynolds</td>
<td>4</td>
<td>2</td>
<td>50.0%</td>
</tr>
<tr>
<td>John Tyler</td>
<td>4</td>
<td>1</td>
<td>25.0%</td>
</tr>
<tr>
<td>Lord Fairfax</td>
<td>4</td>
<td>2</td>
<td>50.0%</td>
</tr>
<tr>
<td>Mountain Empire</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>New River</td>
<td>3</td>
<td>2</td>
<td>66.7%</td>
</tr>
<tr>
<td>Northern Virginia</td>
<td>17</td>
<td>7</td>
<td>41.2%</td>
</tr>
<tr>
<td>Patrick Henry</td>
<td>3</td>
<td>3</td>
<td>100.0%</td>
</tr>
<tr>
<td>Paul D. Camp</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>Piedmont</td>
<td>3</td>
<td>3</td>
<td>100.0%</td>
</tr>
<tr>
<td>Rappahannock</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>Southside Virginia</td>
<td>4</td>
<td>3</td>
<td>75.0%</td>
</tr>
<tr>
<td>Southwest Virginia</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
</tr>
<tr>
<td>Thomas Nelson</td>
<td>4</td>
<td>2</td>
<td>50.0%</td>
</tr>
<tr>
<td>Tidewater</td>
<td>11</td>
<td>8</td>
<td>72.7%</td>
</tr>
<tr>
<td>Virginia Highlands</td>
<td>4</td>
<td>4</td>
<td>100.0%</td>
</tr>
<tr>
<td>Virginia Western</td>
<td>4</td>
<td>4</td>
<td>100.0%</td>
</tr>
<tr>
<td>Wytheville</td>
<td>4</td>
<td>4</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
respondents are provided in the following narratives and tables.

**Years of experience in education.** The years of experience in education for the two groups, full-time teaching faculty and full-time administrators, was compiled. One faculty member and one administrator did not response to this item on the survey instrument and were omitted from this analysis. Full-time teaching faculty had a mean of 20.4 years in education. Full-time administrators' mean for the number of years in educational administration was 15.3 years. The range in years of experience in education was 3 to 38 years for full-time teaching faculty and 1 to 30 years for full-time administrators. A summary of the years of experience in education for the two groups is provided in Table 4.

**Major teaching area.** Respondents were requested to indicate their major teaching area according to one of three categories: college transfer, technical, or vocational. Table 5 reveals the major teaching areas for faculty and administrators. The majority of faculty and administrators reported college transfer as their teaching area. There was a low rate of responses from administrators, 27 responses from the 57 administrators, listing a major teaching area.
### TABLE 4
YEARS OF EXPERIENCE IN EDUCATION

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>128</td>
<td>56</td>
</tr>
<tr>
<td>Mean</td>
<td>20.4</td>
<td>15.3</td>
</tr>
<tr>
<td>SD</td>
<td>9.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Range</td>
<td>35.0</td>
<td>29.0</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 5
MAJOR TEACHING AREA

<table>
<thead>
<tr>
<th>Category</th>
<th>Faculty Frequency</th>
<th>Faculty Percent</th>
<th>Administrator Frequency</th>
<th>Administrator Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Transfer</td>
<td>67</td>
<td>52.0</td>
<td>17</td>
<td>29.8</td>
</tr>
<tr>
<td>Technical</td>
<td>39</td>
<td>30.2</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>Vocational</td>
<td>19</td>
<td>14.7</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>No Response</td>
<td>4</td>
<td>3.1</td>
<td>30</td>
<td>52.6</td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>100.0</td>
<td>57</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Highest degree level earned. Individuals in the study were asked to indicate their highest degree level earned by checking the appropriate category: high school diploma or certificate, associate or less than a baccalaureate, baccalaureate, master's or first professional degree, educational specialists, or doctorate. Administrators had a higher percentage of advanced degrees than the faculty. Administrators reported that 52.6% had doctoral degrees, 7% had educational specialist degrees, and 38.6% had master's or first professional degrees. Twenty-four percent of the faculty had earned doctoral degrees, 4.7% had educational specialist degrees, and 56.6% had master's or first professional degrees. Table 6 contains a summary of the findings of the educational degrees of faculty and administrators.

College enrollment. Faculty and administrators were asked to identify the enrollment of their institution based on full-time equivalent (FTE) using the VCCS guidelines that have the following classifications: 0 - 1,000 FTE students, 1,001 - 2,000 FTE students, 2,001 - 3,000 FTE students, 3,001 - 4,000 FTE students, and over 4,000 FTE students. As might be expected, the larger institutions with enrollment over 4,000 FTE students were the largest group of faculty respondents, and enrollment of 1,001 - 2,000 FTE students
## TABLE 6

**HIGHEST DEGREE LEVEL Earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Faculty</th>
<th></th>
<th>Administrators</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Associate or less than a</td>
<td>6</td>
<td>4.7</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>12</td>
<td>9.3</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Master's or first</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>professional degree</td>
<td>73</td>
<td>56.6</td>
<td>22</td>
<td>38.6</td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist</td>
<td>6</td>
<td>4.7</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Doctorate</td>
<td>31</td>
<td>24.0</td>
<td>30</td>
<td>52.6</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>100.0</td>
<td>57</td>
<td>100.0</td>
</tr>
</tbody>
</table>

was the second highest group of faculty respondents. The reverse was true for administrators. The enrollment of 1,001 - 2,000 FTE students was the largest group responding for administrators with the enrollment of over 4,000 FTE students being the second highest group of respondents for.
administrators. Table 7 reveals the college enrollment of respondents by FTE.

**Age.** Statistics on the age of college personnel in the study are presented in Table 8. The mean age for faculty and administrators was 50.00 and 51.92 respectively. Ranges in age for each of the two groups were 30 to 64 years for faculty and 30 to 65 years for administrators. Eight faculty members and seven administrators did not provide their ages.

**TABLE 7**  
COLLEGE ENROLLMENT BY FULL-TIME EQUIVALENT STUDENTS

<table>
<thead>
<tr>
<th>Full-Time Equivalent (FTE) Student</th>
<th>Faculty</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>0 - 1,000</td>
<td>10</td>
<td>8.0</td>
</tr>
<tr>
<td>1,001 - 2,000</td>
<td>35</td>
<td>28.0</td>
</tr>
<tr>
<td>2,001 - 3,000</td>
<td>26</td>
<td>20.8</td>
</tr>
<tr>
<td>3,001 - 4,000</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Over 4,000</td>
<td>47</td>
<td>37.6</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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TABLE 8
AGE OF FACULTY MEMBERS AND ADMINISTRATORS

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>121</td>
<td>50</td>
</tr>
<tr>
<td>Mean</td>
<td>50.00</td>
<td>51.92</td>
</tr>
<tr>
<td>SD</td>
<td>7.79</td>
<td>6.104</td>
</tr>
<tr>
<td>Range</td>
<td>34.00</td>
<td>35.00</td>
</tr>
<tr>
<td>No Response = 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Addressing Research Questions

Research Questions

Research Question 1: To what degree do full-time teaching faculty in Virginia’s community colleges perceive the 1998 Education Criteria for Performance Excellence (ECPE) an appropriate instrument for assessing Virginia community colleges?

A Likert-type scale was used for respondents to record their perceived appropriateness for each item on the survey instrument. The scale values were as follows: 1. Highly inappropriate, 2. Somewhat inappropriate, 3. Undecided, 4. Somewhat appropriate, and 5. Highly appropriate. Question
number 19 on the survey instrument covered the overall perception of the instrument. The faculty mean of 4.01 for question number 19 reveals that faculty perceived the 1998 ECPE to be "somewhat appropriate" for assessing improvement in Virginia's community colleges.

Research Question 2: To what degree do full-time administrators in Virginia's community colleges perceive the 1998 ECPE an appropriate instrument for assessing Virginia community colleges?

The mean for administrators' overall perception of the instrument was 4.00. Their mean of 4.00 is almost identical to the teaching faculty mean of 4.01.

Research Question 3: Do full-time teaching faculty in Virginia's community colleges perceive each of the 18 items of the 1998 ECPE appropriate for assessing Virginia community colleges?

The means for faculty on the 18 items on the instrument indicates that the faculty view the 1998 ECPE as a "somewhat appropriate" instrument for assessing Virginia community colleges. The 18 items of the 1998 ECPE had a follow-up question for questions number 4, 5, and 13. This resulted in a total of 21 responses for the 18 items on the 1998 ECPE. Each of the 21 responses had a mean greater than 4.00 for full-time teaching faculty. Faculty members' means ranged
from a low of 4.02 for "Selection and Use of Information and Data" to a high of 4.39 for "Leadership Systems." The faculty mean for each of the 18 items and 21 responses on the appropriateness of the 1998 ECPE are reported in Table 9.

Research Question 4: Do full-time administrators in Virginia community colleges perceive each of the 18 items of the 1998 ECPE appropriate for assessing Virginia community colleges?

Table 9 contains the information on administrators' responses to each of the 18 items and 21 responses on the 1998 ECPE. Means for administrators ranged from a low of 4.09 on both Item 4b, "College Strategy," and Item 8, "Selection and Use of Comparative Information and Data," to a high of 4.53 for Item 1, "Leadership System." Judging by the means, both full-time administrators and faculty rated Item 1, "Leadership System," as the most appropriate item.

Research Question 5: Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on years of teaching experience?

The 129 full-time teaching faculty respondents were divided into two approximately equal groups based on years
**TABLE 9**

SURVEY INSTRUMENT - 18 ITEMS

<table>
<thead>
<tr>
<th>Categories/Items</th>
<th>Faculty Mean</th>
<th>Administrator Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Leadership System</td>
<td>4.39</td>
<td>4.53</td>
</tr>
<tr>
<td>2. Public Responsibility and Citizenship</td>
<td>4.32</td>
<td>4.18</td>
</tr>
<tr>
<td><strong>Strategic Planning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a. College Strategy</td>
<td>4.15</td>
<td>4.25</td>
</tr>
<tr>
<td>4b. College Strategy</td>
<td>4.09</td>
<td>4.09</td>
</tr>
<tr>
<td><strong>Student and Stakeholder Focus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5a. Knowledge of Student Needs and Expectations</td>
<td>4.35</td>
<td>4.22</td>
</tr>
<tr>
<td>5b. Knowledge of Student Needs and Expectations</td>
<td>4.36</td>
<td>4.31</td>
</tr>
<tr>
<td>6. Student and Stakeholder Satisfaction and Relationship Enhancement</td>
<td>4.26</td>
<td>4.22</td>
</tr>
<tr>
<td><strong>Information and Analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Selection and Use of Information and Data</td>
<td>4.02</td>
<td>4.20</td>
</tr>
</tbody>
</table>
Table 9 (continued)

<table>
<thead>
<tr>
<th>Categories/Items</th>
<th>Faculty Mean</th>
<th>Administrator Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Selection and Use of Comparative Information and Data</td>
<td>4.05</td>
<td>4.09</td>
</tr>
<tr>
<td>Faculty and Staff Focus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Work Systems</td>
<td>4.15</td>
<td>4.13</td>
</tr>
<tr>
<td>11. Faculty and Staff Education, Training, and Development</td>
<td>4.45</td>
<td>4.31</td>
</tr>
<tr>
<td>12. Faculty and Staff Well-Being and Satisfaction</td>
<td>4.17</td>
<td>4.22</td>
</tr>
<tr>
<td>Education and Support Process Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13a. Education Design and Delivery</td>
<td>4.34</td>
<td>4.24</td>
</tr>
<tr>
<td>13b. Education Design and Delivery</td>
<td>4.11</td>
<td>4.18</td>
</tr>
<tr>
<td>College Performance Results</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Student Performance Results</td>
<td>4.26</td>
<td>4.25</td>
</tr>
</tbody>
</table>
of teaching experience. Group one contained 60 full-time
teaching faculty with a range of 3 to 21 years of teaching
experience. Group two consisted of 61 full-time teaching
faculty having a range of 22 to 38 years of teaching
experience. Eight full-time teaching faculty did not answer
this survey question and were omitted from the analysis of
Research Question 5.

The 21 responses for the 18 items of the 1998 ECPE were
added to obtain a total score for each full-time teaching
faculty. Each individual's score had a possible range of 21
to 105. The lower range of 21 was computed by taking the
lowest response rate (1) times the number of total responses
(21). The highest response rate (5) multiplied by the number
of responses (21) determined the upper range of 105.
Individual scores were summed to compute a grand total for group one and group two. Grand totals were used to calculate a scale mean for each group. Of a possible scale mean range of 21 to 105, group one had a scale mean of 88.60, and group two's scale mean was 88.69. The higher faculty scale mean for group two represents a slightly stronger perception of the appropriateness of the 1998 ECPE based on years of teaching experience. A t test was conducted on the scale means for group one and group two to determine if there was a significant difference in the perceptions of the two groups. Table 10 provides the comparison of the two groups of faculty based on years of teaching experience in education.

The t test for equality of means resulted in a two-tail probability of .973. The findings do not indicate a statistically significant difference between faculty in group one and in group two based on the number of years of teaching experience in education.

Research Question 6: Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on years of administrative experience?
TABLE 10
YEARS OF TEACHING EXPERIENCE IN EDUCATION

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Scale</th>
<th>Degree of 2-Tail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Group 1 (3-21 years)</td>
<td>60</td>
<td>88.60</td>
</tr>
<tr>
<td>Group 2 (22-38 years)</td>
<td>61</td>
<td>88.69</td>
</tr>
</tbody>
</table>

The 57 full-time administrator respondents were divided into two approximately equal groups based on years of administrative experience in education. Group one contained 28 full-time administrators who had from 1 to 15 years of administrative experience in education. Group two consisted of 28 full-time administrators reporting from 17 to 30 years of administrative experience in education. Three full-time administrators did not complete this survey question and were omitted from the analysis of Research Question 6. The same procedure was used to determine scale means for administrators as was used for faculty in Research Question number 5. Of a possible scale mean range of 21 to 105, group one’s scale mean was 86.19; group two had a scale mean of 91.56. Table 11 displays the results of the t test conducted on the scale means for groups one and two to determine if
there was a difference in the perceptions between the two groups based on years of administrative experience.

A two-tail probability of .260 was calculated based on the t test for equality of means. There was not a statistically significant difference between group one and group two based on administrators' number of years of administrative experience in education.

Research Question 7: Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on major teaching area?

College transfer, technical, and vocational teaching areas were analyzed to determine if there was a difference in the perceptions of full-time teaching faculty regarding the appropriateness of the 1998 ECPE based on major teaching
area. A scale mean was calculated for each of the three major teaching areas. The scale means for college transfer, technical, and vocational teaching areas were: 90.95, 86.57, and 89.16 respectively. An Analysis of Variance (ANOVA) was run between the scale means of the three major teaching areas. Table 12 presents the results of the ANOVA conducted on Research Question 7.

**TABLE 12**

**FACULTY MEMBERS' PERCEPTIONS BASED ON MAJOR TEACHING AREA**

<table>
<thead>
<tr>
<th>College</th>
<th>Transfer</th>
<th>Technical</th>
<th>Vocational</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>62</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td>Scale mean</td>
<td>90.95</td>
<td>86.57</td>
<td>89.16</td>
</tr>
<tr>
<td>SD</td>
<td>12.29</td>
<td>15.97</td>
<td>13.87</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F Ratio</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>445.74</td>
<td>222.87</td>
<td>1.17</td>
<td>.313</td>
</tr>
<tr>
<td>Within Groups</td>
<td>115</td>
<td>21852.46</td>
<td>190.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>22298.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There was not a statistically significant difference in faculty members' perceptions of the appropriateness of the 1998 ECPE for assessing Virginia community colleges based on major teaching area. The F ratio of 1.17 indicates no two groups were significantly different at the .05 level.

Research Question 8: Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on major teaching area?

The teaching areas of college transfer, technical, and vocational were analyzed to determine if there was a difference in the perceptions of full-time administrators regarding the appropriateness of the 1998 ECPE based on major teaching area. A scale mean was determined and an Analysis of Variance (ANOVA) was run between the scale means of the three major teaching areas.

The data indicates a statistically significant difference in scale means for the administrators' perceived appropriateness of the 1998 ECPE based on major teaching area. The F ratio of 3.55 was significant at the .05 level, and the Scheffe post hoc analysis revealed a significant difference between the pairs of scale means: 94.88 for the college transfer teaching area and 78.80 for the technical teaching area. This indicates that there is a statistically
significant difference between the variable major teaching area and perceptions of the appropriateness of the 1998 ECPE for administrators in the college transfer and the technical teaching areas. Table 13 identifies the results of the ANOVA conducted to determine if there was a difference in the teaching area. Part of this statistically significant difference could possibly be attributed to their low rate of response with only 27 of the 57, 47.4%, administrators surveyed responding to this question. No statistically significant difference was noted in the perceptions of the appropriateness of the 1998 ECPE for administrators between the college transfer and vocational teaching areas or the technical and vocational teaching areas.

Research Question 9: Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on highest degree level earned?

The responses of full-time teaching faculty were analyzed to determine if their perceptions differ regarding the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on the highest degree level earned. The survey instrument provided the respondents with six levels for the highest degree level earned: high school...
### TABLE 13

**Administrators' Perceptions Based on Major Teaching Area**

<table>
<thead>
<tr>
<th>College</th>
<th>Transfer</th>
<th>Technical</th>
<th>Vocational</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>17</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Scale mean</td>
<td>94.88(_a)</td>
<td>78.80(_b)</td>
<td>90.00</td>
</tr>
<tr>
<td>SD</td>
<td>9.10</td>
<td>19.78</td>
<td>11.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F Ratio</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>1005.44</td>
<td>502.72</td>
<td>3.55</td>
<td>.045*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>24</td>
<td>3402.56</td>
<td>141.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>4408.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Scale means with different subscripts differ significantly at \( p < .05 \) in the Scheffe honestly significant difference comparison.

diploma or certificate, associate or less than a baccalaureate, baccalaureate, master's or first professional degree, educational specialists degree, or doctorate. Since no respondents were in the high school diploma or certificate level, this level was omitted from the analysis. A scale mean was calculated for each of the five remaining
highest degree levels earned. The scale means for associate or less than a baccalaureate, baccalaureate, master’s or first professional degree, educational specialists degree, or doctorate were: 81.83, 82.91, 89.00, 84.60, and 91.97 respectively. An analysis of variance (ANOVA) was the statistical test used to analyze the data for this question. Table 14 provides the results of the analysis conducted to determine if there was a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on highest degree level earned.

The F ratio of 1.32 was not statistically significant and no two groups were significantly different at the .05 level. There was no significant difference among full-time teaching faculty members’ perceptions, based upon the highest degree level earned.

Research Question 10: Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on highest degree level earned?

Responses for highest degree earned by full-time administrators were analyzed to determine if it influenced their perception of 1998 ECPE’s appropriateness for


<table>
<thead>
<tr>
<th></th>
<th>Associate or less than Bachelor's</th>
<th>Baccalaureate</th>
<th>Master's or first Professional Degree</th>
<th>Educational Specialists</th>
<th>Educational Doctorate</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>6</td>
<td>11</td>
<td>69</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Scale mean</td>
<td>81.83</td>
<td>82.91</td>
<td>89.00</td>
<td>84.60</td>
<td>91.97</td>
</tr>
<tr>
<td>SD</td>
<td>14.33</td>
<td>14.77</td>
<td>14.96</td>
<td>11.55</td>
<td>12.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F Ratio</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>1061.81</td>
<td>265.45</td>
<td>1.32</td>
<td>.268</td>
</tr>
<tr>
<td>Within Groups</td>
<td>116</td>
<td>23387.91</td>
<td>201.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>24449.72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
assessing Virginia community colleges. The survey instrument provided the respondents with six levels for the highest degree level earned: high school diploma or certificate, associate or less than a baccalaureate, baccalaureate, master’s or first professional degree, educational specialists degree, or doctorate. Since no respondents were in the high school diploma or certificate level or the associate or less than a baccalaureate level, these two levels were omitted from the analysis. A scale mean was calculated for each of the four remaining highest degree levels earned. The scale means for baccalaureate, master’s or first professional degree, educational specialists degree, or doctorate were: 96.00, 89.10, 72.75, and 91.97 respectively. An analysis of variance (ANOVA) was the statistical test used to analyze the data for this question. Table 15 provides the results of the analysis conducted to determine if there was a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on highest degree level earned.

The F ratio of 1.57 was not statistically significant, and no two groups were significantly different at the .05 level. There was no significant difference in full-time
TABLE 15
ADMINISTRATORS' PERCEPTIONS BASED ON HIGHEST DEGREE LEVEL EARNED

<table>
<thead>
<tr>
<th>Master's or first</th>
<th>Educational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baccalaureate</td>
<td>Professional Degree</td>
</tr>
<tr>
<td>n</td>
<td>1</td>
</tr>
<tr>
<td>Scale mean</td>
<td>96.00</td>
</tr>
<tr>
<td>SD</td>
<td>21.66</td>
</tr>
</tbody>
</table>

Source df  ss  ms  F Ratio  Significance of F

Between Groups 3  1376.00  458.67  1.57  .207
Within Groups 51  14855.53 291.28
Total 54  16231.53
administrators' perceptions based upon highest degree level earned.

Research Question 11: Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on college enrollment by full-time equivalent (FTE) student?

The responses of full-time teaching faculty were analyzed to determine if there were differences in their perceptions of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on college enrollment by FTE students. College enrollment was divided into categories by FTE. The five categories were: 0 - 1,000 FTE students, 1,000 - 2,000 FTE students, 2,001 - 3,000 FTE students, 3,001 - 4,000 FTE students, and over 4,000 FTE students. A scale mean was calculated for each of the five categories of college enrollment. The scale means for the five categories were: 85.50, 87.12, 91.76, 84.14, and 89.72 respectively. An analysis of variance (ANOVA) was the statistical test used to analyze the data for Research Question 11. Table 16 displays the results of the analysis conducted to determine if there was a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s
### TABLE 16

FACULTY MEMBERS' PERCEPTIONS BASED ON COLLEGE ENROLLMENT

<table>
<thead>
<tr>
<th>Enrollment Range</th>
<th>FTE Students</th>
<th>0 - 1,000</th>
<th>1,001 - 2,000</th>
<th>2,001 - 3,000</th>
<th>3,001 - 4,000</th>
<th>Over 4,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scale mean</td>
<td>85.50</td>
<td>87.12</td>
<td>91.76</td>
<td>84.14</td>
<td>89.72</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>16.11</td>
<td>15.59</td>
<td>9.51</td>
<td>21.00</td>
<td>14.17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F Ratio</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>608.77</td>
<td>152.19</td>
<td>.74</td>
<td>.569</td>
</tr>
<tr>
<td>Within Groups</td>
<td>113</td>
<td>23362.08</td>
<td>206.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>23970.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
appropriateness for assessing Virginia community colleges based on college enrollment.

The F ratio of .74 was not statistically significant, and no two groups were significantly different at the .05 level. There was no significant difference in the perceptions of full-time teaching faculty based college enrollment.

Research Question 12: Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on college enrollment by full-time equivalent (FTE) students?

The responses from full-time administrators were analyzed to determine if there were differences in their perceptions of the 1998 ECPE's appropriateness for assessing Virginia community colleges based on college enrollment by FTE students. College enrollment was divided into five categories by FTE. A scale mean was calculated for each of the five categories of college enrollment. The scale means for the five categories of 0 - 1,000 FTE students, 1,001 - 2,000 FTE students, 2,001 - 3,000 FTE students, 3,001 - 4,000 FTE students, and over 4,000 FTE students were: 86.60, 93.73, 89.00, 90.88, and 83.56 respectively. Table 17 displays the results of the analysis of variance.
| TABLE 17 |
|---|---|---|---|---|---|
| **ADMINISTRATORS' PERCEPTIONS BASED ON COLLEGE ENROLLMENT** |
| 0 - 1,000 | 1,001 - 2,000 | 2,001 - 3,000 | 3,001 - 4,000 | Over 4,000 |
| FTE Students | FTE Students | FTE Students | FTE Students | FTE Students |
| n | 5 | 22 | 2 | 8 | 18 |
| Scale mean | 86.60 | 93.73 | 89.00 | 90.88 | 83.56 |
| SD | 16.49 | 12.25 | 19.80 | 9.25 | 24.16 |

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F Ratio</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>1080.64</td>
<td>270.16</td>
<td>.89</td>
<td>.476</td>
</tr>
<tr>
<td>Within Groups</td>
<td>50</td>
<td>15150.88</td>
<td>303.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>16231.52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(ANOVA) conducted to determine if there was a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on college enrollment.

The F ratio of .89 was not statistically significant, and no two groups were significantly different at the .05 level. There was no significant difference in the perceptions of full-time administrators based upon college enrollment.

Research Question 13: Is there a difference in perceptions of full-time teaching faculty regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on age?

The 129 full-time teaching faculty respondents were divided into two groups based on age. Group one contained 54 full-time teaching faculty with a age range of 30 to 50 years. Group two consisted of 61 full-time teaching faculty with age ranging from 51 to 64 years. Fourteen full-time teaching faculty did not answer this survey question and were omitted from the analysis of Research Question 13. A scale mean was calculated for groups one and two. Each group’s scale mean had a possible range of 21 to 105. Group one had a scale mean of 88.00, and group two’s scale mean was 89.30. A t test was conducted on the scale means for
group one and group two to determine if there was a significant difference in the perceptions of the two groups. Table 18 provides the comparison between the two groups based on age.

The t test for equality of means resulted in a two-tail probability of .628. The findings do not indicate a statistically significant difference between group one and group two based on the age of faculty.

TABLE 18
FACULTY MEMBERS’ PERCEPTIONS BASED ON AGE

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Scale</th>
<th>Degree of 2-Tail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Group 1 (30-50 years)</td>
<td>54</td>
<td>88.00</td>
</tr>
<tr>
<td>Group 2 (51-64 years)</td>
<td>61</td>
<td>89.30</td>
</tr>
</tbody>
</table>

Research Question 14: Is there a difference in perceptions of full-time administrators regarding the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges based on age?

The 57 full-time administrative respondents were divided into two approximately equal groups based on age.
Group one contained 23 full-time administrators with an age ranging from 30 to 52 years. Group two had 25 full-time administrators reporting an age range of 53 to 65 years. Nine full-time administrators did not complete this survey question and were omitted from the analysis of Research Question 14.

A scale mean was calculated for administrators in group one and group two. Group one’s scale mean was 90.17; group two had a scale mean of 89.72. The t test was used as the statistical test to analyze the scale means for groups one and two. Table 19 provides the comparison between the two groups based on age.

A two-tail probability of .922 was calculated based on the t test for equality of means. No statistically

TABLE 19
ADMINISTRATORS’ PERCEPTIONS BASED ON AGE

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>N</th>
<th>Scale Mean</th>
<th>SD</th>
<th>Degree of</th>
<th>2-Tail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Freedom</td>
</tr>
<tr>
<td>Group 1 (30-52 years)</td>
<td>23</td>
<td>90.17</td>
<td>16.69</td>
<td>.10</td>
<td>46</td>
</tr>
<tr>
<td>Group 2 (53-65 years)</td>
<td>25</td>
<td>89.72</td>
<td>15.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
significant differences were found between groups one and two based on the age of administrators.

Research Question 15: Is there a difference between the perceptions of full-time teaching faculty and full-time administrators with regard to the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges?

One hundred twenty-two of 129 total full-time teaching faculty and 55 of 57 total full-time administrators participating in this study completed all 21 requested responses for the 18 items on the 1998 ECPE survey instrument. The seven full-time teaching faculty and two full-time administrators who did not complete all 21 responses for the 18 items of the 1998 ECPE were omitted from the analysis of Research Question 15. Full-time teaching faculty responses were compared to full-time administrators responses to determine if there was a difference between these two groups based on their perceived appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges.

A scale mean was calculated for group one, full-time teaching faculty, and for group two, full-time administrators. Group one's scale mean was 88.74; group two had a scale mean of 89.16. The t test was used as the
A statistical test was used to analyze the scale means for groups one and two. Table 20 provides the results of the perceptions of full-time teaching faculty and full-time administrators on the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges.

A two-tail probability of .864 was calculated based on the t test for equality of scale means of the two groups. No statistically significant differences were found between groups one and two. This scale mean analysis compares favorably with the faculty mean of 4.01 and the administrator mean of 4.00 for Item 19 on the overall perception of the instrument.

**TABLE 20**

**COMPARISON OF FACULTY MEMBERS’ AND ADMINISTRATORS’ PERCEPTION OF THE APPROPRIATENESS OF THE 1998 EDUCATION CRITERIA FOR PERFORMANCE EXCELLENCE**

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>Scale Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Degree of Freedom</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>88.74</td>
<td>14.25</td>
<td></td>
<td>.17</td>
<td>175</td>
</tr>
<tr>
<td>Administrators</td>
<td>89.16</td>
<td>17.34</td>
<td></td>
<td>.864</td>
<td></td>
</tr>
</tbody>
</table>

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Research Question 16: What additional or revised criteria, if any, are recommended by full-time teaching faculty and full-time administrators to be added to those criteria contained in the 1998 ECPE for the assessment of Virginia community colleges?

Suggestions for additional or revised criteria presented by respondents are listed based on the seven categories of the 1998 ECPE. Recommended additional items or other suggestions are as follows:

I. LEADERSHIP

A. Item 1 - Leadership System: Assess the college’s leadership system and how senior leaders guide the college in setting directions and in developing and sustaining effective leadership throughout the organization. This should not be limited to “senior’s” only.

B. Assess goal accomplishment and mission concurrently.

C. Item 2 - Public Responsibility and Citizenship: Assess how the college addresses its responsibilities to the public and how the college practices good citizenship. This item needs to be tied directly to the stated mission of the community college.
II. STRATEGIC PLANNING
A. Assess who makes/contributes to college strategy.
B. Assess the number of students who fall into F/W/D - failed, withdrew, dropped - categories over time.
C. Future assessment of secondary institutions could be desirable for strategic goals planning.
D. Item 4b - College Strategy: Assess how the college's performance projects into the future relative to current performance, comparisons, and/or key benchmarks. It was recommended that this item be discarded.

III. STUDENT AND STAKEHOLDER FOCUS
A. Directly address how colleges evaluate the needs of our industrial and business customers.
B. Assessment of the community and its goals for its children/adults is beneficial to strategic planning.

IV. INFORMATION AND ANALYSIS
A. Items 7 - Selection and Use of Information and Data: Assess the college's selection, management, and use of information and data needed to support key college processes and action plans, and to
improve college performance; and item 8, Selection and Use of Comparative Information and Data: Assess the college’s selection, management, and use of comparative information and data to improve the college’s overall performance. Respondents stated that the two items were too much alike.

V. FACULTY AND STAFF FOCUS

A. Item 10 - Work Systems: Assess how all faculty and staff contribute to achieving the college’s performance and student focus objectives through the college’s work design, and compensation and recognition approaches. Respondents recommended breaking this item into two or three statements and include part-time faculty.

B. Item 11 - Faculty and Staff Education, Training, and Development: Assess how the college’s education and training support the accomplishment of key college action plans and address college needs, including building knowledge, skills, and capabilities, and contributing to improved faculty and staff performance and development. One respondent suggested substituting assist/enhance for the word support. A second respondent suggested faculty and
staff education and training should include areas of industrial interests and expertise, not just in technological skills. A third respondent suggested this item should include part-time faculty.

C. Item 12 - Faculty and Staff Well-Being and Satisfaction: Assess how the college maintains a work environment and work climate that support the well-being, satisfaction, and motivation of faculty and staff. It was recommended to include part-time faculty in this item.

VI. EDUCATIONAL AND SUPPORT PROCESS MANAGEMENT
A. Assess the assessor, does he/she have the ability and skills to know what a teacher is doing?

VII. COLLEGE PERFORMANCE RESULTS
A. Item 15 - Student Performance Results: Summarize student performance results. It was suggested to include college transfer rates and alumni surveys after five years.
CHAPTER 5
SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This chapter includes a summary, findings, conclusions, implications, and recommendations. The chapter summary is based upon the analysis of data presented in Chapter 4.

Summary of Procedures

This study was conducted to determine if full-time teaching faculty and full-time administrators perceived the Malcolm Baldrige National Quality Award (MBNQA) 1998 Education Criteria for Performance Excellence (ECPE) an appropriate instrument for assessing Virginia community colleges. The study included an investigation of the perceived appropriateness of the 1998 ECPE based on the 18 items of the ECPE, institutional characteristic, and individual demographics.

A survey instrument was developed based on the 1998 ECPE and mailed to a sample drawn from a total population of full-time teaching faculty and full-time administrators in Virginia’s community colleges. Surveys were mailed to 270 full-time teaching faculty and to 90 full-time administrators. Completed surveys were received from 129
full-time teaching faculty and 57 full-time administrators. These data were used to conduct a statistical analysis of the study.

A variety of statistical tools was used to analyze the data. Frequency distributions and percentages were used to report the descriptive data. Means were used to report responses to research questions number 1, 2, 3, and 4. A t test was used to compare the scale means for research questions number 5, 6, 13, 14, and 15. An analysis of variance (ANOVA) was conducted on research questions number 7, 8, 9, 10, 11, and 12. A Scheffe post hoc analysis was conducted after each ANOVA.

Findings

Demographics of Respondents

1. Years of experience in education. Full-time teaching faculty had a mean of 20.4 years experience in education that ranged from 3 to 38 years. The range for full-time administrators was from 1 to 30 years, with a mean of 15.3 years in educational administration.

2. Major teaching area. A majority of full-time teaching faculty, 52%, reported college transfer as their major teaching area. Of the 47.4% of full-time administrators who answered this question, a majority,
29.8%, reported college transfer as their major teaching area.

3. Highest degree level earned. Relatively speaking, administrators had a higher percentage of advanced degrees than did faculty members. Fifty-two point six percent of administrators report the doctorate as the highest degree earned. The corresponding percentage for faculty was 24%. The majority of faculty, 56.6%, reported a master’s or first professional degree as their highest degree level earned.

4. College enrollment. From the five college enrollment classifications, the over 4,000 FTE students classification contained the largest percentage of faculty respondents, 47%. Administrators with a college enrollment of 1,001 - 2,000 FTE students represented 40.4% of the total administrative respondents.

5. Age. The age of faculty ranged from 30 to 64 years, with a mean of 50.0 years. Administrators had an age range from 30 to 65 years and a mean of 51.92 years. The mean age for administrators was 1.92 years greater than the mean age for the faculty.

Research Questions

The answers to research question number 1 for faculty and research question number 2 for administrators reveal that faculty and administrators perceived the 1998 ECPE as
"somewhat appropriate" for assessing Virginia community colleges. The faculty had a mean of 4.01 for their question on the overall perceived appropriateness of the 1998 ECPE. Administrators had a mean of 4.00 for their question on the overall perceived appropriateness of the 1998 ECPE.

Research question number 3 for faculty and research question number 4 for administrators sought to determine the degree that faculty and administrators perceived each of the 18 items on the 1998 ECPE appropriate for assessing Virginia community colleges. Based on the means for each of the 18 items, faculty and administrators perceived the 18 items on the 1998 ECPE as "somewhat appropriate" for assessing Virginia community colleges. Means for each of the 18 items for faculty and administrators were in the range of 4.02 to 4.53.

Hypotheses

The following hypothesis were formulated from research questions number 5 through 15.

Hypothesis 1: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 Education Criteria for Performance Excellence (ECPE) for assessing Virginia community colleges based on years of teaching experience in education. The
research data from this study do not support the rejection of Hypothesis One.

Hypothesis 2: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on years administrative experience in education. The research data from this study do not support the rejection of Hypothesis Two.

Hypothesis 3: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on major teaching area. The research data from this study do not support the rejection of Hypothesis Three.

Hypothesis 4: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on major teaching area. The research data from this study support rejection of Hypothesis Four.

Hypothesis 5: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on highest degree level earned. The
research data from this study do not support the rejection of Hypothesis Five.

Hypothesis 6: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on highest degree level earned. The research data from this study do not support the rejection of Hypothesis Six.

Hypothesis 7: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on college enrollment. The research data from this study do not support the rejection of Hypothesis Seven.

Hypothesis 8: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on college enrollment. The research data from this study do not support the rejection of Hypothesis Eight.

Hypothesis 9: There is no difference in perceptions among full-time teaching faculty of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on age. The research data from this study do not support the rejection of Hypothesis Nine.
Hypothesis 10: There is no difference in perceptions among full-time administrators of the appropriateness of the 18 items of the 1998 ECPE for assessing Virginia community colleges based on age. The research data from this study do not support the rejection of Hypothesis Ten.

Hypothesis 11: There is no difference between the perceptions of full-time teaching faculty and full-time administrators with regard to the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges. The research data from this study do not support the rejection of Hypothesis Eleven.

Conclusions

This study is limited to a sample drawn from a total population of full-time teaching faculty and full-time administrators in Virginia’s community colleges, so generalizations may not be made to other populations. The following conclusions were derived from the results of this study.

1. Full-time teaching faculty and full-time administrators on average perceived the 1998 ECPE as “somewhat appropriate” for assessing Virginia community colleges.

2. Full-time teaching faculty and full-time administrators perceived each of the 18 items of the 1998
ECPE as "somewhat appropriate" for assessing Virginia community colleges.

3. Years of experience in education were not a factor in full-time teaching faculty members' or full-time administrators' perceptions of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.

4. The major teaching area was not a factor in full-time teaching faculty members' perceptions of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.

5. The major teaching area was a factor in full-time administrators' perceptions of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.

6. The highest degree level earned did not factor into full-time teaching faculty members' or full-time administrators' perception of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.

7. College enrollment by full-time equivalent (FTE) students did not factor into full-time teaching faculty members' or full-time administrators' perceptions of the 18 items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.
items of the 1998 ECPE's appropriateness for assessing Virginia community colleges.

8. Age was not a factor in full-time teaching faculty members' or full-time administrators' perceptions of the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges.

9. There was no statistically significance difference between the perceptions of full-time teaching faculty and full-time administrators with regard to the 18 items of the 1998 ECPE’s appropriateness for assessing Virginia community colleges.

**Implications**

1. Community colleges in Virginia planning to implement the 1998 ECPE need to consider the differences in the perceptions of full-administrators based upon major teaching area of the appropriateness of the 18 items of the 1998 ECPE.

2. While faculty and administrators rated the 1998 ECPE as "somewhat appropriate," community colleges in Virginia considering starting a program based on the 1998 ECPE should benefit from a review of this study's findings. According to review of the literature, several educational institutions have successfully implemented quality improvement programs at their institutions and offer suggestions and
recommendations for other institutions to follow as presented in the literature review.

**Recommendations**

1. This study is limited to full-time teaching faculty and full-time administrators in the Virginia Community College System. A replication of this study should be conducted at community colleges in other states to increase the generalizability of the findings to a larger population.

2. Assuming that the ECPE's criteria are periodically revised as planned, a replication of this study using the revised criteria should be conducted.

3. The cost-benefit ratio of implementing the Malcolm Baldrige National Quality Award 1998 Education Criteria for Performance Excellence should be a topic for future research.
REFERENCES


118

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20899-0001.)

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APPENDICES
APPENDIX A

Survey Instrument
A Survey on the Perceived Appropriateness of the 1998 Education Criteria for Performance Excellence as an Instrument for Assessing Improvement in Virginia's Community Colleges

The purpose of this survey is to determine your views on the Malcolm Baldrige National Quality Award 1998 Education Criteria for Performance Excellence as an appropriate instrument for assessing improvement in Virginia's Community Colleges.

You are not being asked to evaluate your community college based on these items. Instead, you are asked to evaluate each criterion based on your perception of its appropriateness for assessing the degree of improvement at your individual community college.

If you believe additional items are needed, please write these at the end of each category. Thank you, in advance, for completing this survey.

Section I - Categories and Items

Instructions: The following seven categories contain a total of 18 items or areas to address when assessing a college's performance. For each item, please circle the number that best represents how appropriate you perceive the item would be for assessing an institution's current operation (1 = highly inappropriate and 5 = highly appropriate).

I. LEADERSHIP

1. Leadership System: Assess the college's leadership system and how senior leaders guide the college in setting directions and in developing and sustaining effective leadership throughout the organization.

   1  2  3  4  5  
   Highly Inappropriate Somewhat Inappropriate Undecided Somewhat Appropriate Highly Appropriate

2. Public Responsibility and Citizenship: Assess how the college addresses its responsibilities to the public and how the college practices good citizenship.

   1  2  3  4  5  
   Highly Inappropriate Somewhat Inappropriate Undecided Somewhat Appropriate Highly Appropriate

Recommended additional Items or other suggestions:

II. STRATEGIC PLANNING

3. Strategy Development Process: Assess how the college sets strategic directions to better address key student and stakeholder needs and college performance requirements.

   1  2  3  4  5  
   Highly Inappropriate Somewhat Inappropriate Undecided Somewhat Appropriate Highly Appropriate

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4a. **College Strategy:** Summarize the college's strategy and action plans, how they are deployed, and how performance is tracked. This should include key performance requirements and measures, and an outline of related faculty and staff resource plans.

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4b. **College Strategy:** Assess how the college's performance projects into the future relative to current performance, comparisons, and/or key benchmarks.

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Recommended additional items or other suggestions:

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III. STUDENT AND STAKEHOLDER FOCUS

5a. **Knowledge of Student Needs and Expectations:** Assess how the college determines longer-term requirements, expectations, and preferences of students and future students.

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5b. **Knowledge of Student Needs and Expectations:** Assess also how the college uses this information to understand and anticipate needs and to create an overall climate conducive to learning for all students.

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6. **Student and Stakeholder Satisfaction and Relationship Enhancement:** Assess how the college determines and enhances the satisfaction of its students and stakeholders to build relationships, to improve current educational services, and to support planning.

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Recommended additional items or other suggestions:

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IV. INFORMATION AND ANALYSIS

7. **Selection and Use of Information and Data:** Assess the college's selection, management, and use of information and data needed to support key college processes and action plans, and to improve college performance.

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8. **Selection and Use of Comparative Information and Data:** Assess the college's selection, management, and use of comparative information and data to improve the college's overall performance.

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9. **Analysis and Review of College Performance:** Assess how the college analyzes and reviews overall performance to assess progress relative to plans and goals and to identify key opportunities for improvement.

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Recommended additional Items or other suggestions:

V. FACULTY AND STAFF FOCUS

10. **Work Systems:** Assess how all faculty and staff contribute to achieving the college's performance and student focus objectives through the college's work design, and compensation and recognition approaches.

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11. **Faculty and Staff Education, Training, and Development:** Assess how the college's education and training support the accomplishment of key college action plans and address college needs, including building knowledge, skills, and capabilities, and contributing to improved faculty and staff performance and development.

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12. **Faculty and Staff Well-Being and Satisfaction**: Assess how the college maintains a work environment and work climate that support the well-being, satisfaction, and motivation of faculty and staff.

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Recommended additional Items or other suggestions:

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**VI. EDUCATIONAL AND SUPPORT PROCESS MANAGEMENT**

13a. **Education Design and Delivery**: Assess how educational programs and offerings are designed, implemented, and improved.

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13b. **Education Design and Delivery**: Assess also how delivery processes are designed, implemented, managed, and improved.

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14. **Education Support Processes**: Assess how the college's education support processes are designed, implemented, managed, and improved.

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Recommended additional Items or other suggestions:

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**VII. COLLEGE PERFORMANCE RESULTS**

15. **Student Performance Results**: Summarize student performance results.

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16. **Student and Stakeholder Satisfaction Results**: Summarize the college's student and stakeholder satisfaction and dissatisfaction results.

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17. **Faculty and Staff Results:** Summarize the college's faculty-and staff-related results, including faculty and staff well-being, satisfaction, and development.

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18. **College-Specific Results:** Summarize key college performance results that contribute to enhanced learning and/or operational effectiveness.

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Recommended additional items or other suggestions:

Section II - Overall Perception of the Instrument

Instruction: Please circle the number that best represents your perception of the appropriateness of the 1998 Educational Criteria for Performance Excellence as an instrument for assessing improvement (1 = highly inappropriate and 5 = highly appropriate).

19. What are your perceptions of the 18 items/criteria for assessing improvement in Virginia's community colleges?

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Section III - Demographic Information

Instructions: Please fill in the blank and/or circle the number that reflects your classification in each of these items.

VIII. DEMOGRAPHIC DATA

20. Years of teaching experience in education (teaching faculty members only)

21. Years of administrative experience in education (administrators only)

22. Major teaching area
   1. College transfer
   2. Technical
   3. Vocational
23. Highest degree level earned
   1. High school diploma or certificate
   2. Associate degree or less than a baccalaureate
   3. Baccalaureate
   4. Master's or first professional degree
   5. Ed.D.
   6. Doctorate

24. College enrollment
   1. 0 - 1000 FTE students
   2. 1001 - 2000 FTE students
   3. 2001 - 3000 FTE students
   4. 3001 - 4000 FTE students
   5. Over 4000 FTE students

25. Age

_____
APPENDIX B

Cover Letter to Survey Participants
Dear FIELD(Survey Participant):

I am a Professor of Business Administration at Virginia Highlands Community College and a doctoral student in the Educational Leadership and Policy Analysis Program at East Tennessee State University. As part of the requirements for the degree, I am required to write a dissertation. Your participation and input in this doctoral effort is requested. My dissertation topic is:


You were selected to participate in this study from a list of full-time teaching faculty and administrators in the Virginia Community College System. Though not affiliated with this study, the System’s office provided the list of names and granted me permission to conduct the study.

Although this survey has been coded to keep from sending a second response, your individual responses and your college will be kept strictly confidential. Research findings will be reported in aggregate under the following categories: full-time teaching faculty, full-time administrators and demographic classifications.

This survey should take approximately 10 – 15 minutes to complete. A self-addressed, postage paid, envelope is enclosed. I ask that you please return the survey by April 24, 1998.

Thank you in advance for taking the time and effort to complete this survey. If I can ever be of assistance to you, please feel free to contact me.

Sincerely,

Brent Joyce
2601 John B. Dennis Hwy.
Kingsport, TN 37660

April 27, 1998

Dear FIELD(Survey Participant):

I am enrolled in a doctoral program at East Tennessee State University. I am also gathering data to complete a dissertation. You were among the faculty and administrators from FIELD(College) that were randomly selected and mailed a survey instrument approximately two weeks ago.

Since I have not received your response, I assume you have not returned the survey. If you need an additional copy of the survey, please contact me by telephone at (540) 628-6094 or by e-mail at VHJOYCB@VH.CC.VA.US.

Your participation in the study will be greatly appreciated. I request that you complete and return the survey.

Thank you for your help. I really appreciate you taking the time and effort to help me with this request.

Sincerely,

Brent Joyce
APPENDIX D

Letter from the Acting Deputy Director Granting Permission
to use the 1998 Baldrige Education Criteria
March 4, 1998

Mr. Brent Joyce
Virginia Highlands Community College
P.O. Box 828
Abingdon, VA 24210

Dear Brent:

This letter is in response to your request to use the 1998 Baldrige Education Criteria as the basis of a survey for your Ph.D. thesis. Please feel free to distribute copies of the Criteria to the participants in your survey. We would appreciate it if you would include a statement indicating that permission has been granted by the National Quality Program and that additional copies are available off of the Baldrige web site at www.quality.nist.gov or by contacting the National Quality Program Office at (301) 975-2036.

We would also like to receive a copy of the results of your survey. Feedback from potential users is very important to our overall process of continuous improvement. This information will be factored into our annual revision process for the Criteria.

Best wishes for success in your thesis project. We look forward to seeing the final results.

Sincerely,

Barry L. Diamondstone
Acting Deputy Director
National Quality Program
VITA

DIXON BRET JOYCE

Education:  
Public Schools, Danbury, North Carolina  
Rockingham Community College, Wentworth, North Carolina; business administration, A.A.S., 1971  
Appalachian State University, Boone, North Carolina; business, B.T., 1973  
Appalachian State University, Boone, North Carolina; economics and business, M.A., 1975  
East Tennessee State University, Johnson City, Tennessee; educational leadership and policy analysis, Ed.D., 1998

Professional Experience:  
Assistant Stock Manager, Sears, Roebuck and Company, Greensboro, North Carolina, 1968-1969  
Section Supervisor, MacField Texturing, Madison, North Carolina, 1973-1974  
Associate Professor of Business Administration and Management, Mountain Empire Community College, Big Stone Gap, Virginia, 1975-1984  
Professor of Business Administration and Management, Virginia Highlands Community College, Abingdon, Virginia, 1984-present

Honors and Awards:  
Member of The Honor Societies of Phi Kappa Phi and Kappa Delta Pi.  
Graduated Cum Laude, Appalachian State University, B.T., 1975.