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# **UMI**

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**EFFECT OF VARIATIONS IN EMPLOYEE PERCEPTIONS  
OF TOTAL QUALITY MANAGEMENT IMPLEMENTATION  
ON INTERMEDIATE QUALITY OUTCOMES  
IN THE HEALTH CARE FINANCING ADMINISTRATION**

by  
**Vicki Anne Chilton**

**Dissertation submitted to the Faculty of the Graduate school  
of the University of Maryland in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
1996**

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## APPROVAL SHEET

Title of Dissertation: **Effect of Variations in Employee Perceptions of Total Quality Management Implementation on Intermediate Quality Outcomes in the Health Care Financing Administration**

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## ABSTRACT

Title of Dissertation: Effect of Variations in Employee Perceptions of Total Quality Management Implementation on Intermediate Quality Outcomes in the Health Care Financing Administration

Vicki A. Chilton, Doctor of Philosophy, 1996

Dissertation directed by: Dr. Marvin B. Mandell, Associate Professor of Policy Sciences, Policy Sciences Graduate Program, University of Maryland Baltimore County

According to TQM causal logic, the success of intermediate quality outcomes is critical to ultimate organizational success, such as external customer satisfaction. TQM is widely used in government settings, but little is known empirically about whether it works. This study contributes to empirical knowledge about the effects of TQM by examining its implementation in the Health Care Financing Administration (HCFA). The research analyzes the relationships between TQM interventions and five intermediate outcomes (dependent variables): job satisfaction, teamwork, trust, customer awareness (the extent to which employees regard others as customers), and customer feedback (the extent to which work units obtain and act on feedback from internal or external customers). The ten independent variables were: managerial commitment, empowerment, participatory management communication, coaching, discipline, participation on a quality council, participation on a quality improvement team, problem solving training, and TQM skills training. Nineteen background variables (exogenous factors and demographic) were controlled for.

Both quantitative and qualitative analyses were conducted in three major phases of research: (1) A written survey was administered to a stratified random sample of 721 managers and non-managers in four study bureaus (the response rate was 79 percent);

(2) semi-structured interviews were conducted with four Bureau Directors and 24 randomly selected non-managers and managers to elicit qualitative information concerning environmental/contextual factors that might affect variables measured; (3) The nature and type of TQM implementation elements were documented and described in detail using agency documents (meeting minutes, memos, charters, etc.), the 28 semi-structured interviews, and additional interviews with various agency officials.

Multiple regression results showed that managerial commitment, empowerment, participatory management, and communication strongly and positively affected job satisfaction, teamwork, and trust. Empowerment, participatory management, and coaching most consistently affected customer awareness. TQM-type skills training only emerged as a predictor of customer feedback.

The implications are that organizations implementing TQM should ensure strong managerial commitment to the effort. Organizations should ensure that employees are empowered to make decisions on their own and that they are highly involved in decision making. This research indicates that implementing TQM structures and training alone will not affect intermediate outcomes deemed critical to ultimate TQM success.



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## CHAPTER ONE

### INTRODUCTION

Cumulative evidence indicates a lack of satisfaction among federal government program beneficiaries and taxpayers--government's customers. An examination of general public opinion data indicates that federal government customers are largely *dissatisfied*. According to a 1988 survey, 69 percent of the population do not think the federal government is operated competently (which is more than the proportion that think so for either state or local government). Approximately one half of respondents said they think government should make more efforts to improve; one third say that government services should be turned over to the private sector (American Society for Quality Control 1988). Negative views of government persist with a steady downward trend of public faith in the federal government. In a 1994 poll, only 1 percent of the U.S. population thought that they could always trust the government in Washington to do what is right, and 19 percent said they could trust the government "most of the time" (Gallup 1995, 32). Meanwhile, 74 percent said the government can be trusted some of the time, and 5 percent said never (1 percent had no opinion). Nearly 40 years ago (in 1958), the percentages were reversed, with 73 percent saying that you can trust the government always or most of the time, and 23 percent saying some of the time (Gallup 1995, 32).

Concerning federal improvement efforts, 51 percent of Americans agree (44 percent disagree) that “when the federal government tries to change things in this country, they turn out worse, not better” (Gallup 1995, 228-229). Similarly, 55 percent of the population agree that “the government is trying to do too many things that should be left to individuals and business” (37 percent think the government should do more and 8 percent are unsure or mixed) (Gallup 1995, 174-175).

Citizens generally focus on negative experiences they have had with government, and tend to complain about government bureaucrats; in fact, the word bureaucrat is normally used in a pejorative sense (Goodsell 1994, 182). When a person refers to a bureaucrat, the image produced is rarely that of an effective, efficient, caring, quality-focused individual prepared to serve customer needs (Reynolds 1992, 39; Poister and Henry 1994, 155). Whether or not this perception accurately reflects government’s overall performance, federal bureaucrats have the image of people who do their jobs within the narrow confines of the system and are unconcerned about customers or quality (Cohen and Brand 1993, 53; Goodsell 1985, 10).

Though some evidence exists that federal bureaucracies are in many cases efficient and effective (Goodsell 1985), the public at large remains dubious that government agencies provide needed services in a timely and effective manner. United States citizens’ less than positive encounters with government entities have created a public that is increasingly antagonistic toward government (Doyle 1992, 151; Garrity 1993, 437), suggesting that if Total Quality Management principles (discussed later) are empirically sound, government entities could potentially greatly improve the satisfaction levels of its

customers. Given the volume of resources wielded by the federal government, if public opinion accurately reflects the reality of government effectiveness, the trends call for serious and radical action on the part of government bureaucracies.

The federal government is the largest employer in the United States, with approximately 5 million civilian and military personnel. The total operating budget (expenditures) of federal government installations exceeds \$1.4 trillion--nearly a quarter of the Gross National Product (President's Budget 1996). Clearly, in today's political and budgetary environment, infusing federal bureaucracies with more money is not a viable option for improving the quality of government service. Nor is cutting federal agency budgets particularly innovative, as this will likely result in getting less for less: fewer or slower services for fewer resources (Hartley and Tisdell 1981, 371). More creative methods are clearly needed for increasing the productivity and performance of government and the effectiveness and quality of government services within the confines of current, or declining resources, rather than the easy solution of reducing the workforce and demanding more from the remaining staff (George and Weimerskirch 1994, 1).

Like their counterparts in the private sector, federal government agencies are working toward improving the quality of products and services. An increasingly popular method intended to increase efficiency and quality in the private and public sectors is Total Quality Management (TQM) (White and Wolf 1995A, 204; Walters 1992, 38). A primary reason that government entities have chosen to implement TQM is to improve customer satisfaction (the ultimate goal of TQM) (Deming 1986; Griffiths 1990). TQM is a multidisciplinary management theory which utilizes and applies many of the approaches of



human relations management, such as participatory management and valuing employees (Gannon 1977, 40); strategic management; process analysis; issue analysis; and statistical analysis (Anderson, Rungtusanatham, and Schroeder 1994, 474). TQM also prescribes the use of two main types of tools: heuristics and scientific methods. Both contain techniques for analyzing quantitative data, such as production steps and time, processes, or survey data; and qualitative data. TQM tools are intended to be routinely used to analyze ideas generated in brainstorming (a heuristic tool); examine issues involved in decision making; or determine the source of errors, delays, or other difficulties (Flood 1993, 158-184; Electronic Systems Center 1993). Some of the key tools of TQM are defined in figure 1. TQM blends these tools and practices into a comprehensive systems approach which is quite different from implementing traditional management philosophies or statistical tools alone (Hackman and Wageman 1995, 319; Cohen and Brand 1993, 55; Hammons and Maddux, 1990, 15). One of the many formal, yet somewhat vague, descriptions of TQM is:

TQM means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training. This involves the continuous improvement of organizational processes, resulting in high quality products and services (Sashkin and Kiser 1993, 39).

The organizational culture described is attained, according to TQM, by establishing certain structural elements (such as Quality Councils) in the organization; implementing specific ways for managers and non-managers to behave, communicate, and operate within the formal and informal structure; and by applying TQM's techniques and practices. These implementation methods are described in more detail in chapter 2.

<b>Figure 1. Key TQM Tools and Approaches</b>	
<b>General Approaches</b>	<b>Description</b>
Plan-Do-Check-Act (PDCA) (also known as Continuous Improvement)	A method for improving work processes. PDCA is a cycle, consisting of planning a change or test, conducting the test (usually small scale), checking the effects of the test, acting on what was learned from the check, and repeating the cycle continuously with knowledge gained from previous cycles. Applying PDCA to improve performance is known as continuous improvement in TQM parlance (Sashkin and Kiser 1993, 44; Carr and Littman 1990a, 21-22), and is called kaizen by the Japanese (Imai 1986).
Quality Improvement Teams/ Project Action Teams/ etc.	Short term work groups that meet with the manager to discuss improvements in productivity or processes. The group applies problem solving and other tools to projects and present proposals to upper management (Atkinson 1990, 14).
Empowerment	Delegation of authority to employees to make decisions concerning improvement of processes within employees' respective areas of expertise and responsibility (Omachonu and Ross 1994, 30).
Customer Focus Groups/Surveys	Formal techniques for obtaining internal and/or external customer feedback on their needs, wants, and satisfaction levels.
<b>Heuristic Tools</b>	<b>Description</b>
Brainstorming	Used by groups to generate many ideas about work-related matters, such as sources of organizational difficulties, possible solutions, pros and cons, plans for the organization's future, etc. In brainstorming, judgement (verbal and non-verbal) is withheld in order to encourage creative thinking (Hackman and Wageman 1995, 314).
Affinity Diagram (Heuristic tool)	A form of brainstorming used to organize large amounts of qualitative data, such as ideas, issues, and opinions, into groups based on natural relationships between items (Oakland 1989, 125-126).
Fishbone Diagram (also called Ishikawa or cause-and-effect diagram)	Graphic tool which shows the relationship between causes and effects to assist in identifying root cause of a problem. Users brainstorm all factors affecting the issue, which are grouped into causes, effects, and categories, e.g., human, materials, and equipment. Arranging causes on each branch aids in generating root causes by listing reasons until necessary levels of detail are reached (Omachonu and Ross 1994, 246-247).
Flow Chart (also called systems flow or tree diagram)	Used to systematically map out the range of activities that must be accomplished to reach a desired goal. The diagram forces users to examine the logical and chronological link between tasks, which helps people to avoid the tendency to go directly from an issue statement to a solution (Oakland 1989, 126-127).

Figure 1--Continued.

Scientific Methods	Description
Pareto Analysis Chart	Used to identify major factors in a subject being analyzed and highlight the vital few in contrast to the trivial many (Electronic Systems Center 1993, 38).
Statistical Process Control (SPC)	A system of measuring variance in production to monitor consistency in performance and diagnose problems. SPC uses statistical data to make corrective actions rather than adjusting a production process whenever there is a variation in product or service quality. Using control charts, average output (of whatever is being measured) is plotted and upper and lower control limits are established. Measurements outside tolerance levels may indicate a need to adjustment machinery or human processes. SPC charts are used to determine whether process variation is due to common causes (unclear procedures or equipment incapability), or special causes (machine malfunctions or untrained workers). Once the nature of the variation is known, management can work to eliminate it (Atkinson 1990, 16-17; Carr and Littman 1990a, 21).

In the remainder of this chapter, an overview of TQM is provided, followed by a brief history of development of the approach and the history of the evolution of quality improvement efforts in the public sector. Since this research involves TQM in a government agency, TQM in government is described and the governmental arena is compared to the private sector. Concluding the chapter are discussions of the statement of the issue, the purpose of the study, and the significance of the research.

### Overview of TQM

Much of pro- or anti-TQM opinion is based on anecdotal evidence or blind personal belief in (or rejection of) the logic of the causal relationships presented in TQM, without a thorough or empirical examination of TQM's properties. Advocates of TQM contend, often without empirical evidence, that it offers many benefits. For example, outcomes are reported to be lower costs, enhanced employee pride in service and workmanship, and higher customer satisfaction (Wollner 1992, 35). Carr and Littman (1990a, 10), who have written extensively about TQM in the public sector, claim that implementing TQM saves 10 to 20 percent of operating budgets by reducing both monetary and non-monetary costs. While the return on investment in TQM can take several years to appear, TQM proponents universally maintain that the return is greater than any other an organization can make in quick-fix technology designed to enhance productivity, speed, or quality (Deming 1986; Jablonski 1991).

With TQM, there is a focus on reforming the system in which people operate and the basic way in which organizational members relate and work together (Scherkenbach 1991, 47-61). TQM is somewhat sociological in nature, as it is fundamentally about changing behaviors, including the way individuals think, interact, make decisions, and address challenges both individually and in groups (Garrity 1993, 454). Changing the way individuals and groups see others within and outside of the organization is a key TQM concept. Many individuals and groups external to the organization become regarded as customers, and others within the organization are seen as team members, partners, and/or customers, rather than competitors (Griffiths 1990). Treating groups or individuals as

customers and contractors as partners is a radically different way of thinking--especially for government workers (Cohen and Brand 1993, 30). Private sector workers and managers are well aware that they have customers; TQM broadens their awareness of who their customers are. Public sector workers have not historically thought of their agency as having customers. Adopting TQM requires them to shift their thinking on a basic level, and then broaden the concept of having customers and meeting customer needs to include colleagues, other departments, and the like (Murrin and Collamore 1991, 84). Experts stress that TQM is a holistic, system-based effort which requires continuous attention and maintenance (Shoop 1991, 17). As shown in the history discussion below, Japanese businesses understood the importance of taking a systems approach decades before American businesses did.

#### History of Total Quality Management Development

In the 1920s Walter Shewhart at Bell Labs developed several analytical techniques, such as Statistical Process Control (SPC) and the Plan-Do-Check-Act cycle, which have become some of the tools for TQM (Carr and Littman 1990a, 21). During World War II the United States War Department hired Shewhart's student, W. Edwards Deming, a mathematical physicist and researcher at the U.S. Department of Agriculture and Census Bureau, to teach SPC to the defense industry.

Since Deming's techniques were ignored in the U.S., after the war, he ended up helping with the Japanese restoration and teaching Japanese business leaders to apply SPC and quality control in their industries (Bank 1992, 61; Carr and Littman 1990a, 2; Hammons and Maddux 1990, 15). Along with Joseph M. Juran, Deming taught the

Japanese the importance of customer focus (Omachonu and Ross 1994, 94; America's Quality Coaches 1986, 5-6). In Japan, Kaoru Ishikawa helped create quality circles, the precursor of TQM teams. Quality circle teams began applying TQM methods and tools on a daily basis to continuously improve. Ishikawa enlarged the notion of involving all departments in quality control to include all employees, not just management (Carr and Littman 1990a, 23). Japanese management also empowered employee teams by relinquishing authority to plan and implement ideas (Carr and Littman 1990a, 24).

In the early 1980s, high quality Japanese products and their growing market share began to alert American businesses to the danger of losing world markets (Lynch 1991, 63). Deming's methods were highlighted in American business journals as key to Japan's success, but U.S. management did not understand the systems approach of TQM which focuses on management style, culture changes, and long term vision for the company. The success of foreign companies was attributed to the use of SPC and other techniques to build quality into products (Jablonski 1991).

From 1980 to 1985 American executives attempted to apply TQM's improvement tools separately rather than institute the fundamental cultural and systems-based change prescribed by TQM (Carr and Littman 1990a, 24; Hackman and Wageman 1995, 309). For example, SPC control charts were applied improperly and out of context of other TQM techniques--they were used to monitor employees instead of to help employees understand their processes and how to apply the information themselves (Jablonski 1991). According to Carr and Littman (1990a, 25), SPC failed in nearly all organizations because workers were not given authority to act on the information produced. Businesses also

applied quality circles without incorporating the concepts of building in quality and of worker input to procedures and processes (Hyde 1992, 28). Quality Circles in the U.S. floundered because they were confined to non-managers, rather than including a cross section of the organization.

Around 1985, companies began to comprehend that TQM is a holistic management philosophy and systems approach, not a set of isolated quality improvement tools (Carr and Littman 1990a; 25). American business leaders also began to understand that to implement TQM, a fundamental change in organizational culture was necessary (Jablonski 1991). Since that time, in the absence of cumulative amounts of empirical evidence concerning the effectiveness of TQM (Spencer 1994, 446), many U.S. companies have adopted TQM as an act of faith (Atkinson 1990, 10). A 1989 survey by the American Society for Training and Development found that 57 percent of all private U.S. companies have TQM as a strategic goal or policy. The remaining 43 percent anticipated adopting TQM within the next three years (Jablonski 1991, 2). As with many technological advancements and management approaches, government entities began to adopt TQM shortly after the private sector.

#### Evolution of Quality Improvement Efforts in the Public Sector

Various researchers point out that nearly all long-time government employees have experienced improvement attempts by political leadership or management which failed to reach their goals or dissipated over time as leadership changed or resistance to change eroded the effort. Government veterans have seen reform efforts such as Zero Base Budgeting, pay for performance, planning program budget system, Organizational

Development, Management by Objectives, Quality Circles, and many others in their careers (Cohen and Brand 1993, 55; Cox 1995, 89; Swiss 1992, 357). Reform efforts were usually accompanied by claims that they would assist government managers in allocating resources, improve rational analysis in policy making (Hartley and Tisdell 1981, 376; White and Wolf 1995a, 206), and greatly enhance government performance and service in some way (Cohen and Brand 1993, 55; Shoop 1991, 17; Radin and Coffee 1993, 43). The approaches attempted to direct government efforts toward end results and away from inputs and processes, whereas the concept of continuous improvement focuses primarily on improving internal processes. Many of these well intentioned programs had a number of difficulties when applied to government (Hartley and Tisdell 1981, 377-378). White and Wolf (1995a) point out that, with all of the previous approaches, the role of the organizational culture and the role of the manager did not change, so the culture supported the continued belief that it is management's job to monitor and control people. The series of improvement approaches felt to workers and management like more of the same, thereby dampening any potential for positive change (White and Wolf 1995a, 206). While some agency reform efforts, such as planning program budget system, continue with the support of top executives and reliance on quantification, many of the programs gradually disappeared (Feigenbaum 1993/94, 7).

Garrity (1993, 431-432) distinguishes these reform efforts from TQM by pointing out that TQM has all of the following attributes, many of which other reforms lack:

- 1) Focus on customer product and service satisfaction;
- 2) Recognizing quality as a presence of value rather than absence of defects;



- 3) Top management participation, direction, and support;
- 4) Employee involvement and responsibility;
- 5) Effective and renewed communication;
- 6) Cross-functional orientation and teamwork;
- 7) Analysis of management systems and procedures using standards, measures, and statistical tools;
- 8) A long term commitment to continuous process improvement;
- 9) Rewards and recognition for team, rather than individual, performance;
- 10) Training of the workforce in awareness, management, and other skills;
- 11) Achieving organizational discipline for practicing new behaviors and methods every day, forever; and
- 12) Developing a supporting (teamwork based) organizational culture.

It is unclear whether other non-TQM improvement programs actually lack all of these twelve attributes. Certainly a number of aforementioned reforms include one or more TQM-type elements, such as: top management participation, direction, and support; rewards and recognition for group performance; some degree of employee involvement and responsibility; effective communication; cross-functional orientation and teamwork; and analysis of management systems and procedures using statistical tools. TQM practitioners characterize the primary difference between the series of reforms historically applied in American government and TQM by pointing out that TQM combines a host of attributes in a multi-faceted (humanistic, behavioral, quantitative and qualitative analysis), systems-based way, rather than one or two specific tools or techniques. Some theorists report that TQM is different from previous reform efforts because the organizational

culture change, which is key to TQM, is aimed at changing the essence of how public bureaucracies have been managed for several decades (Radin and Coffee 1993, 44).

### TQM in Government

W. Edwards Deming, TQM's most famous founder, was clearly skeptical about the effectiveness of government service. He described government primarily as an obstacle to accomplishing effective and efficient work in private sector industries, such as automobile and banking (Deming 1986, 152-153). In fact, in discussions of governmental service (contained in Deming's chapter on diseases and obstacles), Deming (1986) said the following about government:

There is increasing concern within the professional civil service that the ability to attain constancy of purpose is becoming a lost cause. Having worked in the personnel field through four rapidly changing administrations with significantly divergent philosophies, we now see upheaval and total change in management every four years throughout the civil service system. Loss of continuity, efficiency, and job satisfaction are a natural consequence. The American public loses more and more with each attempt to improve (change) the career civil service system. The method for change has always been political, requiring approval of Congress, but we are now seeing major regulatory changes that enhance the potential for upheaval with each change of administration (Deming 1986, 120).

Deming further points out that, since many government agencies are so huge and complex, it is doubtful that they could respond to any needs or goals of society. He added that society's objectives are not stated in feasible, comprehensible forms anyway, and within this environment one cannot talk meaningfully about improvement as TQM defines it (Deming 1986, 120).

Despite these acknowledged obstacles to meaningful improvement (Cox 1995, 90), TQM began to spread from private U.S. corporations to all sectors of government throughout the mid- to late-1980s (Hammons and Maddux 1990, 15; Walters 1992, 38). Many public sector organizations, such as law enforcement, library services, medical care, patents and trademarks, public works, and tax collection, are working toward applying TQM principles (Cohen and Brand 1993; Dean and Bowen 1994, 393; Murrin and Collamore 1991, 85). Some of these organizations, such as the Air Force Material Command, Patent and Trademark Office,<sup>1</sup> and General Services Administration, are agencies that had been cited for inefficiencies, delays, and waste by the Grace Commission a decade ago (Kennedy and Lee 1984, 59; 73-74).

Approximately 30 states are implementing TQM in their state agencies, as are hundreds of cities (Cox 1995, 90). Federal government attention to TQM began in 1985 when President Reagan launched an initiative to improve productivity. Many federal executives concluded that TQM was the best strategy for meeting productivity and service goals (Murrin and Collamore 1991, 84). TQM continued with Vice President Al Gore's (1993) National Performance Review, which is characterized as a customer service contract with the American people and contains detailed objectives for putting customers first, empowering employees, holding employees and managers accountable for results, and eliminating non-value added activities. In a hope that TQM would be different from former quality improvement efforts, and in an attempt to improve internal processes and

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<sup>1</sup> The Air Force Material Command and Patent and Trademark Office each won the Presidential Award for Quality in the early 1990s.

service to program beneficiaries, the federal government is attempting to implement TQM in all parts of the executive branch (Carr and Littman 1990a, 13). According to a comprehensive GAO survey, about 68 percent of federal government installations are implementing TQM initiatives to some extent (U.S. General Accounting Office 1992, 9).

While TQM has been applied in many levels and agencies of government (Gitlow and Gitlow 1987, 7), implementation efforts in the public sector are sporadic and success cases are not as well known as those in the private sector (Radin and Coffee 1993, 52). Most large-scale implementation efforts in public agencies (over 10,000 employees) fail (Wollner 1992, 35). Most of TQM's success stories occur in relatively small organizations, suggesting that leaders who operate in large organizations should expect positive changes to occur in smaller subunits of the organization, such as regions, installations, divisions, or bureaus (Radin and Coffee 1993, 52).

Although TQM experts point out that the private sector experience with TQM shows that tools of TQM should not be applied piecemeal, a 1989 Coopers and Lybrand survey of federal executives showed that only one-third of the executives who said their organizations had started full implementation of TQM had actually completed all the preparation steps along the way (Carr and Littman 1990a, 25). In some public agencies, there has been confusion over what TQM is. The Social Security Administration, which attempted to start TQM in 1990, faltered and had to start over. Some offices were implementing it very close to its pure form (as described by Deming, Juran, Ishikawa, and other founders), while others implemented some aspects of TQM piecemeal, such as empowerment, participatory management, or SPC (Hackman and Wageman 1995, 314-

316; Shoop 1991, 18). As the federal government follows the private sector and continues to work toward implementing TQM, government agencies are facing some of the same survival threats and efficiency challenges of the private sector. However, the environments in which the two sectors operate are quite different in a number of ways, raising questions about the appropriateness of applying pure TQM in government.

#### Comparison to Private Sector Setting

Several similarities exist between private and public sectors, and the broad principles of TQM apply across activities in both sectors, despite the peculiarities of government (Murrin and Collamore 1991, 89). Organizations in all sectors contain individuals who are cynical, resistant to change, as well as those who are interested, and inspired (Murrin and Collamore 1991, 89). Federal organizations, like private sector firms, have objectives to accomplish, need knowledgeable, skilled, motivated employees to do so, and can be led more effectively by capable administrators who understand the internal organizational culture as well as the external environment (Garrity 1993, 436). Because resources are scarce (Nickson 1971, 3), decisions concerning how to allocate scarce resources in order to most efficiently and effectively accomplish goals are faced by both private and public sector executives (Hartley and Tisdell 1981).

Deming (1986) made no distinction between private and public industries, and believed that all industries are subject to the same principles of management (Deming 1986, xi). However, several authors refute the claim that TQM can be transferred without modification from the private to the public sector (Swiss 1992, 356; Rago 1994, 61; Radin and Coffee 1993, 45; Walters 1992, 41). Swiss (1992) maintains that while TQM has a

useful role in government, Deming's 14 points in their pure form require major modifications in order to apply them in a public sector arena. Many recent Deming followers and TQM experts in their own right make several distinctions between TQM application and principles in the private and public sectors, and recommend tailoring TQM strategies and guidelines to the incentive systems that exist (and those that are nonexistent) in the public sector, such as lack of a profit motive, relatively high job security, and political environments in which public sector organizations operate<sup>2</sup> (Reynolds 1992, 40). Most TQM analysts believe that TQM confronts a very different set of incentives and characteristics in the public sector than it met in its application in the private sector (Radin and Coffee 1993, 42). In addition to all the same barriers to implementing TQM that exist in the private sector (discussed in chapter 2), several characteristics of the public sector present unique challenges to implementing TQM in government settings:

Leadership Turnover. A risk of implementing TQM in the public sector is that the approach may be dismantled by the next administration (Krim and VanZandt 1994). There is frequent turnover of upper management in government due to changing political appointments and reorganization that comes with new administrations (Cox 1995, 100). Political appointees in Washington hold their positions for under two years on average (Murrin and Collamore 1991, 85). This is why practitioners recommend that organizations work toward making TQM practices an integral part of daily business, and

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<sup>2</sup>Deanne Sirmer, a partner in a Washington law firm who has served in government, is quoted as saying, "anyone who says workers and managers in the public and private sectors are just alike is crazy. That's like saying celery is like a giraffe" (Reynolds 1992, 40).

that career government managers, as well as political appointees, be included in the effort (Murrin and Collamore 1991, 86). Given that TQM relies on a continuous commitment to quality efforts from organizational leadership, frequent changes in management can disrupt both agency operations and TQM efforts (Radin and Coffee 1993, 51; Swiss 1992, 359). Frequently TQM efforts in public organizations end when officials dedicated to TQM depart (Walters 1992, 40). Given the criticality of top leadership commitment to the success of TQM, this could be a serious barrier (Walters 1992, 40). Cox (1995, 100) points out that “[i]f TQM has sufficiently broad support among senior officials [in classified positions], then the problem can be overcome.” As it has turned out, TQM has had support in the past two presidential administrations. It became known throughout federal offices in the Bush administration, and continues, manifested in large part in the National Performance Review, in the Democratic Clinton administration.

Job Security. Government employees have a much higher degree of job security than private sector employees because of civil service protections (Cox 1990, 91). Even with recent National Performance Review reforms, public sector managers do not have the same authority to fire people that exists in the private sector (Chase and Reveal 1983, 71; Reynolds 1992, 40). Thus, with the exception of top level political appointees, government executives are not usually threatened with possible loss of employment, and must decide whether or not there is a compelling reason to improve their services and whether the need requires a program like TQM (Shoop 1991, 19). Additionally, it is less likely that a government agency will go out of business entirely. Conversely, private sector firms possess authority to hire and fire and can fail if they do not compete

effectively. Private firms, therefore, frequently adopt TQM out of a fundamental need for survival (Murrin and Collamore 1991, 85), whereas that need, while present, is less urgent in government.

Primarily Non-manufacturing. Most government agencies produce services, but the use of SPC was originally tailored to routine process such as manufacturing where the product is tangible and statistical measurement is relatively straightforward. Some TQM practitioners claim that SPC and other measurement techniques do not lend themselves well to delivery of services (Swiss 1992, 358; Walters 1992, 38), making bottom line performance criteria harder to define and measure (Hartley and Tisdell 1981, 377; Garrity 1993, 435). However, several Federal Quality Institute award winners point out that any process can be measured, and that they in fact measure many processes (Collins 1994; Egan 1994; Pritchard 1994; Vetter 1994). Also, it is difficult to change the tendency to measure only inputs (such as whether an agency is spending more or less), rather than outputs or outcomes (such as response time to program beneficiaries' requests for information) (Doyle 1992, 32).

Customers Unclear. Definition of external customers in public organizations can be difficult and various customers can have competing interests (Murrin and Collamore 1991, 86; Swiss 1992, 358-359; Walters 1992, 41). The difficulty, according to several TQM authors, in defining customers makes it unclear what the goals of TQM should be (Warner 1993, 66; Radin and Coffee 1993, 48-49). An opposing point of view is contributed by Rago (1994, 61-62) who, based on experience in one agency, points out that identifying customers and customer interests in public service organizations is not as



ambiguous as some purport, even if there are multiple customer groups. Cox (1995) refers to a citizen service orientation rather than customer orientation because United States citizens and taxpayers in a democracy “of the people, by the people, and for the people” are much more important than mere private sector firm customers. The author implies that since, in the private sector, profit is always a higher priority than customer desires, and the notion that “the customer is always right” is contrary to profit making, it is more difficult for the private sector to practice TQM than it is for the public sector, which serves citizens (Cox 1995, 92-93). However, as seen below, many other theorists cite lack of a profit motive as a barrier to TQM implementation in government.

No Profit Motive. While the impetus in the private sector for increasing quality is to increase profits and stay in business, the public sector challenge is to promote equity and the public good, as well as to offer the customer (taxpayer) improved quality of public goods and services for lower costs (Hartley and Tisdell 1981, 378). In the public sector, additional customers normally bring additional costs rather than additional revenue as in the private sector (Rago 1994, 63). While government entities are clearly not in existence to earn profits, and do not require them to continue to stay in business, building the public trust and working toward the common welfare and equity among citizens is congruent with TQM principles of customer service focus, quality focus, empowerment of the workforce, and other constituents included in TQM (Cox 1995). The implication of lack of profit motive for TQM is that, unless government agencies see survival as threatened (which may be achieved by current budget cuts, questioning of agencies' value,

downsizing, and elimination of some federal departments/agencies), the need to implement sweeping changes associated with TQM may seem less urgent.

Legal Constraints. Private firms establish partnerships and long term relationships with suppliers based on both quality and cost. While performance can be a factor in government, awarding of contracts is governed by strict laws and regulations, and some contracts, by law, must be awarded to the lowest bidder, often neglecting past performance and quality of sought after products (White and Wolf 1995a, 220; Shoop 1991, 19; Hartley and Tisdell 1981, 349-350).

Media Focus. Risks of attempting TQM in the public sector are greater than those in the private sector because there is much greater media focus on public sector organizations, and media typically highlight negative stories (Chase and Reveal 1983, 146-148; White and Wolf 1995a, 219) featuring bad customer service or tax money wasted by government (Krim and VanZandt 1994, 9). If a mistake is made in the public sector, it is made publicly. For example, Krim and VanZandt (1994) point out that there are approximately ten reporters assigned to Boston's City Hall, which is embarking on TQM. Private sector firms are much less likely to have internal materials such as brainstorming lists or training skill sheets published in a front page story.

Political Arena. The highly politicized environment in the public sector (Chase and Reveal 1983, 16), where measurement of outputs can be politically controversial, and employees are relatively risk-averse and may be more inclined to work to rules than take risks by experimenting with new approaches, presents a particular challenge to TQM's focus on improving by attempting new methods (Radin and Coffee 1993, 46; Rago 1994,

63; Swiss 1992, 359). Additionally, politicians' short term vision makes it difficult for bureaucracies to commit to long term investments in quality improvement, such as TQM (Walters 1992, 42). An attitude of "fix it, fix it now, and fix it right the first time" prevails.

Despite the barriers to TQM that exist in government and accounts of failed efforts, TQM has reportedly helped a number of federal agencies streamline operations, improve the quality and timeliness of services to taxpayer customers, and cut costs (Penzer 1991, 29). Even Deming cites some examples of excellence in quality and productivity in federal agencies, such as the Census Bureau, the Bureau of Customs, and the Department of Education (Deming 1986, 206-210). Many military installations have adopted TQM (Murrin and Collamore 1991, 84). In fact, three of the last four Presidential Awards for Quality winners have been a branch of the military, and the winners of the Quality Improvement Prototype Award are predominantly military, as are the award finalists (Federal Quality Institute 1995). The Department of Defense has reportedly achieved great improvements in overall performance through empowerment of its employees (Morgan and Murgatroyd 1994, 147). About a decade ago, the Department of the Navy began investigating TQM applications in the public and private sectors and reviewed Deming's teachings to begin their own implementation (Doherty 1994). The Navy has been struggling with defining and serving customers, empowering employees, and translating private sector lessons to their own setting. The Navy now has Total Quality Leadership which it defines as "the application of quantitative methods and knowledge of people to assess and improve all materials provided to an organization, all

significant processes in an organization, and meeting the needs of the end user, now and in the future" (Doherty 1994, 47). Military installations generally apply quantitative techniques to measure failure and success rates of airplane components and other tangible parts (Collins and Teal 1994).

The Internal Revenue Service has established approximately 1,400 quality improvement teams since 1986, and estimates that completed projects have saved \$27 million. Other efforts have improved operations for IRS customers. For example, IRS eliminated the need to submit a form to obtain an extension of time to file forms (Murrin and Collamore 1991, 85). The Department of Commerce's National Oceanographic Data Center implemented TQM in response to a budget cutting crisis in the mid-1980s. Over the late 1980s and early 1990s, while its unit costs dropped 75 percent, the center has handled a fourfold increase in data and has cut the time it takes to get needed information to the public by 40 percent (Murrin and Collamore 1991, 85). A Veterans' Hospital in Kansas City, Missouri instituted TQM in 1985 and later experienced a 20 percent drop in mortality rates, a 15 percent drop in length of stay, and a 50 percent reduction in the time it takes to fill a prescription (Murrin and Collamore 1991, 86). These reported gains, however, were not subjected to rigorous empirical testing to determine causality.

#### Statement of the Issue

While the core elements remain the same, TQM has different manifestations in each private sector business or public sector entity in which it is introduced and implemented. The precise nature of TQM practices and implementation speed and style usually vary by setting; it is acknowledged by TQM experts that organizations should

tailor implementation to their own organizational environment, maturity level, and size of the organization (Deming 1986). Generally, the larger an organization is, the longer it takes for identifiable signs of success to appear; sometimes complete success is not fully evident for over a decade (Atkinson 1990, 12). For example, at British Telecom, it took several years for a cultural change to occur and to see signs of success (Atkinson 1990, 12). TQM initiatives differ to some extent because of unique cultures, quality methods employed, and different management styles (Atkinson 1990, 12). Organizations have different technology, different histories, serve different markets, have different products and services, and employ individuals with different cultural backgrounds and education levels (Jablonski 1991, 8).

TQM advocates strongly believe that it is urgent that government adopt TQM because government agencies have not learned how to do more with less, and in today's budgetary environment there will be fewer resources with which to serve growing program beneficiary demands for service and quality (Murrin and Collamore 1991, 84; White and Wolf 1995b, 307). Concerning the merit of applying TQM in the public sector, Radin and Coffee (1993) state that "few would allege that those who are to be serviced by the laws of the land should not get what is intended for them both efficiently and at the highest quality level" (Radin and Coffee 1993, 44). TQM proponents claim that TQM could be the best way to improve federal public services and get higher quality and quantity outputs per tax dollar (Carr and Littman 1990a). However, the fact remains that most reports of success are not based on data analysis or empirical studies. Although there are extensive efforts to implement TQM in government organizations, little is known

about the success of these implementation efforts (Dean and Bowen 1994, 393). The literature on TQM contains primarily definitions and descriptions of TQM approaches and techniques, prescribed methods of practicing TQM based on opinion or personal experience, anecdotal lessons learned, case studies of TQM application in public or private organizations, and has an advocacy orientation (Berman and West 1995, 57). The dearth of empirical literature on the effects of various TQM implementation efforts in private or public sector organizations (Wilson and Durant 1994, 137) seriously inhibits practitioners' ability to claim that if certain specific steps are taken, certain results will most likely ensue.

Public policy makers need to understand the effects of variations in TQM interventions prior to investing additional resources in pursuing courses of action recommended by TQM. In this study, the Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services, was utilized to conduct a natural experiment to determine the effects of variations in perceived TQM interventions on intermediate outcomes that are believed to lead to enhanced quality of services. HCFA administers the Medicare and Medicaid programs, which are national health insurance programs for the aged, disabled, and many of the nation's poor. Medicare provides health care for 37 million beneficiaries, and Medicaid (which is administered jointly by the states), has 35 million beneficiaries. HCFA's total outlays (including not only Medicare and Medicaid program-related payments, but also wages, supplies, etc.) of about \$226.8 billion in Fiscal Year 1994 equals 15.5 percent of the total federal budget--up from 14 percent the previous year (Chief Financial Officers' Report 1994 and 1995).

HCFA's 2,600 headquarters staff in Baltimore and Washington develop and coordinate health care coverage and payment policy, guide health care operations, manage surveys and certification of health care installations, plan legislation, conduct research, and perform many other program operation functions. The 1,500 regional staff in 10 locations around the country oversee HCFA operations in their geographic areas, and directly assist Medicare contractors, state agencies, providers, program beneficiaries, and the general public. (HCFA's organizational charts are shown in appendix 1.)

HCFA has operated in an environment of constant change as the Medicare and Medicaid programs have evolved through major legislative and policy innovations. HCFA has faced the challenges of hospital prospective payment, managed care initiatives (as an alternative to full scale health care reform), physician payment reform, an explosive growth in Medicaid spending, continual budget reduction bills, and possible large scale health care reform.

HCFA is attempting to improve the quality of its organizational culture and its beneficiary services by implementing TQM. (The term used in HCFA is Total Quality Environment (TQE) rather than TQM. These terms will be used interchangeably.) HCFA's TQM implementation efforts consist generally of training in TQM and effective leadership, development of quality groups and councils, empowerment of employees, participatory management, measurement of internal and external customer satisfaction, benchmarking efforts, use of cross-functional teams, and promotion of more open and frequent communication among all organizational levels. (Implementation of TQM in HCFA is discussed at length in chapter 6.)

While bureaus in HCFA comprise components of one federal agency, improving the performance of government overall will ultimately take specific efforts on the part of each specific agency--down to the office and the individual level. HCFA serves many customers, such as other government agencies, departments, and Medicare/Medicaid beneficiaries directly. HCFA's primary partners, in TQM parlance, are Medicare contractors (which are private health insurance companies), state Medicaid agencies, and Health Maintenance Organizations (which provide health care to Medicare and Medicaid beneficiaries). Learning which types of interventions are most likely to improve the culture of the organization and to focus employees on customers is a critical step toward improving service to the ultimate beneficiaries, and improving the knowledge about implementation methods for practitioners in other government settings.

#### Purpose of the Study

The purpose of the study is to contribute a better understanding of the effects of TQM implementation efforts in public agencies. In particular, the study analyzes the effects of four government units' TQM implementation efforts on intermediate outcomes deemed critical to ultimate TQM success: job satisfaction, teamwork, trust, customer service focus, and customer feedback. The analysis is based on a written survey of 721 employees along with semi-structured interviews with four bureau directors and 24 randomly selected managers and non-managers. The study data were collected approximately two years after the start of TQM implementation. The results of the study provide an understanding of how perceived differences in interventions and preconditions are related to job satisfaction, teamwork, trust, focus on others as customers, and the



extent to which members of the agency obtain formal and informal customer feedback. Measuring these variables in an agency two years into TQM implementation will provide useful feedback for future policy and targeting of TQM efforts; additional anecdotes without hard statistical data and analysis will be of limited value for future understanding of TQM (Harber, Burgess, and Barclay 1993, 40).

Chapter 2 contains a review of TQM descriptive literature. While chapter 3 reviews empirically based research on the effects of TQM, the extensive advocacy and opinion-based literature is excluded from chapter 3, as are studies that exclusively measure the extent to which TQM is implemented, since these works do not contribute understanding or knowledge about the effects of variations in TQM implementation. The methodology and data used here are described in chapter 4. Chapter 5 presents a detailed descriptions of the environmental context in which TQM was implemented in HCFA, and chapter 6 reviews the nature and types of TQM implementation in the four study units. The results of the statistical analysis from the written survey are described in chapter 7. Finally, chapter 8 presents the conclusions policy implications of the study, and suggestions for future research.

#### Significance of the Research

Taxpayers and program beneficiaries are demanding more responsiveness, services, and quality (Reynolds 1992, 40). The federal government in the United States is responding by attempting to improve the quality of all aspects of its operations and services by implementing TQM (Doyle 1992, 30; Warner 1993, 66). This study is important because HCFA and many government agencies are in the early stages of

implementing TQM or are at some stage in the process of implementing TQM (White and Wolf 1995a, 204). In so doing, research findings on the effectiveness of TQM implementation techniques will add to the field of knowledge about TQM implementation in a federal government setting (Wilson and Durant 1994, 142).

Many organizational leaders are beginning to question why there has been little empirical research in the area of TQM (Dean and Bowen 1994, 393). It is not clear that government executives understand how to go about implementing TQM (Walters 1992, 38). In fact, most large scale (over 10,000 employees) attempts to implement TQM fail. Powell (1995, 26) found that firm size and TQM performance was significantly negatively correlated. Failed TQM efforts are expensive and create long-term distrust and deepened cynicism (Clemmer 1991, 38; Wollner 1992, 35). Before making extensive investments in TQM initiatives, it is important for public managers to know how TQM affects important intermediate outcomes including teamwork, trust, job satisfaction, and employees' focus on customer service. The dearth of empirically based studies of TQM interventions makes it difficult for practitioners to know where initially to invest improvement efforts (Robson 1991, 36), or whether it is worth the significant investment of time, energy, and money necessary to implement TQM. An examination of the strength of the association between implementation efforts prescribed by TQM and intermediate outcomes sought by TQM will enable implementing practitioners to more accurately predict what the effects of alternative implementation strategies will be, and more fully understand what returns on investments in TQM are expected (Wilson and Durant 1994, 137, 143).

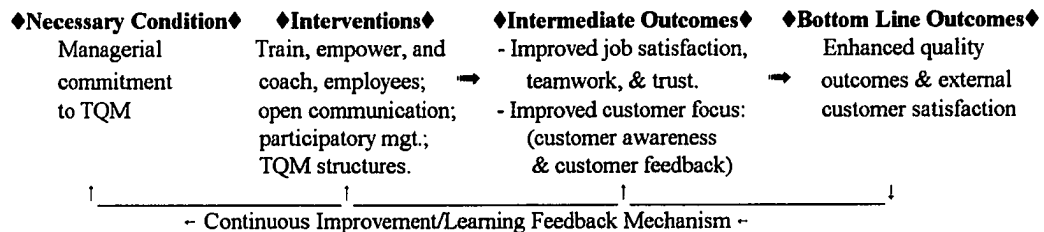
The degree of success of TQM implementation in federal bureaucracies will universally affect the ability of federal agencies to respond to requirements and demands, such as Vice President Gore's National Performance Review, implementation of a Strategic Plan (as required by the Government Performance Results Act of 1993), and allocating continuously declining government resources. In addition, all health care management or delivery related agencies, such as the Public Health Service and HCFA, will become integrally involved in continuing health care reform efforts in the United States.

## CHAPTER TWO

### REVIEW OF TQM DESCRIPTIVE LITERATURE

The theoretical basis, proposed by W. Edwards Deming and others, on which TQM operates can be described as cascading causal relationships (Anderson, Rungtusanatham, and Schroeder 1994, 473), and is pictured in figure 2.

**Figure 2. Causal Principles Underlying Total Quality Management**



First, TQM principles say there must be a commitment from the top levels of management to adopt the TQM approach of changing practices and to improve the procedures and systems in which employees operate (George and Weimerskirch 1994, 78-79). Following upper management commitment, middle and first line managers must fully support the concept (Hudiburg 1991, 33-34; Griffiths 1990, 152-154). Management commitment to change involves a long term effort to become leaders and coaches rather than directors or judges (Laurent 1991, 9; Fellers 1992, 117). Accomplishing a leadership and coaching approach requires empowering employees, which means providing employees with the authority, responsibility, and resources needed to identify and put

improvement initiatives into effect (Doherty 1994, 48). The basis on which the improvement initiatives take place is enhancing internal or external customer service (Bank 1992, 3). The most important principle in TQM is customer focus (Dean and Bowen 1994, 394; Radin and Coffee 1993, 44). The rationales for this focus are the beliefs that long-term organizational success is contingent upon customer satisfaction and this satisfaction requires that everyone in an organization be focused on determining what customer needs are and fulfilling them (Dean and Bowen 1994, 394; Spencer 1994, 447). Stated simply, adopting TQM necessitates that managers value, trust, and empower all employees as their internal customers, who in turn value and serve other internal customers along with the organization's external customers. TQM is a philosophy that involves workers at all levels in organizational planning and decision making. A fundamental precept in TQM is that employees will treat customers the way they (the employees) are treated at work (Harber, Burgess, and Barclay 1993, 37; Shetty 1989, 176). Distrusted, dissatisfied employees are not capable of satisfying customers, while highly satisfied employees are much more likely to please customers (Deming 1986; Crosby 1989; Juran 1988). The level of employee satisfaction, degree of trust, teamwork, supportiveness, and respect and valuing of employees, managers, and departments within an organization are loosely and collectively referred to as an organization's culture (Shafritz and Ott 1987). Underlying an organization's culture is the system of assumptions and underlying beliefs shared by leaders and other members of an organization that influences perceptions, attitudes, and behavior (Schein 1992, 8-10; Hardcastle 1994, 52). According to TQM authorities, improving the culture is key to improving the quality of

service or products for an organization's customers (Atkinson 1990, 55-113; Deming 1986, 85). Since the notion of an organizations culture is too nebulous and abstract to be treated directly (Schein 1992; Trice and Beyer 1993), more identifiable (while still subtle and behavioral) aspects of organizational culture are identified and targeted for improvement by TQM.

Feedback and analysis from customers, in the form of customer satisfaction data or other customer input, is continuously utilized to improve the system in which employees work, improve the quality of internal and external products and/or services, and enhance organizational culture and customer focus (Anderson, Rungtusanatham, and Schroeder 1994, 481).

The TQM theoretical framework consists of management vision and commitment, interventions, intermediate outcomes, and ultimate outcomes. This chapter will elaborate on several of these concepts (which were briefly described in chapter 1). The concept of managerial commitment is discussed, as are the key TQM concepts. Key elements of TQM are then compared and contrasted to those of traditional management theory. There is then an analysis of the degree to which the principles of TQM are consistent with, and have a basis in, more seasoned and tested organizational theory. Given that the concept of quality is central to TQM, there is a short discussion of what is meant by quality in TQM terms. The chapter concludes with a discussion of intra- and extra-organizational factors that hinder successful implementation of TQM.

### Definition of Total Quality Management

A description of TQM in its pure, orthodox form (Swiss 1992; Rago 1994) can be captured in W. Edwards Deming's 14 points of TQM. The 14 points describe, in general terms, the core nature of TQM as well as how to create a TQM organization. The Deming 14 points (taken from Scherkenbach 1991 and Deming 1986) are:

- (1) Create constancy of purpose (this requires thinking long-term and having a vision).
- (2) Adopt the new philosophy (stress that we are all in this together and that no one can survive on their own).
- (3) Cease dependence on mass inspection (make adjustments along the way, giving employees authority to correct processes when necessary).
- (4) Cease doing business based on price tag alone (award contracts based on quality rather than the lowest bid).
- (5) Improve constantly and forever systems for products and services (nothing is static--it incrementally improves if attended and worse if unattended).
- (6) Institute training and re-training of all organizational members (train managers and non-managers in TQM heuristic and statistical tools and methods, as well as job skills).
- (7) Institute leadership (rather than directorship, supervision, and giving orders).
- (8) Drive out fear (create an atmosphere of trust, supportiveness, and teamwork and give people a sense of security; this is done largely by behaviors/actions, not just words).

- (9) Staff areas must work together (collectively and cooperatively; turf battles are destructive to the entire organization).
- (10) Get rid of slogans posted on walls (such as "Do it right the first time"--these only demoralize people).
- (11) Eliminate quotas (quotas also demoralize people).
- (12) Give employees the chance to take pride in workmanship (replace appraisals with true leadership and coaching. When people do not feel that their contribution is valuable, absenteeism and low productivity and poor quality result).
- (13) Start a program of education and training (education should be broad rather than only job-related. Provide education in whatever employees wish to learn about because it elevates the mind and keeps the mind developing. Organizations need individuals who are improving. We can always learn more).
- (14) Take action to accomplish the transformation. (Stop talking about it and do it. Movement must begin with top management; create a critical mass of managers and employees to teach, conduct seminars, and distribute printed materials so that the effort does not diminish over time.)

According to Hackman and Wageman (1995, 318), since Deming originally developed the 14 points, there has continued to be "substantial agreement among the [TQM] movement's founders about the key assumptions and practices of total quality management." Additionally, the authors subjected TQM to comprehensive tests of convergent validity and discriminant validity, and concluded that: (1) with minor exceptions (such as use of scientific methods), TQM practice is consistent with its



founders' concepts, and (2) TQM is conceptually and operationally different from other organization change programs (Hackman and Wageman 1995, 318-319).

This section amplifies on the principles espoused by the 14 Deming points. Unless otherwise specified, the core characteristics and the general principles of TQM described in this section apply regardless of the setting or sector in which TQM exists (Atkinson 1990, 12; Deming 1986, xi). There are numerous formal definitions of TQM based on the 14 points ranging in degree of specificity, but all definitions have similar themes: a focus on customers and employees and on continuous improvement (Garrity 1993, 431; Omachonu and Ross 1994, 6). Jablonski (1991) defines TQM as a cooperative form of doing business that relies on the talents and capabilities of managers and non-managers to continually improve quality and productivity using teams. Three elements Jablonski asserts are necessary (but not sufficient) for TQM to work are: (1) participative management; (2) continuous process improvement; and (3) the use of teams (Jablonski 1991, 4). Inherent in definitions of TQM is that the collection of principles, tools, procedures, and ways of thinking and behaving are intended to guide the day to day running of an organization (Carr and Littman 1990a, 3).

Necessary Condition: Management Commitment. Deming and others stress that TQM efforts cannot be optional or something that is low on the organization priority list. Writers on the subject of implementing TQM convey that management commitment to TQM is a necessary condition for implementing TQM, and that without full management commitment, company leaders become lulled into a false belief that TQM is being implemented (Jablonski 1991, 8). It is widely agreed among TQM practitioners and

advocates that TQM needs to start at the top and cannot be delegated. Buy in must be present from the top before organization-wide implementation begins (Scherkenbach 1991, 11). Every book, journal article, and speaker on the importance of management commitment emphatically and bluntly says that if senior officials in an organization are not fully committed to TQM by their behavior and words, other managers and employees will not become committed, and it will fail (Atkinson 1990, 12; Deming, 1986; Jablonski, 1991, 8).

Managerial Commitment is defined by a combination of concepts: (1) the extent to which customer service, empowerment of employees, and other TQM concepts are measured, discussed in routine meetings, and are encouraged and reinforced in the conduct of daily business; (2) managers' efforts to become leaders and coaches; (3) making training in TQM skills available for managers and employees; (4) designing rewards to encourage behaviors espoused by TQM, such as internal and external customer service and teamwork; (5) commitment of other organizational resources for development of quality councils, coordinators, or consultants to further TQM. This definition of commitment is supported by TQM literature and descriptions (Berman and West 1995, 58; Laurent 1991, 9; Fellers 1992, 117).

Culture Change. Discussions about how to change an organizational culture can become very complex, psychological, and philosophical because there are multiple facets and layers of culture (Schein 1992). An understanding of organizational culture, the intended effects of TQM on culture, and the effect of culture on the performance of the organization are central to the argument for TQM implementation in private or public

settings (Garrity 1993, 445). Culture is the pattern of shared philosophies, beliefs, values, behaviors, and norms which groups of people have created for themselves (Atkinson 1990, 55; Garrity 1993, 445). For example, an aspect of the culture may consist of a tacit understanding among employees that all work-related information is automatically shared among other interested staff members, rather than kept secret. Since top management sets the tone for the culture by its actions, changes in the way organizational goals are accomplished must be lead by top management in order to in turn gain the commitment of middle and first line managers (Jablonski 1991, xiii). TQM prescribes that management change the culture by changing the focus of the way people think about and perform work, such as preventing problems by focusing on improving processes rather than appointing blame to solve problems, and creating cooperative teams to replace competitive departments (Fellers 1992, 87).

Nearly all literature on TQM emphasizes the importance of removing fear (fear of trying something new, making decisions, making mistakes, or voicing opinions) from the culture of the workplace in order to create an atmosphere where people are constantly thinking about and working on ways to improve work processes (Ryan and Oestreich 1991; Hammons and Maddux 1990, 16). A typical way this concept is expressed is that fear can give short-term results, but has many detrimental side effects. It removes creativeness, enthusiasm, and dedication to the organization and the job from employees, and the desired short-term results rarely last (Fellers 1992, 94). The types and sources of fear include fear resulting from quota systems, traditional performance appraisals which punish mistakes, and fear to ask how or why in order to learn (Hammons and Maddux

1990, 17). In a mature TQM organization, a cultural environment exists which allows quality initiatives to be proposed and implemented by people on all organizational levels without fear of reprisal (Atkinson 1990, 13). For this to occur, the active and sincere commitment of managers at all levels is necessary.

Empowerment. In addition to discovering long term solutions to organizational issues, TQM requires an emphasis on giving managers and non-managers the authority, training, and inspiration to find and implement immediate solutions on a daily basis (Atkinson 1990, 14; Gitlow and Gitlow 1987, 6). TQM prescribes a management style of leading or coaching rather than directing or supervising (Jablonski 1991, 6). Practicing TQM organizations value and encourage ideas and opinions of front line workers who know the customer and the details of the work and who can make improvements to organizational systems using ideas generated (Hammons and Maddux 1990, 18; Jablonski 1991, 6).

Recognizing the capabilities of employees (valuing them using different behaviors, not simply words or slogans) is done, in part, to reduce the traditional barriers that separate management and labor. A goal is for employees to become intimately involved with all processes and decisions in order to be partners in organizational decision making, not token group representatives (Laurent 1991, 9; Jablonski 1991, 5). Management is responsible for showing faith and trust in employees by relinquishing micro-control of decisions and procedures (Jablonski 1991, 5). This type of participative management evolves gradually with increasing trust and ongoing feedback between managers and non-managers. It is through these forms of empowering the workforce (attention and respect

for employee opinions, involving employees in decision making, and creating an environment where employees make decisions on their own) that TQM advocates claim that real improvements in processes and customer service can be made (Lynch 1991, 66).

Training. Implementing TQM entails training everyone in the organization on TQM concepts and terminology (such as customer focus), what TQM entails, and what changes usually occur in TQM organizations. Training sessions include discussion of TQM's intended fundamental and long term changes in how business is conducted, including what priorities are set, how they are established, how decisions are made, who participates in and makes decisions, and the basic structure of the organization (Morgan and Murgatroyd 1994, 3-4). Concurrently (or following training) TQM structures, such as Quality Councils and short term Quality Improvement or Project Action Teams are created with a mix of managers and employees. Ultimately, the formality of groups and teams are intended to become a natural part of daily functioning in the TQM implementing organization. (Barriers to successful implementation in the public sector are discussed later in this chapter.)

Use of Tools. Many descriptions of TQM in manufacturing settings include the application of two kinds of tools: (1) statistical and measurement tools designed to identify points of leverage for improving performance, evaluate alternative solutions to difficulties, and document the results of process changes, and (2) heuristic tools. Some of the more common statistical and measurement tools are scatter diagrams, control charts, histograms, and pareto analysis (Hackman and Wageman 1995, 313-314). The first three are used to determine whether a data point is normal variation or a data anomaly outside

the normal range, necessitating adjustment of the service or production system (Electronic Systems Center 1993, 47-50). Pareto charts are used to analyze separate contributors to a sub-optimum situation when the causes can be quantified (Hackman and Wageman 1995, 314). For example, if a team were working on finding the vital few causes of slow response times to beneficiary requests for information, it would list each step in the process in order of the time it took to accomplish that step, including points of transfer from one department to another. The steps that consume the most time in the process would be analyzed first. Many of the statistical and analysis tools of TQM have been taught in business management programs, and have been employed either together or in isolation for decades (Cohen and Brand 1993, 55; Certo 1980; Gannon 1977). TQM assembles the tools in a systematic, comprehensive approach; the approach requires at a minimum that managers and non-managers understand the theory of statistical variation so that systems are not adjusted or individuals are not reprimanded for every occurrence outside a narrow data range (Hammons and Maddux 1990, 16; Waldman 1994, 512; Deming 1986). The use of TQM tools is integrated with empowerment and participatory management by giving people responsibilities, such as graphing and forecasting sales, which have traditionally been reserved for upper management, thereby creating employee feeling of ownership and responsibility for quality of products or service. Such tasks are intended to provide employees with a much broader, less parochial outlook on the organization and its goals (Jablonski 1991, 7-8).

Heuristic tools are process-management techniques to enhance team effectiveness.

The tools assist teams in applying their collective skills and knowledge productively in

analyzing qualitative or quantitative data while working on process improvement (Hackman and Wageman 1995, 314). Examples of heuristics include flowcharts, brainstorming, and cause-and-effect diagramming (fishbone diagrams, described in chapter 1, figure 1). Use of heuristics are intended to break groups out of a fixed mold of thinking, challenge assumptions, improve team cohesiveness and cooperation by focusing on issues and data rather than personalities or opinions, and break data down to levels of detail enabling feasible solutions to emerge.

Customer Focus. Attaining customer focus is an expected intermediate outcome of TQM inputs, such as training, communication, and other techniques. Customer focus concepts are not new to the private sector, but even in for-profit firms, TQM strives to create an awareness of customers that were not regarded as customers before, such as those within the organization with whom people work (Morgan and Murgatroyd 1994, 20-21). Examples of internal customers are payroll, graphics support, colleagues, managers, employees of managers, and anyone else in the organization who receives the work of another for direct use or to pass along to someone else (Bank 1992, 16). All of these internal customers need to have confidence that work they are relying on will get done well and on time (Jablonski 1991, 26-27). The belief among TQM advocates is that if everyone throughout the organization is attentive to internal customers at micro-levels, and acts on customer feedback obtained through focus groups and/or surveys, improved quality and timeliness for the external customer is much more likely. The emphasis of TQM is on relationships among internal members of the organization, recognizing that meeting requirements of internal customers is as important as (and is necessary for)

meeting the needs of external customers (Atkinson 1990, 15). According to Deming (1986), highly satisfied employees become capable of satisfying customers; dissatisfied employees will not focus on satisfying or serving the customers. TQM authorities say that, total quality service and customer focus are very powerful in the way that they cascade and increase internally throughout the organization and ultimately to the external customers (Atkinson 1990, 15).

Benchmarking. Organizations embarking on TQM benchmark their techniques and performance with other organizations (Bank 1992, 31) whereby specific processes, such as how to identify customers and obtain systematic customer feedback, are compared with other organizations in order to learn from them and possibly adopt a variation of the techniques used (Bank 1992, 35). Benchmarking is intended to enable organizations to learn, but not necessarily copy, from each other to avoid reinventing the same programs and techniques which others have already designed and tested (Bemowski 1991, 19). Benchmarking is not industrial tourism--it is selecting a specific process or program to learn about in detail. For this reason, benchmarking can present a challenge to private sector firms protective of proprietary information; this barrier does not exist in public sector organizations.

#### Traditional Management Versus Total Quality Management

In addition to defining the attributes of a concept themselves, a useful way to describe a program is to contrast it with known familiar ones. Organizations that work toward implementing TQM, and serious TQM researchers (whose papers are found in research-oriented journals, rather than among the advocacy literature), contend that TQM



exists and is fundamentally different from traditional management or from other improvement programs (Hackman and Wageman 1995, 319; White and Wolf 1995a; Garrity 1993, 431). The major differences between traditional management and TQM can be captured in four key categories. Unless otherwise noted, the comparisons are adopted from Carr and Littman (1990a).

Ensuring Quality. In the traditional management style, quality control and checking for errors takes place at the end of a production process; managers attempt to *inspect* product and service quality in (Guaspari 1985). Outputs are inspected after they are produced, which is known as quality control. Independent departments in the organization check and correct the products made by other departments. Quality assurance specialists make sure that products or services are up to standard (Carr and Littman 1990a, 16). In this way, the traditionally managed organization wastes effort and resources on planned rework, which TQM's designers say can lengthen production processes and increase frustration of employees and customers. The reaction to declines in level of quality is to inspect more. When outputs fall below standard, organizations naturally inspect, which increases the number of errors found, but does not prevent them from occurring in the first place, and may even increase the error rate as employees adopt an attitude that someone else down the line will catch any mistakes (Atkinson 1990, 15).

TQM is prevention rather than inspection oriented: its methods focus on building high quality into the process itself and preventing defective service or products (Hammons and Maddux 1990, 15; Jablonski 1991, 27). TQM goes beyond quality assurance techniques; it is a behavioral intervention requiring an attitude change of all employees

based on empowerment, trust, valuing employees, and on use of measurement and statistical techniques (Atkinson 1990, 16). Everyone is responsible for his or her own quality (producing work without relying on inspection or someone else reviewing for and catching mistakes) (Hammons and Maddux 1990, 16). As with many of the precepts of TQM, enabling people to manage their own processes and be responsible for their own quality can be more challenging for organizations to put into practice than to talk about (Yorks 1989, 54). The objective is that unmet customer expectations become indicators that there is a defect in the work process, not in the employees. These symptoms are used to correct deficiencies, and identifying them is a necessary precursor for the principle of preventing errors rather than inspecting for them after the fact (Jablonski 1991, 27).

In advanced TQM organizations, the quality control/assurance personnel are an integral part of line departments, or quality control people are retrained to help employees and contractors apply and follow TQM principles and techniques (Carr and Littman 1990a, 17). The notion of the importance of quality is built into each person's job, not the responsibility of a separate quality assurance personnel.

Structure. Traditional management structure originated in the time-and-motion studies of Frederick Taylor in the late 19th/early 20th centuries (Omachonu and Ross 1994, 7). Time and motion involves breaking down each step and sub-step in work processes, and studying and measuring very exactly how work is done and how long each step takes in order to make it much more efficient within the constraints of available resources (Skrabec 1990; Carr and Littman 1990a, 17).

An 1897 Baltimore coal yard provides an excellent example of the long term results of Taylorism: the coal yard was able to greatly increase productivity of coal shoveling after Taylor conducted a time and motion study to determine the most efficient way of dividing up work. As a result of the new methods, specialists and management layers were created to maintain, oversee, and measure the new shoveling method. There eventually were staffs for shovel inventory, planning, management information, as well as experts in Taylorism. A hierarchy formed which centered decision making and authority at the top of the organization and departments were made more specialized or function-oriented. What evolved from Taylorism was the Theory X approach, or the belief that workers do not seek, nor can they handle jobs that call for thinking, creativity, or self-direction, and that workers are motivated only by money (Carr and Littman 1990a, 18). Modern management theory books and management experts refer to Theory X as the old style of management, and point out that is a de-motivating way to manage (Certo 1980; Gannon 1977).

A TQM organization will usually be flatter and more flexible than a traditional organization. In a TQM organizational structure, the authority to plan and control work is delegated to workers and first-line supervisors. Teams consisting of managers and non-managers make decisions, test new approaches, and coordinate procedures and processes. Typically, the organization establishes Quality Councils consisting of representatives from all levels of the organization (Juran 1989, 44; Omachonu and Ross 1994, 10-11). As part of the implementation process, organizations establish various types of teams, groups, or local councils. Xerox applies what is coined the Quick-JIT (Just In Time) process, which

constitutes a team around a very narrow issue or challenge (Xerox 1994). General Electric uses a Change Acceleration Process (CAP) to improve work processes within a three day period (some prework is built into the CAP). Many organizations form teams from a cross section of members representing various aspects of the work, including the customers. People on teams are typically empowered to improve work on a day to day basis (Jablonski 1991, 5).

According to TQM founders, altering structure alone is not sufficient to implement TQM, but is one of many strategies. TQM is based, in part, on Theory Y management principles, whereby all members of the organization are presumed to have expertise and ideas for improvement to offer, employees' opinions are respected and sought, and they are self-motivated to contribute to the organization's success. Since salary and career advancement are not sufficient to enrich and satisfy employees (Kennedy 1974, 241), an important managerial role is to ensure that the proper environment exists to enable employees' enthusiasm, interest, and ideas to flourish and to ultimately benefit the organization as a whole.

Reward Systems. A key difference between traditional management and TQM is the approach to performance measurement. Traditional organizations focus on measuring performance of individuals using performance appraisals which are tied to rewards, such as raises and promotions, and punishments, such as firing and denial of raises (Carr and Littman 1990a, 19).

In TQM organizations, employees are not held entirely accountable for results when they do not have control of the systems within which they work. A TQM approach

presumes that 85 to 90 percent of the mistakes, difficulties, lateness, or obstacles result from systems, i.e., the way management establishes the way that work is done, and only 10 to 15 percent of problems result from employee errors (Federal Total Quality Management Handbook 5; Deming 1986; Walters 1992, 42). This presumption implies that in order to prevent most problems, managers need to focus on creating systems and procedures that are constructed properly to accomplish what they are intended to accomplish with minimal or no barriers (White and Wolf 1995, 211).

Described a slightly different way by a General in the Air Force Logistics Command, 85 percent of an organization's gains are within the realm of managers (who are responsible for systems, procedures, and the like). The implication here might be that 85 percent of the gain comes from managing harder. But TQM experts say that the real answer is managing differently. Managing harder tends to add bureaucracy, paperwork, etc., which impedes progress rather than facilitates it (Carr and Littman 1990a, 19-20).

The a priori presumption that management is responsible for nearly all errors and problems is a troublesome aspect of TQM, and seems to contradict the notion of empowering employees, participatory management, and employee authority and responsibility. If employees truly become partners in managing the work and processes of the organization, it does not appear reasonable to blame management alone (White and Wolf 1995, 215). Perhaps the resolution, which would seem more consistent with Deming's own teachings, is to dispense with concern about blame and have managers and non-managers focus together cooperatively on analyzing and correcting systems or processes. Following TQM's philosophy of teams, empowerment, and collective wisdom,

both managers and non-managers are responsible for the organization's systems, not one or the other exclusively.

People are evaluated as a group in TQM organizations, rather than each person being evaluated separately (indeed, TQM principles say that individual performance reviews should not be conducted at all). The expectation is that people need to work together as a well-integrated team, and the success of the products and services resulting from that team effort is evaluated (Hackman and Wageman 1995, 317).

Continuous Improvement. In traditionally managed companies, there is a dependence on technological breakthroughs, including computers, to improve quality and productivity.

While TQM is based on preventing defects or problems versus reworking and crisis management (Morgan and Murgatroyd 1994, 5), a practicing TQM organization recognizes that procedures, services, the product, the process are never perfect. Therefore, instilled in the culture of the organization is the concept of continuous improvement--constantly making incremental adjustments and improvements over time that add up to significant gains (Scherkenbach 1991, 35). TQM does not discount the value of technological advances, but more value is placed on incremental, consistent improvements that result from day to day attention to enhancing how the work is done. The application of the cycle of Plan-Do-Check-Act (see chapter 1, figure 1) is called continuous improvement. When taken together over time, small gains can eventually exceed the level of improvement that result from technological breakthroughs. The logic is that new technology can be purchased by an organization, and can then cause sharp,

immediate increases in quality. Then, long plateaus of stagnant productivity and quality often ensue because management focuses on finding other breakthroughs rather than on continually improving (Carr and Littman 1990a, 20-21). Continuous improvement comes only from the sincere dedication and day to day attention of members of the organization to take incremental steps toward total quality. Continuous improvement in TQM means that considerable gains can be achieved by the accumulation of many seemingly unimportant improvements, and the synergy of many efforts bring about tremendous gains over the long run (Deming 1986; Imai 1986, 3; Jablonski 1991, 5).

#### Organizational Theory and Implications for TQM

Any organizational theory, regardless of the layers of detail into which it delves, aims to establish the assumptions and causal dynamics that characterize the behavior in organizations. The value of developing and testing theory is to enable some degree of predictability of the effects of interventions to the entity theorized about. The more empirically-based, trusted, and established the knowledge of how parts of an organization behave and interact, the stronger will be the theory of effects of changes in specific elements or aspects of the organization. Given the cascading causal chain theorized by TQM, it is relevant to ask what traditional organizational theory says about causal relationships and human behaviors in organizations. This section will: (1) examine aspects of organizational theory concerning how organizations collectively (and individuals within organizations) behave; (2) determine what features of TQM have a foundation and basis in traditional organization theory, and which are not supported in

classical and/or post-classical theoretical perspectives; and (3) discuss how TQM builds on or adds to traditional organization theory.

### Classical Theorists

Classical theory is the basis upon which all subsequent theories have been built, as it was the first theory on the behavior of organizations (Shafritz and Whitbeck 1978, 1). In the early 1900s, Max Weber, Frederick Taylor, and Frank and Lillian Gilbreth were among the earliest and most influential classical theorists.

Modern bureaucracies, according to Max Weber, function in specific bureaucratic manners (Parsons 1947, 8). Three main elements, according to Weber's theory of bureaucracy, constitute bureaucratic authority or management: (1) official areas of jurisdiction and authority are fixed, and are strictly ordered by rules, laws, and/or administrative regulations; (2) an autocratically arranged office hierarchy with levels of graded authority create a formal system of super- and subordination: higher offices closely supervise lower ones; (3) management is based on "the files" (written documents), reducing the office management to ensuring strict adherence to rules and regulations.

Within such a bureaucracy, Weber theorizes, individuals and groups operate in a highly regulated, static, rules-bound environment. Weber says that the principle of hierarchical office authority is found in all bureaucratic structures regardless of the character of the bureaucracy (Grusky and Miller 1981, 9). Of bureaucracies, Weber states that the reduction of management to rules is deeply embedded in the very nature of the office. Employees, according to Weber, are cogs in a very large wheel with no creativity,



power, authority, or leeway to affect the organization in which they work, except for what is granted by those at the very top (Parsons 1947, 26).

Building on the assumptions in Weber's theory, time and motion study techniques, developed in 1911 by Frederick W. Taylor and Frank and Lillian Gilbreth, utilized systematic procedures for recording and analyzing movements of workers as they performed their jobs for the purpose of designing more efficient and productive ways of doing the work. In Taylor's scientific management, it is believed that precisely defining each employee's job assures organizational effectiveness as defined by management. Taylorism describes that "the work of every workman is fully planned out by the management . . . and each man receives in most cases written instructions, describing in detail the task he is to accomplish, as well as the means to be used in doing the work" (Taylor 1911, 39). Organizations reach their goals and are more effective when there is close supervisory control of employees and employees are rewarded for good performance with pay (economic incentives). Under Taylorism, the person suited for performing the work does not participate in planning or analyzing the work (Taylor 1911, 42). Taylor argued that it would be inefficient to do so, not only because a workman cannot logically perform and plan work at the same time, but also because workers and managers are entirely different breeds of humans suited for their respective roles. Based on the principles of scientific management, many organizations began writing detailed job specifications, designing job-knowledge tests, and devising systems to rate and reward employees' performance (Grolier Electronic Publishing, Inc. 1993, industrial psychology ).

Classical theorists espoused the notions that standardizing the work, supervising employees closely, and reducing work to its least complicated form enhances the effectiveness of organizations. Additionally, in early classical organizational theories it is asserted that organizations tend to become hierarchical and autocratic in nature, with power concentrated with a few individuals at the top. The classical theorist Robert Michaels found that organizations inevitably lead to oligarchy: power and authority are centered at the top, upper echelons become aristocratic, and relative power and participation of the majority (the masses) is minimal (Grusky and Miller 1981, 41-43).

At first glance, TQM techniques and principles appear alien to those of early classical theorists. If we assume that organizations behave in the way described by early classical theorists, implications for the feasibility of TQM are grim--theories of scientific management and time and motion are nearly completely opposite those of TQM. Given the natural tendency of organizations to become hierarchical and for all authority for decision making to reside with top management, TQM forces organizations into an unnatural structure and method of operating. If organizations naturally evolve in a way that centers power at the top, individuals are cogs in a large and slow moving mechanism, and the iron law of oligarchy reigns, TQM faces formidable challenges.

However, a number of classical precepts exist in assumptions of TQM. For example, TQM acknowledges that power is concentrated in upper echelons and includes several techniques for expanding and sharing that power. Additionally, scientific management's concept of analyzing processes to find more efficient ways to accomplish work are integral to TQM. On the other hand, TQM's notions of empowerment and

participatory decision making rely on theory and assumptions that are contrary to classical notions. In Classical theory, it is maintained that individuals are motivated primarily by money and prefer to be told what to do. However, in TQM, it is presumed that workers are motivated by intrinsic rewards and prefer to be empowered to think on their own and make decisions for which they will be accountable and responsible.

To the extent that classical organizational theories are legitimate and correct, the theories certainly might explain some of the organizational resistance to the precepts of TQM and some of the implementation difficulties. At the same time, this does not necessarily mean that opposing the natural grain or tendency of organizational structure is somehow wrong or that it will not work. The findings of classical theorists might mean that the barriers TQM faces are real. They might also mean that certain realities about what motivates people need to be seriously taken into consideration and acknowledged. For example, TQM principles explicitly state that there should not be pay for performance, while classical organizational theory says that there should be pay for performance because workers are motivated by money. It is reasonable to believe that in the total absence of pay for performance, employees may become discouraged and demotivated, especially if they see that top managers alone are being financially rewarded for the efforts of the general workforce (Hackman and Wageman 1995, 329; 336).

#### Human relations theorists

More support for TQM theories of organizational behavior is found in Humanistic and other theories, which evolved after scientific management. These theorists found that employees are motivated by non-economic, intrinsic factors *as well as* economic rewards

(Roethlisberger and Dickson 1967, 73). The 1925 Hawthorne studies of assembly-line workers marked the first serious recognition of the importance of human relations, rather than strictly economics, in the effectiveness of organizations. Human relations research countered scientific management's conclusions concerning formal and detailed task requirements and simple economic rewards to motivate workers (Grusky and Miller 1981, 3). For example, non-economic social rewards, according to human relations theories, are more important in motivating workers to work toward organizational goals. Similar to TQM, the key role of cohesive informal group behavior for the successful functioning of complex organizations is emphasized in human relations theories (Roethlisberger and Dickson 1967, 77). The following discussion of human relations and other non-scientific management theory is organized by specific areas of similarity and differences between the theories and TQM.

Cooperation. In his theory of formal organizations, Chester Barnard (1966) maintains that cooperation is essential for the effective functioning of the organization. Also, in order to coordinate activities, individuals must first possess a disposition to contribute to a global system where some personal control of what is done is relinquished. Like teamwork in TQM--even somewhat like Japanese culture--Barnard's theory of the formal organization states that individuals in organizations possess a denial of the importance of the individual, surrendering control of personal conduct, and depersonalization of personal action in the interest of the group (Barnard 1966). Barnard's theory stresses the importance of organizational incentives to cooperate and individual motives. The interest in incentives as a means of inducing employees to

cooperate in achieving an organization's goals served as the cornerstone of his theory (which tacitly presumes that organizations can in fact control or somehow manipulate employees' inclination to cooperate). At the same time, Barnard points out that the willingness of individuals to cooperate fluctuates depending on circumstances. Therefore, the total number of employees who are willing to cooperate also fluctuates, even within a cooperative system (Barnard 1966). Communication, according to Barnard, is the means by which cooperation and cohesiveness takes place in an organization (Barnard 1966, 89). He contends that "[t]he absence of a suitable technique of communication would eliminate the possibility of adopting some purposes as a basis for organization" (Barnard 1966, 90). Without specifically labeling cooperation and cohesiveness as teamwork, Barnard's theory describes the same concept as teamwork prescribed in TQM, as well as its causal relationship to organizational effectiveness. Cooperation, as with teamwork in TQM, cannot develop in absence of a conscious organizational objective of improving cooperation. Without such an objective, individuals do not know what efforts are required of them or what rewards they might derive from cooperating (Barnard 1966). Not stated explicitly, but implied in the theory, is the concept that if organizational incentives exist which promote competition and individual achievement, cooperation will not ensue. As in TQM, Barnard says that "the accomplishment of an organizational purpose becomes itself a source of personal satisfaction and a motive for many individuals in many organizations" (Barnard 1966, 89). Finally, both Barnard's cooperation and TQM's teamwork lead ultimately to greater organizational effectiveness (though Barnard does not define this as satisfying the customers of the organization as does TQM).

In order to achieve cooperation, according to humanistic theory, the nature of informal groups is very important, as shown in the Relay Assembly Test Room and the Bank Wiring Observation Room experiments. In the Relay Assembly Test Room, the work group was cohesive, and it worked collaboratively toward the goals of the company. In the Bank Wiring Observation Room, the workgroup also worked cohesively, but collectively worked toward counter purposes of the overall organization (the understood practice among them was to resist changes in their established routines of work, whether or not they were logical improvements). The experiments showed that informal networks exist, and that they can facilitate or work in opposition to the objectives of the formal organization. Additionally, the informal social organization is a necessary prerequisite for effective collaboration (i.e., working together toward organizational goals). “The important consideration is, therefore, the relations that exist between formal and informal organizations” (Roethlisberger and Dickson 1967, 75). This connection suggests that, as TQM prescribes, organizational management can and should harness the inevitable formation of informal networks and teams so that they work toward the organization’s purposes (Deming (1986) diagrams this phenomenon as a strong magnetic force pulling everyone, parts and sub-parts, in the same direction).

Meyer and Rowan (1977) also distinguish between the formal structure of an organization and its day-to-day work activities. The formal structure is a neat, orderly blueprint for activities with a chart of offices, spans of control, departments, positions, and programs. The elements in the chart are linked by the organization mission, goals, policies, and procedures, which together create the formal picture of how activities are

connected and carried out (Meyer and Rowan 1977, 532). The authors point out that prevailing theories assume that formal coordination and control of activity are the primary means by which organizations have achieved successes. Pfeffer (1978), for example, argued that organizational design is like an engineering tool: the structure of the organization and the relationships among individuals and groups can be adjusted and changed until outcomes improve. Organizational design, therefore, is a tool for managers to use to increase effectiveness, minimize costs, increase profits, or improve the quality of outputs (Pfeffer 1978, 228). The implication, according to Pfeffer, is that management should design a structure which, in contrast to traditional hierarchy, is aimed more at facilitating positive contributions than at controlling deviant performance. Pfeffer's premise is that organizations make choices, the bases for decisions is an important analytical questions to be asked about organizations, and organizational design is an important factor affecting decisions about who controls organizations and who allocates resources. This set of assumptions, however, is based on the view that organizations function according to their formal organizational structure; therefore, coordination is routine, rules and procedures are followed, and actual activities conform to prescriptions embodied in the formal structure (Meyer and Rowan 1977). Meyer and Rowan doubted the assumption that organizations function according to their formal organizational structures and concluded that there was a significant gap between the formal and informal organization.

As do Meyer and Rowen, March and Olson (1976) take the informal structures of the organization into account in their theory. They describe the relationship between

formal and informal organizational structures as being loosely coupled. “Structural elements are only loosely linked to each other and to activities, rules are often violated, decisions are often unimplemented, or if implemented, have uncertain consequences, technologies are of problematic efficiency, and evaluation and inspection systems are subverted or rendered so vague as to provide little coordination” (March and Olsen 1976, 532-533).

Research and theory suggest that much of the formal organization is a myth (Meyer and Rowen 1977) and that informal groups form the basis on which organizations really operate. The effect of informal groups is uncertain, and can either harm or support the overall mission depending on the nature of groups. Therefore, without a conscious effort on the part of the formal organization to break out of the formal mold (or decrease reliance on formal structures, reports, and communiques), official programs can have limited affects on the overall direction of the organization. This logic has mixed implications for the legitimacy of TQM. Formal structures and procedures, such as Quality Councils, and edicts such as “managers shall now empower,” will be ignored on the part of the majority of the members of the organization. However, if formal leadership of the organization involve informal networks and groups in activities and processes, real changes might start to take place. TQM authorities do prescribe that the latter take place, and argue that establishing new structures, strategic plans, and plans for operating and interrelating will have limited if any effect in absence of tapping into the informal groups throughout the organization.



**Empowerment.** Empowerment goes beyond participatory management, and contains multiple levels and types, depending on knowledge and skills of employees and the nature of the work or project. It means that, once decisions have been made (by involving employees), employees then make changes and decisions on their own (without asking for permission), within the scope of the broader decisions and direction of the organization. Several authors point out that specifically prescribing what workers are supposed to do and how they are supposed to do it is demoralizing, and therefore leads to dissatisfied workers, and workers who do not care about (because they do not participate or have a part in) the goals or success of the overall organization (Kennedy 1974; O'Toole 1977; Hackman and Oldham 1980). In effect, if not empowered to some degree, employees work for a pay check, and have no formal/organizationally driven incentive to “go the extra mile” in their work, to suggest better ways of doing things, or even to be nice to the organization’s customers. The relationship between empowering employees and overall organizational effectiveness remains untested, but the relationship between providing employees with discretion and decision-making authority and heightened job satisfaction is on less shaky theoretical ground.

**Effectiveness.** Prior to the human relations school of thought, working toward a profit and toward good employee relations was regarded as antithetical. Studies in human relations found that these two propositions are not only related, they are interdependent in that the nature of employee relations within an organization is “intimately related to the effectiveness of the total organization.” Similarly, “the success with which the concern maintains external balance is directly related to its internal organization” (Roethlisberger

and Dickson 1967, 68-69). Roethlisberger and Dickson go on to say that there has been an inordinate amount of time and attention given to improving the economic functioning of organizations in the name of efficiency and rationality. But, “[n]othing comparable to this advance has gone on in the development of skills and techniques for securing cooperation, that is, for getting individuals and groups of individuals working together effectively and with satisfaction to themselves” (Roethlisberger and Dickson 1967, 69). In generalities, human relations theory seems to be positing the same cascading causal relationship that emerged later in TQM: invest in internal organizational improvements, consciously enhance the levels of cooperation among employees, thereby increasing their levels of job satisfaction, in turn increasing the overall effectiveness and profitability of the total organization. If the theory were taken out of its human relations theory context, it might sound like Deming, Juran, and other TQM founders. While human relations is not as precise about how to enhance cooperation among members of the organization, its precepts are entirely consistent with the overall infrastructure and logic concerning what kinds of efforts (inputs) lead to bottom line effectiveness presented in TQM.

### Summary

While the whole of TQM may not be equivalent to the sum of the parts discussed here, there is some basis in organizational theory for TQM. In particular, organizational theory supports TQM’s notions of involving employees in organizational decision making, consciously working to enhance the cohesiveness of teams, and providing employees with decision-making authority and discretion. TQM’s main contribution to organizational theory is the notion of customer focus. The concepts of internal customers, partners, and

external customers add more depth and precision to the body of organizational theory. The importance of regarding others within formal and informal organizational networks as customers is a more detailed and somewhat different variant on the Human Relations Theory's concept of cooperation.

### What is Quality? What is the Standard?

Quality can be difficult to define in itself when it is not associated with a particular product, person, or service (Guaspari 1985, 75). Describing quality as an abstract concept is asymptotic in nature--we can get closer and closer to the true essence of quality, but never quite capture it fully. Quality has been described in many ways, such as value, conformance to specifications or to requirements, fitness for use, avoidance of loss, and meeting and/or exceeding customers' expectations (Reeves and Bednar 1994, 419).

Several organizations specialize in defining, measuring, and rewarding public and private sector organizations for quality. The European Organization for Quality Control and American Society for Quality Control define quality as the collection of features of a product or service that bear on its ability to satisfy given needs (Morgan and Murgatroyd 1994, 8). This definition implies that quality is defined by the internal or external customer who receives the product or service. The Malcolm Baldrige National Quality Improvement Act of 1987 (P.L. 100-107) established an annual United States National Quality Award to promote awareness of quality and to recognize it publicly (Jablonski 1991, 15). The award divides measurements of quality into seven major categories: leadership, information and analysis, strategic quality planning, human resource utilization, quality assurance and products/services, quality results, and customer satisfaction

(Jablonski 1991, 16-17). The President's Quality Award Program, administered by the Office of Personnel Management (previously by the now defunct Federal Quality Institute), utilizes these same criteria. The Program was created in 1988 (White and Wolf 1995a, 204), and includes two awards which are awarded annually to federal organizations: the Presidential Award for Quality and the Quality Improvement Prototype Award (Federal Quality Institute 1994). The Presidential Award for Quality was created to encourage high quality products and/or services, the effective use of taxpayer dollars, and to promote quality management awareness and implementation of TQM throughout the federal government. In addition to the private sector and federal government awards, most states have their own quality awards.<sup>3</sup>

A legitimate question is, if an organization wins the Presidential Award for Quality, the Baldrige, a state quality award, or even the Deming prize (awarded by Japan), does this mean that the organization manifests and exudes quality by all objective standards? To understand the answer to this question a more in depth description of quality is necessary,<sup>4</sup> as is an understanding of what is fundamentally meant by quality in TQM terms.

Quality, in TQM terms, is defined as fit for customer use. This shifts quality away from providing services or making products to fit organizationally established

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<sup>3</sup>State sponsored quality awards are listed for every state in the November 1994 issue of Quality Digest.

<sup>4</sup>Reeves and Bednar (1994) contains an extensive, comprehensive description of alternative definitions of quality and a critical analysis of the various definitions along with strengths and weaknesses of the definitions as they relate to usefulness and application by practitioners.

specifications and standards and toward meeting or exceeding customers' standards (Spencer 1994, 447; Carr and Littman 1990a, 23). Since the absence of a negative does not mean there is a strong positive (Scherkenbach 1991, 34), quality, as defined by TQM, is more proactive than simply a lack of complaints. Quality in service organizations is recognized in satisfied customers (Spencer 1994, 447), decreasing administrative paperwork, and lower complication of procedures and forms (Vansina 1989/90, 59).

Given the extensive and detailed reviews and inspection of quality practices that Total Quality Management award winners undergo, Hackman and Wageman (1995, 320) point out that “it is safe to assume that award winners actually have implemented the full TQM package.”

#### Implementation Barriers

Chapter 1 summarized some of the practical difficulties and barriers to implementing TQM in government. General implementation barriers that apply in any sector are discussed here.

Fundamentally Different Management Style. Characteristics of TQM conflict with existing philosophies and practices of most U.S. organizations (Powell 1995, 21). A formidable barrier to adopting TQM stems from the fact that veteran managers were taught and have largely practiced a style of management which espouses that it is the primary and unique responsibility of management to perform the major organizational functions of planning, directing, organizing, and controlling. Managers, in traditional organizations, typically plan tactical and strategic means to attain goals, direct employee activities necessary to attain goals, organize tasks and individuals, motivate workers, and

control information and activities (Certo 1980). TQM's focus on teamwork, coaching, and participatory management are diametrically opposed to the style many managers are accustomed to practicing and have become comfortable with. In traditional management practice, decision making is restricted to managers, and with traditional theory, it is management's responsibility to move the organization toward goals (which are set by management) (Certo 1980, 52). Additionally, managers analyze trends in the internal and external organizational environment, markets, and so forth in order to develop objectives consistent with trends. Since traditional theory is not purely autocratic or Theory X oriented, non-managers have a voice in setting goals. However, with TQM, the role of non-managers in setting goals, objectives, and tactics is much more active than in traditional management. TQM involves non-managers as full partners in setting organizational objectives and determining how to reach them (Hackman and Wageman 1995, 333).

Performance reviews, whereby employees are rated on a scaling system or comparative ranking system, are utilized in traditional organizations to determine whether employees are meeting objectives (Certo 1980, 250-252). TQM is based on the view that traditional performance reviews promote unhealthy forms of employee and/or departmental competition rather than teamwork and cooperation (Bowman 1994). Formal performance appraisals in practicing TQM organizations are dispensed with or are radically altered to encourage cooperation as well as internal and external customer service, rather than individual achievement (Graber, Breisch, and Breisch 1992). Shifting ways of thinking, interacting with others differently, making decisions in new ways,

changing roles of responsibility and accountability, and viewing individuals on various organizational levels differently requires first that managers be convinced that TQM methods are a better way to manage, and second, that managers actually learn how to adopt new practices. As with any changes in human thinking and behavior patterns, these types of fundamental changes in management style do not occur easily or quickly (Eitzen 1985, 75; Powell 1985).

Resistance to change is one of the most significant barriers to implementing TQM (Morgan and Murgatroyd 1994, 169; Atkinson 1990, 18). In addition to the reasons for resistance associated with ingrained management practices discussed above, individuals in organizations where previous quality improvement attempts have been made often believe that TQM is merely Quality Circles, participative management, or Management By Objectives. They point out that these approaches failed, and are dubious about the probability that TQM will work (Hyde 1992, 28). Additionally, employees may perceive an unintended message from management that their skills and performance have been inadequate (Radin and Coffee 1993, 52), or believe that it is simply another way to try to extract more work out of fewer employees (Walters 1992, 42). Fueling employee resistance to TQM efforts is a perception that TQM is something that is added to what is already done rather than changing the way the organization operates (Warner 1993, 66). Employees and managers are unaccustomed to TQM's teamwork-based way of doing and reward work, and the commensurate subordination of individual interests to group interests (White and Wolf 1995A, 218).

Long Term Investment Needed. TQM proponents argue that implementation occurs continuously because quality will never be perfect, so there will always be ways of improving (Oakland 1989, 296; Atkinson 1990, 13). They stress that TQM is not something that is simply installed in an organization and then is completed, and that, therefore, a long term investment is needed. Especially in the first year or so of implementation, TQM can require considerable investments of time, energy, funds, and other resources (Jablonski 1991, 8). Since TQM does not produce full results in the short term, organizations often fail to give TQM a legitimate opportunity to yield results. Only with major investments in preventive activities and measures (which are by nature long term) can rework be reduced and quality increased and sustained at a high level. If large expenditures of resources yield no identifiable benefits, further investments in TQM become difficult to maintain. The requirement that the commitment to TQM be long term may be challenging if the effort is challenged due to lack of measurable gains (Radin and Coffee 1993, 48). Sometimes, just as TQM efforts are gaining momentum, management becomes lost or discouraged and abandons TQM and then later introduces a new management approach (Atkinson 1990, 18).

Intra-departmental Functioning. One of the greatest threats to improving the organizational culture are organizational defenses based in bureaucratic routines and interests that are persistently ingrained (Wilson and Durant 1994, 141). Organizational members may have difficulty forgetting problems created between departments or functions and personalities involved, making cross-function team building difficult. When stereotyped images of people and departments are perpetuated, win-lose attitudes are



created, which are a significant barrier to acceptance of TQM principles (Atkinson 1990, 18).

Middle Management Fear of Loss of Power. Empowerment of lower level employees may cause high level managers to fear losing control and increasing errors and difficulties, and middle managers to fear loss of authority, autonomy, and power (Radin and Coffee 1993, 43), or loss of their jobs because TQM advocates elimination of redundant layers of hierarchical structures (Shoop 1991, 19). Middle managers can effectively stymie TQM efforts by filtering communications about it from top management (Hammons and Maddux 1990, 18). Managers who believe in the need for hierarchical organizations fear loss of turf (Hammons and Maddux 1990, 16; Laurent 1991, 9) and loss of quality assurance/control of products or services in their functional areas (Radin and Coffee 1993, 47).

Threats from Measurement. Measurement of work processes and outputs that accompanies TQM can threaten people because they view it as an attempt to find lack of employee or managerial effectiveness (Radin and Coffee 1993, 46).

### Summary

This chapter presented the primary TQM concepts and compared and contrasted them to those of traditional management theory. The extent to which the principles of TQM are consistent with seasoned organizational theory was then discussed. A definition of quality, in TQM terms, was provided. The chapter concluded with a discussion of barriers that hinder successful implementation of TQM.

## CHAPTER THREE

### REVIEW OF EMPIRICAL LITERATURE

Although TQM is ubiquitous in many sectors of the economy (Hackman and Wageman 1995, 309), it has not received serious research attention (Dean and Bowen 1994, 393; Anderson, Rungtusanatham, and Schroeder 1994, 473). There is a paucity of empirically based studies of the effects of TQM interventions on organizational culture, while much of the popular press contains conclusions and articles on the effectiveness of TQM based on anecdotal evidence and opinion (Wilson and Durant 1994, 137; Hackman and Wageman 1995, 321). Additionally, an extensive amount of case study research that examines inputs, i.e., measures the extent to which organizations have implemented TQM principles, rather than the effects of TQM implementation on intermediate or long range outcomes has been conducted (Anderson, Rungtusanatham, and Schroeder 1994; Hackman and Wageman 1995, 325). At the same time, studies that do attempt to subject TQM to rigorous empirical analysis fail to document the types of TQM implementation undergone or measure the extent to which TQM is actually implemented (Hackman and Wageman 1995, 321). Since chapters one and two describe much of the work describing inputs, studies concerning what TQM is and whether it has been implemented are not the subject of this chapter.

The empirically based studies of TQM outcomes that have been conducted utilize a variety of approaches, ranging from purely qualitative to quantitative (using regression or other types of analyses). The methodological approaches of these studies are compared and contrasted in table 1.

**Table 1. Summary of Research Methodologies**

Author/Year	Site(s) & attempted sample size	Data type, actual sample size (n), & Unit of Observation (UO)	Primary Study Objective(s)
Harber, et al. 1993	2 business units (BU) in a large Australian electronics business	survey (random sample) BU1: n=450 BU2: n=432 (control & experimental grps.) UO: BU	To determine the effect on organizational culture when TQM is adopted compared to an organization without TQM. BU1 was the experimental sample (with TQM), and BU2 was the control sample.
Shetty 1989	307 fortune 1000 execs. 308 from small orgs.	interviews (random sample) n=615 UO: organization	To determine employee perceptions of eight TQM techniques.
Hernandez 1993	3 private maquiladora orgs.	survey (random sample) n=130 (control & experimental grps.) UO: organization	To examine the relationship between TQM and job satisfaction in the maquiladora industry (U.S. businesses located in Mexico).
Favorite 1994	10 Baldrige award winners (private sector)	tele. interviews (purposefully selected) n=10 UO: individual	To determine what critical events leaders of exemplary quality efforts believe have contributed most significantly to their effectiveness as total quality leaders, and what lessons these leaders have learned.
Cho 1994	1,200 private firms (400 each: large mfg. co's.; small firms; service co's)	survey (random sample) n=231 UO: organization	To assess the factors affecting successful implementation of TQM in large manufacturing companies, small firms, and service organizations.

Table 1--Continued.

Author/Year	Site(s) & attempted sample size	Data type, actual sample size (n), & Unit of Observation (UO)	Primary Study Objective(s)
Maddox 1994	472 private org's	survey (random sample) n=149 UO: organization	To compare training needs assessment practices with perceived levels of success.
Powell 1995	CEOs of 143 firms (all firms with 50 or more employees in selected northeastern zip codes).	survey n=36 UO: organization	To determine whether TQM firms outperform non-TQM firms and to determine whether TQM performance is positively associated with 12 basic features of TQM.
Hardcastle 1994	1 private organization	ethnographic (multiple methods) UO: organization	To understand how organizational culture affected implementation of TQM.
Blackburn 1992	1 military organization	case study (voluntary interviews--234 invitations sent) n=51 accepted UO: organization	To assess progress in achieving cultural change, senior management commitment, productivity improvements, & attitude changes.
Lythgoe 1990	1 military organization	formative case study (interviews) n=36 UO: 6 operating units	To determine the extent to which TQM is being implemented; senior staff's commitment to TQM; and assess resource adequacy to implement TQM.
Kravchuk & Leighton 1993	all 50 states & DC.	survey n=48 UO: state	To determine whether successful implementation of TQM in state government is contingent upon strong managerial leadership, as well as on a hospitable administrative culture.
Berman & West 1995	all cities over 25,000 (1,211)	survey n=433 UO: municipalities	To determine how cities implement TQM, and in which areas TQM is most common.

Given the paucity of empirically-based research, empirical findings on TQM are presented even if not directly related to the specific research questions in this study. This chapter reviews the empirically-based findings on TQM, and critiques the rigor, strengths, and weaknesses of the analytical approach and the soundness of the conclusions. The findings and conclusions of the TQM literature reviewed is divided into four sections pertaining to the major themes of the studies that have been conducted: top management commitment, implementation strategies, TQM effects and differences among job position levels. Finally, the major empirical findings on the determinants of job satisfaction are discussed.

#### Empirical Studies of TQM

Top Management Commitment. Studies on level of commitment generally indicate that strong top management commitment to TQM is gradual, occurring over a period of years. Empirical evidence concerning level of commitment is derived from two case studies, an examination of cities, and a survey of states. Lythgoe's (1990) study, based on interviews with top management in six U.S. Department of Defense (DoD) Air Force units, found that after nearly two years, a very tentative start had been made toward adopting Total Quality Management. The researcher concluded that the DoD's short-range goals of establishing an Executive Steering Committee and subordinate teams to begin training and process improvement activities, were being met by the units surveyed, but medium- and long-range goals were not (Lythgoe 1990). (The long-range goals were focused on achieving cultural changes that were intended to make TQM a way of life in DoD. Mid-range goals were focused on achieving policy and regulatory changes

necessary to allow TQM to flourish.) In response to Lythgoe's question to interviewees concerning whether senior staff showed commitment to TQM, 56 percent said yes, 11 percent said no, and 33 percent were unsure. These responses were supplemented by various respondent opinions indicating inconsistent perceptions of commitment to TQM (Lythgoe 1990, 103-104).

Three additional studies reviewed here support Lythgoe's (1990) indication that organizational commitment to TQM evolves slowly. Blackburn (1992) found ambiguous results in an examination of whether upper level management was committed to the implementation of TQM; whether middle and lower level employees believed that upper management was committed to TQM; and whether there was a difference in perception of commitment of senior leaders among workers, mid-level managers, and the senior leaders themselves. While senior-level managers saw themselves as being committed to TQM (77.8% positive responses), non-managers (37.1% positive, 22.7% neutral, and 40.2% negative) and Division Chiefs (21.2% positive, 21.2% neutral, and 57.6% negative) were unconvinced. Chi Square analysis demonstrated that there was a statistically significant difference among the three survey groups. Blackburn (1992) reported that non-managers and Division Chiefs cited numerous examples of upper managers reverting to the directorship style of management in stressful situations, and argued that this does not mean upper managers were not committed to TQM, but likely reflects job pressures, the fact that TQM was new, and that cultural change was not yet complete.

In a comprehensive examination of the degree to which U.S. cities implementing TQM are committed to TQM, Berman and West (1995) found that of the 23 percent of

cities which implemented TQM, 22 percent had a token commitment and 11 percent had substantial commitment. Level of commitment was developed using four composite measures, the validity of which was supported by extensive implementation literature and survey feedback during testing (Berman and West 1995, 58, 61). Additionally, larger cities had higher commitment to TQM. Since half of all efforts were under four years old, the authors concluded that it was too early to draw conclusions about bottom line outcomes of TQM initiatives (Berman and West 1995, 64).

Kravchuk and Leighton's (1993) study of TQM in the states concluded that the most critical role appears to be senior agency management. The conclusion is based on the fact that 29 states cited agency head interest as a primary criterion for selecting which state agencies should implement TQM, and survey responses which indicated agency head leadership as being more crucial than gubernatorial commitment for TQM success (Kravchuk and Leighton 1993, 75-76). The authors maintained that ". . . participation of senior agency management--*presumably* at the appointed level--is most important" (Kravchuk and Leighton 1993, 77, emphasis added).

The studies reviewed here are inadequate to draw conclusions concerning the importance of top management commitment to TQM primarily because none of the studies measured intermediate or long term success. Additionally, of these research efforts, only the Berman and West (1995) study involved a rigorous and multi-faceted examination of commitment. The authors examined four composite measures of organizational commitment to TQM: (1) the number of functions in which TQM is used; (2) the availability of training efforts in TQM for employees; (3) the implementation of

rewards designed to further the implementation of TQM; and (4) the commitment of other organizational resources for TQM. Berman and West treated training as a component of commitment, whereas this study measures training as a separate variable. Further, in this study, the extent of TQM utilization in functions, implementation of rewards, and commitment of other resources, such as consultants, are gathered in the qualitative phase of the research.

The other studies reviewed drew conclusions based on one or two questions about how important commitment is perceived to be or whether upper level management was committed. Lythgoe's (1990) interview subjects were restricted to senior managers and were not validated by surveys or interviews with middle or lower level employees. As described in the introductory chapter, commitment involves changes in thinking and behaving on the part of organizational leaders, changing incentive and reward systems, and investing resources in training and education (Block 1987, 137-138). Given the complexity of the construct, asking direct questions about level or importance of commitment is inadequate, making the findings concerning degree of commitment dubious. Further research is needed before it is known whether top level commitment is critical for TQM success.

Implementation Strategies. Studies of TQM critical success factors have found that people-oriented factors, such as leadership and employee commitment to TQM, employee communication, empowerment of employees, and involving employees in decision making, are more strongly associated with TQM success than are technically-oriented factors, such as the use of TQM statistical tools and information technology



(Shetty 1989; Cho 1994). The research results of Powell (1995), Hardcastle (1994), Blackburn (1992), Favorite (1994) and Hernandez (1994) indicate that if TQM efforts do not focus on improving the cultural aspects of the organization, the effort will not be likely to succeed.

More specifically, Blackburn (1992) and Favorite (1994) found that empowerment of employees was the key to successful adoption of TQM in their respective case study sites. Staff persons who felt empowered by their supervisors had the most positive view of the value of TQM; conversely, staff members who felt they were not empowered were the most dissatisfied with TQM (Blackburn 1992). Favorite's (1994) interview study indicated that effective leadership of a TQM effort requires that managers be visibly committed to empowering employees and that they should be proactive in establishing opportunities for teamwork among employees. Shetty (1989) found that of eight TQM quality improvement techniques<sup>5</sup>, employee motivation, change in corporate culture, and employee education were rated most important, and that leaders in successful TQM practicing organizations focus on human resource management issues such as total commitment to employees and genuine concern for people. Powell (1995) reported findings that the behavioral factors, such as an open culture, employee empowerment, and management commitment, rather than TQM tools and techniques, were more important to the success of TQM. Powell, utilizing correlations and partial correlations, found that

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<sup>5</sup> The eight quality improvement techniques rated in terms of importance from 1 to 10 were: employee motivation, change in corporate culture, employee education, process control, expenditures on capital equipment, more control over suppliers, more inspections, and improved administrative support.

financial performance was related positively and significantly with TQM in the northeastern private sector firms that he studied.

Research on the importance and effect of training on culture has had mixed results. While a study of 149 randomly selected U.S. corporations found that training was a critical component of TQM success (Maddox 1994), other studies indicate that if organizations attempt to implement training alone, TQM efforts do not succeed in improving organizational culture or quality (Hardcastle 1994). Using regression analysis and Spearman correlations, Maddox (1994) found that employee involvement in the identification of what types of TQM training should be utilized was a predictor of perceived TQM success, accounting for 20 percent of the variance of perceived TQM success. The more managers sought and utilized input from employees concerning training needs, the more successful TQM was perceived to be overall (Maddox 1994). In Harber et al.'s study (1993, 37), training was given much greater emphasis in the TQM business unit; the authors concluded that it is likely that the significantly higher employee job satisfaction was derived in part from improved performance of tasks for which they received training. However, in a two-and-a-half year long detailed ethnographic study of the effect of organizational culture on implementation of TQM, Hardcastle (1994) found that TQM implementation focused largely on training efforts without empowering employees, developing teamwork, or increasing trust, causing employee unwillingness to accept a new system of beliefs. Specifically, employee resistance to change was intensified by contradictory assumptions among employees about the need for change and the effects of TQM implementation. In the case study site, TQM was not implemented as part of an

integrated system of social, structural, and technical changes that were needed to transform the culture (Hardcastle 1994). While TQM was intended to increase product quality and lower costs by introducing new technical systems and by establishing a labor-management partnership based on teamwork and participatory decision making, the result was higher costs and employee layoffs (Hardcastle 1994).

TQM Effects. Studies comparing organizations with and without TQM showed that organizations with TQM are significantly (statistically) more positive than those without TQM on a series of cultural outcomes. A broad examination of the relationships between TQM and job satisfaction in Mexico's maquiladora industry<sup>6</sup> found that employees in the company with TQM were more satisfied in their jobs (as measured by The Job Description Index) than employees of the two companies not using TQM, and that the longer employees worked in the company, the less satisfied they were (Hernandez 1994). Similarly, Harber, et al. (1993) found that employees in a business unit with TQM were significantly more positive than a business unit without TQM on a series of cultural outcomes. Employees in the business unit practicing TQM believed that there was greater equity; their ideas and opinions were valued; management was more likely to improve aspects of jobs and of the workplace; they were better informed; they were more likely to be inspired to give their best performance; and they were more oriented to customers than were employees in business units without TQM (Harber, Burgess, and Barclay 1993, 36).

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<sup>6</sup> Maquiladoras are American companies based in Mexico which utilize Mexican workers to produce goods that are sent back to the U.S. for sale (Hernandez interview 1995).

The authors also found that effective communication is vital to the success of TQM (Harber, Burgess, and Barclay 1993, 35).

Lythgoe (1990) measured the degree to which TQM has penetrated the organization's culture by asking whether a cultural transformation was occurring in the interviewee's organization (Lythgoe 1990, 102). Half of the respondents said that a cultural transformation was occurring, 37 percent said it was not, and 13 percent were unsure. Given the nuances and multiple levels and dimensions of culture that exist, asking one question directly about culture is not likely to yield practical and detailed results for policy making (Schein 1992, 16-27; Trice and Beyer 1993, 33-73).

Based on these studies, evidence about the effect of TQM interventions on culture is inconclusive. While the two study designs with a control and experimental group (Hernandez 1994 and Harber, et al. 1993) are relatively strong, the nature and types of TQM interventions were not documented in detail or verified. Without a full understanding of the intervention, it is not known precisely what the presumed causal factors were. The fact that Blackburn's (1992) interviewees volunteered based on invitations make the results suspect because the volunteers might be biased for or against TQM or in other ways. Favorite's interview subjects were all Malcolm Baldrige Quality award winners. This does not enable comparison with leaders of non-award winning firms to determine what the effects of variations in implementation were. While Powell controlled for factors that might produce spurious zero-order correlations (such as industry and firm size), the author reported that the relatively small sub sample sizes (24 manufacturing TQM firms, 15 service TQM firms, and 15 non-TQM firms) might limit the

external validity of the findings. Continued empirical research is needed to measure what types of TQM interventions are strongly associated with enhanced cultural (intermediate) outcomes.

Differences Among Job Position Levels. Both Blackburn (1992) and Hernandez (1994) found consistently greater proportions of senior management perceived that TQM had a positive effect on organizational culture than did mid-level managers or non-managers, and Harber et al. (1993, 38) found that managers and supervisors were more positive about equity and levels of commitment to improvement than were non-managers. In Blackburn's (1992) case study, a significant portion of respondents (47.9% of non-managers, 27.3% of mid-level managers, 58.8% of senior leaders, and 46.0% overall) *thought* TQM was having a positive impact on culture. Respondents with a negative view of TQM were in the minority (24.5% overall), with a disproportionate percentage (48.5%) of these being mid-level managers (Division Chiefs) (Blackburn 1992, 71). Similarly, Blackburn's Chi Square analysis showed that a statistically disproportionate number of middle managers thought that attitudes were less positive than did upper management or non-managers. Blackburn (1994), based on detailed interviews, attributed mid-level managers' lower positive perceptions of TQM's effect on culture to the fact that middle management job positions were the most threatened by TQM implementation.

The evidence concerning differences in perceptions among organizational levels based these studies is not compelling. Blackburn's (1992) volunteer participants, if presumed to be similar across the three levels studied, differ with respect to one another on attitude and perception of TQM on culture. The difficulty, once again, is in deriving

conclusions based on a direct question about culture rather than gathering information about the multiple aspects inherent in organizational culture. Further, attitudes were not based on direct measurement of attitude, but on respondents' perceptions of others' attitudes. This technique is less reliable than direct measurement. While Harber et al.'s results are rigorous and reliable, the sample size was adequate and the validity of the measures was tested, the findings that managers have more positive perceptions concerning equity is not definitive (by the authors' own admission), but is a starting point for future empirical investigation (Harber, Burgess, and Barclay 1993, 38-39).

Although these findings support the notion in that aspects of TQM should not be implemented in isolation, more extensive research is needed to more fully understand the role and importance of training in TQM. Success of TQM in Maddox's (1994) study was based on whether human relations managers perceived that TQM was successful, rather than on direct and objective measures of TQM success, such as external customer satisfaction and/or measures of changes in quality outcomes. While highly detailed, lengthy, and thorough, Hardcastle's (1994) ethnographic study was based on a single private sector firm and may not be replicable or generalizable to the public sector or to other private firms. Collective evidence concerning the effect and relative importance of training on cultural outcomes is inconclusive. Clearly additional research is warranted.

#### Research on Job Satisfaction

The relevant empirical literature on the dependent variables of interest in this study is reviewed here. An exhaustive literature search revealed few studies and no literature reviews (meta-studies) on the determinants of organizational trust, teamwork, and

customer focus. However, extensive research has been conducted in the area of job satisfaction. Therefore, this section contains a summary of empirical research conducted on the determinants of job satisfaction.

Broadly defined, job satisfaction is the set of feelings about or responses to facets of the job. The definition encompasses both the employee's concept of the meaning of job satisfaction and the definition implied by researchers investigating the phenomena (Smith, Kendall, and Hulin 1969, 6). Many researchers distinguish between job satisfaction and morale. Morale is overall group well-being, while job satisfaction is an individual's emotional reactions to a particular job (Gruneberg 1979, 3). Frederick Herzberg's research on job satisfaction and dissatisfaction in the late 1950s showed that a common set of factors lead to satisfaction, and a separate set of factors cause dissatisfaction. Herzberg interviewed two hundred engineers and accountants representing a cross-section of Pittsburgh industry. Each was asked about events experienced at work which resulted in a marked improvement in the job satisfaction or had led to a marked reduction in job satisfaction (Herzberg 1966, 91). Interviewers also asked subjects about events that caused negative feelings about their jobs. Several stages of probing questions were asked in both of these major categories. (Herzberg 1966, 91-92). Five major factors, which Herzberg called motivators, emerged as strong determinants of job satisfaction: achievement, recognition, the work itself, responsibility, and advancement. These factors, however, did not emerge as causes of job dissatisfaction. Factors which cause worker dissatisfaction, according to Herzberg, are separate and distinct from those which lead to satisfaction. Job dissatisfiers are extrinsic factors: company policy and administration,

supervision, salary, interpersonal relations with co-workers, and working conditions (Herzberg 1966, 92-94). Herzberg coined the factors leading to job dissatisfaction “hygiene” factors, because, as in general health, the presence of hygiene does not lead to a strong positive result--simply an absence of a negative outcome. Hygiene factors generally concern the environment in which work is conducted. Herzberg and others found that these job aspects do not have the power to motive workers in an active, positive way as do motivators. However, if they deteriorate or are absent, they cause a climate of dissatisfaction and frustration in which people will not perform their best (Paul and Robertson 1970, 13).

In his 1966 work, Herzberg reviews consistent and similar findings for a myriad of professions and cultures, including first line supervisors in the utility industry, Finnish supervisors, women in high level professional positions, county agricultural extension workers, pre-retirees from managerial positions, manufacturing supervisors, male hourly technicians, female assemblers, hospital nurses, skilled hospital employees, unskilled hospital employees, and housekeeping workers, as well as accountants and engineers (Herzberg 1966, 117-138). In the nine replications of Herzberg’s original study (cited and reviewed by Herzberg), the job satisfaction factors were in the predicted direction 100 percent of the time, and the job dissatisfaction factors were in the prediction direction just over 97 percent of the time (Herzberg 1966, 140-144). Of the elements leading to job satisfaction, achievement, recognition, and responsibility were most strongly related solely to job satisfaction. Along with the hygiene factors, lack of interest and challenge in the work itself also emerged as determinants of job dissatisfaction (Herzberg 1966, 146).



Since Herzberg's initial study, the research has been replicated multiple times for different age groups, nationalities, industries, job types, organizational levels, and so on (Paul and Robertson 1970, 13; Gruneberg 1979, 12). The findings of subsequent studies, with respect to the major determinants of job satisfaction, remain fairly consistent across types of people and situations (Paul and Robertson 1970, 89-90). Research-based evidence has indicated that Herzberg's hygiene factors and motivators are separate primary causal factors for job dissatisfaction and satisfaction respectively. The findings imply that, regardless of how challenging and interesting the work itself is, there will still be dissatisfaction if pay or working conditions are inadequate. Conversely, no matter how good the pay and aspects of the working environment are, these factors alone will not provide intrinsic satisfaction or stimulus for motivation that derives from doing a worthwhile job (Paul and Robertson 1970, 14). Put succinctly, since the studies indicate that people respond in one way to their actual work content and in another way to their work environment. Environmental enhancements cannot compensate for task impoverishment. It is the tasks themselves that can potentially provide the stimulus for positive job satisfaction.

Accumulated evidence shows that the factors which determine job satisfaction are not dependent on particular circumstances at the place of study. Herzberg's job satisfaction findings have been shown by some studies to apply to professional, managerial, support, service industry, and blue collar personnel (Paul and Robertson 1970, 91-92).

Much of the empirically-based research on job satisfaction continued to validate that factors which lead to job satisfaction have to do with the nature of the work itself: opportunity for achievement in the job, recognition of achievement, interesting and challenging work, responsibility/authority (empowerment), and opportunities for individual advancement and growth (Paul and Robertson 1970, 17). Long before TQM became popular in the United States, mounting evidence indicated that when managers exert *less* control of people, employees are more motivated and satisfied, mistakes are less likely, and worker performance is improved (Paul and Robertson 1970, 96-97; 104-105; Tiglao-Torres 1990). Other research, though measuring performance along a single dimension (such as output or absences), has shown no discernable relationship between job satisfaction and performance (Smith, Kendall, and Hulin 1969, 161-162).

In their research in developing the Job Descriptive Index and review of job satisfaction literature, Smith, Kendall, and Hulin (1969) found a more complex, contingency-based relationship between determinants of job satisfaction and job satisfaction. Unlike Herzberg's findings of universal and fixed determinants of job satisfaction and dissatisfaction, the research of Smith and her colleagues showed that the feelings someone has about aspects of the job are both absolute (independent of context), as well as relative to the alternatives available. For example, a particular salary level may be a source of job satisfaction, a source of job dissatisfaction, or irrelevant, depending upon what alternative jobs might pay or what others in comparable jobs earn (Smith, Kendall, and Hulin 1969, 165). Gruneberg (1979, 17) cites research that found that certain hygiene factors, such as pay, can contribute to job satisfaction. Additionally,

certain motivators can be determinants of job dissatisfaction. Herzberg (1966) himself had similar findings, but did not highlight the fact that hygiene factors cross over into the field of satisfaction predictors, and motivators emerged as indicators of dissatisfaction. Other researchers have found that while hygiene and motivator factors cause both satisfaction and dissatisfaction, hygiene (job context) factors are less important to job satisfaction than are motivator (job content) factors (Gruneberg 1979, 55). A survey of 150 front line workers, 43 immediate supervisors, and 50 clients of 11 government agencies found both intrinsic and extrinsic factors were motivators (Tiglao-Torres 1990). In an empirical examination of 405 employees of a VA Medical Center, Agho, Mueller, and Price (1993) found that job satisfaction was influenced by characteristics of the environment (hygiene factors), the job itself (motivators), and personality variables (such as positive affectivity). Partially contradicting the findings of some previous studies, Emmert and Taher (1992) found that job characteristics did not explain variations in job satisfaction in state public sector professionals. The researchers found that social satisfaction, intrinsic factors (such as growth), and feedback on job performance most strongly affected job satisfaction.

Empowerment/autonomy. Further research has also strengthened Herzberg's findings that job satisfaction is positively related to the degree of responsibility, autonomy and ability to control ones' own pace and quality of work (Smith, Kendall, and Hulin 1969, 165; Gruneberg 1979, 45; Finlay et al. 1995, 438). An exploratory longitudinal study of teams in an engineering workshop found that groups that were empowered to work autonomously had significantly higher job satisfaction, while the non-autonomous groups had lower job satisfaction, productivity as well as higher lost time due to accidents

and absenteeism (Pearson 1992, 930). Two surveys of public sector employees found that job satisfaction was explained by five job characteristics: task identity, task significance, autonomy, skill variety, and feedback from managers (Jans and McMahon 1989, 311).

**Organizational Climate.** Studies of the relationship between aspects of organizational climate (degree of supportiveness, warmth, control, and morale) and job satisfaction find significant correlations (Gruneberg 1979, 86-87). However one study found differences in correlations for different professions, such as managers, secretaries, and supervisors in an insurance office (Gruneberg 1979, 87). Findings on the individual differences on the relationship between organizational climate and job satisfaction make it difficult to draw firm conclusions.

**Participatory Management.** Studies that distinguish between democratic and authoritarian managers find that participatory (democratic) management styles are positively associated with job satisfaction. A democratic, participatory manager establishes supportive relationships with employees, works to ensure they achieve their personal goals, and involves them in decision making. The autocratic or task-oriented manager makes decisions without consulting employees and works to maximize the organization's goals without regard to the welfare or needs of employees. Numerous studies have shown that employees prefer democratic or employee-oriented managers, and that the existence of a managerial style of consulting employees about decisions is positively related to job satisfaction (Gruneberg 1979, 71-72; 75). This positive relationship has been found in educational settings, research laboratories, industrial plants, military settings, and government agencies (Gruneberg 1979, 72; Harber, Marriott, and

Idrus 1991, 31). However, some studies show that some of those with authoritarian personalities prefer authoritarian leadership (Gruneberg 1979, 73). Also, demographic variables and the type of participation implemented affects the strength of the relationship between participatory management and job satisfaction (Harber, Marriott, and Idrus (1991). Other studies refute the findings that there is any causal relationship between participatory management and job satisfaction. Some studies, which measure job satisfaction before and after instituting various forms of involving employees in decision making, failed to find a relationship (Gruneberg 1979, 77-79). At the same time, these findings indicated that participation activities themselves (action planning groups and so forth) are popular with employees. Overall, the collective empirical literature yields evidence of a positive relationship between participatory management and job satisfaction (Pollock and Colwill 1987).

Effect of Organizational Structure. Bureaucratic or authoritarian structures are characterized by a hierarchy where there is a progression from the least to the most powerful. Bureaucratic structures are pyramid-shaped with fewer people at the top, where control is exercised. Workers in a hierarchical structure do not participate in decisions about how jobs are performed. People tend to do what they are told and are expected to rigidly conform to their job descriptions (Gruneberg 1979, 82). People at the bottom of the organizational structure generally do not communicate with those at or near the top. Conversely, less hierarchical structures are flatter, with fewer levels of management. Some empirical studies have found no evidence of a relationship between structure and job satisfaction in large organizations (Gruneberg 1979, 84). Other

empirical studies, cited by Finlay et al. (1995), have found a positive relationship between hierarchical structure and job satisfaction. However, researchers have criticized these findings because the studies failed to account for job and organizational characteristics (Finlay et al. 1995). Since findings on the effect of different organizational structures differ according to circumstance, setting, and type of occupation (Gruneberg 1979; Finlay et al. 1995), the failure to account for these attributes is a serious research design flaw. In some studies, for example, job satisfaction of managers was found to be higher with flat, non-hierarchical structures in organizations under 5,000 employees (Gruneberg 1979, 85). Additional studies examining the effect of organizational structure on job satisfaction found that teachers in flat structures have higher job satisfaction than those in tall structures (Gruneberg 1979, 85). Gruneberg (1979) states that, overall, compelling research evidence exists which shows that in smaller organizations, job satisfaction is greater when the organizational structure is flat. Recent research finds that, when job ambiguity, job variety, and job autonomy are controlled for, hierarchical structures have a negative effect on job satisfaction (Finlay et al. 1995, 438). These findings are consistent with what organizational theory predicts.

Effect of Age. Herzberg suggests that job satisfaction increases with age because the individual comes to adjust to work situations. Herzberg found that job satisfaction is initially high, the declines, and increases again (Gruneberg 1979, 91). Later studies also indicated that newer workers tend to have higher job satisfaction, and that job satisfaction decreases, then later increases with age (Gruneberg 1979, 92). A study of 81 supervisors by Luthans and Thomas (1989) found a completely opposite pattern: a positive

curvilinear relationship between age and job satisfaction. The results showed that job satisfaction was medium-high for those approaching their mid to late 30s, highest for those in their 40s, and lower for those in their 50s and 60s. The difference in results may be due to the use of different age groupings for the analysis.

Effect of Tenure. Professional employees show long-term changes in level of satisfaction. After about fifteen years, satisfaction with the job itself (as well as overall job satisfaction) decreases. Satisfaction related to interaction with coworkers decreases for the first two years and steadily increases over time (Gruneberg 1979, 28). Satisfaction with company policies decreases over a decade, then increases. Gruneberg (1979) argues that these particular findings are suspect because individuals were surveyed at different stages of tenure in occupations at a single point in time, rather than following a cohort through time.

#### Summary

This chapter discussed the empirical findings on the effects of TQM as well as empirical findings concerning job satisfaction (a relatively well-researched field). Empirical studies on TQM related to the areas of managerial commitment, implementation strategies, and TQM effects. While empirical evidence concerning managerial commitment suggests that commitment to TQM is important, the findings are not conclusive. The studies reviewed did not examine medium or long term success, and most studies contained methodological limitations or flaws making the findings suspect. The findings on implementation strategies were mixed, indicating that there is uncertainty about the relative roles and importance among training, empowerment, participatory

management, and the like. Evidence does appear to be accumulating that training alone is insufficient for TQM successful interim or long term outcomes. Similarly, evidence concerning the effect of TQM interventions on organizational culture is inconclusive, due to methodological difficulties in the studies reviewed. Findings on the differences in perceptions among employees in different organizational levels--concerning the effects of TQM interventions--are not conclusive due to limitations in the reviewed studies' approaches.

Empirical research on job satisfaction somewhat compellingly indicates that autonomy, empowerment, and participatory management are positively and strongly related to job satisfaction. Additionally, flatter organizational structures are associated with higher levels of job satisfaction.



## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

This chapter describes the theoretical framework employed in this study and the qualitative and quantitative research methods applied. The basic research questions, the hypotheses that were tested, and the specific variables are identified. A description of the data collection instruments is included, and statistical tests applied are described. The chapter concludes with a discussion of the limitations of the study and of attitudinal surveys, more generally.

#### Overview

The approach utilized in this study is a cross sectional experimental design with multiple replications, supplemented by qualitative analysis. A questionnaire was administered to gather the data for the quantitative analysis. Multiple regression was used to analyze of the effect of multiple TQM interventions in context of one another, while taking into account important background factors. The qualitative study phases provide extensive documentation and analysis of exogenous events that occurred at the time of the study, as well as detailed documentation of the nature and type of TQM implementation in the study sites. The importance of these qualitative data and how they were utilized are discussed in later sections.

### Framework for Analysis

While there has been much speculation, there has been little systematic and rigorous analysis of TQM (Wilson and Durant 1994, 137), and much of the TQM literature is advocacy oriented and/or anecdotal (Anderson, Rungtusanatham, and Schroeder 1994). TQM research needs to become more grounded in theory and should be contingency based in order to improve cumulative knowledge about the effects of TQM (Wilson and Durant 1994, 138). By contingency based, Wilson and Durant (1994) explain that a contingency model of evaluation refers to the expectation that what constitutes a good organizational arrangement depends on what the organization is trying to do and the environment in which it is attempting to do it (Wilson and Durant 1994, 140). The contingency theory approach requires a consideration of the internal organizational context, the external environment, and the TQM interventions applied. Expectations about how these will interact to produce specific outcomes are then developed and tested (Wilson and Durant 1994, 140). These two authors also use the word contingency to mean that the tools of evaluation most appropriate to use for assessing TQM interventions will vary in different settings. Wilson and Durant (1994) propose a specific method of evaluating the effects of TQM interventions.

The approach, initially proposed by Chen and Rossi (1983), is intended to frame and provide rigorous evaluation results. Wilson and Durant recommend the Two-Step model for situations when researchers or program managers need to monitor interim progress toward goals, goals are less tangible, agreed upon measures of final success are not fully determined, or time constraints preclude waiting for long-term results. Given the

formidable difficulties with detecting direct effects of TQM on global organizational outcomes (Hackman and Wageman 1995, 322-323), the Two-Step model is designed to measure relationships, such as whether the presence of quality improvement teams are related to job satisfaction (Wilson and Durant 1994, 141). To apply the Two-Step model, intervening variables are identified which are milestones toward achieving more distant, less tangible results representing the ultimate objectives. Using this approach, the researcher presumes that if there is progress on the intervening variables, the interventions are linked to the long term goals of the TQM interventions (Wilson and Durant 1994, 141).

Given that the TQE effort in HCFA is only two to three years old and attainment of long term outcomes or goals with respect to TQE is several years away, the Two-Step approach is most appropriate as a theoretical basis for the analysis of HCFA's TQE program. In particular, TQM supports the expectation that enhancing the cultural aspects of the organization, such as empowering employees and providing employee self-direction and freedom, makes employees more willing to improve organizational processes and outputs (Garrity 1993, 446). The research questions, hypotheses, identification of variables, and design of the data gathering instruments are focused on cultural intermediate organizational outcomes based on the Two-Step theoretical approach.

It is important to note that bottom line quality outcomes were not measured in this study. Long term outcomes are comprised of change in level of quality of services and products, such as timeliness in providing service and/or information to internal and external customers, and customer satisfaction with services (Fellers 1992). Ideally, these

quality outcome variables are defined by the internal and external customers. Definition and measurement of them is accomplished by obtaining customer input and feedback through customer satisfaction surveys and/or customer focus sessions (George 1994, 152-154). Ultimately an organization that practices TQM begins to obtain and act upon systematically gathered customer feedback data in order to meet customer expectations. It is important to emphasize that in TQM, identification of standards and levels of quality outputs is not made by anyone or any group other than the customers who receive the output--not by management, by those producing the product or service, or by a researcher. Therefore, predetermined production or service standards are invalid and irrelevant for purposes of defining and measuring bottom line quality outputs, be they internal (intermediate outputs moving from one department to another) or external (information, resources, or products moving to the ultimate customer). Measurement of bottom line, long term outcomes is beyond the scope of this study.

#### The Basic Question

The overall question is: two years after the start of implementation, do TQM implementation techniques affect (in either a positive or a negative way) key intermediate outcomes theorized by Deming and others? Two research questions flow from the basic question, and detailed hypotheses are formulated and were tested based on the research questions.

### Research Questions

The theoretical framework presented in chapter 2 suggests that implementation of TQM brings about positive organizational outcomes. Practicing a high level of managerial commitment to organizational improvements, empowering employees to make decisions, involving employees in policy- and decision making, instituting open and frequent communication practices, adopting a coaching approach to management, instituting quality-related teams, and training employees are collectively theorized to increase job satisfaction, teamwork, trust, and customer focus. Satisfied employees, who are given certain skills and training, focus on satisfying their internal and external customers. Also, employees who are given the authority and the proper tools find ways to conduct business more efficiently by cutting waste, improving the effectiveness of processes, and continuously improving the way things are done. At the same time, several barriers to reaching these goals exist, such as resistance to change, cynicism, and mistrust of management's intentions. As discussed at length in chapter 3, the initial effect of changes introduced by TQM can cause short term (within the first year or two) negative effects in some organizations. This study considers how variations in employee perceptions of TQM implementation efforts underway at HCFA actually affected intermediate outcomes predicted by TQM, leaving open the possibility of a negative association between the implementation methods and desired intermediate outcomes.

Following are the basic research questions addressed by the study:

- (1) What is the effect of variations in the ways that employees perceive and experience TQM implementation on job satisfaction, organizational trust, and teamwork?  
(These are described in more detail below.)
- (2) What is the effect of variations in the ways that employees perceive and experience TQM implementation efforts on customer service focus? Customer service focus is comprised of customer awareness and customer feedback, which are described in more detail below.

The dimensions along which the ways that employees perceive and experience TQM implementation might vary are: managerial commitment, empowerment, participatory management, communication, coaching, discipline, participation on a quality council, participation on a quality improvement team, problem solving training, and TQM skills training.

### Hypotheses

The effects of the collection of TQM interventions on five key intermediate quality outcomes are tested through the following hypotheses, which is based on the theoretical framework:

- H<sub>1</sub> Variations in the way TQM is implemented, as perceived and experienced by individuals, affect job satisfaction.
- H<sub>2</sub> Variations in the way TQM is implemented, as perceived and experienced by individuals, affect trust.
- H<sub>3</sub> Variations in the way TQM is implemented, as perceived and experienced by individuals, affect teamwork.

- H<sub>4</sub> Variations in the way TQM is implemented, as perceived and experienced by individuals, affect customer awareness.
- H<sub>5</sub> Variations in the way TQM is implemented, as perceived and experienced by individuals, affect customer feedback.

The hypotheses were tested in four organizational units (three bureaus and one Regional Office) for each of the five dependent variables contained in the hypotheses. Nineteen background variables (eight exogenous and eleven demographic) variables were controlled for in the multiple regression equations (discussed below).

#### Data Collection Techniques

Conducting a controlled experiment is considered the best method in social science for establishing causal links because it enables the researcher to measure the value of the dependent variable, introduce the independent variable hypothesized to be the cause, and observe whether there is any change in the dependent variable (Bailey 1982, 223). A major disadvantage of using an experimental approach in social science is that removing subjects from their natural setting alters the behavior of interest in the study. However, attempting to conduct an experiment in the natural environment likely makes it impossible to control the extraneous variables that could threaten the experiment. For these reasons, the experiment is not as widely used in social science as in other disciplines, where more control is possible (Bailey 1982, 224-225). HCFA exists in an environment of great change involving implementation of reorganization, implementation of major elements of Vice President Gore's National Performance Review, institution of formal performance measures to comply with the Government Performance Results Act, and possible political

changes. In such a volatile environment, measuring before and after institution of TQM techniques, with or without a control group, would likely yield unreliable results. Given the impracticality of conducting a controlled experiment in HCFA, or controlling for alternative explanations that may occur between a pre- and post-test, data for the study were gathered using the explanatory survey approach, using a written survey and semi-structured interviews to gather the data.

The explanatory survey approach represents a set of techniques in which causal inferences are drawn from nonexperimental data (Selltiz, Wrightsman, and Cook 1976, 153). With this approach, there is no manipulation of independent variables or control over assignment of individuals to groups. The variables are investigated as they exist in their natural settings. While the explanatory survey approach lacks the exactness and clarity of a pure experiment, it has the advantage of external validity (Selltiz, Wrightsman, and Cook 1976, 153). As Selltiz, et al. point out, ". . . many questions of great importance are simply not subject to true or even quasi-experimentation, except by analogies that lack the power of reality" (Selltiz, Wrightsman, and Cook 1976, 153-154). The explanatory survey approach is applicable when studying complex social phenomena in which causal patterns have many factors and no simple, single independent variable can be identified, and when ruling out plausible alternative contributing factors is not feasible (Selltiz, Wrightsman, and Cook 1976, 154). If a researcher is examining factors that relate to a dependent variable, and these factors are characteristics, beliefs, accumulated experiences, or behavior patterns, a survey approach may be appropriate (Selltiz, Wrightsman, and Cook 1976, 154). A retrospective explanatory survey compares groups



that differ on the dependent variable(s) of interest in relation to the presumed independent variables (Selltiz, Wrightsman, and Cook 1976, 155). In this study, a cross sectional research design with four replications is utilized to measure the relationship between the independent variables and dependent variables (the intermediate outcomes). The explanatory survey is the instrument used to gather the data for the analysis.

Components of the Quantitative and Qualitative Analyses:

- (1) Survey: A written questionnaire was administered to a stratified random sample of managers and non-managers in four HCFA components (described later) to measure characteristics of the TQM interventions (independent variables), and the intermediate outcome (dependent) variables. Respondents and responses were coded to ensure anonymity. Additional discussion and detail is provided in the section describing the survey instrument.
- (2) Detailed description of exogenous events: Semi-structured, personal interviews with four senior managers (the three Bureau Directors and the Regional Administrator) were conducted to elicit qualitative information concerning environmental and contextual factors that might affect the independent and/or dependent variables being measured in the survey. Some examples of exogenous factors are implementation of streamlining/reorganization, implementation of the HCFA Strategic Plan, and changes in laws and regulations. Given the fact that other events may have been taking place or may be taking place which affect variables such as job satisfaction, teamwork, trust, and customer focus, it is important to capture and document exogenous factors to the extent

possible. This makes it possible to theorize about the possible causal factors to outcomes measured in the survey that may be other than the independent variables measured.

Interviews with the four senior managers (Directors) were supplemented with semi-structured interviews with three randomly selected non-managers and three randomly selected managers from each of the four bureaus. Two of the bureau directors were female and two were male; the 24 other interviewees consisted of 13 females (54 percent) and 11 males (46 percent). The interviewee group had a mix of long time service, medium length service, and relatively short federal service (as gathered from the context of the interview; the subjects were not asked for their precise length of service). It is important to note that the interview selectees were not volunteers, but were informed that they were randomly selected. While they could refuse to participate, they were not told that they had that option. This technique reduced any response bias due to a particular type of individual tending to agree to participate in the interviews. Only one non-manager interview subject selectee could not participate due to a hearing disability (a replacement interviewee was selected using the table of random digits and the last two digits of the social security number). All of the remaining 24 random selectees participated in the interviews.

Interviews with the middle managers and non-managers validated and provided additional detail on the information provided in the Bureau Director interviews. Information concerning the affects of reorganization/streamlining, the Strategic Plan, and other environmental factors was gathered by questioning individuals other than Directors on these issue areas. Additionally, interviewees were asked about the nature of TQM

implementation in their work units and bureaus. The implementation questions were designed to determine whether TQM elements on paper were actually carried out, and to elicit details about the ways in which TQM structures, training, empowerment, participatory management, communications, customer focus, teamwork, use of scientific and heuristic tools were implemented.

In total, 28 interviews were conducted across OFHR, OMC, BDMS, and the Boston Regional Office. The interviews took place from late August through early October 1995. All of the Director Interviews were conducted in person. The middle manager and non-manager interviews were conducted by phone (except one, which was conducted in person). The amount of time for the interviews averaged approximately an hour and a quarter, and ranged from 40 minutes to two hours long. Interviews with bureau directors were confidential in that the full text of the interviews would not be published. The 24 manager and non-manager interviewees were provided full confidentiality including protection of their identity. The interview guide is in appendix 2.

(3) Description of the TQM interventions: To enable replication of the study, a detailed description of what structures have been put in place to implement Total Quality Environment at HCFA (such as types of Quality Councils, groups, and Quality Improvement Teams) is provided. Data regarding the ways in which the Quality Councils at all levels operate was obtained from reviewing samples of meeting minutes, sitting in on council meetings, and interviewing council members and/or members of the Quality Support Team who interact frequently with the councils. The precise nature of TQE interventions will provide future researchers with a description of what was done, how it

was done, and when it was done. This information was gathered from the researcher's experience and knowledge about the agency, discussions with various HCFA officials, and the random semi-structured interviews. Implementing TQM means, in part, putting team structures in place and removing hierarchical structures, and changing the ways people interact, much of which can theoretically be done only on paper. This phase of the study examined whether these things done were real by documenting what the nature of the implementation efforts were and what they entailed.

#### Design of the Survey

A pre-existing TQM culture survey developed by General Research Corporation (GRC), for which HCFA has purchased a site license, was initially considered for use in this study. The GRC survey was administered in most HCFA components in 1992 (including each of the four study units), and was re-administered to several HCFA components in the summer of 1994. However, the use of the GRC survey was rejected for several reasons. The GRC is a generic survey which was not adapted to the circumstances, terminology, or needs of HCFA. The response scale is on a six-point scale ranging from strongly disagree to strongly agree. It is unclear what the real difference is between answers such as "somewhat disagree" and "somewhat agree" and what would be done with results which fall into these categories. The GRC has some technical difficulties, such as the lack of a "don't know" category for a series of questions about what the organization's customers think about the services they receive from the work unit/organization. Respondents may have indicated that they somewhat agree that the customers are satisfied with the quality of work they receive, when in actuality, they may

not know. Additionally, GRC has several questions which ask, "how many people (or work units) . . ." instead of "do you . . ." or "does your work unit . . ." This is not an optimum way to phrase questions because individual respondents may not have knowledge about what all others in the organization or agency do or believe. The survey did not contain any questions about demographics, such as grade level, age, race, or gender. Finally, the GRC survey did not contain questions which would yield answers to the research questions in this study. The drawbacks noted concerning the GRC do not necessarily render the GRC invalid as a measuring instrument, merely inappropriate for use in this study.

Due to the irrelevance to HCFA and weaknesses and gaps in the GRC survey, it was necessary to design a new survey instrument which asks detailed and relevant questions that enable meaningful analysis. The survey improves upon the GRC survey by tailoring questions to HCFA's environment and culture. Studies of culture in an organization should not utilize a pre-existing survey instrument regardless of whether it has been tested for validity at other sites; surveys are much more valuable and appropriate if designed based on the core cultural variables (consistent with TQM principles) of importance to the organization under study (Harber, Burgess, and Barclay 1993, 40). In place of several of GRC's generic questions, more detailed and pertinent information was gathered, such as data on job satisfaction, trust, teamwork, and empowerment. The questionnaire asked specifically about TQM training and other interventions. Demographic questions (age, race, grade, length of time in the agency, etc.) were included

in the survey. Information on mediating variables was also gathered: respondents were asked about the effects of reorganization and of the Strategic Plan.

The survey questions are based on the review of TQM literature, existing survey instruments from several federal agencies that have won Presidential Quality or Quality Improvement Prototype Awards, interviews with methodologists within HCFA and in other federal agencies, and input from a focus group session containing a cross section of HCFA employees (both non-managers and managers). (The purpose of the focus group was to obtain feedback from employees on what types of questions are important to ask and what the nature of their concerns were.) Questions were designed to be appropriate for HCFA's environment and to measure the constructs of interest in this study.

For the scaled responses, four point Likert type forced scales were selected. The two scales used are: Strongly Agree/Agree/Disagree/Strongly Disagree/Don't Know; and Always/Usually/Seldom/Never/Not Applicable or Don't Know. A neutral category was not offered so that respondents would be forced into one of the response categories unless they do not have sufficient information to answer. The advantage of a relatively narrow range of responses (four versus five or seven) is that the responses have greater utility for policy making. It is unclear what policy decisions should be made with neutral responses such as somewhat agree, no opinion/neutral, or somewhat disagree. Some research shows that when these responses are offered, respondents tend to gravitate toward these neutral categories rather than responses closer to either end of the response scale (Bailey 1982, 133-137; Selltiz, Wrightsman, and Cook 1976). Eleven (28 percent) of the 40 survey questions involving a value statement were phrased negatively to reduce response bias due

to response set (tendency to respond positively when all questions are phrased positively). As originally entered, the “always” and “strongly agree” end of the Likert scale were entered as 1, and “never”/“strongly disagree” were entered as 4. Therefore, in the data programming steps the coding was reversed on all positively phrased questions so that higher numbers would be better, thereby aiding intuitive interpretation of results. Questions were placed randomly throughout the survey, again to increase reliability of responses and reduce response set (patterned answers). The survey, including questions about training and demographics, contained 55 questions.

Pretest. During February and March, 1995, the survey was pretested on a group of employees consisting of one manager and seventeen non-managers in HCFA's Management Planning and Analysis Staff (MPAS). The purpose of the pretest was to identify and correct any unclear, misleading, or double barreled questions. Individuals in MPAS are similar to the study group (they are HCFA employees), but were removed from the survey pool because they would have contaminated the results once they have been involved in the pretest (Bailey 1982, 150). The pretest was conducted in five rounds, with feedback from each round used to revise the survey and cover note for the next round. Based on the pretest, several changes were made to the survey instrument. Pretest respondents were debriefed (individually and in small groups) to determine if they found any questions confusing, why they did not answer certain questions, and how they interpreted questions. Following initial pretest rounds, a small focus group session was held to discuss the respondent's experience with the questionnaire, any additional areas of confusion, and reasons for certain responses to ensure that they were understanding

questions as they were intended. Questions which were confusing or unclear were reworked. Some negative phrasing was changed to positive because some pretest subjects responded incorrectly to negatively phrased questions (they failed to see the word "not" in the statement). In one question where this occurred, the word was underlined. Questions containing the Always to Never scale were phrased positively because negative phrasing made the response somewhat convoluted and confusing. Four questions were eliminated because respondents reported frustration due to redundancy. (These eliminated questions were not deemed necessary for reliability checks.) A few double barreled questions were simplified and made more direct. Several respondents indicated that additional levels of education response choices were needed; therefore, the responses "some Associate degree or other undergraduate work" and "some graduate work" were added to the education question. Since one respondent reported visual difficulty with determining where to place the check on the scale items, the spacing was changed on all of the response categories to increase the space between categories and delete the space that existed between the check line and the corresponding response. While two pretest subjects asked why it was necessary to ask for race and indicated that this might be offensive to some respondents, it was determined that race is a standard demographic question and was left in the survey. No further difficulties were identified in subsequent pretest phases.

The survey questions grouped by construct/variable are shown in appendix 6. The actual survey instrument (in which the questions were randomly placed using the Lotus 1-2-3 @RAND function), and cover memo are in appendix 7.



Cronbach's Alpha was used to assess the internal reliability of the indices created from the questions in the survey. The use of this measure is discussed in chapter 7. Multiple regression was used to test each of the hypotheses.

### The Sample

Universe. Three HCFA bureaus and one Regional Office, all of which received TQM interventions approximately two years ago, comprise the study universe. The bureaus are Office of Financial and Human Resources (OFHR), Bureau of Data Management Systems (BDMS), and Office of Managed Care (OMC). The Regional Office is Boston.

The full agency was not selected as the universe primarily because the General Research Corporation survey had been re-administered in several HCFA units in 1994. Employees in these bureaus might have been reluctant to be surveyed again. Additionally, most other bureaus underwent overall bureau-level reorganization within a month or two of the survey, which might have contaminated the study results.

In all four bureaus, 100 percent of managers was surveyed. A 60 percent random sample of non-managers in each of the two larger bureaus (OFHR and BDMS) was surveyed. Given the relatively small size of OMC and the Boston Regional Office, 100 percent of the non-managers in each was surveyed. Table 2 contains the number of HCFA employees by bureau, sample size, and response rates.

Bureau	Universe*	Sample	Responses (n)	Response Rate
Boston RO	129	129 (100%)	118	91.5%
BDMS	488	293 (60% of non-managers)**	222	75.8%
OFHR	291	175 (60% of non-managers)**	144	82.3%
OMC	124	124 (100%)	87	70.2%
Total	1032	721	571	79.2% overall***

\* Final sample figures. Twenty-three individuals from the original sample were excluded because they had retired, left the agency, or transferred to another bureau: 7 in Boston RO; 9 in BDMS; 3 in OFHR; and 4 in OMC were subtracted from the sample totals. Senior Executive Service personnel, "experts," and contractors are not included in the universe data.

\*\* 100% of managers in all 4 bureaus were sampled. However, the response rate for managers versus non-managers is unknown because the codes in the personnel system designating managers included some individuals who were actually non-managers at the time of the survey.

\*\*\* Overall response rate does not include 12 respondents who physically removed the bureau indicator from the survey. These 12 were not utilized in the analysis.

The surveys were printed on canary yellow paper to increase the response rate (Bailey 1982, 163). Each survey was manually stamped with a control number on the front bottom right corner of the first page of the survey. The control number contained two parts: a bureau indicator (1, 2, 3, or 4) and a unique digit identifier. The same control number was stamped on the master list of all survey recipients so that respondents could be crossed off as surveys were returned. The surveys were placed in 12x14 inch envelopes with the researcher's return address pre-printed on the front and mailing labels with survey recipients' name and mail stop on the front. The Boston Regional Office surveys were sent to a central contact in a box by Federal Express. The contact person (who was not part of the survey group) distributed the individually sealed and addressed surveys in the recipients' mail boxes. Each survey packet contained a cover memo, the

survey, and a pre-printed 9½ x 12½ inch pre-addressed return envelope back to the researcher, which were large enough to contain the survey without having to fold it. The return envelopes for Boston and Washington D.C. contained postage paid franks.

The surveys were sent out the first week of May 1995. One week after the surveys were mailed, reminder postcards were sent to the entire survey population encouraging those who had not responded to do so and thanking those who had already responded (Boston Regional Office was sent e-mail reminders). One week after the reminder post cards were sent, followup letters and surveys were sent to all non-respondents (approximately 228 people). The followup letter urged a response and reassured confidentiality.

The response rate overall was 79.2 percent (571): 91.5 percent (118) for the Boston Regional Office; 75.8 percent (222) for BDMS; 82.3 percent (144) for OFHR; and 70.2 percent (87) for OMC. Twelve surveys were received with the bureau identifier and control number blacked out or cut out. These twelve were not utilized for the analysis (the response rate would have been 81 percent had the twelve bureau identifiers not been removed).

Chapter 7 includes a detailed description of the statistical analysis conducted on data gathered from the survey, including analysis of response bias.

#### Selection of Variables

This section contains a description of quantitative variables. Table 3 contains a summary of all variables for the study along with the sources of information and chapter in which the information is presented. All index variables were created by summing the

responses and dividing by the number of questions in the index so that the variables ranged from 1 to 4, with 4 being more positive. In all index variable calculations, if one or more question had missing values (the respondent did not answer the question), the index was created using the remainder of the questions and divided by that number of questions, as long as some threshold number of items constituting that index were answered. For example, job satisfaction contains six questions; however if a respondent skipped two of the six job satisfaction questions, the index was created by summing the responses to the remaining four questions and dividing by four. If the respondent answered fewer than four of the job satisfaction questions, the job satisfaction index was set to missing. This method preserved the index variable even if some responses to questions contained in the index were missing.

**Table 3. Description of Variables**

Category	Constructs/Variables	Sources of info. & chapter in which info. presented
<b>Implementation efforts in HCFA</b>	Descriptive material for documentation of TQM implementation, to determine the nature and types of implementation, and to enable replication of the study.	Semi-structured Interviews Documents Observation (Chapter 6)
<b>Dependent Variables</b>	Job Satisfaction Trust Teamwork	Survey (Chapter 7)
	Customer Awareness Customer Feedback	Survey (Chapter 7)
<b>Independent Variables: TQM Interventions</b>	Managerial Commitment Empowerment Participatory Management Communication Coaching Discipline Service on a Quality Council (QC) Service on a Quality Improvement Team Problem Solving/QIT Training TQM Skills Training	Survey (Chapter 7)
<b>Background Variables: Exogenous Factors (Quantitative)</b>	Whether or not reorganization took place The inverse of reorganization recency (1/time) Reorganization results (6 possible results)	Survey (Chapter 7)
Exogenous Factors (Qualitative)	Context and environment at HCFA: events occurring during the time of TQM implementation, such as Strategic Plan implementation and reorganization, that might affect the variables being measured.	Interviews Documents (Chapter 5)
Demographics	Job Position (Manager/Non-manager) Time in job Age Race Gender Grade level (3 dummy variables) Education level (3 dummy variables)	Survey (Chapter 7)

### Independent Variables and Measures

The independent variables are the ten TQE elements of implementation efforts shown in table 3. The constructs are described below, along with the specific questions that comprise and measure the theoretical constructs. If the item responses were reverse coded, this fact is indicated following the item.

**Managerial Commitment.** TQM literature contends that successful implementation of TQM is contingent on top management commitment followed by commitment of middle and first line managers. Without management commitment to TQM implementation, it will fail (Scherkenbach 1991, 11; Jablonski 1991,8). Managerial commitment is measured by the degree to which respondents perceive that managers in their work unit and bureau are committed to cultural improvements critical to TQM implementation at HCFA. Level of managerial commitment is measured by two questions on the survey: (1) The Bureau Director/Regional Administrator is committed to creating an organizational culture which values and trusts employees (reverse coded), and (2) My manager is committed to creating an organizational culture which values and trusts employees (reverse coded). The Likert scales for both questions are the strongly agree to strongly disagree scale. The index ranges from 1 to 4 with 4 being most positive. If one item was missing or both items were missing, this index was set to missing.

**Empowerment.** According to TQM literature, empowering employees in the workforce is critical for attaining improvements in aspects of organizational culture and customer service (Lynch 1991, 66). Empowerment is the degree to which employees have the authority to make decisions outside of the narrow day-to-day range of their job

descriptions without consulting management, experiment with different ways of conducting work, and control an appropriate degree of the nature of their own work (Gitlow and Gitlow 1987; Hammons and Maddux 1990, 18). Empowerment was measured by five questions on the survey: (1) I am not consulted or involved in decisions that affect the work I do, (2) I consult my manager before making even minor changes to my work procedures, (3) I am encouraged to use my own judgment when solving problems (reverse coded), (4) Effective actions have been taken to increase the authority of employees in my work unit to make job-related decisions (reverse coded), and (5) A promising new approach for the way we do work is likely to be approved quickly for trial (reverse coded). A mix of the two Likert scales (strongly agree to strongly disagree and always to never) was used in these five items. Responses were combined to create an index which ranges from 1 to 4, with higher scores reflecting higher levels of empowerment. If more than one item was missing, this index was set to missing.

**Participatory management.** TQM literature states that practicing participatory forms of management will bring about organizational trust and improved customer service since the people who know the work are involved in decision making affecting work processes (Deming 1986). Participatory management is the extent to which managers involve employees in work unit and organizational decision making versus make unilateral decisions (Lynch 1991, 66). Participatory management is measured by four questions on the survey using a combination of the always to never and strongly agree to strongly disagree four point Likert response scales: (1) My manager utilizes ideas offered for improving the way work gets done (reverse coded), (2) My manager seeks input from

employees in my work unit when making decisions affecting the work unit (reverse coded), (3) My manager is not receptive to ideas for improving how the work gets done, and (4) My manager assigns major work projects to me without consulting me.

Responses were combined to create an index ranging from 1 to 4, with higher scores reflecting greater levels of participatory management. If more than one item was missing, this index was set to missing.

Communication. Frequent formal and informal communication, according to literature on TQM, is vital to intermediate and long run organizational effectiveness (Harber, Burgess, and Barclay 1993, 35). Communication openness is the propensity to share organizational information with all members of the organization rather than sheltering information or releasing it only to a select few. Open communication means sharing information about work and providing routine feedback with employees (Griffiths 1990, 104-105). In this study, openness and frequency of communication is measured by three questions on the survey: (1) My manager gives me formal or informal feedback on my work never/ once a year only/ twice a year only/ three times a year only/ more than three times a year, (2) My manager gives me informal feedback which helps me to improve my job performance (reverse coded), and (3) I am not kept informed about major issues affecting my job. The first question contained five optional responses; therefore, if the respondent answered never, the response was coded as zero; if the response was “once a year only” it was coded as 1, and so on up to a maximum of 4. The last two questions utilized the strongly agree to strongly disagree four point Likert response scale.

Communication questions were combined to create an index ranging from 1 to 4 (if the



first question was coded as 0, then 0 was added to the codes for the other two questions).

If more than one item was missing, this index was set to missing.

Coaching. TQM literature stresses that, to improve intermediate and long run organizational effectiveness, managers must adopt an approach of coaching employees, which means interacting with employees in a supportive and partnering way, rather than “supervising” or directing activities and work (Fellers 1992, 117; Jablonski 1991, 6). Coaching, in this study, is measured by a question concerning whether or not an approach of coaching is utilized by the manager, rather than discipline or reprimand. This is a dichotomous variable captured by a single survey item: when I make an error or my work does not meet the intended goals, it is regarded by my manager as an opportunity for: learning, coaching, discipline/reprimand, other. If the respondent indicated either learning, coaching, or both, then coaching was set to 1. If the respondent checked neither learning or coaching, it was set to 0.

Discipline. TQM literature asserts that it is critical that managers regard mistakes as a learning experience rather than as an opportunity for discipline or reprimand. Use of a disciplinary approach destroys ingenuity and creativeness and damages morale (job satisfaction) among organizational members (Fellers 1992, 94; Ryan and Oestreich 1991; Paul and Robertson 1970). The variable discipline reflects whether or not reprimand/discipline is utilized when a mistake is made or work does not meet expectations. This is a dichotomous variable measured by the survey question described in the coaching section. If the respondent indicated “discipline/reprimand” then discipline was set to 1. Otherwise, it was set to 0.

**Participation in Quality Councils.** The establishment of formal TQM structures, such as Quality Councils and quality-oriented teams, is widely regarded as a key component of implementing TQM (Omachonu and Ross 1994, 10-11; Jablonski 1991, 5). This variable measured whether or not individuals have been a member of BQCs or LQCs. This is a dichotomous variable measured by the question, have you served on a Quality Council at the Bureau, Division, Office, Regional, or other level? If the respondent checked “yes,” the dummy variable was set to 1. Otherwise, it was set to 0.

**Participation in Quality Improvement Teams.** Quality Improvement Teams (QIT) are necessary, according to TQM literature, to continuously improve the way work is done so that internal and external customers are better served (Juran 1989, 44). QITs are temporary teams established to improve a work process or solve a work related difficulty. This dummy variable was measured by the survey question, have you ever been a member of a Quality Improvement Team (QIT) or any other formal or informal group established to make improvements or address organizational issues? If the respondent answered yes to the question, the dummy variable was coded as a 1. Otherwise, it was set to 0.

**QIT/Problem Solving Training.** Training in TQM-related skills and techniques is integral to implementation of TQM (Walton 1986, 68-69; Morgan and Murgatroyd 1994, 4). Quality Improvement Team problem-solving process training involves training in formal problem identification and analysis (either the eight step problem-solving tool or a variation of the tool was taught). Quality Council training was not considered part of this variable as originally planned, because only council members received QC training, whereas problem solving training was offered more broadly and is of a different nature

than was QC training. Also, since membership on a QC was captured in the QC dummy variable, including QC training would have captured this variable twice. The QIT/problem solving dummy variable was set to 1 if the respondent indicated this type of training was received, and zero otherwise.

TQM Skills Training. TQM skills training is important for providing managers and non-managers with quantitative and qualitative competencies to enable them to apply TQM methods and techniques (Morgan and Murgatroyd 1994). Skills training includes various types of *specific* TQE skills-building sessions, such as: empowerment training, how to obtain customer feedback or measure customer needs, customer service training, and coaching/leadership training. If respondents checked any or all of this series of skills training, the skills training dummy variable was set equal to one. Otherwise, it was zero.

Total Quality Training. Training in TQM-related general topics is intended to familiarize employees with terminology and principles of TQM and to align employees' philosophies with TQM (Jablonski 1991, 46). Generic TQM-related training included total quality awareness training, facilitator training, and/or other TQM/TQE seminars or conferences. Since nearly all respondents indicated receiving this type of training (everyone received awareness training), this training was not a "variable" and was not used in the regression analysis.

Background Variables. Background variables consisted of eight exogenous factors and eleven demographic variables. Exogenous factors measured by the survey instrument were: (1) the effect of the Strategic Plan on work and (2) whether reorganization occurred in the work unit and, if so, when and with what results. The Strategic Plan affect

was measured by the question: Implementation of HCFA's Strategic Plan directly affects my daily work. The response scale was a four point strongly agree to strongly disagree Likert scale. Since 125 people indicated that they did not know if the Strategic Plan affects their daily work and 4 left the question blank (totaling 22 percent of respondents), this variable was not used in the regression analysis. Other qualitative feedback based on the interviews confirmed the decision to remove this variable from the regression analysis. (Interview results indicated that: (1) the Strategic Plan does not affect people's work life in any discernable way, and (2) it is largely regarded as a work assignment or paper exercise rather than a fundamental change in the way HCFA does business.)

To measure reorganization, respondents were first asked whether or not reorganization/streamlining occurred in the work unit. In the regressions, this is treated as a dummy variable which is 1 if the person's work unit did reorganize. If there was reorganization, the respondent was asked how long ago that was. The result was recorded as a decimal to indicate number of years. Finally, there were six possible results of reorganization, each of which was treated as a separate dummy variable. Respondents could check all that applied: (1) my position was changed from a manager to a technical analyst or other non-manager, (2) the person to whom I directly report was changed, (3) the number of people reporting directly to me was increased, (4) the number of people reporting directly to me was decreased, (5) the scope of my job responsibilities has increased, (6) the scope of my job responsibilities has decreased. Included in the regression equation are eight aspects of reorganization: whether or not reorganization

occurred, how long ago reorganization occurred, and six separate possible results of reorganization.

A qualitative description of other events occurring while HCFA was implementing TQM, which might affect results/measurement of the variables, is provided in chapter 5.

Data on several demographic variables were gathered as well (see table 3). These included: job position, number of years in job, age, race, gender, grade level, and education level.

#### Dependent Variables and Measures

The dependent variables in this study are the interim outcomes. These are aspects of the job and of the workplace that are considered likely to increase quality and external customer satisfaction, but are not direct measures of these. Relevant interim (intermediate) outcomes include: teamwork, trust, job satisfaction, and the extent to which others are thought of or treated as customers.

According to the Two-Step model, when organizations are not in mature stages of TQM implementation and long term results are not yet likely, interim results should be measured. HCFA is still relatively early on in implementation, and long term results might not yet be evident. According to Wilson and Durant, it is important to know early on in implementation what the effects on the intermediate outcome variables are. With this information, we can gain a greater understanding of what factors are considered most likely to induce people to accept the policy; what increases the probability of changed behavior; how perceptions differ among groups (Wilson and Durant 1994).

### Cultural Variables

According to Deming (1986), improvements in ultimate outcomes (service quality and external customer satisfaction) cannot occur without improving aspects of the organizational environment. The independent variables discussed in the previous section are purported to lead to the aspects of organizational culture discussed in this section.

Job Satisfaction. Deming (1986) believed that joy in work (very high job satisfaction) would be accomplished by applying his techniques. The extent to which one feels that he makes a contribution to the work and is valued, the extent to which one has flexibility rather than being anchored to one particular way of doing the work, and the extent to which one is part of a supportive, interactive, team factor into whether the individual can attain high levels of satisfaction in work (Deming 1986). Job satisfaction is the degree to which employees enjoy the work they do, find their work challenging, fulfilling, and satisfying.

All scales for the job satisfaction index are based on the strongly agree to strongly disagree four point Likert response scale. The six questions are: (1) I take great delight in my work and find it exhilarating (reverse coded), (2) My job is challenging (reverse coded), (3) My job gives me a sense of accomplishment (reverse coded), (4) My skills and abilities are not well utilized in my present job, (5) I involve myself with my work to a great extent (reverse coded), and (6) My job provides me with sufficient opportunities for personal or professional growth (reverse coded). Responses were combined to create an index ranging from 1 to 4, with higher scores reflecting more positive attitudes. If more than two items were missing, this index was set to missing.

**Trust.** Trust is the degree to which employees believe that management efforts to institute cultural changes are sincere and the extent to which employees and managers express their honest opinions to each other, and those opinions are valued (Deming 1986, 85; Ryan and Oestreich 1991). Trust is comprised of five questions: (1) Employees' opinions are not respected or valued in my work unit, (2) Employees feel free to tell me what they really think, not just what they believe I want to hear (reverse coded), (3) People in my work unit feel free to express their honest opinions to managers about all work issues, decisions, or other work-related matters (reverse coded), (4) My manager is interested in increasing his or her own power and control rather than truly improving the cultural climate at HCFA, and (5) People in my work unit learn from mistakes rather than cover them up or blame people (reverse coded). Responses, which were based on a combination of the always to never and strongly agree to strongly disagree four point Likert scales, were combined to create an index ranging from 1 to 4, with higher scores reflecting higher levels of trust. If more than one item was missing, this index was set to missing.

**Teamwork.** Teamwork is the degree to which employees perceive that they are supportive of each other and a sense of cooperation exists among coworkers as well as among managers and non-managers (Juran 1989, 44; Jablonski 1991, 4). Teamwork is comprised of four questions, all of which have a four point Likert scale of strongly agree to strongly disagree: (1) I readily help people in another office, division, region, or bureau if called on (reverse coded), (2) My coworkers and I rarely help each other out when one of us is "overloaded" (reverse coded), (3) People in my work unit openly share

information and ideas with each other (reverse coded), (4) A spirit of cooperation exists among people in my work unit (reverse coded). Responses were combined to create an index ranging from 1 to 4, with higher scores reflecting higher levels of teamwork. If more than one item was missing, this index was set to missing.

### Customer Focus Variables

Customer Awareness. According to TQM literature, an awareness of customers and obtaining feedback from customers is a critical element of TQM leading to intermediate and long term organizational effectiveness (Spencer 1994, 447; Dean and Bowen 1994, 394). Customer awareness represents the extent to which employees report that they think of others as customers and focus on the effect on customers when making changes or decisions (Radin and Coffee 1993, 44). This variable is measured by two questions: (1) Customer feedback received in my work unit is used to improve services (reverse coded) (with a strongly agree to strongly disagree four point response scale), and (2) There are discussions concerning customer needs, or the effects of decisions on work unit customers, during meetings with my work unit (reverse coded) (with a always to never four point scale). Responses were combined to create an index ranging from 1 to 4, with higher scores reflecting higher levels of customer awareness. If more than one item was missing, this index was set to missing.

Customer Feedback. This variable represents the degree to which customer input/feedback is sought, a critical component of TQM success (Anderson, Rungtusanatham, and Schroeder 1994, 481). Customer focus is comprised of two questions with a four point strongly agree to strongly disagree Likert response scale:



(1) The quality of services provided to internal customers is formally measured in my work unit (reverse coded), and (2) Internal customer needs are formally measured in my work unit (reverse coded). Responses were combined to create an index ranging from 1 to 4, with higher scores reflecting higher levels of customer focus. If more than one item was missing, this index was set to missing.

### Limitations

When surveying people's attitudes/perceptions, certain biases can arise.

Respondents may provide socially desirable answers in some cases, rather than the truth, if they fear that they are not provided confidentiality (Ferber et al. 1980, 19). Additionally, individuals may interpret the same event differently. Responses to questionnaires or interview questions are based on perceptions which may fail to capture actual effects, and paradigms may color respondents' perceptions, as do personal experiences, values, recent experiences, and what type of day the person is having when the survey is answered (Bailey 1982, 30). A limitation in the measurement of managerial commitment (to enhancing organizational culture) in this study is that respondents' perceptions of managerial attitudes are measured, rather than respondents' observations of actual management behaviors that demonstrate commitment or lack thereof.

Another limitation of the study is that multiple regression analysis does not demonstrate causality; it indicates relationships. While association/relationship is a necessary condition for a causal inference, it is not a sufficient one.

Overall limitations to this analysis are minimized by the use of a three phase approach (rather than a single technique): a survey of a random sample of agency

employees in four separate study sites--one of which was a Regional Office--with a response rate of 79 percent; in depth semi-structured interviews (conducted only by the researcher) with four bureau directors and 24 randomly selected managers and non-managers; and review of key agency documentation.

## **CHAPTER FIVE**

### **ENVIRONMENTAL CONTEXT IN HCFA**

Chapters 5 and 6 set the context for interpreting the statistical analyses reported in chapter 7. This chapter describes the factors occurring in HCFA's environment that might have influenced the work environment in the four bureaus studied. Chapter 6 focuses on the way in which TQM was implemented in the four bureaus. Careful documentation of the work environment provides the reader with this information. The information in these chapters is important for several reasons. First, it is important for reaching informed judgements concerning threats to the internal validity of the statistical analysis. In particular, a threat to internal validity is created by the occurrence of one or more events that: (1) influence both independent and dependent variables measured, and (2) do not have the same influence on all individuals. For example if an exogenous event not captured in the regression model affected both empowerment (an independent variable) and trust (a dependent variable) and varied among individuals (the unit of analysis in the study), internal validity would be threatened.

The second reason the information in these chapters is important is to identify possible explanations for inconsistencies that might be found in terms of relationships across the four study units. For example if the coefficient of an independent variable is

statistically significant in three of the four bureaus, characteristics of the contextual environment may explain the lack of relationship in one bureau. Relatedly, this information is important for reaching informed judgements regarding the generalizability (external validity) of the findings of the statistical analysis. Namely, the same relationships might not be found in environments which differ significantly from those in the study units.

Finally, the information in these chapters is also important for understanding the nature of the independent variables, which is critical for replicating the study as well as for comparing the results of this study with those of other studies.

To gather the qualitative data for chapters 5 and 6, the four bureau directors were interviewed in person using a semi-structured interview guide (see appendix 2). In addition, a random sample of three managers and three non-managers from each of the four study bureaus were interviewed (one was in person; the remainder by telephone) from late August through early October 1995. Two of the bureau directors were female and two were male; the 24 other interviewees included 13 females (54 percent) and 11 males (46 percent). The amount of time for the interviews averaged approximately an hour and a quarter in length, and ranged from 40 minutes to two hours long. The first part of the 28 semi-structured interviews was intended to determine what factors, events, forces, reforms, or changes in laws and regulations, occurred between the fall of 1994 and fall of 1995 (roughly, fiscal year 1995) that might have affected the work environment. Interviewees were asked to describe the nature of each factor: what the factor is, when it occurred, and what each entailed. The methodology of the interviews was described in more detail in chapter 4.

All interview subjects, other than Directors, were assured confidentiality; therefore, interviews are cited using a three character scheme as shown in table 4. The first character of the citation indicates whether the person is a bureau director (D), middle manager (M), or non-manager (N); the second indicates bureau number (bur1, bur2, bur3, or bur4); and a third digit for middle- and non-manager interviews indicates interview number 1, 2, or 3 (three of each were interviewed in each bureau). For example, interview M/bur2/3 is a manager in bureau 2, interview number 3.

<b>Table 4. HCFA Confidential Interviews</b>			
<b>Citation</b>	<b>Job Position &amp; Interview No.</b>	<b>Bureau</b>	<b>Interview Date (1995)</b>
D/bur1	Director	Bureau 1	26 September
D/bur2	Director	Bureau 2	15 June
D/bur3	Director	Bureau 3	16 June
D/bur4	Director	Bureau 4	22 June
M/bur1/1	Manager 1	Bureau 1	25 August
M/bur1/2	Manager 2	Bureau 1	25 August
M/bur1/3	Manager 3	Bureau 1	6 October
N/bur1/1	Non-manager 1	Bureau 1	15 August
N/bur1/2	Non-manager 2	Bureau 1	31 August
N/bur1/3	Non-manager 3	Bureau 1	10 October
M/bur2/1	Manager 1	Bureau 2	23 August
M/bur2/2	Manager 2	Bureau 2	22 September
M/bur2/3	Manager 3	Bureau 2	29 September
N/bur2/1	Non-manager 1	Bureau 2	9 August
N/bur2/2	Non-manager 2	Bureau 2	9 August
N/bur2/3	Non-manager 3	Bureau 2	11 August
M/bur3/1	Manager 1	Bureau 3	15 August
M/bur3/2	Manager 2	Bureau 3	8 September
M/bur3/3	Manager 3	Bureau 3	14 September
N/bur3/1	Non-manager 1	Bureau 3	11 October
N/bur3/2	Non-manager 2	Bureau 3	15 August
N/bur3/3	Non-manager 3	Bureau 3	28 August
M/bur4/1	Manager 1	Bureau 4	29 August
M/bur4/2	Manager 2	Bureau 4	5 September
M/bur4/3	Manager 3	Bureau 4	22 September
N/bur4/1	Non-manager 1	Bureau 4	28 August
N/bur4/2	Non-manager 2	Bureau 4	16 August
N/bur4/3	Non-manager 3	Bureau 4	29 September

In addition to the interviews, key documentation was reviewed. This documentation included: the open ended comments on the survey; memoranda; e-mails; Quality Council (QC) notes, minutes, and charters; and quality-related newsletters. Confidential background discussions were also held with Quality Council (QC) members and other officials to determine the extent to which procedures on paper are actually practiced or carried out.

Information about environmental context is also based on the researcher's knowledge, observation, and experience in the agency; open ended comments provided on the survey; and two focus groups held in one of the bureaus in late September 1995. Events unique to each of the four study bureaus are discussed, then common environmental conditions are summarized.

#### Contextual Condition Unique to Bureau 1

Consortia Concept. The major event most commonly mentioned by Bureau 1 interview subjects was the implementation of the regional consortia concept (D/bur1; M/bur1/1; M/bur1/2; N/bur1/3). This concept, which as of October 1995 was still in early developmental conceptual stages, was designed to make each of the ten Regional Offices specialists in various subject areas. Accordingly, regions would concentrate in certain functions such as statistical analysis, fraud and abuse activities, Peer Review Organization analysis, Medicare managed care, Medicaid managed care, Medicare Part B, and other health care payment, quality assurance, and benefits-related areas (M/bur1/1). If and when the consortia concept becomes fully operational, regions will focus on particular functions, rather than having expertise and functions duplicated in every Regional Office. The

consortia concept was presented by representatives of HCFA's top management team during the fall of 1994. The purpose and intent of the consortia was to increase efficiency and lower costs associated with duplication of effort, training, and knowledge (D/bur1). During the period the interviews were conducted, many issues were being negotiated, such as who would be the lead for a particular area and what subject areas were appropriate for the consortia. Although many issues had not yet been finalized at the time of this study, the consortia concept has created some amount of anxiety for employees who faced potential change (D/bur1; M/bur1/1; M/bur1/2). For example, employees were unsure what their role would be if another region took over a function that they performed (N/bur1/3). Many non-managers believed that several of the proposed subject areas included in the consortia design would end up being more costly because additional travel would be required (N/bur1/2; N/bur1/3; and six open-ended comments on the survey). Bureau 1 employees (managers and non-managers) wanted resources to be utilized in the best way possible and work to be uniformly re-allocated as the consortia concept was implemented, but were not sure whether some of the specifics in the consortia would accomplish this (M/bur1/1; M/bur1/2; N/bur1/3). One staff members's comment was, "I have a couple of reservations on the consortia, such as travel issues. No one looks forward to being away for long periods of time. Maybe we need more input from the bottom on how to structure the consortia. It does not make sense to travel for two weeks down to another region when there are people right across the street that could do it. I agree totally with the concept in general though" (N/bur1/2). The opinion that the consortia concept needed to be re-thought was held by all of the non-manager



interviewees, by several of the randomly selected members of two bureau 1 focus groups (15 to 20 participants each) held in late September 1995, as well as by six open ended comments from the last page of the written survey instrument. While managers did not express the feeling of being disenfranchised from the consortia decision making, or that it would be costly and inefficient as currently conceived, they raised questions about the purpose of the consortia concept and discussed costs and benefits during their High Performance Leadership Training (M/bur 1/1).

Given some of the non-managers' opinions about the consortia concept and how decisions were made, it is possible that perceived managerial commitment was negatively affected in bureau 1 for those who believe they were disenfranchised in the decision making. However, since the consortia appears to have affected only an independent variable (managerial commitment), it is not likely that the validity of the results was threatened.

#### Contextual Condition Unique to Bureau 2

Technology upgrades. All HCFA components were experiencing changes and advancements in technology, such as movement to the Local Area Network (LAN), voice mail, video conferencing, computer and other equipment upgrades, and programming (software) changes (D/bur1; D/bur2; M/bur1/1; M/bur3/3; N/bur3/2; M/bur4/2). However, since bureau 2 was responsible for implementing many of these changes, its employees faced additional responsibilities connected with technological advancement for the agency. Interview subjects for bureau 2 mentioned programming and equipment upgrades as important environmental factors (D/bur2; M/bur2/2; M/bur2/3; and three

open ended comments on the survey). Interviewees described leading and assisting with these upgrades as part of their work responsibilities, and in addition to being an agency-wide phenomenon, was part of the work demands for the people in bureau 2.

There were no indications that technology changes affected any of the variables measured.

### Contextual Condition Unique to Bureau 3

Global budgetary practices. A key factor that affected portions of bureau 3 was an OMB Circular (A-11) for preparation of submission of budget estimates that required definition, measurement, and reporting on performance measures (D/bur3; M/bur3/1; N/bur3/3). Performance measures were key items that were tracked and described each year to indicate how well Medicare and Medicaid were performing (CFO Report 1995). For example, results of Medicare beneficiary satisfaction surveys were used as performance measures (M/bur3/1). Additionally, in early 1995, a work unit within bureau 3 began working with HCFA's Executive Steering Committee to discuss the budget reporting priorities. This represented a major change in the way budgeting functioned. Previously, the budgeting and accounting staff gathered and analyzed financial data and produced a budget in relative isolation from the rest of the agency (M/bur3/1). With performance measurements and more global budgeting approaches, representatives from nearly every component became involved in the budget process. The change in the budget process created the need for much greater inter-departmental communications and cooperation (M/bur3/1). Feedback from those involved in this process was positive overall because it highlighted the importance of the role of the budgeting and accounting

personnel (they participated in high level executive meetings to a much greater extent), and there was greater interaction among personnel from diverse areas.

Budgeting/accounting employees said that while the new way of budgeting created unique challenges, it was a vast improvement in the budgeting process (D/bur3; M/bur3/1; N/bur3/3).

The existence of global budgeting may have enhanced the level of perceived communication among those involved in budgeting exercises. Since only a few people were directly involved; however, any affects of global budgeting on the variables measured were likely to have been relatively minor.

#### Contextual Conditions Unique to Bureau 4

Move from Washington Office to HCFA's Single Site location. In May of 1995, the entire agency began moving to its new location approximately three miles from its former location in the Social Security complex and surrounding buildings in the Woodlawn area. The new location was called single site because it consolidated into one building all of HCFA's Central Office personnel, including those who previously were stationed in Washington D.C. While all of those in the study bureaus experienced the disruption, down time, and excitement involved with moving to the new HCFA single site, the move was especially disruptive for approximately 60 (nearly half) of the Bureau 4 staff whose offices moved from Washington D.C. to Baltimore (D/bur4, M/bur4/1; M/bur4/2; M/bur4/3; N/bur4/1; N/bur4/2). The move to a single site was disruptive for the Washington staff members because they needed to decide whether to commute or move to Baltimore. Interviewees (some of whom were commuting from the Washington area to

Baltimore) generally pointed out that the move produced initial dissatisfaction, but that the dissatisfaction was a temporary phenomenon (D/bur4; M/bur4/1; M/bur4/2; N/bur4/1).

Two former Washington-based interviewees said that overall, the move was a plus because it resulted in everyone being located together (M/bur4/1; M/bur4/2). Another said that the move actually *decreased* the effectiveness of communications and meetings because most were by telephone, and “a lot of Washington D.C. meetings have been missed” (M/bur4/3). With the exception of this last interviewee (M/bur4/3), those affected by the move from Washington did not express strong preferences one way or another, but simply mentioned it as an event that occurred.

It may *appear* that for those who had strong negative opinions about the move, some aspect of the job satisfaction construct could have been negatively affected. However, since each of the six items comprising the job satisfaction index was focussed on a particular aspect of the job (see appendix 6), rather than asking directly about overall “job satisfaction” (which would have been unreliable), opinions about the move were unlikely to have any effect on these measures. None of the six items comprising the job satisfaction index asked about commuting to work or work locations. Also, there are no obvious independent variables these opinions would have effected.

File confusion. Most of the interview subjects mentioned disruption and confusion over file space and file location connected with the move (M/bur4/1; M/bur4/2; M/bur4/3; N/bur4/1; N/bur4/2). Typical statements were, “ It took a month for our files to be located” (M/bur4/2). “There was big file confusion over D.C. and Baltimore. In Oak Meadows we had a private room where we could spread papers out and work privately,

and store files. We are lacking that now” (M/bur4/1). Though file issues surfaced among several respondents, the opinions expressed about file disorganization were not visceral or strong. It is not probable that file confusion affected variables measured in this study.

Leadership turnover. Bureau 4 also faced more frequent changes in top leadership than the other three bureaus because the top leader is a political appointee. Every interview subject in bureau 4 pointed out that in the last year and a half, there were three or four different directors or acting directors, which was very unstable and sometimes disruptive. Several mentioned that by the time one director learned the ropes, he or she left, and a new director was appointed. A representative comment was, “a detriment is that the Director is a political appointee who is here for a year. This is disruptive and leads to cynicism of ‘here comes another person who will tell us what to do and we will get him trained; then in a year or so the person will leave’” (M/bur4/2). In fact, the Office Director, who was interviewed for this study resigned in late summer 1995, and a new Director was appointed in October 1995. When leadership turnover was discussed, it was done so matter-of-factly. Since top leadership turnover was a fact of life among people in bureau 4, it was not likely to have affected variables being measured, except, possibly, the aspect of commitment that captured top management commitment. If managerial commitment was affected by leadership turnover, validity of results was not affected, since only an independent variable appeared to have been affected.

Contextual Conditions Existing in More than One, but Not All, Bureaus

Job switching. At the time of reorganization (late summer/fall of 1994), bureaus 2 and 4 offered employees a chance to move to other areas within the bureau, and enabled them to list three choices (Goal 1 Report 1995). Many employees took advantage of this offer and obtained other positions. This enabled people to move to new areas, but in other areas, left several new people lacking experience. While the job switching enabled personnel to move to new work areas they preferred, all three bureau 2 manager interview subjects pointed out that their work units lost many seasoned people (M/bur2/1; M/bur2/2; M/bur2/3). A bureau 2 person said that some people resented that others were not doing what they used to do, even though everyone was offered a choice (N/bur2/3). The combination of job switches, retirements, and buy outs opened up opportunities to hire new outstanding scholars, but experienced people to train them were lacking (M/bur2/1). One manager said that the turnover (the particular work unit had nearly all new people) and lack of support “made this past year very difficult” (M/bur4/3).

The fact that everyone in bureau 4 was offered an opportunity to transfer to a new work area was mentioned (M/bur4/1); however, it did not surface as a burden or difficulty in the bureau 4 interviews. Since the job offerings were part of reorganization, any effect on the variables measured in this study was captured in the reorganization variables.

Moving Functions From HCFA’s Central Office to the Regions. Shifting functions was mentioned in both Bureaus 1 and 4, primarily because bureau 4's primary domain was a major area where responsibilities for program management and operation were, at the time of this study, in the midst of being shifted out to the regions, which deal more directly

with health care providers. The purpose of the shift was to move the authority and responsibility for program management to the people who were closest to HCFA's partners and customers, which in the case of managed care were the managed care provider organizations and Medicare/Medicaid beneficiaries respectively (D/bur4; D/bur1; M/bur1/3). Uncertainty about future roles and whether there would be sufficient resources given the shift in responsibilities were two prominent themes in both bureaus 1 and 4. Bureaus 1 and 4 interviewees expressed a need to share expertise and help each other learn so that regional staff would be able to take on more delegated responsibilities when that came about (M/bur1/3; N/bur4/2). A typical bureau 4 comment was, "some of our work will be going out to the regions, which is being met with mixed emotions. We have not really defined what we will be doing; it is scary for some people, even with the assurances that there will still be plenty of work to do" (N/bur4/1). Generally, both bureaus expressed concerns about resources and roles: primary general themes were "will we get what we need to do our jobs?" and "what roles and responsibilities will emerge over the next several months?" (M/bur1/1; M/bur1/3; N/bur1/1; M/bur4/1; M/bur4/3; N/bur4/1; N/bur4/2).

Moving functions to the regions was likely to have a negative effect on managerial commitment and participatory management in bureau 4 because several people rather strongly believed that they were inappropriately not involved in the decision making on this policy change. Bureau 1 appeared to have accepted the work that would be flowing their way; it was less likely that the shift had affects on variables in that bureau. Since both variables potentially affected were independent variables, validity was not affected.

Diminished Support from the Office of the Secretary. The Department of Health and Human Services Office of the Secretary previously performed administrative and personnel processing functions for HCFA's Regional Offices. As part of overall Departmental streamlining, that role was phased out in early summer 1995, and some of the functions were assumed by the regions (bureau 1) and some by HCFA's Central Office (primarily bureau 3) (D/bur3). Bureau 1 was affected because it was serviced by Central Office for personnel processing needs rather than by the Office of the Secretary (M/bur1/1; D/bur3). While the changes in role may not have an immediate effect (according to a bureau 1 manager (M/bur1/1)), the changes ultimately affected bureaus 1 and 3, as bureau 3 began to more fully provide service to the regions, such as processing personnel actions and maintaining all regional personnel files. A bureau 3 non-manager said that since they began supporting the regions, they met more people and learned how people in the field work (N/bur3/2). These outcomes were seen as an overall plus, and there were no negative comments or complaints about the change, even though no more people were added to the staff to perform the administrative functions that the Office of the Secretary performed (N/bur3/2).

For the most part, this event was described as a change in manner and volume of business. Respondents were enthusiastic about the opportunities it represented combined with some uncertainties. Given this dichotomy, and the fact that there was no indication of strongly held feelings about it, it is unlikely that the diminished support from the Office of the Secretary affected any of the variables captured in this study.



The Social Security Administration (SSA) split from Department of Health and Human Services. This shift primarily affected bureaus 2 and 3. SSA was part of DHHS, but became a separate department level agency as of January 1995. Bureau 2 used some of the computer programs housed and maintained in SSA; however a Memorandum of Understanding allowed business to continue largely the same as before (M/bur2/2). Also, SSA's mail room used to mail HCFA information out. After the split, HCFA contracted out for Medicare mailings (N/bur2/1). Bureau 3 was highly involved in the negotiation of the nature of services SSA and HCFA performed for one another, as well as the budgetary issues connected with those services, such as how much to charge each other's budgets for services performed for one another (D/bur3).

This event, by the time of the study, was fairly well under control, and the transition was completed. No effects on variables measured in the study were likely.

#### Events Affecting All Bureaus

Events that affected all four study bureaus included reorganization, retirements, change in the method of making small purchases, HCFA's Strategic Plan, movement to an electronic environment, election year "fed-bashing"/furlough threats, concerns about being in a federal building, and work or program related changes. Each of these events are discussed below.

Reorganization. Streamlining stems directly from Vice President Gore's downsizing initiative which required that federal agencies reduce the ratio of managers to employees from 1:7 to 1:15 (Reinventing Government NPR 1993). HCFA began working toward this goal in the summer of 1994. Streamlining affected all four of the bureaus: all

underwent streamlining approximately a year prior to the survey. As of fall 1995, streamlining proposals were approved for seventeen of the twenty-three primary HCFA components; the other six were in the final stages of developing their proposals or securing necessary approvals (Streamlining Progress Chart 1995). When the approved proposals were fully implemented, 242 supervisory positions (47 percent) were eliminated. As part of streamlining, the average number of employees per manager increased from six to eleven HCFA wide (Streamlining Progress Chart 1995). Table 5 shows the change in span of control in each of the four bureaus before and after streamlining. HCFA's targeted streamlining completion date was December 31, 1995 (Goal 1 Strategic Plan Report 1995).

Bureau	Number of Supervisors/Managers		Percent Decrease
	Before Streamlining	After Streamlining	
1	18	12	33%
2	67	47	30%
3	61	29	52%
4	18	10	44%

Bureaus 2 and 3 reorganized in October 1994; bureau 1 reorganized in October 1994, and work units in bureau 4 reorganized from March 1994 through October 1994, with work units within these bureaus reorganizing relatively close to the overall bureau time frames. As a result of streamlining, all had fewer supervisors than before, leaving managers with an increased span of control. Some staffs doubled from 10 to 20 or from

20 to 40, and some increased by about a third or two-thirds (all interviews; streamlining progress chart). Usually, branches were collapsed and then consolidated under one organizational unit, such as from four to three, or from four to two branches (all interviews; Goal 1 Report 1995). Many former branch chiefs became Technical Assistants (TA) who acted as project or subject area leaders. In some work units, the role of the TA was contentious because employees did not believe the TA should act as a supervisor. Several people mentioned the need for clarification of the TA role (M/bur3/2; N/bur3/3; M/bur4/1; numerous open ended comments on the survey).

The effects of the reorganization on employees varied from highly positive, to neutral, to strongly negative, depending on the experience in the particular work unit. Managers universally reported that they need to be much less of a technical expert, and indicated that they were comfortable with this since it was not the manager's role to be the technical expert anyway (M/bur1/1).

Bureau 1's managers mentioned no serious negative effects of streamlining. One pointed out that the buy outs and retirements allowed the bureau to move ahead more smoothly with streamlining because mostly managers left (M/bur1/3). Another pointed out that streamlining has had an impact because with a span of control moving from 9 to 15 people, "you can't be a technical expert in all of the areas you were in the past" (M/bur1/1). The rest of the managers and non-managers in bureau 1 listed the facts of the 1993/94 reorganization (such as an influx of staff, a new manager, and combining branches), but mentioned no latent adverse effects. Some had trouble remembering what occurred as part of reorganization.

In bureau 2, two managers reported lasting negative effects of the October 1994 reorganization, such as difficulties with an increased span of control. A manager whose staff had doubled said that, "on streamlining, I thought my world would be changed--I am still called on to be an analyst, because upper management is not necessarily comfortable with non-managers being the subject matter experts." (M/bur2/1). The reorganization was rather draconian, according to this same manager, because the person had previously been responsible for two branches, and became a manager of four branches totaling just over 60 people. The manager said that the workload more than doubled, but support staff or resources did not double. Internal customers (those in other bureaus) also went through reorganization. As a result, many contacts changed to new people, making it hard to identify customers. Some areas of responsibility fell through the cracks because some functions never were identified as belonging to anybody (M/bur2/1). On the positive side, this manager mentioned that there was strong teamwork and support within sub-parts of the new work unit. Another bureau 2 manager referred to the "re-disorganization" rather than a reorganization, and said that from a public citizen perspective, nothing was accomplished. The manager said that the new alignment placed people in positions where they were not be as effective because they may not have possessed the appropriate skill levels (M/bur2/3). However, some employees were denied their choices of job changes because they lacked the skills and did not qualify (N/bur2/2). A third manager mentioned no real difficulties. While half the work unit was new due to retirements and reorganization, people in the work unit were reported to work and communicate well together (M/bur2/2). Bureau 2 non-managers mentioned little or no effect of

reorganization with comments such as, “the Branch Chief changed but no real changes” (N/bur2/1); “My job title changed, but there were no changes in immediate manager” (N/bur2/2); “No changes. The Office directors changed, but no real changes. There are no real difference in the way we do things here. The Division and branch chief stayed the same. No change occurred in my working environment or personal feelings about my job due to the reorganization” (N/bur2/3).

In bureau 3, as in other bureaus, employees (managers and non-managers) report that there was some hesitancy in trusting and buying into the changes because people were not comfortable with change, though people reportedly seemed eager to work together as teams (N/bur3/1). As in other bureaus, there was a need for greater clarity in the role of the technical assistant as well as team leaders (as differentiated from a TA) (N/bur3/3; several open ended comments). Along with the reorganization, in some work units dissimilar work units (which used to be stand alone branches) were combined into single divisions (M/bur3/1), while in other work units similar functions were absorbed into one unit (N/bur3/2; N/bur3/3; M/bur3/2; M/bur3/3).

Bureau 4 personnel tended to think of reorganization in general as somewhat routine because they are reorganized so frequently (commonly upon appointment of a new Director). Most respondents in bureau 4 seemed to view reorganization as a fact of life, pointing out that they were reorganized so often that they were used to it (D/bur4; M/bur4/2; M/bur4/3; N/bur4/1; N/bur4/2). In fact, many interviewees, including the director, were not sure what was exactly meant by “the” reorganization, with a respondent saying, “our bureau is reorganized at least once a year” (N/bur4/1). A bureau 4 manager

pointed out that the span of control was 1:17 prior to reorganization and had nearly doubled since then (M/bur4/1). As in bureaus 1 and 3, this manager said that the branch chiefs became technical assistants, “and we have not yet figured out what they do--what their responsibilities are . . . the people do not want to get instruction from them.”

Summary of reorganization. Overall, the effects of reorganization were uneven and whether or not changes were dramatic depends on where in the organization someone worked and what happened in the division, branches, and/or staff involved. It was unclear why, but interviewees in bureau 1 raised fewer issues or concerns about reorganization, other than matter-of-factly stating that the span of control had increased. However, written survey comments from bureau 1 indicated both dislike and lack of clarity of the team leader and technical assistant roles that had emerged as a result of reorganization. Like bureau 1, bureau 4 personnel did not appear to view the reorganization as a major event, except for mentioning the span of control and persistent lack of clarity about the role of the technical assistants. Reorganizations in bureaus 2 and 3 seem to have had the most noticeable affects--either positive or negative--due to sometimes dramatic changes in organizational structure and span of control. These bureaus were larger than the other two, so de-layering by consolidating branches or other sub-units meant larger than average spans of control for them. In the multiple regression equations (discussed in chapter 7) the effects of reorganization did not emerge as consistently significant across the bureaus for the five dependent variables.

Retirements and Early Outs. Retirements, along with the resulting rehiring and training of new staff, occurred throughout HCFA from late summer to early fall 1994

(D/bur3). As described above, several respondents reported that significant portions of their office or branch were new, and that the retirements and buy outs made the required streamlining/reorganization much easier to accomplish, especially when managers, whose positions were to be abolished, retired. At the same time, (as reported in the discussion on streamlining), some institutional knowledge left with the retirements. The mass exodus of retirees from the \$25,000 buy out occurred long enough ago that organizational structures had re-settled. No resonant effects are predicted.

Change in Small Purchases. Also part of Vice President Gore's NPR initiative to cut red tape (NPR, 5), personnel in HCFA could make purchases using a credit card, rather than using paper approval forms and a lengthy, cumbersome approval process. The credit card enabled authorized purchase officials, which existed in every work unit, to use the HCFA credit card to make purchases for supplies or equipment (Goal 1 Report 1995). The credit card simplified acquisitions because the dollar threshold for purchases was raised, enabling HCFA employees to make authorized purchases with less paperwork, in a simpler and much more timely manner (M/bur2/2; N/bur3/2). A bureau 3 work unit which managed the purchase card program planned to administer an internal customer satisfaction survey in 1996 to determine if the program met its goals of less paperwork and time needed to make purchases (Goal 1 Report 1995). Lower hassle factor associated with purchasing supplies was more of a hygiene factor, as described by Frederick

Herzberg (see chapter 2); therefore, no effect on any variables measured was likely.<sup>7</sup>

HCFA's Strategic Plan. HCFA's Strategic Plan was developed as a guide toward the accomplishment of specific goals which were grounded in the principles of TQM. Included in the plan were various subsets of the goals, called objectives and action steps (Strategic Plan 1994, 3). The targets against which progress was assessed were called critical success factors or indicators. Critical success indicators were concrete measures of HCFA's achievements in implementing the plan (Strategic Plan 1994, 28).

In addition to focusing the agency's work, the Strategic Plan fulfilled a requirement of the Government Performance and Results Act of 1993 which required federal agencies to develop Strategic Plans prior to Fiscal Year (FY) 1998, prepare annual plans setting performance goals beginning with FY 1999, and report annually on actual performance compared to goals (Strategic Plan 1994, 29). The Strategic Plan also provided the vehicle for tying budget items and performance measures together.

The Strategic Plan's Vision, Mission, and Goals were formulated by HCFA Senior Staff, called the Executive Steering Committee (ESC). A separate group developed objectives to support the accomplishment of each Goal. Once the ESC agreed to the objectives, the Strategic Plan was shared with all HCFA employees for their input and comments (Hutchins 1994). The package included a history of the development of the plan; rationale for the vision, mission, and goals selected; and a request for comments on

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<sup>7</sup> While increasing "hassle factor" in some element of conducting business might have increased job dissatisfaction, the elimination of hassle factor would not be predicted to positively affect (increase) job satisfaction. For a more complete discussion of the difference between hygiene factors and satisfiers, see chapter 2, or Frederick Herzberg's Work and the Nature of Man.



any and all aspects of the plan. This was the first time that HCFA leadership sought feedback from all HCFA employees on the Strategic Plan. Employee feedback was provided both written and verbally in formal group sessions with trained facilitators to record the comments and questions. Over one thousand comments were provided on the plan from HCFA staff (Hutchins 1994). The comments were compiled and analyzed, and Senior Staff made major revisions to the plan based on the feedback. Bureau and Office Directors then shared the final Strategic Plan with all staff.

Each Strategic Plan Goal had a captain, who was a member of senior staff with primary area of responsibility associated with the Goal. The role of the Goal Team Captain was to build and foster a sense of ownership at all levels of the organization; report to the ESC on performance, achievements/successes, outcomes, etc.; coordinate with other Goal Captains to ensure consistency in building and tracking critical success factors; and continuously assess/fine-tune the critical success factors (Hutchins 1994).

TQE was the foundation on which successful implementation of the Strategic Plan was based (Strategic Plan 1994, 2; 10-11). HCFA's Strategic Plan contained seven Goals: (1) build a high quality, customer-focussed team; (2) ensure that programs and services respond to the health care needs of beneficiaries; (3) promote improved health status of beneficiaries; (4) be a leader in health care information resources management; (5) promote fiscal integrity of HCFA programs; (6) create excellence in the design and administration of our programs; and (7) provide leadership in the continuing evolution of the health care system. HCFA's guiding principles, which formed the basis for the Strategic Plan and all of HCFA's activities, were focussed on leadership, empowerment,

valuing employees, open communication, and teamwork. There were also 28 objectives and 94 strategies, which were intended to foster continuous improvement in the quality of service to HCFA's internal and external customers (HCFA's Strategic Plan 1994).

Across the four bureaus, interview respondents primarily reported minimal involvement in or awareness of HCFA's Strategic Plan. Some respondents said that because of TQM, one of the Strategic Plan goals was to be very customer oriented, and that HCFA had become more customer oriented toward beneficiaries through outreach, focus groups, surveys, and the like (D/bur3; M/bur1/1; M/bur1/2; N/bur1/1; M/bur4/2; M/bur4/3; N/bur4/1). A bureau 1 manager stated that "we have always had an emphasis on who we deal with as customers" (M/bur1/2). Another bureau 1 manager reported that "we have always had [beneficiary] outreach, but this is something far bigger" (M/bur1/1).

Both managers and non-managers said that they knew generally what the Strategic Plan was and knew what some of the elements were (goal 1 was most familiar to people), but beyond that it did not affect their work. Some respondents reported that their work units met to attempt to map their activities to elements in the Strategic Plan, but that they were already doing most of those activities anyway (M/bur1/2; M/bur1/3). For example, a non-manager in bureau 4 said, "we were already doing most of what is in the Strategic Plan with respect to managed care" (N/bur4/2). More managers reported that it affected their work in some way than did non-managers. One manager said that she used it in terms of how she talked to her bosses to discuss priorities and progress (M/bur1/3). However, another said that the work group had trouble relating what they do to anything in the Strategic Plan (M/bur2/2). Most others said that the Strategic Plan is merely a

paper exercise that required periodic reports (D/bur3; M/bur1/2; N/bur1/2; M/bur2/1; M/bur2/2; M/bur2/3; N/bur2/1; N/bur2/2; N/bur2/3; M/bur3/3; N/bur3/1; N/bur3/3; M/bur4/3; N/bur4/1; N/bur4/2; N/bur4/3). As stated by one non-manager, “the Strategic Plan was probably very interesting for [those in the Senior Executive Service] and other people working on it. If it was your job to work on the Strategic Plan I guess it was interesting” (N/bur2/3). Strategic Plan Goal team captains, who were also members of the Executive Steering Committee, also reported that, other than those engaged in the exercise to develop the Strategic Plan and performance measures, the Strategic Plan was not affecting anyone right now (D/bur3). Perceptions overall were that, except for customer service aspects (which derive from TQE), nothing strongly identifiable or measurable really changed or happened as a result of the Strategic Plan. Table 6 contains the comments from the interviews concerning the Strategic Plan.

**Table 6. Comments Concerning the Strategic Plan, by Bureau**

<b>Bureau 1</b>	
<b>Non-managers</b>	<b>Managers</b>
“One of the Strategic Plan goals was to be very customer oriented. We have become more customer oriented toward the beneficiaries. However, I don’t see us working on internal customer to internal customer service.”	“The change in focus where HCFA is becoming not just a “financing” organization (we should change our name); we are shifting the way we relate to our beneficiaries and other entities.”
“Basically we know what the Strategic Plan is and know some of the elements. The elements I feel that affect me are TQE, streamlining, consortia, and the workload.”	“Not much on the radar scope here. We have always had an emphasis on who we deal with as customers. We have had the meetings about the SP, and have related the Strategic Plan to the work that they do (went off site to map what we do to the SP). People are thinking more first about the beneficiary.”
“We are having branch meetings going through the plan to see how our branch contributes. My area relates to Goal 6: program strategies, continuing improvement.”	“I’m using it in terms of how I talk to my bosses. I’m finding it more valuable to structure priorities and initiatives that HCFA wants to take. Mainly in terms of finishing 1995. Now we are in the middle of planning process separate and apart from routine work that the statute and regulations require you to do.”
<b>Bureau 2</b>	
<b>Non-managers</b>	<b>Managers</b>
“I remember reading about it; otherwise, nothing.”	“I was on the Goal 3 (quality) group. In the beginning, it seemed like it would be more meaningful. I started out very positive about it. It’s now almost like an assignment to have something to report. Now it’s like a paper activity.”
“None.” [Response to the question about what the effect of the Strategic Plan is.]	“The environment for HCFA has really changed, but the Strategic Plan is based on an environment when HCFA thought health care reform would be passed. It was written over two years ago when health care reform was the major thrust of the agency. Instead of being a dynamic activity it has become a paper exercise. We still have the minutia of the goals and steps and so on which we report on, but what real meaning does it have?”
“No effect. I’m a technician and we do the technical work. The Strategic Plan was probably very interesting for SESers and other people working on it. If it was your job to work on the Strategic Plan I guess it was interesting. There was an all hands meeting a while back; I thought it was a waste of time. In groups of about 100 people, what can be accomplished?”	“The Strategic Plan is really targeted to health care reform. We have trouble tracking/relating what our group does to anything in the Strategic Plan. The Strategic Plan is a wide-eyed view of where we need to ‘go.’ It doesn’t say much about current ongoing activities, such as paying the bills, personnel, maintaining programs, etc. You feel like if you’re not working on MTS or something in the SP, you’re not valued (I buffer my branch from this sense). Regardless of where we are headed as an agency, you still need to have a set of people doing the ‘mundane’ things to keep various areas up and running effectively. It was hard to map anything in the Strategic Plan to what we are doing. The Strategic Plan needs to express support and value for the every day functions of HCFA.”

<b>Bureau 3</b>	
Non-managers	Managers
"People might reference the Strategic Plan in theory, but do not reference the physical document."	"Last year for the first time, rather than doing the smokestack budget, we did the Strategic Plan goal-directed budget. In the old days, there would be a chapter for research, etc.--each area separately. So the Strategic Plan has fundamentally affected the production of the budget."
"The work unit is actively working to implement the Strategic Plan and it's brought up in meetings." The interviewee pointed out that "the customer service sections have had an effect on the work environment because people sometimes get awards from components for which they did work (which did not happen at all in past.)"	"We have several action items in the Strategic Plan. One is diversity and teamwork, self directed teams, streamlining, etc. Streamlining activities come under the auspices of the Strategic Plan. We are checking out pay-banding. Part of this is delayed by the inactivity of Congress. We are also planning for a dual track for promotion potential: Senior advisor and management tracks."
"It [the Strategic Plan] is never mentioned."	"No identifiable effect."
<b>Bureau 4</b>	
Non-managers	Managers
"It comes up little bit in our work; it is more obscure."	"When developed, we put some items in the SP. The goal captain meetings have not occurred; we have not had time."
"This does not show up on radar scope. There was a compulsory meeting, then it dropped off the radar screen."	"We have a workplan on the team that's tied into the Strategic Plan. It contains about 24 things we will be accomplishing. We talked to internal and external customers to establish and get feedback."
"I know the Strategic Plan is there. Team members were assigned to goals, but have only attended some meetings."	We had identified 38 workgroups to work on. We did not participate in a full 38 because some dissolved, but people in our team were on a few groups; [Bureau 4] people were partners/participants, not 'owners.' We did not even receive completed reports. It's like a black hole; I don't know what happened. They were sent to the ESC and I did not get a copy."

Movement to an Electronic Environment. Increasing use of electronic mail, Local Area Networks, and Windows was mentioned as a significant event in every bureau. The fact that some staff were more adept at functioning in that environment, and that not everyone was willing or able to re-engineer their skills to adapt was a theme in the bureaus (D/bur1; M/bur1/1; numerous open ended comments). A bureau 4 person said that a positive change was the "explosion of technology" (Windows, 486 computers) available now, as well as high technology telephones (sophisticated telephones, which had advanced

features, such as voice mail, caller identification, and other functions) (M/bur4/2). The technological advances, e-mail in particular, changed the frequency and nature of communications throughout the agency. Nearly all of the respondents commented that the advent of electronic mail and voice mail enhanced the ability of everyone in the organization to share information. Again, technology changes affected everyone, and it is more of a hygiene factor, and is not likely to have affected any variables.

Election year “Fed-bashing”. Rumors of furloughs, zero pay raises, downsizing, and an exaggerated negative agency image that went along with election year was mentioned as having a negative effect on morale (M/bur4/2; M/bur4/3; four or five open ended comments). A few interviewees pointed out that something needed to be done about the terrible public perception of public employees. One employee said, “we really work hard and we earn our money, work long hours, and have a strong work ethic. The over exaggerated negative public perception of government workers is really annoying. It's as if we don't have dignity as government workers” (N/bur3/2). A bureau 4 manager said, “HCFA is having a hard time with public opinion. We really need to provide an accurate representation of the job we do” (M/bur4/3).

While fed-bashing did surface among a few people as a concern, it was an ongoing and common cyclical reality of government work life. Further, only a very small proportion of respondents/interviewees mentioned this as a factor. It is not probable that fed bashing affected variables measured in this research.

Concern About Being in a Federal Building. The Oklahoma bombing, which occurred on April 19, 1995, may have affected all bureaus to some extent, and was

mentioned by one person in bureau 1 and one person in bureau 4. Additional security was placed in the Central and Regional Office buildings. In the Central Office, the guards examined packages and brief cases upon entrance and exit, and bureau 1 installed an x-ray machine at the public entrance. The bombing occurred approximately two weeks prior to the survey, but was not mentioned in any of the open ended survey comments. Security being too tight (not letting people in the building before 6 a.m.), however, was mentioned by one person (bureau 1 open ended comments). Gauging from the interviews and lack of comments on the survey, the danger of being in a federal building was not looming in people's minds, and it was unlikely to have affected variables measured in the study.

Work or Program Related Changes. All bureaus in the study group experienced some degree of change in the nature and type of the work that they do. Medicare, Medicaid, or program management support related projects either increased, decreased, or otherwise changed in scope and/or focus during the year preceding the study. The changes the four bureaus experienced, and how they affected people in the respective bureaus, are described in this section.

People in bureau 1 faced changes in some specific program-related areas. One that had an impact was the changing nature of the Medicaid program--in particular, the waiver process and the move over the past couple of years toward granting much more independence and autonomy to the states in determining how their respective Medicaid programs were run (D/bur1). "Waivers" effectively allowed states to waive federal requirements under the auspices of a research project or demonstration. In the early 1990s there has been a proliferation of Medicaid waivers making adherence to rules, laws,

and regulations in the Medicaid statute less important, and tracking and management of waivers more important. As described by one manager, the changing role called for a classic paradigm shift and a transition to new approaches. With adherence to federal rules, the staff was comfortable with the Medicaid laws. However, with waivers, seasoned people needed to learn a new way of conducting business because waivers seemed to emphasize getting around the law (M/bur1/2; N/bur1/1). Management tried to structure changes in focus so that people could make the transition from fee for service to managed care. Some people believed that much of the work they used to do was now no longer valued; most successfully transitioned into the new operating environment (M/bur1/2).

The implementation of the Medicare Transaction System (MTS) project affected resources because of the amount of planning and developing activities required (D/bur1; M/bur1/1; N/bur1/3). While Bureau 1 managers and non-managers saw the MTS changes as positive overall, both indicated that there was some amount of uncertainty about future roles and jobs which might shift in the future (M/bur1/1; N/bur1/3). As the agency worked toward enormous system wide MTS changes, some staff were concerned that quality of claims processing would greatly decrease in importance (N/bur1/3). MTS was also mentioned as a work demand in bureau 2 because much of the bureau 2 staff were involved in supporting the effort with data and programming (D/bur2).

Long Term Care (LTC) enforcement regulations was another program area mentioned by Bureau 1 interviewees, because in the early 1990s the penalties increased for violating quality of life or quality of care (M/bur1/3). These changes reportedly changed the approach and focus of the way some of the long time employees do their work, and



“invigorated them” not only because they were able to try new things, but also because the new LTC regulations offered greater protections for the beneficiaries (M/bur1/3).

Bureau 2 implemented several ongoing legislative-related changes (M/bur2/2). For example, Medicare premium changes and cyclical changes were implemented within a year of the study (M/bur2/2). Payment cycle proposals for social security (staggering payments) affected HCFA, and a branch within bureau 2, specifically.

Some staff in bureau 3 were involved in planning, organizing, and implementing the HCFA agency move to a single site (described above). The planning was ongoing for at least two years prior to the study, and activities became much more intense and focussed as the time of the move got closer. About ten of the core staff responsible for the move of 3,500 people were removed from the survey sample because the move commenced three weeks following the survey administration.

Bureau 4 primarily faced a significant (approximately 100 percent) increase in managed care contracts for Medicare. Employees and managers pointed out that their business was up about 100 percent in number of plans and managed care applications pending, causing a huge increase in workload (D/bur4; M/bur4/1; M/bur4/3). There was a small increase in staff, but not commensurate with the increase in the work (M/bur4/1). One manager stated that the new laws and regulations, and the increased workload tended to stress people out, but that “on the other hand, it may force us to manage the work a little better and in more innovative ways” (M/bur4/2).

Given the variety of work changes and differences in opinions concerning work changes, it is unknown what the likely effects were on variables measured. If changes

brought new challenges and interesting work for respondents, then it was likely that empowerment or managerial commitment was positively affected. If work changes caused decreased independence, empowerment may have been affected negatively. The most likely scenario was that there were no net effects, given that changes in the nature, magnitude, and focus of work projects were relatively constant and ongoing.

### Summary of Exogenous Events

This chapter discussed the environmental conditions in which the study bureaus existed and the method and types of TQM implementation. Each bureau faced some unique factors, such as the consortia concept (specialization of regions) in bureau 1, implementing technology upgrades for bureau 2, global budgetary practices in bureau 3, and bureau 4 experienced a transfer of nearly half its staff from Washington D.C. to Baltimore and ongoing leadership turnover (a continuous event in bureau 4). Some events were common to more than one bureau. For example both bureaus 2 and 4 offered employees an opportunity to switch to new areas, for which they qualified, as part of the reorganization in the late summer/fall of 1994. Bureaus 1 and 4 experienced job functions moving from bureau 4 out to bureau 1 (and to all the other Regional Offices as well). New responsibilities and ways of interacting existed for both bureaus 1 and 3 due to the Office of the Secretary withdraw from performing personnel-related administrative functions for the regions.

Several events affected all of the bureaus. All faced streamlining, which was required by Al Gore's National Performance Review (NPR), in late 1994. The reorganization/streamlining required each bureau to increase its span of managerial control

from 1:6 to an average of 1:15. Each bureau consolidated branches and created technical assistants instead of branch chiefs. The role of the technical assistants was not completely clear in all work units within the study bureaus. Just prior to reorganization, there were an above-average number of retirements due to buy-outs for retiring early. All bureaus were affected by this, and generally report that it made the reorganization smoother since mostly managers retired. Also part of the Gore NPR red tape cutting initiative, everyone in HCFA was able to make purchases using a credit card, rather than using paper approval forms and a lengthy, cumbersome approval process.

The agency in which the bureaus operated was implementing a Strategic Plan, but respondents overall report minimal involvement or awareness of the Strategic Plan. Employees in the bureaus experienced advancements in technology, such as a shift to agency-wide e-mail, WordPerfect 6.1, Excel to replace Lotus 1-2-3, etc. Survey respondents and interviewees also mentioned the usual election year “fed-bashing” as an event occurring.

#### Analysis of Exogenous Events

As mentioned in the introduction to this chapter, one reason to document the nature of events at the time of the study and of TQM implementation was to determine whether they were likely to have affected independent and dependent variables in the quantitative analysis and varied among individuals. If all three of these conditions were present, validity of the quantitative findings would be threatened (the regression model would be misspecified). To determine the likelihood that exogenous events affected independent and dependent variables and/or varied among individuals, both qualitative and

quantitative analysis was utilized. First, each of the events was examined carefully to determine whether there was a direct mention of an effect on a dependent or independent variable. Then, each exogenous event was analyzed by comparing it to each individual item (question) comprising each of the dependent and independent variables. This detailed qualitative assessment revealed no case of an event affecting both a dependent and independent variable. Finally, the residual plots of the errors were analyzed to determine if a pattern was indicated. If there was a pattern, this would indicate that an exogenous event not captured in the regression model was correlated with an independent variable. Patterns were not indicated in any of the residual plots (see appendix 4). The cumulative evidence, based on logic (qualitative macro- and micro-analysis) and statistical analysis, suggests that it is not probable that the exogenous changes/environmental factors threatened the validity of the quantitative findings reported in chapter 7.

## CHAPTER SIX

### IMPLEMENTATION OF TOTAL QUALITY ENVIRONMENT IN HCFA

The purpose of this chapter is to provide a detailed description of the nature and type of TQM implementation in the study bureaus. Detailed descriptions of the TQM implementation methods will allow for comparable replication of the study, as well as an understanding of what the form and nature of implementation was. Several studies reviewed in chapter 3 refer to TQM implementation in one or more study sites, but do not independently verify or document the type or extent of the implementation. The reader of such studies is left with no indication of whether some implementation steps from these studies were on paper or in name only rather than in reality. This chapter provides extensive information concerning implementation efforts in the four study bureaus.

The qualitative data for this chapter were gathered using the 28 semi-structured interviews (described in chapters 4 and 5) with 4 bureau directors and 24 managers and non-managers in late August through early October 1995. Since the 24 managers and non-managers were assured confidentiality, interviews are cited using a three character scheme (shown in chapter 5, table 4). The first character of the citation indicates whether the person is a bureau director (D), middle manager (M), or non-manager (N); the second indicates bureau number (bur1, bur2, bur3, or bur4); and a third digit for middle- and non-manager interviews indicates interview number 1, 2, or 3 (three of each were interviewed

in each bureau). For example, interview M/bur2/3 is a manager in bureau 2, interview number 3.

### Background and History

Total Quality Environment (TQE) efforts in HCFA began in 1992 in the Office of Human Resources through their work with Department of Health and Human Services (DHHS) personnel offices (Childress 1995). HCFA's Associate Administrator for Operations (comprising the Bureau of Program Operations, Health Standards Quality Bureau, and the ten Regional Offices) started forming councils next. Regional Offices began implementing TQE by reforming work process and direct outreach with customers. (Regional offices are closer to HCFA's external customers and some of HCFA's partners, such as Medicare contractors and Medicaid State Agencies.) In addition, the regions were also smaller than Central Office, making implementation potentially more manageable. Next, the rest of HCFA's Central Office components (bureaus and offices) began forming the structures, such as Quality Councils, for implementing TQE (Childress 1995). Implementation of TQE in the four study bureaus began approximately two years before this study was conducted with TQE awareness training and the formation of Quality Councils (QST 1995; D/bur1 through N/bur4/3).

Prior to TQE, HCFA generally operated in a much more formal, hierarchical, and structured manner (D/bur3; M/bur1/1; N/bur1/2; N/bur1/3; M/bur2/2; M/bur3/1; M/bur3/2; N/bur3/1; N/bur3/2; M/bur4/2; N/bur4/2). There were fewer teams; people or small work groups worked more in isolation and there were few, if any, cross organizational groups (M/bur1/3; N/bur1/2; M/bur3/1; N/bur4/2). Rather than

empowerment of the workforce, more controlling managerial styles such as directorship, supervisory, and micro-management were commonplace (M/bur1/1; M/bur3/1; M/bur3/2; N/bur3/3). Said one non-manager, “what was done was more dictated from higher levels. Staff had no discretion” (N/bur1/2). Both employees and middle/first line managers had less flexibility and decision making autonomy (N/bur1/2; M/bur4/2). There were more battles of turf issues in the previous era (N/bur3/2; N/bur4/2). Prior to TQM implementation, suggestions for improvement were more apt to be discounted, not seriously considered, or to be ignored; in fact, some new ideas were met with hostility and suspicion (N/bur1/2; M/bur2/2). More detailed aspects of HCFA’s previous modes of operating and practices are discussed within each specific TQM implementation step.

Following are the elements and practices which comprise HCFA’s implementation of TQE. Table 7 summarizes the major aspects of implementation. The first column provides the TQM implementation step according to TQM’s pure elements; the second provides the percentage of TQM practicing organizations in the U.S. that have adopted the step (according to four recent surveys reviewed and cited in Hackman and Wageman 1995). The last three columns indicate the strength of implementation of each step in the Health Care Financing Administration, based on information from the semi-structured interviews, reviews of documentation, and other background interviews.

Table 7. Features of TQE Implementation				
TQM Implementation Steps	Impl. in USA	Strength of impl. in HCFA		
		Strong	Medium	Weak
<b>Establishing TQM Structures</b>	100%M / 75%S	X		
The Quality Support Team (QST)		X		
TQE Coordinators in each bureau		X		
Quality Councils (QC)		X		
Local Quality Councils (LQC)		X	X	X
Quality Improvement Teams (QIT)		X		
Focus Groups		X		
<b>Training</b>	92%M / 75%S		X	
Total Quality Awareness		X		
High Performance Leadership (HPL)		X		X
Coaching and empowerment training			X	
Skills seminars, such as 7 habits		X		
Flowcharting/Process improvement		X		
<b>Empowerment</b>	15% (< 3 years) 50% (> 5 years)	X		
Self Directed Teams		X		X
<b>Participatory Management</b>	All have forms of empowerment, employee involvement, & communication.	X	X	
<b>Open/Frequent Communications</b>		X	X	
<b>Customer Focus</b>	nearly all (exact proportion not available)		X	
Internal customers		X		
External customers				
<b>Teamwork</b> (cross functional & intra-work unit) to identify & solve issues.	All.	X		
<b>Tools: Use of scientific methods</b>	Few use/apply Most use/apply			X
Use of heuristics		X		
<b>Rewards and appraisal systems</b>	85% reward quality		X	
<b>Benchmarking</b>	most		X	X

Notes: M = manufacturing / S = service industry. More than one X in a particular row means that implementation for that item is mixed: it may be strong in some work units and medium or weak in others.



### Establishing TQM Structures

The Quality Support Team. In August, 1994, the seven-member Quality Support Team (QST) was created as HCFA's central TQM group to provide technical advice, help HCFA components manage change, and support consistent TQE implementation in whatever other ways needed by the Executive Steering Committee (HCFA's top managers) and the rest of HCFA (Broglie Memo September 1994). Prior to the creation of the QST, each HCFA bureau and Regional Office was responsible for implementing its own version of TQM. There was no central TQE coordinating body to guide TQE implementation efforts agency wide. The QST operated informally for about six months prior to its formal creation (D/bur3). One of the major purposes of the QST was to eliminate duplication of efforts by HCFA components and keep strategies and tactics consistent with one another, while preserving each bureau's unique programs which were appropriate for its local environment and culture (QST 1994). The QST focussed on interventions with management teams within the HCFA components (bureaus, Regional Offices, and bureau level offices), such as team building and coaching. Each QST member negotiated his or her role with each component (D/bur3). The QST also conducted workshops, discussions, training classes, and seminars open to all HCFA employees (QST; Broglie memo May 1995). These sessions had become so well attended that HCFA's huge multi-purpose room was utilized for the training. Anywhere from 50 to over 100 people participated in QST sessions. Approximately once a month, the QST held brown bag luncheon sessions. Examples of topics addressed in these sessions include taking care of yourself during change and improving personal effectiveness. Additional luncheon

series sessions and/or videos were planned. The QST also conducted a workshop/seminar series on Steven Covey's Seven Habits of Highly Effective People which included workshops and exercises. Each session covered one habit; the sessions were an hour and a half to two hours long, and were offered about once every month (Rice e-mail series 1995). The first was so well attended that a makeup session was scheduled, and future sessions were moved to a room holding over forty people.

There have not been major QST interventions in bureaus 1 and 2 due to the geographical distance between bureau 1 and the QST, and because of other Quality Council (QC) focussed priorities in bureau 2. In bureau 3 the QST was integrally involved in bureau wide monthly change acceleration follow up meetings intended to improve communications, teamwork, and the like. The bureau 3, QC and representatives from the Quality Support Team planned and engineered the bureau wide "real time change" event held at Baltimore's Camden Yards on February 9, 1995 (discussed in more detail below, in the section on the bureau 3 QC). As a followup to the Camdon Yards session, the QST facilitated large and small group discussions, priority setting, and activities in monthly working sessions (D/bur3; Rice 1995; Webber 1995).

With bureau 4, the QST representative primarily worked with specific work units for team training and to enhance communication skills (Pinder 1995). The work with bureau 4 entailed periodic hour or two hour sessions with work units to impart information about working well in teams and practicing team building skills. Reaction to QST involvement in the bureau activities was positive, as both employees and managers

indicated that the service of the QST was valued (Webber 1995; M/bur4/3; and numerous e-mails received by QST).

In October 1995, the QST launched its own newsletter called "Quest." Quest was one page printed front and back, and contained practical tips, guidelines, and articles about effective TQM-related practices. The first issue, for example, contained a description on how groups can take time out in meetings to assess what they are doing and why. The technique involved sitting in a circle facing each other while each person one by one talked about a big picture and larger context: what the issues were for them, what the meeting was all about, the original goals, etc. (Quest 1995).

TQE Coordinators. All Regional Offices and most bureaus also established TQE coordinators, who were responsible for major TQE efforts such as coordinating efforts, information dissemination, linking with other bureaus, responding to questions, providing support to Bureau Quality Councils (Waldo 1995; QST, 1995). In Bureau 1, the TQE Coordinator performed these functions and arranged group facilitation and outside contractor services for training in coaching and leadership for managers, team building, diagnosis, and enhancing communication (Davis, 1995). In bureaus 2, 3, and 4 the coordinator was also the Bureau Quality Council Chair (list of HCFA Quality Coordinators/Contacts, 1995). The primary functions of the coordinator in these bureaus was information dissemination and planning change activities associated with the Quality Council chair role (discussed in the next section).

Bureau Quality Councils (BOC) and Quality Improvement Teams (QITs). A 1991 survey found that the most commonly used TQM technique is creation of short-term

problem-solving teams which work toward simplifying and streamlining work practices. Almost 100 percent of manufacturing TQM companies and 90 percent of service TQM organizations use such teams (Hackman and Wageman 1995, 315). Most of HCFA's bureaus had long term BQCs and short term Quality Improvement Teams (QITs), which like their counterparts in U.S. industry, worked on a wide range of issues, such as cross-functional processes and intra-organizational work flow difficulties. Features common to most or all of the study group BQC/QITs are discussed first, and then features unique to each of the four bureaus are described.

Beginning in early 1994, BQCs were established to promote, encourage, and help maintain TQE efforts throughout the agency (HCFA Newsletter May 1993). BQCs identified methods to incorporate TQE into everyday activities of the organization, and develop a vision for the bureau, as well as training, inservice, and other strategies to implement actions necessary to ensure the bureau achieves its vision (MOU 1994; QST 1995). The BQC also developed plans for bureau-wide data collection needs, or quality improvement/continuous improvement interventions. The BQCs typically had as their missions to: provide vision and leadership to create a Total Quality Environment; initiate and support cultural change and work process improvements; foster integration of TQE into daily operations; support Strategic Plan goals, objectives, and strategies of the Agency; identify opportunities for work process quality improvement initiatives; charter and support Quality Improvement Teams (although bureau 3's BQC did not directly charter QITs); receive, review, and act on QIT recommendations for process

improvements; and foster quality by sharing information on quality initiatives and encourage continued awareness of TQE (QST; BQC Charters).

BQCs in the study bureaus contained from ten to fourteen people, and a mix of approximately half managers and half non-managers, including the Bureau Director and Deputy Director who were permanent BQC members (BQC Chairs Minutes 1995, August). Membership rotated periodically, with staggered terms ranging from one year to two years. The chair of the BQC (which is usually a non-manager) rotated as well (QST, 1995; MOU, 1994). All BQCs had a trained facilitator at their meetings (which were bi-weekly) to assist the group in adhering to ground rules and keep the meetings on target for the agenda.

In BQC meetings, all members were considered equal, meaning that higher graded individuals do not “pull rank” or dominate the proceedings (QST, 1995; D/bur1; M/bur1/1; N/bur4/3), although one interviewee pointed out that a manager member of the BQC would occasionally put on the “manager hat” which the interviewee thought was not appropriate in the BQC meeting (N/bur4/2). Background discussions with BQC members from all four bureaus, and personal interactions with the bureau 3 BQC, confirmed that the practice of all members being equal was generally adhered to and practiced, in that everyone’s proposals or opinions were equally valued and respected. The exceptions to this rule occurred when a bureau director exerted authority connected to the position in the organization. For example, BQC members in bureaus 2 and 4 reported that occasionally, the bureau director “approved” or “disapproved” a decision in a BQC meeting after everyone had debated an issue and come to a decision or recommendation.

Each bureau had some type of quality oriented newsletter, frequently sponsored by or closely connected to the BQC, which highlighted what techniques worked well, what training sessions and seminars were available, and other news (Goal 1 Report 1995). These newsletters published information about upcoming training sessions, organizational changes, highlights of successful practices, as well as articles about practical quality improvement techniques and tools (Goal 1 Report 1995). The "HCFA Newsletter" was taken over by bureau 3 in March 1995, and became the "HCFA Voice" (named by a name the newsletter contest). The purpose of these changes was to create a newsletter that contained submissions and articles from employees and managers throughout the entire Agency, including the regions.

BQCs occasionally invited intra-bureau or extra-bureau speakers on a variety of quality improvement-related topics. In addition, all of the BQC Chairs, representatives from the Quality Support Team, and other invited HCFA officials, met periodically (every three or four months) to brainstorm ideas in a specific area; compare needs, successes, and other events; compare notes to determine if one group was developing something that other groups needed, and so forth.

BQCs in bureaus 1 and 4 directly chartered Quality Improvement Teams (in bureaus 2 and 3, the Local Quality Councils or other staffs below the executive level chartered these teams). QITs were established to attack a short term issue or improve processes in order to better serve internal and external customers. In addition to formal QITs, bureaus had informal multi disciplinary workgroups to attack cross cutting issues or ongoing work involving several offices, such as regulations, contracts, and budgets (these

informal groups are discussed at length in the teamwork section below). Additionally, BQCs were allowed to charter subgroups, designed to address specific issues or needs, such as empowerment, teamwork, customer focus and input. These groups were designed to be temporary in nature. These QITs and subgroups are discussed in the sections below.

According to representatives from the BQCs, all of the BQCs struggled with their roles and what they should focus on next; some began to question whether it was time to dissolve this formal structural aspect of TQM, thereby integrating practices and purposes of the BQCs into daily business of the bureaus as was done with Local Quality Councils and smaller work units in bureaus 1 and 3 (D/bur1; D/bur2; D/bur3; and various BQC members).

Bureau 1's Quality Council met every other week to discuss quality improvement strategies and to examine the charter (M/bur1/). According to one interviewee and QC member, it was initially easy to identify needs and begin to tackle concerns, but as time went on, the BQC became uncertain what to focus on. Approximately a year and a half prior to the survey, representatives of the BQC went off site and came back with recommendations to bureau 1's full BQC. The recommendations contained some items that lent themselves to further analysis by Quality Improvement Teams. Therefore, viable actionable items were utilized to charter QITs, which ultimately devised new processes and procedures in a few areas (D/bur1). One of the QITs devised a standard new employee orientation training package which provided an overview and background of TQM, background on substantive program areas, and other fundamentals of operation. Another QIT designed a new telephone/voice mail system with protocol and procedures

for providing backup or alternative contacts to callers (D/bur1; M/bur1/2; N/bur1/2; N/bur1/3). The BQC sought ongoing informal feedback from bureau members, including use of a suggestion box (which did not yield much input) (M/bur1/1). Some form of suggestion system is implemented by 65 percent of TQM organizations (Hackman and Wagemen 1995, 317).

Bureau 2's BQC met on alternate Wednesdays. Membership was for one year with four new members chosen three times a year. The chair served for three months, after which time the co-chair assumed the role. Open meetings of the BQC were held on alternate Wednesdays if a quorum of three managers and three non-managers were present (BQC Chairs Minutes 1995, August). A QIT chartered by the BQC designed a matrix for the role of the technical assistants (the new role of former first line supervisors). The grid displayed alternative roles and responsibilities in different areas depending on subject matter and situation (D/bur2). At the time of the interviews, it had not been in full operation yet, but the intent was for the grid to become a guideline for clarifying and defining the role of the technical assistants (Bureau 2 Focus Group Report 1995). Another QIT was formed in bureau 2 to concentrate on communications and information to improve the flow, frequency, and openness of information. According to several interviewees, communications have improved (see the section below on communications).

Following over a year of analysis, the bureau 2 QC developed a model for improving TQE efforts bureau wide. It included six major focus areas: manager buy-in, improving TQE training, improving QIT/Continuous Quality Improvement efforts, communications, empowerment, and customer satisfaction (Focus Group chart). In late



fall of 1994, the BQC presented the model to groups throughout the bureau to solicit ideas and volunteers to serve on focus groups. Six to twelve bureau members were solicited for each of the subject area focus groups (BQC Chairs Meeting Minutes 1995). Over several months in late 1994 and early 1995, the focus groups developed detailed plans and presented their recommendations to the BQC, which sent a summary of the results out to the entire bureau for comment. The chairpersons of the focus groups then met to analyze areas of overlap and to design a contract for the bureau. The contract recommended expected behaviors within bureau 2 and formed the basis for a personal contract for each individual bureau member (bureau 2 BQC representatives; QST 1995). The contract was still being refined by BQC members and focus group representatives at the time of this writing.

Bureau 3's membership consisted of the Bureau Director and/or Deputy Director (as permanent members), two office directors, one division director, one first line manager, five non-managers (selected by the union), and one non-manager from Office of Human Resources selected by the Bureau Director (Charter, bureau 3). Its primary role was to provide leadership, direction, and policy for all bureau quality initiatives (Bureau 3 BQC Charter). In so doing, the council drafted a vision and bureau Strategic Plan for making TQE an integral part of daily operations by supporting and encouraging employee involvement, teamwork, contribution, and an atmosphere of trust and respect between management and employees (BQC Information Update 1994).

The BQC and representatives from the Quality Support Team planned and engineered the bureau wide “real time change” event held at Baltimore’s Camden Yards

Stadium on February 9, 1995. The event was an extensive day-long macro- and micro-organizational improvement action- and change-oriented session for the entire bureau (about 300 people) at Camden Yards.

The improvement efforts required prework several weeks before the actual Camden Yards bureau wide event. In the weeks preceding what was referred to as "Camden Yards," each work unit held a series of their own sessions to determine how it functioned and what changes should be made. Using affinity diagrams to group brainstormed items into logical clusters, all bureau 1 managers held at least one half-day long session with their employees to discuss strengths, weaknesses, opportunities, and goals of the work unit. Individual work groups also brainstormed what they believed would be the best bureau possible, what factors hinder attaining that goal, and what factors help attain the goal. Over the month or so preceding the real time change session, the bureau director met twice with every work unit within the bureau to explain the purpose of the session and answer questions (QST 1995). At the Camden Yards session, the entire group made various decisions (by consensus) concerning how the bureau would conduct business, and individual offices/work units made changes in how they did work, interacted, or conducted business on a daily basis. Members of the bureau collectively made commitments and decisions in six major areas as a result of the Camden Yards session: (1) individuals, (2) communications, (3) getting the work done, (4) improving the work environment, (5) leadership, and (6) customers and partners (Bureau 3 representatives Memorandum 1995, February 24). Specific changes included: more active seeking of internal customer wishes and needs; designing ways to act on

customer input; streamlining and cutting unnecessary, non value added procedures; and greater cross-organizational cooperation. The bureau 3 director held monthly “Camden Yards Followup Sessions” that were announced by e-mail to everyone in the bureau, and were open to anyone in the bureau who chose to attend. There was considerable interest and participation in the sessions (D/bur3). In the first meeting (April 1995), approximately 12 people showed up. Attendance doubled in the next meeting; there was standing room only in the third; and approximately 100 people (about a third of the bureau) consistently attended every session thereafter (D/bur3; QST 1995). The overall purpose of the followup sessions was to disseminate information and to stay on track with plans for making changes and improvements in what was done and how. The QST continued to facilitate large and small group discussions, priority setting, and activities in the monthly working sessions (D/bur3; Rice 1995; Webber 1995). Spin off groups from the Camden Yards followup sessions worked on integrating leadership training to all employees (not just managers), applications for electronic bulletin boards, and guidelines for more effective teamwork (bureau 1-wide e-mail memorandum October 1995).

Bureau 4's BQC was formed to provide leadership in creating TQE throughout the bureau, foster the integration of TQE into daily operations, and encourage managers and employees to use TQM techniques (bureau 4 BQC Charter). The rotating chairperson served for one year. A quorum for BQC meetings was two-thirds of the ten to fourteen members (bureau 4 BQC Charter). The BQC held an annual brainstorming session with staff to solicit feedback and ideas for improvements. Council members prioritized ideas from the brainstorming session, consolidated the results, then considered chartering a QIT,

working with another division to resolve issues surfaced, or forwarding issues to management to resolve (N/bur4/1).

The bureau 4 QC chartered ten to twelve QITs (M/bur4/3; BQC Chairs Meeting Minutes 1995). QIT subject areas included the development of an idea suggestion program with guidelines, correspondence control, and beneficiary access to care. A QIT developed a skills matrix by placing position descriptions and required skills into a matrix. The matrix was then compared to offered training courses by category and grade to ensure that the necessary skills training would be available. Another QIT developed an awards program, which contained an awards committee and new awards program, with criteria for nominations and awards, such as employee of the month, teamwork, employee of year, and the bureau 4 leadership award. Actual awards were items such as plaques or time off. Rather than leaving awards entirely up to managers, they were selected by a panel, and any one--not just managers--could submit nominations (M/bur4/1). Later, all of HCFA adopted a similar awards program (discussed in the rewards and recognition section below).

Local Quality Councils (LQC). LQCs were groups of approximately twelve rotating members (managers and non-managers) at the local office, division, or branch level. The ground rules for LQCs were the same as those for BQCs: all members, regardless of grade level or rank, were considered equal. One representative interviewee commented: "In LQC meetings, instead of the manager leading the meetings, we rotate team leader. The manager does not dominate the meetings in a manager role" (N/bur4/3). LQCs existed to identify processes which needed improvement, and some LQCs in

bureaus 1 and 4 chartered and guided Quality Improvement Teams (QIT) to work on an identified area for improvement.

Local Quality Councils existed along divisional lines in Bureaus 1 and 4. Bureau 3 had Local Quality Councils (LQC) and then began experimenting without LQCs (moving to a team approach) to get everyone involved in the improvement efforts (OFHR BQC Information Update). In bureau 3, a conscious decision was made by the bureau leadership and BQC to discontinue LQCs in the fall of 1994 (OFHR BQC). Work units in bureau 3 found them repetitive, cumbersome, and unnecessary because work groups were making changes while the LQC was drafting its charter and rules. Additionally, they were seen as too formal and rules-bound and were regarded as something separate from the work itself. In fact, one respondent reported that, before they were dissolved, it was tacitly understood that people could be interrupted with work-related matters if they were in an LQC meeting (M/bur3/1). In an informational update that went to everyone in the bureau, the stated intent was for all employees in each work unit to be involved in work process and quality improvements, rather than a small subset of the division or branch (OFHR, BQC 1994). In bureau 2, LQCs gradually died out over time (N/bur2/3). In lieu of LQCs, informal teams arose within the bureau which came together to eliminate barriers, improve the efficiency of a procedure or set of procedures involved in a work process, or improve internal or external customer service. For example, bureau 2 teams worked on communication issues and information sharing throughout the bureau.

### Training

Among U.S. TQM organizations, 92 percent of manufacturing and 75 percent of service companies use some type of training as part of the implementation effort (Hackman and Wageman 1995, 315). All senior and middle managers are usually trained in quality practices, with a median of two days of training. Additionally among TQM organizations, 80 percent of first line managers and half of non-managers receive a median of eight hours of training (Hackman and Wageman 1995, 315). The most common types of training applied in the U.S. in order of frequency are: interpersonal skills, quality improvement processes and problem solving, team leading/building, running meetings, statistical analysis, and benchmarking (Hackman and Wageman 1995, 315-316). With the exception of statistical training, HCFA's order of priority, amount of training time, and training frequency paralleled quality training in TQM organizations nation wide. Also, similar to TQM authorities' view that changes are management's responsibility, most TQM practicing organizations begin with a top-down approach by first training top managers in TQM principles (Hackman and Wageman 1995, 316).

In the study bureaus, prior to TQM-oriented training, many types of technical and skills training were available, such as dBase, SAS, and other computer packages; and training in technical aspects of Medicare or Medicaid. Training was more related to the immediate job position rather than broad skills based, human relations oriented, or quality skills-related. In late 1993, TQE was formally launched throughout HCFA with TQE awareness training, which was provided in cascading stages: first to senior managers then to all other managers and employees. HCFA's approach to training differed slightly from

that of U.S. organizations, which have each successive organizational level in turn train the next lower levels (Hackman and Wageman 1995, 316). In HCFA, after the senior executives were trained, everyone else was trained in classes together. The two day TQE awareness training was provided to *all* HCFA employees by a cadre of trained HCFA employees (both managers and non-managers). To prepare for training the rest of HCFA, outside contractors taught the HCFA trainers in depth TQM material in a week long (plus followups) Train the Trainer program (Newsnotes, July 1993).

After they were trained, the HCFA trainers conducted classes for the rest of HCFA in TQE awareness. Classes consisted of a mix of 25 to 30 managers and non-managers from all levels and different work units. The awareness training included a detailed review of W. Edwards Deming's 14 points, the meaning of empowerment, two videos (one by Tom Peters) on empowerment, participatory management, and many other TQM practices and concepts. The material presented was used throughout the course for discussion and role playing on how TQE could/should work in HCFA's setting. Students in the classes received lectures from a team of two trainers (again, HCFA employees), and had opportunities for questions about how TQM would be implemented in HCFA, exercises, problem solving using case studies, discussion, brainstorming of concerns and suggestions, reading, and role playing (Cometa 1993).

High Performance Leadership Training. High Performance Leadership (HPL) training was scheduled for all HCFA managers and began in January 1995 (QST). Managers in bureau 4 were among the few components in HCFA that had not yet received the HPL training at the time of this writing (Pinder 1995; D/bur4; M/bur4/1-3). The

training enabled managers to assess where they were and where they were headed. Managers developed plans of action for achieving desired results at the personal, team, and organizational level (Appleby 1995, 7). The HPL classes consisted of an initial one week of training in skills such as coaching, feedback, listening skills, communication, planning, decision making, and problem solving (Childress and Fuller 1995, 3). Managers participated in simulations involving working as a team; practiced providing feedback; examined individual styles of thinking; and evaluated personal values and visions to better align choices and actions appropriately (Appleby 1995, 6). Workshops and discussions were also held to help managers understand their own assumptions (and those of others) in order to improve communication, planning, decision making, and problem solving (Goal 1 Report 1995, 4). One-day followup sessions were built into the training three months after the initial HPL training to determine how the behaviors and practices were being adopted in the workplace, and to deepen and reinforce learned practices. For the most part, managers who participated in the training had high praise for its quality, effectiveness, applicability, and usefulness (QST 1995).

Bureau 1 managers (who took the initial training in April 1995, and had not had received the followup at the time of this study) said that the training was slow to start and had some annoying features (such as a cheerleader type facilitator), but that it picked up and became productive after the first couple of days. One bureau 1 interviewee commented: "The main thing was meeting and really talking to our counterparts in the other two regions who took part. It really opened a dialogue in terms of sharing resources and working jointly on projects. We had discussions on how to react to changes, how to



deal with being in a dysfunctional state, how to strengthen interaction intra- and extra-Regional Office. There were not in depth discussion/skills on coaching” (M/bur1/1). Another manager reported that, “the first couple of days people were concerned about where we were going. Once we started getting into groups with counterparts it went better. At that level, that’s really where the most useful part of it was. It was utterly laughable because of all this touchy feeley stuff. The whole issue with using desks/tables or not using tables did not go over too well [the trainers removed all tables so that there would be no barriers, but the trainees wanted tables to put their papers on]. Ultimately, we talked about the consortia information, and the sessions became more valuable and practical” (M/bur1/2).

In bureau 2, which had HPL training in mid-September 1995, only one manager had the training prior to being interviewed. This manager thought the training ended on a reasonably decent note because people could talk about what they would do--there was a game plan. The manager also had the following to say:

I think looking at leadership skills and characteristics is superficial and does not get at root issues of who we are, and why we believe what we do, and behave as we do. Effective leadership is shot dead if we are not honest with ourselves. Until people admit they have certain biases we are only scratching the surface. For example, when I was first hiring staff, I thought that people had to have a degree in engineering, mathematics, etc. along with programming in order to be an effective programmer, and would look for people with this educational background. I was wrong, and I was biasing based on my experience. I have a programmer with a [Social Sciences] degree who programs better than everyone else on the staff. Until I recognized and acknowledged my own bias, I could not change it. The biggest problem I had with the leadership conference is that I did not feel the two facilitators helped people to identify the luggages we all may have, and facilitate us putting them on the floor and start to look at them honestly and then change them. You need to change those things, but this

conference did not get into the preconceived notions and assumptions of people. If you can't break that down you have not accomplished anything. At the end, they had an appreciation thing, but it's not real. People went around and told each other something they appreciate about the other person, but it seemed artificial. The word appreciation means a lot to me; it's not trivial to be thrown around. What they want to do is bring people closer together. To do that we need to become more informed and knowledgeable about one another; we are ignorant of one another. If we don't know one another there's fear and prejudging based on our notions of how a group is. Being honest and building trust takes looking closely at these things. You need to be 'in place with yourself' and start from there. Know yourself well first. Look at our own assumptions and see them as they are in order to really start to improve the overall culture at large. Otherwise, it's just sugarcoating.

None of the interviewees in the other bureaus mentioned this type of thinking or analysis concerning superficiality of the HPL training. Whether or not the HPL training was in depth enough to affect real or lasting change is unknown.

Bureau 3 had HPL training in January 1995, and followup training in early May 1995. The managers indicated that there was more of a sense of team and camaraderie following the training, and they shared information more among each other. All three managers and the bureau director said that openness and honesty in general seemed to increase. One manager said, "your integrity coming through was a key factor. This is just the opposite of the traditional role" (M/bur3/1). Overall, managers in bureau 3 seemed to emerge from the HPL training with insights about teamwork, cooperation (rather than competition in the form of one-ups-man ship), participatory decision making, and leadership (practicing effective leadership themselves and encouraging it in employees). Another comment was: "There was a lot of cynicism and skepticism going into it, and we wondered if it would be touchy-feeley training. It was team building which made people

more aware that we are not alone and they [the difficulties people face] really are common problems” (M/bur3/2). Formal interviews and informal discussions indicate that, while some managers said that it was difficult to try out some of the concepts they learned in HPL due to demanding workloads, others referred to the training frequently and made concerted efforts to adopt a more open, empowering, “macro-managing” (rather than micro-managing) leadership style.

Bureau 4 managers had not yet had the HPL training by the end of the interview series because it had been postponed several times. One manager expressed some frustration about the fact that the originally scheduled training was canceled more than once with no explanation (M/bur4/3).

TQM awareness training and HPL training were the only two training courses that were “mandatory” for all HCFA employees and all managers respectively. A myriad of specific TQM skills training courses were offered on a volunteer basis. This type of training involved particular quality-related tools or skills, such as how to empower, obtaining customer feedback, coaching/leadership, or facilitator training. Empowerment ranged from a one to three day course, with instruction, reading material, and role playing in how to empower staff (discussions with attendees). Nineteen percent of employees in the sample received training in empowerment. Training in obtaining customer feedback and measuring customer needs was offered by outside contractors. One extensive training seminar on obtaining customer feedback was a full week long instruction with exercises and examples of how to design and administer different types of surveys. One bureau 3 manager attended this seminar, representing the agency (the training was costly) (personal

discussion with person who attended). Other customer feedback sessions, such as Customer Focussed Team Training, were offered in house on a limited basis. Only 11 percent of the responding sample indicated that they received customer related training.

Thirty four percent of the study group received “just in time” problem solving training, which was two or three day instructional training on how to break down an issue into possible causes and symptoms, devise alternative solutions, and choose a solution. The training was called just in time because it was given immediately before the trainees participate in a formal or informal process improvement related group. HCFA trainers walked students through the details of each step (the steps are listed later) (QST 1995). Then, teams applied the problem solving model to a real issue they faced on the job (HCFA Voice April 1995).

Additional courses offered by HCFA’s Division of Training and Career Development were designed to support the agency efforts in creating a total quality environment (HCFA Voice April 1995). Three different types of team development courses were offered to accommodate teams at their own stages of development. The options included an introductory course that covered basic team skills; a course that assessed individual differences and how these could be utilized to benefit the team; and a course that assessed team performance against a model of a superior performing team (HCFA Voice April 1995). A coaching course offered by HCFA instructed managers and team leaders in a process for coaching employees and team members for problem solving and improved performance. During the training, participants were video taped conducting practice coaching sessions in order to analyze and improve on their coaching skills (HCFA

Voice April 1995). A conflict resolution course taught participants how to recognize the various types of conflict that could occur in a work setting and how to apply techniques to manage conflict in individual, group, or team situations. Finally, a course in life long learning skills provided employees with the information and skills needed to become empowered, self-directed learners, and valuable contributors to their work group or team (HCFA Voice April 1995).

HCFA employees were constantly offered a number of generic off-site TQM-related half day or day long seminars, talks, tele-video sessions, etc. Topics varied greatly in focus and depth, but all usually contained some basic principles of TQM and practical guidance on how to apply and practice those principles. Frequently these were sponsored by TQM associations or the Federal General Services Administration and were free of charge or low cost (such as \$10.00), thus not constrained by budgetary issues and were readily approved. Twenty five percent of the employees in the four sample bureaus reported receiving TQM generic training. The number of days of this type of training ranged from 1 day (13 percent) to a total of 50 days (one person); the most frequently cited number of days of training was 2 days (30 percent) and five days (14 percent).

Extensive, week long facilitator training was offered to a limited number of employees throughout HCFA. Just over 7 percent (43 people) of the sample bureaus received facilitator training. According to attendees of the training, this training consisted of comprehensive instruction and practice of several facilitation techniques and skills, such as how to resolve conflict among group members; tools for generating many ideas and alternatives (brainstorming, etc.); reaching consensus; decision making tools (use of

fishbone diagrams and the like); and effective communication techniques. This cadre of trained facilitators then became available to facilitate process improvement and any other type of meetings in any HCFA bureau. They also facilitated every BQC meeting (one facilitator was assigned to each BQC) (The HCFA Newsletter 1994; individual BQC meeting notes).

### Empowerment

Prior to TQM, more managers had a style of control, directorship, and micro-management (M/bur1/1; D/bur3). Fewer responsibilities were delegated, and employees more often checked with managers before taking actions outside the standard operating procedures (M/bur1/1; N/bur1/2; N/bur3/1; N/bur3/3). One interviewee reported witnessing a real change in the practice of an upper middle manager (one just below bureau director): “this manager was previously very controlling; it was very difficult to give up control. Now [the manager] sits back and lets others take control and facilitate without trying to push things in a [predetermined] direction” (N/bur3/3). Managers--sometimes those two or three levels above the employee writing the correspondence--signed most correspondence, including minor, routine memos (N/bur1/2; M/bur3/2). Additionally, there were multiple layers of review on every memo and note that was distributed (M/bur3/2). According to a bureau 1 non-manager, “what was done was more dictated from higher levels and staff had little discretion” (N/bur1/2).

Two years or so after TQM began, personnel in all four bureaus reported that there was some lowering of signature levels and empowerment of staff. Specifically, there was delegation down (by sometimes two or three layers) of who signed notes, letters, and

memos (D/bur1; N/bur1/3; M/bur2/1; M/bur3/1; M/bur3/2; N/bur4/1; N/bur4/2). While not all correspondence, reports, or other items, were signed off or approved by non-managers, a great deal more was approved and signed by non-managers. For example, in bureau 1, routine Carrier Performance Evaluations, which were signed by managers about a year before the survey, were signed out by staff members (D/bur1). Work units were able to conduct work and try procedures in a new way “without obtaining fourteen signoffs or approvals” (M/bur1/3). An employee reported that “with empowerment there are changes, and we sign out our own correspondence” (N/bur1/3). A bureau 3 manager pointed out that employees gained “the ability to correspond and deal directly with other components without constantly running in to the supervisor to ask permission” (M/bur3/2). Meanwhile, there were pockets of the organization where managers and employees perceived that trust and empowering others was not being fully practiced (M/bur2/1). A bureau 1 manager questioned why the next level manager’s name was on a particular memo that was always written by a lower level manager (M/bur1/1), and an employee stated that, though the staff was empowered in many other ways, everything was signed by the manager (N/bur1/1).

Another way in which employees were empowered was that the organizational level of people going to meetings was lowered. Analysts went to “high powered” meetings to present rather than just going along to sit in the back and support the manager in the meeting (M/bur3/1; N/bur4/1). Non-managers functioning as major participants and decision makers in executive meetings became a matter of practice: in over half of the Critical Performance Measures meetings, a staff person, rather than a manager, presented

the analysis and responded to questions. In the performance measures meetings, managers (as goal team captains) were present; however the team leaders (most of whom were non-managers) led the discussions and presented analyses and policy options. Roles were reversed, and the manager was there to support the employee, and it was the employee who gave the subject area presentation and interacted with the group. Both managers and non-managers sat at the conference table and openly engaged in the discussions and questioning one another and responding to questions. Additionally, in Executive Steering Committee Planning Committee (a subcommittee) and full Executive Steering Committee meetings, a non-manager staff person was increasingly a principle presenter and speaker since implementation of TQE began (the precise percentage of times that this occurred is unknown).

All bureaus had informal quasi-independently operating teams within a division or staff. These informal independent teams had no "team leader" per se, and functioned with a great deal of autonomy: they made decisions and--except for broad policy changes--changes in the way they do work without approval from a manager (M/bur1/2; M/bur2/2; N/bur3/3; M/bur4/1; N/bur4/2). Whether part of these teams or not, employees reported that they had greater independence in general, and could correspond and deal directly with other components without constantly running into the supervisor to ask permission before taking action (N/bur3/1). A bureau 1 non-manager described empowerment in terms of Central Office giving more policy making power to the regions, and remarked that the relationship with Central Office became less stringent and less structured than it had been in the past (N/bur1/2). Concerning empowerment within bureau 1, this person said that



“there is more empowerment and individual responsibility on things now. I have seen a change to a more employee oriented self-reliant type of approach where you can be more responsible for your actions and decide what to do” (N/bur1/2). While some employees occasionally reverted to old practices of checking with the manager first, some managers encouraged independent decision making by leaving decisions about priorities and work methods up to staff members (N/bur3/1); the manager acted more as a sounding board and then said, “I’ll leave it up to you.” Employees were free to make on the spot decisions, sign memos, and be responsive to requests. Bureau 4 was working on delegation of authority to employees to make payments, determine payments, and require reports from contractors (M/bur4/1). Many work groups operated substantially independently in that they established priorities, divided work up among themselves, made group decisions, and resolved their own difficulties. Formal self-directed teams (discussed later) were created in bureaus 3 and 4 in late summer 1994 (Goal 1 Report 1995).

Another form of empowerment that occurred HCFA Central Office-wide is that non-managers and managers maintained their own individual time sheets at their own desks. Previously, only non-managers signed in and out, and they did so on a form located in or near the manager’s office. This change was made in the summer of 1994 because it was more consistent with trust and empowerment of the workforce.

#### Self Directed Teams

Among U.S. organizations, 15 percent of relatively newly practicing (three years or less) TQM organizations had self directed teams, and nearly half of those with TQM over five years had these teams (Hackman and Wageman 1995, 317). The self directed

teams in bureaus 3 and 4 divided up work among themselves and operated independently with no formal chief or director (D/bur3; D/bur4; M/bur3/2; N/bur4/3). The members of the self directed teams rotated administrative and other responsibilities. Each member had particular areas of expertise, and the groups were comprised of employees of different grade levels; however, none was a manager and no one person was in charge or solely responsible for policy decisions. Rather, they made decisions as a group (Goal 1 Report 1995, 3). The self directed teams held weekly meetings to maintain communications. Members of the self directed groups reported that for the first few months they went through some amount of “norming, storming, and experimentation” (the phases of group development, before getting to “performing”) prior to settling into roles, responsibilities, operating procedures, and routine practices (QST 1995).

#### Participatory Management

All organizations practicing TQM in the United States have some forms of employee involvement in decision making and quality. There is widespread use of day long quality events designed to involve all organizational members in quality. Seventy percent have quality meetings with managers and employees and/or focus groups to solicit ideas about quality, and 65 percent institute employee suggestion systems (Hackman and Wageman 1995, 317).

In pre-TQM HCFA, in some work units, employees were not as involved in branch, division, office, or bureau decision making (M/bur1/2; M/bur3/2; N/bur3/2; N/bur4/2). For example, the Central Office did not involve the Regional Offices as much in policy- and decision making (M/bur1/1; N/bur1/2; N/bur1/3).

Some changes post-TQM have taken place in the nature of HCFA's employee suggestion program. HCFA had an employee suggestion system well before the advent of TQM; however, there were actions taken by bureau 3 staff (which coordinates the program) to improve its participation, user friendliness, and responsiveness. For example, suggestion coordinator staff developed new approaches to obtaining responses from the components which receive suggestions so that it is seen as an opportunity rather than a burden (Goal 1 Strategic Plan Report 1995). Additionally, suggestion coordinators worked toward improving timeliness (it could take over a year to obtain a response on some suggestions). In late 1995, the suggestion program began giving small token presents to people just for suggesting an idea, such as suggestion program pads of paper or paper clip containers with multi-colored paper clips and suggestion program logo on the front. The suggestion program improvements were designed to assist in meeting the goals of the program: to encourage and enhance employee involvement at all levels in the running and management of HCFA.

Another, parallel, suggestion system emerged in HCFA in early fall 1994. Throughout all of HCFA, actual black tin mail boxes appeared with signs on them saying "float ideas to the top." Each contained a slot for a piece of folded up paper and a lock on the front. It is unknown how many people participated in this suggestion system or what actions resulted from any suggestions placed in the mail boxes. (The boxes did not reappear at the new single site location.)

Senior and middle managers made their own efforts to involve staff at all levels in decision making, and to bypass the chain of command by going directly to an information

source rather than through one or two management layers. A number of examples of this practice occurred throughout the two year start of TQM implementation, primarily in the form of involving teams and work group members in decision making. A number of managers brought the staff together when making decisions about priorities or changes in work focus and/or how to go about accomplishing the work (N/bur1/2; N/bur3/1; M/bur3/3; N/bur3/3; N/bur4/3). An agency wide effort toward more participatory decision making on hiring and promotion was made in the creation of promotion panels, which consisted of the hiring work unit manager and two non-managers. Bureau 2 piloted this approach beginning in early winter 1995 (bureau 2 memorandum 1995), then the rest of the agency adopted the approach a few months later. Prior to this, the manager alone made final hiring decisions.

Participatory decision making in the four bureaus sometimes broke down. An example of participatory management not taking place recurred several times in interviews. An interviewee who gave an example of excellent top manager participatory styles also provided one of poor involvement of staff for one of the middle level managers. This particular manager reportedly did not routinely discuss matters or involve staff in decision making (N/bur3/3). A bureau 2 manager expressed frustration at the fact that managers higher up did not always trust non-managers enough to include them in decision making (M/bur2/1). In bureau 4, numerous interviewees described how decisions came "from above" to move work out to the regions and the offices affected were not consulted or involved in this major decision (M/bur4/1; M/bur4/3; N/bur4/2). Said one, "if your job is going out to the regions, you're the last to know" (M/bur4/3). Another said that "the

transition to the regions was not done in a TQE way. It came from above . . . it was shrouded in mystery” (N/bur4/2). A third bureau 4 non-manager reported that “there are too many people up high on the chain that have control of situations that do not afford people the opportunity to make changes or improvements. Some managers do not buy in, which has an effect on employees, because it sets an example and causes enthusiasm to wane” (N/bur4/3).

Similarly, bureau 1 non-managers described being disenfranchised when decisions were made about the regional consortium concept (N/bur1/2; numerous open ended comments on survey). One interviewee described ways in which participatory practices ebbed and flowed, and expressed an appreciation for some of the challenges managers faced in attempting to adopt a more participatory managerial approach:

If management gives up some areas of responsibility or supervisory control, how do you identify those elements? Sometimes we still get ‘do it because I said to do it’ which is a throw back to the old days. but mostly, it’s an approach of, ‘what ideas do you have?’ It’s tough for management to give up the old practices and determine what authorities to keep and which to give up. Items of supervisory responsibility are now turned over and done in conjunction with staff with a coaching approach by managers. Some items still have to be straightened out (N/bur1/2).

#### Communication

HCFA communications prior to TQM, while somewhat open and frequent, were more constricted and closed (N/bur4/1). There was a lower propensity to share information on the part of people at all levels of the organization (M/bur2/3; M/bur3/2; M/bur1/1). One non-manager remarked that office directors and managers and employees at all levels were not sharing information before (N/bur3/2). Overall, there was not as

great a flow of information throughout the agency, and information was much more closely guarded (M/bur4/2). Information flow was inhibited not only from managers to non-managers, but also from employee to employee (N/bur4/2).

According to managers and non-managers, the openness and frequency of communications and information increased significantly when TQM was implemented. Rather than filtering meeting notes and other information through layers of managers, most information was sent via e-mail to all HCFA employees, including minutes from top executive meetings, correspondence from the Vice President or the Secretary of Health and Human Services, Congressional actions and changes, and most all other information (numerous open ended comments on the survey; numerous HCFA e-mails). One interview respondent commented that "Office Directors, at all levels, share information. I'm not sure they were doing that before. Our office director is more people oriented and very willing to share information . . ." (N/bur3/2). This same non-manager pointed out that previously, people in the bureau did not know where the leadership wanted to go, what they were doing, or what they thought about anything. According to the interviewee, people were aware of what the goals were and where they were heading because people were told up front what was going on rather than being caught by surprise (N/bur3/2). Nearly all interviewees said that there was a greater emphasis on better and more communication. Another typical remark: "we get a lot from the front office on what's going on."

Efforts toward better personal communications occurred as well. At the Bureau 3 monthly bureau meetings, for example, the director initiated an open forum with all bureau

staff who wished to attend (these are the Camden Yard followup meetings mentioned above). In the first part of the two-hour meetings, the bureau director shared information on whatever is occurring in the work environment--including Congressional actions that might affect the employees. A question and answer period followed, and in the balance of the time people broke into work teams to improve communications, teamwork, interpersonal skills, and the like. Following each of these meetings, meeting notes went to everyone in the bureau on paper or via e-mail. Interview respondents provided positive comments about these monthly meetings, saying that they are useful and informative, and that, in the words of one respondent, “we seem to have a better handle on the overall mission, where I don't think we did that in past, and we weren't aware of the direction in the past” (N/bur3/2).

Representatives from bureau 1 said that there were more and better communications with Central Office personnel (M/bur1/1; M/bur1/2; N/bur1/2). One manager’s work unit began to routinely talk with people in other offices to identify crosscutting issues that affected others’ work (M/bur1/2). Additionally, some branches in bureau 1 held internal brown bag lunches to share information about what was happening organizationally (N/bur1/3).

A bureau 4 manager said that there was greater emphasis on communication in that they received much more information from the bureau director’s office on what is going on (M/bur4/2). A non-manager respondent described how the work unit adopted a practice of communicating directly with people in the regions (N/bur4/2). Previously, information traveled in a “window”: up to the manager, over to the regional manager,

then down to the employee. This, according to the interviewee, led to greatly distorted messages and created hostility and defensiveness if the content was critical in any way. The communication became direct, supportive, and clear after the beginning of TQM. Said the interview subject, "I'm not saying that all these people like everything we say, but it is overall supportive. We first say that we are here to help build on your existing talents and abilities and to train. The message is direct."

While communications improved overall, there were still instances where communication was not particularly open or forthcoming. For example, a non-manager in bureau 1 said that sometimes the employees did not know what goes on in the manager meetings because they were closed door. Whether or not the information was shared depended on the manager since some managers always shared information and others did not (N/bur1/3). A bureau 1 manager pointed out that there were instances where managers were not sincere in practicing communication and information openness (M/bur1/1). This manager said that it was true that sometimes management did not have information that staff thought it was concealing, but that this could be addressed by sharing/communicating what is and is not known (such as rumors about changing retirement systems, budgetary situations, and furloughs). The manager summarized by saying that "to the extent possible we should always look for opportunities to be as open as we can, even when we don't have full information. There will be less speculation and mistrust that way" (M/bur1/1).



### Mechanisms to Increase Customer Focus

Almost all case studies of TQM organizations cite methods used by organizations to obtain feedback from customers (Hackman and Wageman 1995, 316). Prior to TQM (early to middle 1993), the word customer was not used throughout the bureaus. Though a formal content analysis was not conducted, the word customer appeared countless times in all forms of bureau, work unit, and HCFA wide verbal and written communications: memos, e-mails, highlights (short reports of activities which were distributed weekly), internal and external reports, and others. The four study bureaus became much more attentive to and aware of customers; the extent to which they formally obtained customer feedback differed across work units within each bureau.

All four of the bureaus adopted ways in which they were attentive to internal or external customer needs, attempted to better understand customer needs, and met the needs of internal and external customers. In bureau 1, customer focus increased as staff increased the amount of contact with Medicare and/or Medicaid beneficiaries (D/bur1; M/bur1/3; N/bur1/1) and/or with contractors (partners) by talking directly with them about policy or payment issues rather than just sending a written letter (N/bur1/3). Bureau 1 conducted beneficiary outreach in a number of ways: according to one interviewee, “we have become much more than a ‘financing’ organization and are shifting the way we relate to our beneficiaries and other entities. We are changing our focus and becoming more focused on needs of the beneficiaries--such as preventive health care. There has been a whole outreach emphasis and increase in consumer information strategy.” (M/bur1/1). The outreach involved direct contact with program beneficiaries.

Another interview subject said, “one of the things that has really been good is getting employees in touch with the real beneficiaries. We have people go to hearings and see who is testifying at the health care hearings. We go to health care institutions (hospitals and nursing homes, etc.) to see first hand the quality of life of our customers--to see them flesh and blood” (M/bur1/2). The interviewee added that it became important to get out of the “box” and onto the street because “any time there is an opportunity to go where the beneficiary is, we should go there” (M/bur1/2).

Bureau 2's customer service focus group worked toward integrating improved customer service throughout the bureau. The workgroup identified barriers to effective customer service that existed internal to the bureau, outside the bureau but within HCFA, and outside of HCFA (Customer Satisfaction Workgroup report, 5-6). The group analyzed and considered the development of a clearinghouse as a focal point for information dissemination, creation of a standard customer satisfaction survey with a mechanism for acting on feedback (Customer Satisfaction Workgroup report 1995, 7). The stated goal of the workgroup was “to have every bureau customer be delighted with our service” (Customer Satisfaction Workgroup report 1995, 4). As of the late fall of 1995, bureau 2 had not yet begun implementation of the plans on paper. One bureau 2 employee noted that a lack of customer service was indicated by the fact that the Medicare beneficiary handbook was not translated into Spanish in a timely manner (N/bur2/1). The interviewee further stated that sometimes it was considered too costly to implement policies or programs that would serve beneficiaries better.

Various bureau 3 work units gathered and acted upon internal customer feedback. Bureau 3 conducted a survey of all HCFA employees to design the services, hours, and the name of the child care center. The work unit responsible for inclement weather policies surveyed all HCFA employees to determine what mode of information (radio, TV, etc.) they preferred, and what difficulties they faced in getting accurate information about HCFA closings. As a result of the survey, an expanded number of radio stations carried announcements about late openings due to weather, the number of phone lines available to employees to call the recorded message was greatly increased, and memos went out to all employees clarifying inclement weather policies, use of annual leave, etc. As a service to HCFA employees, another bureau 3 work unit surveyed all Central Office employees to determine car pool preferences and connected those who wanted to car pool and lived in the same area. The work unit organized a network of commuters who wished to car pool. An interviewee in bureau 3 pointed out that his work unit became extremely customer focussed in working with the Regional Offices to provide administrative and personnel related services (since the Office of the Secretary was no longer performing these functions). The work group members obtained information on internal customer needs informally through frequent telephone conversations and e-mails and planned a formal customer survey to obtain feedback on services (N/bur3/2).

Bureau 4 increased its attention to customer service since the start of TQE through feedback sessions with both partners and customers (contractors and beneficiary groups) (D/bur4; M/bur4/3). Additionally, although it was not decided or implemented in a participatory way, the bureau began moving many functions and responsibilities out to the

Regional Offices which have closer contact with beneficiaries and contractors (M/bur4/1). As part of that effort, Central Office personnel in bureau 4 conducted extensive training exercise through “Managed Care College” seminars, small group training, and one-on-one training in the trainees’ Regional Offices (N/bur4/2). One work unit member reported that in order to be more responsive to requests for data, products, or information, they took the lead on doing requests from other work units as a team rather than individually. Then, other work units began to adopt this practice as well, resulting in better and faster responses (N/bur4/2).

Around the fall of 1994, work units in bureau 4 began to initiate “a tremendous reaching out to internal and external customers during development and implementation of ideas” (M/bur3/2). Some of the bureau’s partners (contractors) conducted some of the outreach, which involved holding focus groups, or conducting surveys to obtain input from the beneficiaries to fine tune the health care benefit packages. Additionally, the work unit designed an evaluation of their services and products prospectively by determining what was intended (which was based, in large part, on what beneficiaries said they needed and wanted), and preparing an evaluation protocol. The same interview subject pointed out, “how do you know what you are going to do is good or not good, and how will you evaluate whether what you set out to accomplish was what was intended unless you establish this up front?”

#### Collaborating Closely With Partners

In some way, collaboration with partners to increase quality of outputs is practiced by at least half of TQM organizations in the U.S. (Hackman and Wageman 1995, 316).

This type of partnering, as discussed in the customer service section above, was most evident in bureaus 1 and 4 and their relationships with Medicare, Medicaid, or Health Maintenance Organization contractors as well as some provider groups.

Bureaus 1 and 4 were participants in the February 1995 HCFA National Quality Leadership Conference. The theme of this two day conference was “strengthening partnerships for quality.” It was the first time HCFA brought together nearly all of its contractor groups: Peer Review Organizations, End Stage Renal Disease networks, state survey agencies, Medicaid state agencies, Medicare carriers, Medicare intermediaries, and outside professional health organizations (Feldman 1995, 1). HCFA representatives from the Regional Offices (including bureau 1), bureau 4, and four other HCFA bureaus led sessions on quality indicators, health communications, Medicaid managed care, preventive care, and other subjects. In total, there were 22 workshops. Plenary speakers included George Strait, ABC News health reporter, who discussed what consumers wanted and expected from the U.S. health care system. The second plenary session was led by Dr. Helen Smits, HCFA’s Deputy Administrator, who spoke on “building the information infrastructure to support quality management.” The bureau 4 director held a discussion on “managed care in a diverse population.” The final plenary speaker was the President and CEO of the Institute for Healthcare Improvement, who talked about quality management in a regulatory environment (Feldman 1995, 6). After the conference, this speaker held a two-day training session on continuous quality improvement to selected conference attendees (it is not know how many from bureaus 1 or 4 attended). Video tapes of the plenary sessions were made available to all HCFA employees in the HCFA library.

Bureau 2 developed plans on paper to enhance its relationships with contractors (Focus Group Summary Report 1995), and no evidence surfaced concerning the nature of relationships with partners/contractors in bureau 3.

### Mechanisms to Increase Teamwork

Nationwide, all manufacturing TQM firms utilize teams to accomplish work and improve processes, and 90 percent of service organizations do (Hackman and Wageman 1995, 315). In HCFA, before TQM was initiated in the bureaus, there was much more of a “stove pipe” mentality and working atmosphere in that people did not cross functional lines to share information or cooperate. Rather, they were much more likely to operate within their own narrow subject area (M/bur1/3; N/bur4/2). Previously in HCFA, work was very compartmentalized and specialized. People worked in isolation or within the small confines of their branch or other organizational unit (M/bur1/1; M/bur1/3; M/bur3/2). People and groups tended to operate less cooperatively among and between work units (N/bur1/2; N/bur1/3), possibly because reward systems did not encourage cooperation or because it simply did not often occur to people to work in intra-work unit or cross area teams. Managers of different components, work units, and bureaus were less cooperative and supportive; they were more likely to work in confrontation or competition with each other rather than in a cooperative or supportive way (D/bur1; D/bur2; D/bur3; M/bur3/1), and there was perhaps not as much mutual respect among managers (M/bur2/1).

Since the fall of 1993, several actions were taken to increase teamwork within work units, across work units, and across bureaus. For example, the use of both formal

and informal work groups or teams in the four HCFA bureaus studied increased markedly. In response to questions about what types of initiatives were taken in the bureau to implement TQM, formation of work groups or teams was one of the most commonly mentioned responses. For example, “people seem eager to work together. Overall, the change was good because functions were grouped. Before there were more finite divisions in groups; now we have team leaders.” There was also more crossover of functions among and between different work groups (teams, branches, etc.). Nearly every interview subject mentioned the fact that the number of inter-bureau and/or inter-division work groups increased. Most also said that the informal group interactions, rather than the more formalized teams, were the most effective in producing results within short time frames in cooperative and in supportive ways (M/bur1/1; M/bur1/2; M/bur1/3; N/bur1/1; N/bur1/2; M/bur2/1; N/bur2/3; M/bur3/2; M/bur4/2; N/bur4/1; N/bur4/2).

Bureau 1. As in other bureaus, bureau 1 respondents described a dual phenomenon with respect to teams: (1) increased intra- and extra-office work groups since TQM began, and (2) the fact that when groups form spontaneously or informally, they are more effective. According to one manager, “the informal TQE practices tend to work much better than the formal quality councils, etcetera. Now practices occur with greater frequency. People think of more things to do across organizational lines with other employees--they talk with people in other offices and work collaboratively more” (M/bur1/2). The bureau 1 director pointed out that in its ideal practice, teams and other aspects of TQM should not be something formal or separate from the work itself (D/bur1). Others expressed similar views: “I’ve been impressed at the number of

workgroups set up, mainly by Central Office, that cross functional lines and Regional Offices. It is very positive” (M/bur1/3). “Sometimes you may need an individual or a group of some sort without worrying about what it is called” (M/bur1/3). Non-managers also agreed, saying that they saw the benefits of TQE more with the unstructured team rather than a structured QIT, and that informal groups were effective and quick (N/bur1/2; N/bur1/3).

While it surfaced less often as a concept, the nature of intra-work unit groups was described in positive ways by one employee: “ If someone has something to add it is done in a cooperative way without defensiveness or resentments on the part of other team members. Team members have been fairly cooperative so far because they value each others’ contribution and welcome input” (N/bur1/2).

Not every bureau member personally experienced increases in elements leading to teamwork. A non-manager said that not only are there are too many formal councils and task forces, but also that “I do not see people functioning in a working, viable team containing people of various expertise. You need the right people in place to form a team. People from Central Office should be detailed here to forge more cooperative working relationships and to gain a better understanding of the work” (N/bur1/1). Another non-manager pointed out that, while teams have proliferated, “in my area [forming teams] went through a paper exercise and dwindled.” The interviewee said that teams have been “acknowledged,” but cooperation is not fully practiced or rewarded in the work unit (N/bur1/3).



The less positive reports on teams and cooperation may be due to a team leader role that was instituted with reorganization. Often, in place of branch chiefs, “team leaders” were appointed, who were usually grade 13s or 14s. According to numerous comments on the open ended portion of the survey, the role of team leaders was not entirely clear, but they clearly were not intended to act as supervisors. With respect to work unit-based teams formed with permanent work unit (branch) members, employees expressed some amount of hostility about the team leader concept. According to approximately ten bureau 1 commenters on the survey, team leaders doled out the work to everyone on the team and kept the high profile--but technically undemanding--work for themselves. Numerous bureau 1 survey commenters said that this practice demoralized the workforce, and expressed a desire to rotate the team leader or somehow make the process more open and participatory.

Bureau 2. Bureau 2's director said that working in teams throughout the bureau increased (D/bur2). In particular, “once we started team building activities [through Steven Covey teamwork training], that really went a long way toward changing our culture and the behaviors we expect from each other, the behaviors we reward, such as working in collaboration and not in confrontation or competition. Really supporting each other and making it known that a value and guiding principle of the bureau is to operate in a team-like, collegial way which we expect to filter down throughout the organization” (D/bur2). The director added that the team building was aimed at changing the culture: formerly, employees wanted to see office directors “go toe to toe” on issues, and perceived that if the office directors were working it out cooperatively, their manager was

selling out. To assist in changing this outlook, HCFA's on site expert contract trainer/facilitator taught the senior managers the Steven Covey teamwork approaches and worked with each office team to extend the principles to the managers in the offices (D/bur2). Some confirmation and qualitative evidence exists that an improvement in the cooperativeness and supportiveness aspects of the culture took place. For example, a bureau 2 manager (M/bur2/1) said that there was more respect among office directors than ever before, and offices worked better together. Another described new informal teams both within the bureau and with Social Security personnel as well, on how to resolve issues (M/bur2/2). Since Social Security and bureau 2 shared data and programming responsibilities, they increasingly began to consciously work together in teams to orchestrate responsibilities and anticipate and resolve difficulties (M/bur2/2).

As is the case in the other bureaus, bureau 2 personnel believed that informal approaches were better than formal structures, such as the BQC (M/bur2/1). This manager even wondered whether the BQC should exist because it seemed separate from the work. "TQE should be an integral part of the way we do our work and interact, not something different from the work" (M/bur2/1). In bureau 2, many very successful workgroups were formed among different bureaus and HCFA internal users groups to collaborate on data and/or information needs (D/bur2; M/bur2/2; M/bur2/3; N/bur2/3). Calling the teams QITs was referred to as "the kiss of death" because there were too many rules and they were too formal (M/bur2/1). Interestingly, one respondent cited the fact that part of their cross-bureau team slowed down decision making because the

representatives (from bureau 3) had to discuss plans and potential decisions with *their* intra-bureau 3 team members before moving forward (N/bur2/3).

Some barriers to promoting teamwork were cited. One manager said that the new structure post-reorganization, which contained four separate branches, did not foster teamwork very much, but that there was good support within the work units (M/bur2/1). A non-manager said that it seemed as if everyone was involved in their own work and responsibilities, which inhibited interactions among people (N/bur2/1). Another cited the facts that people were within their own walls and had their own computer tended to isolate people so that they did not communicate as much (N/bur2/2). Finally, the third non-manager interviewee said that the size of the agency (3,500 people) might have inhibited effective team building, and that “at the local level it might make more sense, because you have more personal contact with the people you work with” (N/bur2/3).

Bureau 3. According to one bureau 3 non-manager, “everything is done in teams. As a result of that, the final product is much better. You get to know your coworkers a little bit better and have fun” (N/bur3/3). Among some work groups there was a tendency to assign only special projects to teams. A bureau 3 manager said that “a change that occurred in the time period is the idea of working more in teams. There is more crossover. Overall, the consensus is that the product is better. The cost is that our routine work has more of a backlog. There's a sense that the more routine work is less valued because teams are not doing it. Getting things done through a team approach has been a good message, but how does the non-team work (routine work) fit into the ‘new world order?’” (M/bur3/1). This manager reported an increased sense of camaraderie

among managers because they shared more information with each other in a more open and trusting way. An example was that two managers were completely open and honest with each other in the process of transferring an employee to another work area, rather than one manager giving the other a “snow job” (M/bur3/1).

With respect to issues and uncertainty surrounding reorganization, the same manager stated that working in teams helped the groups get through that period, and that “clearly, the old hierarchical approach would not have worked” (M/bur3/1). Others described both an increase in cooperation and the fact that teams worked better when they were informal. A bureau 3 manager said that teams were much more effective if they were not mandated: “if it’s a way of doing business and you don’t point it out, and when it gets into the regular framework of operations, it works well” (M/bur3/2). This manager added that there were more cross-cutting teams that dealt with issues and occurred naturally without someone having to appoint a formal team (M/bur3/2).

Non-managers in bureau 3 tended to agree. One said that people were often free to work outside their job descriptions on initiatives with other offices (N/bur3/1). For example, a unit in staffing got together with equal opportunity staff to improve an understanding of the functions of each office, identify overlap, and be able to see processes from both sides. (N/bur3/1). This interviewee also said that “we routinely work as teams to service the organization. The teams are encouraged by managers to work through issues themselves, with more of a coaching approach by the managers” (N/bur3/1).

Other testimonials to functioning in teams had to do with managerial support for the concept: “our managers go out of their way to include people in projects with teams, workgroups, etcetera. Managers have followed through the verbal commitment and encourage teams to make decisions and be creative on their own, and have latitude. There has been less turf think and more cohesive units; there is more valuing of the work of other work units. There’s still a little turf, but “nothing--nothing like it was” (N/bur3/2). Some of the bureau 3 work units went so far as to cross train people from different areas in order to enhance mutual understanding and communication: “we are having a lot of meetings with another division to discuss similarities and differences in our work tasks and have resolved many issues. We have cross trained people from both areas, which has contributed to resolving so many differences” (N/bur3/3).

A few instances of the lack of support for teams were cited by employees, such as lack of team building training: “there has been no formal team building training, which would help really build trust levels among team members and break down remaining ‘us/them’ mentalities and/or personality issues” (N/bur3/1). Another employee reported that the team requested team training but did not receive it, and believed this to be because a manager two levels up disliked the team concept and even the word team (N/bur3/3).

This interviewee also described a situation where a team approach went badly:

A small team was responsible for proofreading a report. We followed the guidelines provided for the proofing. There were many changes, on every page. We made it a better document and got a ‘gold star’ from the manager. But the team whose product we proofread was livid, saying ‘who do they think they are?’ They did not value the work and input/value added by the proofreading team. This happened again the following time

we proofread, and the third time we did not volunteer to do the proofreading, and got flack for that!

Another barrier that surfaced was that support staff were not always seen as team players. In bureaus 3 and 4 examples were cited of non-supportive activity and behaviors among administrative support staff, such as not finding time to do work, disappearing frequently, and picking and choosing what to work on based on who gave them the work (N/bur3/3; N/bur4/1).

**Bureau 4.** As in the other bureaus, bureau 4 experienced a growing reliance on teams intra-bureau, and more teams operated across bureau lines. As in the other bureaus, most of the effective teams occurred informally as a natural part of everyday work, rather than formally (M/bur4/2; N/bur4/3). A common theme among the four bureaus, a respondent said that “we effectively solve things by working together in informal groups rather than formal QITs” (N/bur4/1). For example, in 1993 and 1994, bureau 4 provided intensive skills and team building training to regional personnel with whom they work. The objective was to improve teamwork among regions and between regions and Central Office (Goal 1 Strategic Plan report 1995, 2). The sessions focussed on how to improve relationships between and within work units. Initially, bureau 4 sent written questions to all ten Regional Offices concerning what things are going well and what needs improvement (the question window described in the section above on TQM tools). Using the feedback, the bureau held a series of focus groups using the satellite picture-telecommunications system (pic-tel shows live video and voice of conferencing parties)

designed to generate solutions by discussing and prioritizing issues raised (Goal 1 Strategic Plan Report).

Bureau 4 members provided numerous examples of intra-work unit teamwork as well. Expressing a belief that the work unit could be a full fledged self directed team, an interviewee said that working in teams “is encouraged a lot, and we really work well together. In staff meetings everyone is equal, and everyone contributes their ideas and provides input” (N/bur4/3). Another non-manager stated that the work unit was working more collaboratively as a team than it was prior to TQE introduction (N/bur4/2), explaining that “in the old model, which we used to practice, there is a certain amount of work which is parceled out. If someone is sick or on vacation, work would sit and wait for them. Each employee dealt directly with the manager on issues. Now we deal with issues in the team by going to another team member or the whole group to discuss matters. There is much more sharing of work and responsibility among team members” (N/bur4/2). This particular interviewee was a long time (15 year or so) government employee who said that prior to TQE, he sometimes did not talk to people in the work unit for months at a time (out of indifference), and that the environment did not encourage or suit the cooperative atmosphere which evolved. Also, work and meetings became more productive rather than just for the purpose of “having an audience to share information” (N/bur4/2). He added that, “this is an entirely different cultural change which I did not buy into easily; it took about six months. Now I care about the manager as well as the team, whereas before I cared only about myself” (N/bur4/2).

A particular work group in bureau 4 had some difficulties getting people to cooperate in purging general office files, so the group instituted records management days to work on the files (reconcile and purge) as a group. This provided the group with a team way of coping with a very large task. Other units and teams then adopted the same practice for file management (N/bur4/2). This person then proceeded to explain new team building sessions and an elaborate “buddy system” that was established in the work unit since early 1995. Each team member had a particular backup buddy who read some of the reports before they went to the manager. If one person was out on travel or on leave, the buddy received a memo with all outstanding issues, and the person who was to travel left the buddy’s name and phone number on the outgoing voice mail. When a person was out on travel (usually to a Regional Office), he or she checked in with the buddy to see whether the buddy needed any additional information or there were work issues to discuss. In this way, contractors, other HCFA employees, and others could still get answers. Previously, outstanding issues or questions waited until the person returned to work (N/bur4/2). “The whole idea,” according to this interviewee, “is that you have to be able to rely on other people; you just can't do it yourself. This was not done in this office before, ever. Before, it was implied and practiced that you deal with it alone or deal with your manager” (N/bur4/2).

Work groups received continued practice and training (from the Quality Support Team and others) in operating more effectively and supportively in meetings (M/bur4/3). A QST representative worked with bureau 4 work units for team training and to enhance communication skills (Pinder 1995). The QST work with bureau 4 entailed periodic hour



long sessions with work units to impart information about working well in teams and practicing team building skills (M/bur4/3). People used to all talk at the same time in meetings, have several sidebars at the same time during meetings, some people tuned out completely, or otherwise non-participated (N/bur4/2). Following TQM implementation, meetings started to resemble formal meetings like a QIT process. Interactions among many work group members, permanent teams, and temporary teams improved, and individuals worked together more professionally and abided by ground rules such as not talking over one another, not filibustering, agreeing to future meeting agenda items at the end of meetings, and conducting “plus and minus” verbal assessment<sup>8</sup> of the meeting itself at the end of each meeting (N/bur4/1; QST).

Barriers to teamwork in bureau 4 were more behavioral in nature, and involved difficulties in establishing mutually supporting and/or complementary roles among team members. One manager pointed out that the work group struggled with teamwork in that members negotiated roles and responsibilities (they were still in the forming/norming/storming stages and had not yet gotten to performing) (Certo 1980, 385). For example, because a specific team leader was not assigned, responsibilities fell through the cracks and more responsibilities fell on some members of the group while others were not contributing much (M/bur4/1). According to a non-manager interviewee, the teams in the work unit (division) tended to have unique personalities and did not tend

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<sup>8</sup> Plus and minus assessments involve each group member telling what was positive and/or what was negative about the group interactions in the meeting itself, such as whether people listened well or interrupted each other. It is done at the end of each meeting and recorded in order to improve interactions and adherence to group ground rules in each successive session.

to cross over to other teams as a matter of routine practice, unless the manager initiated this (N/bur4/1). Finally, similar to bureau 3, the failure of the administrative support staff to buy into the teamwork concept or spirit was cited as a barrier to getting work done in timely and effective ways (N/bur4/1).

#### Use of Tools

Throughout HCFA, various TQM tools were used to organize, analyze, and prioritize quantitative and qualitative information. As described in chapters 1 and 2, there are two types of tools: scientific and heuristic. Scientific methods, such as Statistical Process Control, pareto analysis, and cost-of-quality analysis were not commonly applied in the study bureaus. This is consistent with application of these tools among TQM-practicing U.S. organizations: organizations (especially service oriented ones) emphasize group practices and heuristics rather than scientific methods (Hackman and Wageman 1995, 317).

Both heuristic and scientific tools were used in a group setting which used a systematic overarching approach or model, such as the eight step problem solving approach. The eight step problem solving process was: (1) identify problems, (2) select a problem to solve, (3) analyze the root cause, (4) identify alternative solutions, (5) select a solution, (6) test the chosen solution, (7) implement the solution, and (8) track the effectiveness of implementation of the solution. Within the overall model, any type of tools could be utilized in each of the steps depending on appropriateness, skill level of the group, available data, and needs and objectives of the group. The eight step problem solving process that was used by QITs was viewed as cumbersome and time consuming by

people in the agency (Childress 1994), and was replaced by the General Electric Change Acceleration Process (CAP) (an improvement process designed to bring about solutions and a decision by the manager/sponsor in three days). The CAP was used only once at the time of this study and is discussed below. When an overall model for analysis was not used, groups simply applied tools within the scope of their sessions, which were sometimes an abridged version of the eight step problem solving, such as (1) generate ideas on potential causes (the problem had already been identified before the group convened), (2) generate solutions, and (3) select a solution.

As is the case U.S. industry wide, use of heuristic tools in the bureaus was much more common than use of scientific methods. Heuristics, as described in chapter 2, are used to assist teams to identify and analyze opportunities to improve quality (Hackman and Wageman 1995, 314). Members of the Quality Support Team, one of the HCFA trained facilitators, or the bureau quality coordinator either taught work groups how to use the quality-related tools or utilized the tools themselves to facilitate group efforts to diagnose and improve a work area. One of the most common methods used HCFA wide and by the study bureaus was brainstorming, whereby individuals generated lists of ideas about issues, such as possible causes of a difficulty and potential solutions (Hackman and Wageman 1995, 314). Some form of brainstorming was almost always the initial step taken in approaching any issue. One of the most frequently applied methods of brainstorming was called the question window, in which group members brainstormed ideas in three separate categories: what is done that works well and should be continued, what is not done that should be done, and what is done that should be stopped (QST

1995; Brassard and Ritter 1994). These were done one at a time or all together with group members contributing ideas in any one of the three categories. The window also lent itself well to gathering substantial amounts of feedback using a paper or electronic survey, and was used as such on managers' 360 degree questionnaires designed to obtain feedback from peers, employees, and first line managers on performance (Broglie 1995). Another brainstorming method used was force field analysis which placed ideas into categories of forces or events that were helping to accomplish some goal, and forces/events that hindered the goal. Completely open forms of brainstorming were also used. In the open format, any and all ideas about anything relating to the topic under consideration were recorded on flip charts, post-its, or some other medium. Following generation of ideas using a brainstorming method, groups frequently applied one of the other heuristic methods to prioritize and organize the ideas into logical groups enabling meaningful analysis of causes, effects, and solutions (QST 1995). One method of organizing data generated in brainstorming was affinity diagrams. The affinity diagram helped to organize ideas into categories by subject, by customer, or other relevant groups, for ease of analysis and was commonly used as a matter of practice in routine as well as process improvement related meetings (Childress 1995). With affinity diagrams, the group placed the ideas into logical groupings (which was often done silently by having the group place post-its on a wall into clusters). The group then discussed the categories as a whole, made any changes in items that the group agreed to, and gave each grouping a label which captured a common theme among all the elements in the group. This information was then used to accomplish completion of that stage of the analysis, such as

identify causes for errors, breakdowns, or time delays in a process (QST 1995). Another heuristic method that built on brainstorming was multivoting, whereby group members silently voted on which items in the brainstormed list were most important, they liked the best, etc. Each member gave a weight, for example from six to one, to the top six items. The weightings were then shared among the group, and the items with the highest total weight were placed at the top of the list as prime candidates for selection. Multivoting was most commonly used as a quick method of reaching consensus on a solution while avoiding major disagreements among group members (QST 1995).

One other heuristic technique that was applied, though less commonly, was detailed flowcharting of steps in a process. While some of the QITs utilized flowcharting within the formal eight step problem solving process or the CAP (actually, QITs themselves went through the first five steps only (Quality Councils Guidelines 1994 )) to closely analyze current processes, flowcharting was not yet integrated into common practice (QST 1995). A correspondence QIT (which became a CAP) at HCFA's Executive Secretariat level comprised members from most of the HCFA bureaus. The process of analyzing what occurred involved an extensive and detailed flowchart of every step involved in signing out correspondence under the HCFA Administrator's signature. The flowchart was approximately ten feet long from beginning to end, and took about two weeks to construct. The work on the flowchart was done by CAP members in the prework stage of the process, then the chart was used in the three day CAP session to identify barriers and recommend solutions. Utilization of flowcharting enabled the group to identify unnecessary steps and eliminate them, thereby cutting the time it took to sign

out correspondence from an average of two months to less than a month (bar charts presented by two of the CAP members 1995).

Brainstorming and other heuristic tools were used by countless workgroups within the bureaus to prioritize difficulties, issues, or solutions (Childress, 1995). According to members of the Quality Support Team (who worked with groups in the bureaus), brainstorming, affinity diagrams, multivoting, nominal group technique, scatter diagrams, force field analysis, and fishbone diagrams were also routinely utilized by QCs, LQCs, QITs, temporary informal teams, and permanent teams (established work groups). These techniques spread throughout the agency because as people used them in more formal quality groups or councils, they took them back to their work units and other meetings and applied them there (Pinder 1995). Then, when people got quagmired, rather than just giving up or spinning their wheels, they resorted to one of the techniques by saying, “lets make the decision using [one of the tools]” (Pinder 1995). In this way, decisions of dozens of groups throughout the four bureaus were more often based on reliable and objective qualitative and/or quantitative data rather than anecdotes, opinion, or who was the most persuasive (Pinder 1995; Childress 1995).

#### Rewards, Recognition, and Appraisal Systems

Among TQM implementing organizations, 85 percent developed programs to reward individuals and teams for quality achievements, and though Deming (1986) maintained that tying rewards to performance measurement is counterproductive, 75 percent of TQM organizations do so (Hackman and Wageman 1995, 317). Previously, HCFA’s reward, promotion, and appraisal systems were linked, and were based on a five

tier system. The five tier system required rating of employees and managers two or three times a year as unacceptable, marginal, fully satisfactory, excellent, or outstanding.

Though there was no official policy on quotas, it was well understood that there were quotas or limits on the number of outstandings there could be each year, in part because bonus money was tied to the rating (personal communications; numerous open ended comments; and off the record discussions with managers). Monetary awards were greater for those rated higher, and applicants for job positions earned more points for higher ratings. According to extensive feedback from HCFA employees over previous years and on the comment page of the survey, the five tier evaluation system was biased, inherently unfair, arbitrary, and was not based on the caliber and/or quantity of work done. It led to deeply held resentments and promoted dysfunctional forms of competition, such as unwillingness to cooperate, share information, or support people or work units in other ways (M/bur1/2). Approximately 80 comments (across all four bureaus) on the open-ended portion of the survey confirmed the extreme resentment and hostility that both managers and non-managers had toward the rewards, recognition, and appraisal systems. There were no positive comments about the five tier appraisal and rewards systems; every single comment was negative.

As a result of the incongruence of the rewards, recognition, and appraisal systems with TQM goals and principles, a Quality Improvement Team with agency wide representation was formed to address the issue and design a new system. The assumption of the QIT approaching the five tier system was that it was completely broken and had to be fixed (Broglie 1995).

Beginning in January 1995, HCFA Central Office removed the connection between the performance appraisal, rewards, and promotion systems. HCFA first began a shift from a five tier evaluation system to a two tier pass/fail system (the regions had not yet moved to the new system at this writing)<sup>9</sup> (Goal 1 report 1995, 4). The primary reason for the change was to create systems that were consistent with the principles of HCFA's TQE initiative (Broglie and Flynn presentation 1995; handouts from new assessment presentation). The intent of the new system was to decrease the amount of unhealthy forms of competition between individuals and groups and promote teamwork and cooperation. The new two tier system included employee and manager negotiated critical elements (there are no non-critical elements) and ongoing informal verbal communications. The appraisal system relied on continuous feedback between managers and employees on performance issues. A rating of "pass" was not tied to any bonus, points for promotion, or any other reward systems. The system was utilized for the first time in interim and final evaluations during 1995; however since the survey was administered in May 1995, the respondents were unlikely to have experienced the new system yet. A spinoff benefit of the two tier system was that considerable time was saved: it took managers from 2 to 16 hours per employee to prepare the five tier evaluations because they required considerable justification and writeups two or three times a year (Goal 1 Report 1995). Pass/fail required as little as a few minutes per form, leaving more

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<sup>9</sup> Changes in rewards, benefits, timekeeping, and so forth were negotiated with the unions. Bureau 1 non-managers were represented by a different union than bureaus 2, 3, and 4. Therefore, some differences existed in the performance appraisal systems. In particular, bureau 1 was not piloting the new two tier appraisal system at the time of the study.



time for actual work or communications with employees. HCFA's pass/fail system was more consistent with Deming's theory of motivation and organizational behavior than with common practice by other TQM organizations throughout the U.S.

Rewards in HCFA were previously nominated and/or granted by managers only, and, as mentioned above, end of year bonuses were tied to the appraisal system. Awards were historically given for accomplishing work objectives without a particular focus on whether or not customers were served or there was excellence in teamwork. In fact, sometimes some members of a group on a project were left out of project awards (N/bur2/3). The new rewards system allowed anyone to nominate anyone else, including other groups or individuals in other bureaus. Rewards were given for excellence in customer service, excellence in teamwork, quality excellence, and improving the efficiency or effectiveness of processes (reward guidelines in the handouts from the new rewards system presentation). Nominations of team awards were encouraged, but rewards for individuals existed as well. A rewards panel, which consisted of half managers and half non-managers, analyzed nominations and approved or disapproved rewards of time off, money, plaques, or other rewards. The awards panels existed at the bureau levels, and work units were free to establish panels at local levels as well. Bureaus 2 through 4 were included in these changes; bureau 1 was not. Since the formal evaluation period was just ending at the time of this study and implementation of the rewards system started around the fall of 1995, it is unknown what the effects of the new rewards and appraisal systems was. Again, like Deming's TQM techniques, rewards in HCFA were dis-associated with performance appraisals, and were designed to be for TQM-related efforts and

achievements, rather than for producing the most reports or serving on high profile projects. Rewards-based incentive systems existed to promote cooperation, communication, and teamwork rather than discourage these behaviors.

### Benchmarking

Benchmarking, as described in chapter 2, involves gathering information about best practices from other organizations (Camp 1989, 11). Most TQM practicing organizations throughout the United States conduct some forms of benchmarking (Hackman and Wageman 1995, 316). Prior to TQM, the study bureaus conducted no formal benchmarking, and the term was not known or used (QST 1995). Bureau 1 conducted benchmarking in overall approaches to TQM over the two years of implementation. Teams of managers and non-managers from bureau 3 visited Xerox and General Electric, and representatives from those companies visited HCFA to give presentations (Crowley 1995). Xerox and others gave presentations on TQM to HCFA's top executives. HCFA officials met with people from other federal agencies (such as the Patent and Trademark Office) and private organizations (such as General Electric and Bendix) with experience in TQM to learn what techniques in a particular area worked well for them, what they would have done differently, what pitfalls to avoid, and what might apply to HCFA's culture.

The benchmarking groups generally found that other organizations were experiencing the same type of struggles as HCFA, such as integrating TQM techniques into day-to-day work rather than it being something separate from the work (Brogie 1995). In bureau 4, a work team observed how an outside group obtained external

customer feedback through focus group sessions, and adopted the technique in obtaining its own external customer feedback (M/bur4/2). It is unknown whether the other bureaus engaged in formal or informal benchmarking activities. One of the bureau 1 manager interviewees expressed a desire to conduct benchmarking in order to learn how other organizations effectively integrated practices such as empowerment, improved communications, and participatory management into their operations (M/bur1/1).

### Summary

The four study bureaus implemented a number of TQM-related initiatives consistent with TQM principles. The bureaus established Quality Councils and other structures which contained equal numbers of manager and non-manager representatives. All of the bureaus were strong in this area, though there was evidence in all that Bureau Quality Council activity was waning and/or was being reassessed in all. The HCFA study bureaus also implemented a great deal of training. The bureaus were more consistent with pure TQM than with common practice of other TQM organizations in the style and manner of implementation. Rather than each organizational level learning and in turn teaching TQM concepts to the next lower level, the senior (top) executives were trained first, then everyone else was trained together. As do most TQM practicing organizations in the U.S., the bureaus implemented varieties and styles of employee involvement in the forms of empowerment, participatory management, and open communications. The HCFA bureaus were more focussed on obtaining feedback from external customers than they were internal customers. The use of heuristic tools in all of the study bureaus was extremely prevalent. As is the case with their U.S. industry wide TQM counterparts, the

bureaus did not utilize scientific methods to a great extent. Both HCFA and U.S. TQM firms diverged from pure TQM on this practice. Consistent with pure TQM, but divergent from other TQM organizations, the HCFA bureaus (three of them) rewarded quality, not performance. Near the end of this study, the rewards, appraisal, and promotion systems were disassociated from one another and changed dramatically to encourage and reward cooperation rather than unhealthy forms of competition. Finally, benchmarking was conducted by some work units within the bureaus to learn other's effective practices.

## CHAPTER SEVEN

### RESULTS OF STATISTICAL ANALYSIS

This chapter presents the results of the quantitative analysis designed to examine the relationship between TQM interventions and intermediate outcomes. The survey, sampling plan, and response rates by bureau are briefly reviewed first. Then, the results of the analysis of response bias are presented. Reliability of the nine index variables (those based on more than one question) is discussed next. Lastly, the findings of the regression analysis used to test the hypotheses introduced in chapter 4 are presented. While controlling for background factors, this analysis examined the relationship between ten independent variables and each of five dependent variables: job satisfaction, teamwork, trust, customer focus, and customer feedback. The independent variables are: managerial commitment, empowerment, participatory management, communication, coaching, discipline, service on a Quality Council, service on a Quality Improvement Team (QIT), QIT training, and specific quality skills training.

#### Summary of Survey

The results of this analysis are based on a May 1995 survey, developed by the researcher, of four components (referred to as bureaus 1, 2, 3, and 4 in this study) in the Health Care Financing Administration: HCFA's Boston Regional Office (RO), Bureau of Data Management Systems (BDMS), Office of Financial and Human Resources (OFHR),

and Office of Managed Care (OMC). These are referred to as bureau 1, 2, 3, and 4 throughout the remainder of the chapter. The survey sample consisted of 100 percent of bureau 1, 100 percent of bureau 4, and random samples of bureaus 2 and 3 (due to their larger size). The survey was sent to 728 HCFA employees: 136 managers and non-managers in bureau 1, 293 in bureau 2, 175 in bureau 3, and 124 in Bureau 4. The overall response rate was 79.2 percent (571): 91.5 percent (118) for bureau 1, 75.8 percent (222) for bureau 2, 82.3 percent (144) for bureau 3, and 70.2 percent (87) for Bureau 4. Twelve surveys were received with the bureau identifier removed and were not utilized for the analysis.

#### Analysis of Response Bias

Demographics for respondents non-respondents were compared to determine if the respondents were representative of the population. Specifically, t-tests and chi square tests were conducted to determine if the 21 percent non-respondent group is significantly different from the respondents on gender, race, age, and grade. Demographic data for all employees in the four study bureaus were obtained from HCFA's Personnel Department. Demographic data for respondents and non-respondents were then compared. Comparison data for non-respondents were not available for length of time in present job, years worked in HCFA, education level, job position, or when reorganization took place. However, these data are summarized for the respondent group.

#### Comparison of continuous and dichotomous variables

Table 8 contains the *t* statistics and probability values for gender and race. There is no evidence of response bias on either gender or race. The respondent group contained

47.5 percent males, and the non-respondent group had 46.1 percent males. The null hypothesis that the two groups are alike was not rejected ( $p = .7491$ ). Similarly, the respondents and non-respondents did not differ significantly with respect to race: 76 percent of the respondents were White and 73.7 percent of the non-respondents were White. The null hypotheses of the groups being statistically the same was not rejected ( $p = .5754$ ).

**Table 8. Comparison of Continuous and Dichotomous Variables for Response Bias**

Demographic	Respondents	Non-Respondents	<i>t</i> statistic	prob >   <i>t</i>
Gender (% male)	47.5	46.1	-0.3201	0.7491
Race (% White)	76.0	73.7	-0.5608	0.5754

#### Comparison of categorical variables using chi-squared

Age categories of respondents and non-respondents were tested for similarity using a chi square test of significance. The categories of age for respondents and non-respondents are shown in table 9. With a chi square statistic of 5.129 ( $p = 0.274$ ), the respondents and non-respondents are not statistically different.

**Table 9. Comparison of Respondents & Non-respondents on Age**

Age	Respondents		Non-respondents	
	Frequency	Percent	Frequency	Percent
25 or younger	28	5.0	5	3.0
26 to 35	58	10.5	11	6.6
36 to 45	135	24.3	51	30.5
46 to 55	272	49.0	82	49.1
56 or older	62	11.2	18	10.8
Totals	555	100.0	167	100.0

Chi-Square for age: 5.129 (df = 4; p = 0.274)

Displayed in table 10 are the grade categories for respondent and non-respondents. In the federal government, the higher the grade, the higher the salary and level of authority and responsibility in the agency. Except for grades 1 through 6, which had too few in each cell to constitute separate categories, grades were tested individually with the frequency of people in each grade individually comprising a cell. With a chi square of 12.82 ( $p = .118$ ), the numbers of people in each grade level were comparable for the respondents and non-respondents. The null hypothesis that the groups are the same was not rejected.



**Table 10. Comparison of Respondents and Non-respondents on Grade**

Grade	Respondents		Non-respondents	
	Frequency	Percent	Frequency	Percent
1 - 6	55	10.0	30	18.0
7	39	7.2	13	7.8
8	5	0.9	0	0.0
9	44	8.1	12	7.2
10	0	0.0	0	0.0
11	24	4.4	9	5.4
12	144	26.4	30	18.0
13	153	28.1	49	29.3
14	52	9.5	17	10.2
15	29	5.3	7	4.2
Totals	545	100.0	167	100.0
Chi-Square for GRADE: 12.82 (p-value = .118)				

#### Other Demographic Characteristics of Respondents

Though demographic data were available from the survey for respondents on number of years in the current job, years worked in HCFA, highest level of education, job position (manager or non-manager), and length of time since reorganization took place in the work unit, comparable, reliable data were not available for the non-respondents. Therefore, the characteristics for the respondents only for these five variables are presented below.

The mean length of time survey respondents were in their current job was 5 years, and ranged from 1 month to 30 years, and the mean number of years respondents worked for HCFA was 13.0.

There are 68 managers (12 percent) and 498 non-managers (88 percent) in the responding sample; five did not indicate job position. The mean number of years in the present management position was 4, ranging from 3 months to 21 years.

The distribution of education levels of respondents is shown in table 11.

<b>Table 11. Education Level of Respondents</b>		
Education	Frequency	Percent
High School/equivalent	59	10.6
Technical/trade school	17	3.1
Some undergrad work	106	19.1
Associate's degree	56	10.1
Bachelor's degree	124	22.3
Some graduate work	64	11.5
Master's degree	118	21.2
Doctorate degree	12	2.2
Total (15 missing)	556	100.0

Seventy-nine percent (451) of the respondents indicated that the work unit underwent reorganization. The length of time since reorganization took place ranged from one month to four years; the mean length of time was seven months. The distribution of the amount of time since reorganization took place, expressed in years, for the respondent group is presented in table 12.

<b>Table 12. Years Since Reorganization</b>		
<b>Years since Reorganized</b>	<b>Frequency</b>	<b>Percent</b>
0.1	12	2.8
0.2	23	5.4
0.3	41	9.6
0.4	13	3.0
0.5	132	30.8
0.6	24	5.6
0.7	42	9.8
0.8	38	8.9
0.9	3	0.7
1.0	85	19.8
1.4	1	0.2
1.5	6	1.4
2.0	6	1.4
3.5	1	0.2
4.0	2	0.5
<b>Totals</b>	<b>429</b>	<b>100.0</b>

### Reliability of Indices

As described at length in chapter 4, though an existing TQM instrument was available for use, it was inadequate for this research, which required precise questions concerning respondent's own personal experience or experience in the immediate work unit (rather than in bureaus or in the agency at large). Additionally, it was necessary to capture demographic and possible confounding variables, which the General Research Corporation survey did not measure. Additionally, pre-packaged surveys did not measure the constructs of interest in this study. When designing a survey, validity of the operationalization of constructs should be based on experience, convention, common sense, and prior research (Judd and Kenney 1981, 25). Therefore, a survey instrument was designed for use in this study based on researcher knowledge of HCFA's environment and characteristics (so that the instrument would be relevant to the agency and contain terms familiar to respondents), an exhaustive review of TQM and survey literature, surveys from five other federal government agencies, numerous conversations with quality award-winning federal agency officials specializing in metrics, feedback on the survey instrument from methodologists and others within and outside of HCFA, and extensive pretesting of the instrument.

Additionally, after the survey was administered, the resultant means (averages) and responses in the Likert scale categories were compared to the results of the 1992/93 General Research Corporation survey, which Selltiz, Wrightsman, and Cook (1976) describe as a way to test construct validity. For the constructs that were comparable in some way to the GRC survey, the results were reasonably consistent. Job satisfaction,

teamwork, customer focus, customer feedback, managerial commitment, communication, and participatory management had similar results with respect to mean levels, proportions who agree/disagree, and differences between managers and non-managers. Perceived fairness of the appraisal system (which was not utilized in this study) was consistent with the GRC results as well (it was generally perceived as unfair). (Trust and empowerment were not captured by the GRC survey, nor were any of the background variables.)

Index variables were constructed by summing the values of the responses and dividing by the number of questions formulating the index.. All five dependent variables and four independent variables are indices constructed of two or more questions. The indices were formed by summing the values (from 1 to 4, or in the case of communication, from 0 to 4) and dividing by the number of questions used to formulate the index. In this way, each index varied between 1 and 4 (or 0 and 4 for communication), with higher values being more positive.

Reliability of each index formed was measured through the use of Cronbach's alpha, which indicates the level of inter-item consistency. The more homogeneous the items comprising the construct, the higher the Cronbach's alpha (Cronbach 1951). The alpha coefficients should have a minimum value of 0.70 for narrow constructs, and 0.55 for moderately broad constructs (Van de Ven and Ferry 1979). Judd and Kenny (1981, 25) describe the purpose and value of analyzing inter-item homogeneity as follows:

If we employ multiple operationalizations, or indicators as they are also know, we should expect them to correlate with each other. This is so because we believe them to correlate highly with the unmeasured construct. Given certain assumptions, it is possible to estimate the correlations between the indicators and the unmeasured construct from the observed

correlations among the indicators. In certain cases, then, by examining the relationships among multiple indicators we can infer the relationship between each indicator and the construct of interest. This relationship is of fundamental importance, for it represents the convergent construct validity of the indicators.”

The reliability coefficients for the variables represented by an index are reported below.

As mentioned in chapter 4, positively phrased questions were reverse-coded so that higher numbers were more positive, thereby aiding intuitive interpretation of results. Questions that were reverse coded are indicated by an (R) in the index tables.

#### Intermediate Outcome Measures (Dependent Variables)

Job satisfaction was measured by six questions (shown in table 13) which together indicate the level of overall satisfaction in the job, including Deming’s concept of joy in work (the fifth question in the table), intended to capture extremely high levels of satisfaction in work. Cronbach’s alpha for job satisfaction (.86) indicates high reliability of the construct. All of the six questions correlated highly with one another. (The correlation matrix for the items composing job satisfaction are given in appendix 3, table 29.)

<b>Table 13. Questions Formulating Job Satisfaction Index</b>	
Cronbach’s alpha = .86	(R) = question was reverse-coded.
My job is challenging. (R) My job gives me a sense of accomplishment. (R) My skills and abilities are <u>not</u> well utilized in my present job. I involve myself with my work to a great extent. (R) I take great delight in my work and find it exhilarating. (R) My job provides me with sufficient opportunities for personal or professional growth. (R)	

Trust is measured by five questions designed to measure the extent to which people in the work unit believe they can freely express ideas and provide honest feedback to one another, as well as other aspects of trust (see table 14). With a Cronbach's alpha of .71, inter-item consistency is strong, indicating that measurement of the construct of trust is reliable. The correlation matrix for the questions used to measure trust is shown in appendix 3, table 30.

<b>Table 14. Questions Formulating Trust Index</b>	
Cronbach's alpha = .71	(R) = question was reverse-coded
<p>Employees' opinions are not respected or valued in my work unit.            Employees feel free to tell me what they really think, not just what they believe I want to hear. (R)</p> <p>People in my work unit feel free to express their honest opinions to managers about all work issues, decisions, or other work-related matters. (R)</p> <p>My manager is interested in increasing his or her own power and control rather than truly improving the cultural climate at HCFA.</p> <p>People in my work unit learn from mistakes rather than cover them up or blame people. (R)</p>	

Teamwork was measured by three aspects of the degree to which people work together cooperatively (see table 15). Cronbach's alpha for teamwork was .72, which again is strong. The item, "I readily help people in another office, division, or bureau" was included in the original index. However, this question was removed because: (1) it was the furthest removed from the theoretical construct of teamwork among people in the work unit, and (2) Cronbach's alpha was .64 with it included. That is, the decision to remove it was based on theoretical as well as statistical grounds. The correlation matrix for the teamwork items is shown in appendix 3, table 31.

<b>Table 15. Questions Formulating Teamwork Index</b>	
Chronbach alpha = .72	(R) = question was reverse-coded.
My coworkers and I rarely help each other out when one of us is "overloaded."	
People in my work unit openly share information and ideas with each other. (R)	
A spirit of cooperation exists among people in my work unit. (R)	

Customer awareness was measured by two questions designed to capture the extent to which respondents are cognizant of others as customers and regard them as such. Table 16 shows that Cronbach's alpha was .63, indicating relatively strong inter-item consistency and reliability. The Pearson Correlation Coefficient between the two questions forming the customer awareness index was .47.

<b>Table 16. Questions Formulating Customer Awareness Index</b>	
Cronbach's alpha = .63	(R) = question was reverse-coded.
Customer feedback received in my work unit is used to improve services. (R)	
There are discussions concerning customer needs, or the effects of decisions on work unit customers, during meetings with my work unit. (R)	

Customer feedback is measured by two questions which measure the extent to which the respondent's work group seeks internal customer input concerning what the internal customer needs (and perhaps is not receiving from the work unit), and measures the quality of services provided to internal customers. Cronbach's alpha indicates strong reliability with a value of .82 (see table 17).

Initially, the customer feedback index included the question "internal customer needs are informally measured in my work unit." However, since this question captured informal feedback, while the other two measured formal feedback, it was excluded



primarily on theoretical grounds. The value of Chronbach's alpha verified this.

Cronbach's alpha was .69 with this question included, and .82 without it. The Pearson Correlation Coefficient between the two questions forming the customer feedback index was .70.

<b>Table 17. Questions Formulating Customer Feedback Index</b>	
Cronbach's alpha = .82	(R) = question was reverse-coded.
The quality of services provided to internal customers is formally measured in my work unit. (R)	
Internal customer needs are formally measured in my work unit. (R)	

#### Independent Variables

Managerial commitment was measured in this study by two questions to determine respondents' perceptions of whether bureau directors and immediate managers are committed to creating an organizational culture which values and trusts employees. While this is the lowest value of Cronbach's alpha for any of the index variables, there is a strong basis in theory for including managerial commitment. If managerial commitment is considered to be a moderately broad construct as defined by Van de Ven and Ferry (1979), then the Cronbach's alpha level of .54 (shown in table 18) for managerial commitment was only .01 below the minimum .55 level. Since TQM literature stresses that managerial commitment is key to accomplishing positive changes in the organizational culture, and that an organization cannot successfully implement TQM in absence of the commitment of managers, the construct is essential for the analysis. The Pearson Correlation Coefficient between the two questions which comprise the managerial commitment index was .38.

<b>Table 18. Questions Formulating Managerial Commitment Index</b>	
Cronbach's alpha = .54	(R) = question was reverse-coded.
The Bureau Director/Regional Administrator is committed to creating an organizational culture which values and trusts employees. (R)	
My manager is committed to creating an organizational culture which values and trusts employees. (R)	

Empowerment was measured using five questions to determine the extent to which respondents are provided authority to operate independently. Cronbach's alpha for empowerment was .71, which indicates high reliability (see table 19). Initially, the question "my manager signs out official memos/notes to other managers, even if I write the memo/note" was included in the empowerment index. However, it was subsequently dropped because feedback from the survey indicated some confusion over the question. There are legitimate reasons to write a memo for someone else's signature (the memo transmitting the survey for this study, for example) which do not necessarily mean that empowerment is lacking. It was decided a priori (before computing Cronbach's alpha) to exclude the question; however, it was included in one of the calculations of Cronbach's alpha for examination and confirmation of excluding it. Cronbach's alpha was slightly lower with this question included (.68). The correlation matrix for the empowerment items is given in appendix 3, table 32.

<b>Table 19. Questions Formulating Empowerment Index</b>	
Cronbach's alpha = .71	(R) = question was reverse-coded.
I am not consulted or involved in decisions that affect the work I do. I consult my manager before making even minor changes to my work procedures. I am encouraged to use my own judgement when solving problems. (R) Effective actions have been taken to increase the authority of employees in my work unit to make job-related decisions. (R) A promising new approach for the way we do work is likely to be approved quickly for trial. (R)	

Participatory management was measured by four questions designed to determine the degree to which the respondent's manager involves employees in decision making in the work unit. Cronbach's alpha was .78 (see table 20) indicating high reliability of the index. See appendix 3, table 33 for the correlation matrix for the participatory management items.

<b>Table 20. Questions Formulating Participatory Management Index</b>	
Cronbach's alpha = .78	(R) = question was reverse-coded.
My manager utilizes ideas offered for improving the way work gets done. (R) My manager seeks input from employees in my work unit when making decisions affecting the work unit. (R) My manager is not receptive to ideas for improving how the work gets done. My manager assigns major work projects to me without consulting me.	

Communication was measured by three questions to determine respondents' perceptions of the openness and frequency of communication. Table 21 shows that Cronbach's alpha was .63 for the index, indicating high reliability. The correlation matrix for the items comprising communication is shown in appendix 3, table 34.

<b>Table 21. Questions formulating Communication Index</b>	
Chronbach alpha = .63	(R) = question was reverse-coded.
<p>My manager gives me formal <u>or</u> informal feedback on my work:  never / once / twice / three times / more than three times a year</p> <p>My manager gives me informal feedback which helps me to improve my job performance. (R)</p> <p>I am not kept informed about major issues affecting my job.</p>	

### Overview of Regression Analysis Methods

Multiple regression was conducted to examine the degree to which the independent variables were related to the dependent variables. Specifically, for each dependent variable, a separate model was estimated for each of the four bureaus studied, resulting in twenty models in all. Each model included ten independent variables pertaining to TQM, along with a series of background variables. Of the ten independent variables pertaining to TQM, four were continuous and six were dichotomous. The four continuous independent variables are indices that represent: managerial commitment; empowerment; participatory management; and communication. The six dichotomous independent variables are: coaching approach used by manager when work does not meet intended goals or employee makes a mistake; reprimand/discipline used when goals are not met/employee makes a mistake; serving on a Quality Council (QC) at the bureau or local level; serving on a Quality Improvement Team (QIT), participation in QIT or "problem solving" training; and participation in specific TQM-related skills training.

The relationships between the independent and dependent variables were examined while controlling for the effect of nineteen background variables. In addition to

demographic variables, eight variables involved reorganization. One variable was a dummy variable which captures whether or not the respondent's work unit underwent reorganization (79 percent did). A second was the reciprocal of the number of years since reorganization has taken place. For respondents whose work unit did not undergo reorganization, this variable was set equal to zero, i.e., was treated as if reorganization had occurred an infinitely long time ago.

The other six variables involving reorganization were a series of dummy variables representing the following possible effects of reorganization: (1) whether the person changed from a manager to a non-manager; (2) whether the person's immediate manager changed; (3) whether more people now report to the person; (4) whether fewer people now report to the person; (5) whether the scope of job responsibilities increased; and (6) whether the scope of job responsibilities decreased. Each of these variables were coded as 1 if it occurred and 0 if it did not.

The extent to which HCFA's Strategic Plan directly affects respondents' daily work was not included in the model because 125 respondents either left the question blank or indicated that they did not know whether it affected their work or not. This number of missing observations would have significantly reduced the number of observations available for regression analysis (since if one variable in the model is missing, SAS treats the entire observation as missing). Further, interview results showed that, for the most part, the Strategic Plan did not affect the way work is done. Out of the 24 middle manager and non-manager interviewees, 67 percent (six managers and ten non-managers) said it had little or no bearing on their work; four managers and one non-manager

indicated that it had some general affects on work life; and only two managers and one non-manager said that it affects their work in specific identifiable ways.

The model also controlled for the following demographic characteristics:

- Job Position (non-manager = 1, manager = 0);
- Number of years the employee has had in the current job;
- Age (the middle value from each of the five age range categories: 20, 30, 40, 50, and 60);
- Race (White = 1, Non-White = 0);
- Gender (male = 1, female = 0);
- Grade level (a series of three dummy variables clustering GS 7-11; GS 12-13; and GS 14, 15, and Commission Corps; with GS 1-6 as the reference category);
- Education (a series of three dummy variables clustering Associate Degree/some AA work; Bachelor's Degree/some graduate work; and Masters Degree/Doctorate; with High School or equivalent as the reference category).

Correlation analysis showed that number of years at HCFA was highly correlated with number of years in current job. (The Pearson Correlation Coefficient was .43.)

Additionally, number of years at HCFA was highly correlated with age. (The Pearson Correlation Coefficient was .52.) Therefore, number of years in current job, rather than number of years at HCFA, was selected for use in the regression model. (The Pearson Correlation Coefficient between number of years in current job and age was .31.)

For each of the 20 regression models, residuals were plotted to test for heteroscedasticity or patterns in the errors. The residuals were homoskedastic with no discernible patterns or autocorrelation (see appendix 4 for residual plots). The total

number of observations in each bureau differs across regression models due to missing data.

### Regression Results

The hypotheses being tested assert that a number of factors contribute to successful intermediate outcomes. In particular, TQM advocates contend that there will be high levels of job satisfaction, teamwork, trust, customer awareness, and customer feedback if there is high managerial commitment to change and improvements in the organization, employees are empowered to make decisions and experiment with ideas, participatory management is practiced, communication is frequent and open, managers coach employees rather than reprimand, employees participate in quality councils or quality improvement teams, analysis/problem solving training is provided, and training in specific TQM skills is provided. The series of regression equations measure the extent to which these factors/behaviors are related to each of the five dependent variables (the intermediate outcomes) of interest in this study. The full regression model is expressed by the equation shown in figure 3 (one for each of the five dependent variables (DV)).

**Figure 3. Multiple Regression Model**

$$\begin{aligned}
DV_{i(t-1..5)} = & \beta_0 + \beta_1(\text{Managerial Commitment}) + \beta_2(\text{Empowerment}) + \beta_3(\text{Participatory Management}) + \\
& \beta_4(\text{Communication}) + \beta_5(\text{Coaching}) + \beta_6(\text{Discipline}) + \beta_7(\text{Serve on QC}) + \beta_8(\text{Serve on QIT}) + \\
& \beta_9(\text{QIT/Problem Solving Training}) + \beta_{10}(\text{Skills Training}) + \beta_{11}(\text{Manager/Non-manager}) + \\
& \beta_{12}(\text{Reorganization}) + \beta_{13}(1/\text{years since reorganized}) + \beta_{14}(\text{Position Changed to Non-manager}) + \\
& \beta_{15}(\text{Manager Changed}) + \beta_{16}(\text{More People Now Report to Manager}) + \\
& \beta_{17}(\text{Fewer People Now Report to Manager}) + \beta_{18}(\text{Job Scope Increased}) + \beta_{19}(\text{Job Scope Decreased}) + \\
& \beta_{20}(\text{Number of Years in Job}) + \beta_{21}(\text{Age}) + \beta_{22}(\text{Race}) + \beta_{23}(\text{Gender}) + \beta_{24}(\text{Grade 7-11}) + \beta_{25}(\text{Grade 12-13}) + \\
& \beta_{26}(\text{Grade 14-15 \& Commission Corps}) + \beta_{27}(\text{AA Degree}) + \beta_{28}(\text{BS/Grad Work}) + \beta_{29}(\text{Masters/Ph.D.})
\end{aligned}$$

Initially, a statistical test was conducted to determine whether or not the four bureaus could be combined in a single regression equation rather than separate equations for each bureau. The test, which was conducted using the F statistic, considered whether separating the bureaus significantly increased the explanatory power of the regression model. Regressions for each of the five dependent variables were run with the bureaus combined (five equations; see appendix 5) and with the bureaus separately (20 equations). A calculated value of F that is less than the critical value of F (from a F statistics table) at the selected significance level suggests that the bureaus should be combined. At the .05 level of significance, it was found that the regression equations for teamwork and customer feedback could be combined. For job satisfaction, trust, and customer awareness, however, results of this statistical test showed that regression results among bureaus were significantly different. For the sake of consistency, the bureaus were not combined for any of the dependent variables, and the regression equations were run separately by bureau for a total of 20 models.



The dummy variables for grade and for education were considered in groups of three each. In the regression models, one or more of the three education dummy variables might be significant while others are not. Similarly, some of the three grade dummy variables might be significant while others are not. One or two of the clusters of dummy variables being significant is not interpretable; therefore, each of the two clusters were tested to determine whether each of the full clusters of three variables together is statistically significant. F tests for the clusters of dummy variables were conducted in each of the 20 regression models. In general, the F tests showed that the education and grade clusters were not statistically significant in the regression equations. That is, overall, they had no effect one way or another on the regression results. The F test cluster results are discussed more specifically in the discussion of each dependent variable.

**Research Question 1:** Controlling for background variables, what is the effect of variations in the ways that employees perceived and experienced TQM implementation on the intermediate outcomes of: job satisfaction, teamwork, and trust?

#### **Job Satisfaction**

Among the ten independent variables, managerial commitment and empowerment are the most consistent predictors of job satisfaction (see table 22). Parameter estimates for managerial commitment are positive in all four bureaus, and significant at the .05 level in bureaus 1 and 2. The coefficients for empowerment are positive in all four bureaus, and significant at the .05 level in bureaus 2, 3, and 4.

Although the coefficient for participatory management is significant in two bureaus, the coefficient is positive and significant ( $p < .05$ ) in bureau 2, but negative and

significant ( $p < .10$ ) in bureau 4. In bureau 1 it is negative, but not significant; in bureau 3 it is positive, but not significant. Given this disparity, it is uncertain what to conclude about the true relationship between participatory management and job satisfaction.

No consistent relationship between job satisfaction and any of the background variables was found. Only in bureau 1 were the grade cluster dummy variables significant ( $p < .10$ ). For grade levels 7 - 11, the parameter estimate was negative (though not significant) in bureaus 1, 3, and 4. The coefficient was positive and not significant in bureau 2. Meanwhile, the coefficients for the two higher level grade level dummy variables were all positive, except for one in bureau 4.

Table 22. Job Satisfaction Regression Results by Bureau

Independent Variables	Bureau 1			Bureau 2			Bureau 3			Bureau 4		
	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.
Mgr. Commitment	0.43613	0.124	3.521***	0.22311	0.083	2.695***	0.07955	0.099	0.801	0.12759	0.104	1.225
Empowerment	0.35904	0.220	1.630	0.36649	0.131	2.793***	0.42090	0.155	2.718**	0.88579	0.170	5.206***
Partic. Mgt	-0.12685	0.196	-0.647	0.24557	0.111	2.218**	0.24188	0.151	1.604	-0.18677	0.109	-1.712*
Communication	-0.09870	0.123	-0.804	0.11985	0.078	1.537	0.05137	0.091	0.564	0.05707	0.099	0.574
Coaching*	-0.15184	0.071	-2.141***	-0.00471	0.130	-0.036	0.01811	0.141	0.129	-0.05501	0.180	-0.304
Discipline*	-0.03259	0.307	-0.106	0.20956	0.160	1.314	-0.08570	0.174	-0.492	-0.22612	0.208	-1.084
Serve OC*	0.09185	0.166	0.554	-0.06101	0.091	-0.667	-0.25370	0.121	-2.091**	-0.11413	0.116	-0.979
Serve QIT*	-0.08797	0.158	-0.557	0.03220	0.088	0.365	-0.04272	0.128	-0.334	-0.05036	0.152	-0.329
QIT Train*	-0.01604	0.164	-0.098	0.05149	0.092	0.559	0.04965	0.118	0.419	-0.11625	0.114	-1.017
Skill Train*	0.20767	0.189	1.098	0.03325	0.107	0.310	-0.25018	0.118	-2.113**	0.12211	0.119	1.024
Backgrnd. vars:												
Mgt/Non-mgt*	0.29856	0.801	0.373	-0.31430	0.228	-1.376	-0.58845	0.418	-1.409	-0.61681	0.349	-1.764*
Reorg Y/N*	-0.33536	0.249	-1.347	-0.03762	0.173	-0.217	-0.14670	0.245	-0.600	0.19939	0.223	0.892
1/Reorg Time	-0.00867	0.034	-0.253	0.01444	0.043	0.338	0.00320	0.045	0.071	0.07415	0.080	0.921
Chng Nonmgt*	0.07634	0.781	0.098	-0.24451	0.168	-1.459	0.22136	0.218	1.017	0.24682	0.285	0.864
Mgt Changed*	-0.13385	0.204	-0.657	-0.06784	0.083	-0.817	-0.00861	0.106	-0.081	-0.09343	0.124	-0.751
More rpt to me*	-0.37175	0.316	-1.177	-0.12965	0.187	-0.694	0.05014	0.329	0.152	-0.39887	0.335	-1.188
Fewr rpt to me*	0.77236	0.708	1.091	0.19421	0.202	0.964	-0.09074	0.248	-0.365	-0.12864	0.403	-0.319
Scope increase*	0.14429	0.213	0.677	0.06384	0.095	0.672	0.12438	0.111	1.123	-0.11319	0.118	-0.959
Scope decrease*	-0.02644	0.402	-0.066	-0.11010	0.145	-0.758	-0.25277	0.230	-1.098	-0.01376	0.344	-0.040
Years in job	-0.01666	0.012	-1.339	-0.00203	0.008	-0.243	-0.00228	0.014	-0.167	0.01361	0.017	0.783
Age	0.00051	0.009	0.057	0.00334	0.005	0.674	-0.00227	0.006	-0.375	0.00063	0.007	0.081
Race*	0.08045	0.217	0.371	-0.07008	0.112	-0.626	-0.09945	0.116	-0.860	0.13076	0.119	1.090
Gender*	-0.02056	0.149	-0.138	-0.14957	0.088	-1.696*	0.08266	0.123	0.662	-0.20850	0.131	-1.589
Grade 7-11*	-0.44190	0.310	-1.131	0.23216	0.180	1.292	-0.16122	0.180	-0.894	-0.04855	0.286	-0.169
Grade 12-13*	0.09754	0.347	0.281	0.18692	0.192	0.975	0.13521	0.201	0.674	0.06783	0.257	0.263
Grade 14/15/CC*	0.85109	0.905	0.940	0.19872	0.262	0.759	0.01879	0.359	0.052	-0.07343	0.302	-0.243
AA degree*	-0.15561	0.386	-0.404	-0.05332	0.130	-0.410	0.16982	0.145	1.170	-0.26298	0.268	-0.978
BS/Grad work*	-0.41983	0.411	-1.022	-0.03516	0.136	-0.258	0.10309	0.181	0.568	-0.02892	0.287	-0.101
Masters/Ph.D.*	-0.24421	0.432	-0.565	0.10739	0.184	0.584	-0.04710	0.209	-0.226	0.10274	0.280	0.366
<p>n = 78                      Sum square (model): 17.0418                      Sum square (error): 12.6273                      F<sup>2</sup> = .5744                      F = 2.234**</p>												
<p>Cluster F Statistics:                      Grade: 2.4673*                      Education: 0.6614</p>												
<p>n = 151                      Sum Square (model): 33.0262                      Sum Square (error): 23.0409                      F<sup>2</sup> = .5890                      F = 5.981***</p>												
<p>Cluster F Statistics:                      Grade: 0.5592                      Education: 0.5018</p>												
<p>n = 111                      Sum Square (model): 25.7735                      Sum Square (error): 17.3179                      F<sup>2</sup> = .5981                      F = 4.157***</p>												
<p>Cluster F Statistics:                      Grade: 1.5758                      Education: 0.7749</p>												
<p>n = 75                      Sum Square (model): 25.3262                      Sum Square (error): 5.5571                      F<sup>2</sup> = .8201                      F = 7.072***</p>												
<p>Cluster F Statistics:                      Grade: 0.3439                      Education: 1.9085</p>												

# dichotomous variable; \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001



### Trust

Table 23 shows that empowerment, managerial commitment, participatory management, and possibly communication positively affect the level of trust among work unit members. Parameter estimates for empowerment are positive and significant at the .05 level in all four bureaus. The coefficients for managerial commitment are positive in all bureaus and significant at the .05 level in bureaus 1 and 3, and at the .10 level in bureau 2. The coefficients for participatory management are positive in all cases and significant at the .05 level in bureaus 2 and 4. The parameter estimate for openness/frequency of communication, while positive across bureaus, is significant ( $p < .05$ ) in only bureau 2.

The education clusters in bureaus 1 and 3 are significant ( $p < .05$ ) and each coefficient is positive in those bureaus. In contrast, the education clusters in bureaus 2 and 4 are not significant and each coefficient is negative.

Among the six possible effects of reorganization, all of the coefficients for "more people report to me" are positive, and all of those for "fewer report to me" are negative. While none are statistically significant, this trend is noteworthy. The remainder of the background variables are inconsistent in terms of sign and statistical significance.

### Teamwork

Somewhat weaker relationships appear with respect to teamwork. Table 24 shows that, while positive across all four bureaus, the coefficient for managerial commitment is significant (at the .05 level) in bureau 1 only. Similarly, the coefficient for communication is positive in all bureaus, but significant ( $p < .05$ ) only in bureau 2. The coefficient for

empowerment is positive and significant at the .10 level in bureau 4. It is positive and not significant in bureaus 1 and 3, and is mildly negative and insignificant in bureau 2.

Though parameter estimates for discipline/reprimand are negative in three bureaus, they are significant in none, and mildly positive in bureau 1. The sign of the coefficients vary from positive to negative for most of the other variables, and none are consistently significant.

For job position of non-manager, the signs of all of the coefficients are negative; for years in job, all are positive and in bureau 4 is significant at the .05 level. This might suggest that, controlling for other factors, the higher the number of years in the job, the greater the amount of teamwork.

Table 23. Trust Regression Results by Bureau

Independent Variables	Bureau 1			Bureau 2			Bureau 3			Bureau 4		
	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.
Mgr. Commitment	0.22768	0.084	2.689**	0.11440	0.060	1.878*	0.18010	0.062	2.886**	0.15559	0.097	1.603
Empowerment	0.35215	0.151	2.326**	0.33763	0.101	3.333**	0.41810	0.098	4.181***	0.35257	0.152	2.306**
Partic. Mgt	0.11576	0.134	0.858	0.19056	0.083	2.287**	0.00162	0.094	0.017	0.26927	0.103	2.594**
Communication	0.10214	0.087	1.172	0.17289	0.058	2.943**	0.06165	0.058	1.060	0.06179	0.092	0.655
Coaching*	0.02948	0.155	0.189	-0.10049	0.095	-1.048	0.08923	0.088	1.010	0.09402	0.165	0.567
Discipline*	0.12849	0.215	0.597	-0.04259	0.124	-0.342	-0.29497	0.109	-2.698***	-0.17940	0.196	-0.913
Serve QC*	0.06925	0.114	0.603	-0.10554	0.067	-1.574	-0.03488	0.076	-0.457	0.14132	0.106	1.321
Serve QIT*	0.06968	0.115	0.602	-0.00637	0.065	-0.097	-0.16106	0.081	-1.984**	0.02617	0.141	0.185
QIT Train*	-0.04459	0.117	-0.379	0.04502	0.070	0.642	0.08630	0.074	1.151	-0.11683	0.106	-1.094
Skill Train*	0.03661	0.132	0.277	-0.04037	0.080	-0.504	-0.12113	0.074	-1.628	0.09605	0.113	0.847
<b>Backgrnd. vars:</b>												
Mgr/Non-mgr*	-0.38602	0.549	-0.702	-0.03583	0.174	-0.205	0.17686	0.262	0.674	0.20701	0.327	0.632
Reorg Y/N*	-0.40343	0.176	-2.289**	0.00353	0.134	0.026	-0.09907	0.153	-0.643	-0.12482	0.206	-0.605
1/Reorg Time	0.02893	0.023	1.233	0.02866	0.031	0.923	0.06651	0.028	2.342**	0.03633	0.073	0.491
Chng Nonmgr*	-0.04737	0.538	-0.088	-0.04273	0.135	-0.315	0.15439	0.136	1.129	-0.10359	0.267	-0.388
Mgr Changed*	0.12766	0.140	0.907	-0.10000	0.061	-1.620	-0.05115	0.066	-0.767	-0.05668	0.113	-0.498
More rpt to me*	0.06226	0.218	0.285	0.21135	0.139	1.520	0.23622	0.206	1.141	0.43666	0.304	1.435
Fewr rpt to me*	-0.16865	0.485	-0.347	-0.01929	0.152	-0.127	-0.07743	0.156	-0.496	-0.30810	0.363	-0.848
Scope increase*	0.21184	0.146	1.443	-0.03401	0.071	-0.478	-0.02491	0.070	-0.353	-0.03153	0.111	-0.284
Scope decrease*	0.05489	0.274	0.200	0.08030	0.109	0.731	-0.20727	0.144	-1.432	0.06774	0.311	0.217
Years in job	-0.01136	0.008	-1.325	-0.00167	0.006	-0.269	0.03709	0.008	4.318***	0.01451	0.016	0.874
Age	0.00730	0.006	1.142	0.00012	0.003	0.035	-0.00224	0.003	-0.585	0.00757	0.007	1.073
Race*	-0.00442	0.160	-0.028	0.01278	0.085	0.150	0.14129	0.072	1.944*	0.00398	0.113	0.035
Gender*	-0.07544	0.103	-0.731	0.00076	0.066	0.011	0.00289	0.078	0.037	-0.11722	0.120	-0.971
Grade 7-11*	0.09325	0.296	0.315	0.22589	0.133	1.690*	-0.09604	0.113	-0.846	0.42049	0.260	1.616
Grade 12-13*	-0.05935	0.257	-0.230	0.11729	0.141	0.830	-0.04663	0.126	-0.370	0.36084	0.237	1.522
Grade 14/15/CC*	-0.43276	0.619	-0.698	0.17618	0.203	0.867	0.08086	0.225	0.359	0.04194	0.280	0.150
AA degree*	0.82206	0.284	2.886**	-0.01742	0.098	-0.177	0.18452	0.091	2.017**	-0.12794	0.245	-0.521
BS/Grad work*	0.90081	0.296	3.036**	-0.13255	0.102	-1.289	0.09316	0.113	0.818	-0.08927	0.263	-0.338
Masters/Ph.D.*	0.83816	0.314	2.667**	-0.11447	0.135	-0.844	0.29986	0.131	2.286**	-0.12492	0.256	-0.487

<p>n = 76</p> <p>Sum Square (model): 20.1436</p> <p>Sum Square (error): 5.6173</p> <p><math>r^2 = .7819</math></p> <p>F = 5.688***</p>	<p>n = 146</p> <p>Sum Square (model): 25.8387</p> <p>Sum Square (error): 11.9919</p> <p><math>r^2 = .6830</math></p> <p>F = 8.619***</p>	<p>n = 110</p> <p>Sum Square (model): 25.1986</p> <p>Sum Square (error): 6.7470</p> <p><math>r^2 = .7888</math></p> <p>F = 10.303***</p>	<p>n = 71</p> <p>Sum Square (model): 14.7249</p> <p>Sum Square (error): 4.0648</p> <p><math>r^2 = .7837</math></p> <p>F = 5.122***</p>
<p>Cluster F Statistics:</p> <p>Grade: 0.5285</p> <p>Education: 3.2975**</p>	<p>Cluster F Statistics:</p> <p>Grade: 1.2183</p> <p>Education: 0.9538</p>	<p>Cluster F Statistics:</p> <p>Grade: 0.4669</p> <p>Education: 2.800**</p>	<p>Cluster F Statistics:</p> <p>Grade: 1.8938</p> <p>Education: 0.1231</p>

# dichotomous variable; \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001



Table 24. Teamwork Regression Results by Bureau

Independent Variables	Bureau 1			Bureau 2			Bureau 3			Bureau 4		
	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.
Mgr. Commitment	0.33387	0.148	2.253**	0.12986	0.089	1.454	0.10818	0.109	0.986	0.02363	0.162	0.145
Empowerment	0.26026	0.263	0.988	-0.05886	0.142	-0.414	0.21532	0.170	1.260	0.45066	0.266	1.694*
Partic. Mgt	-0.43319	0.234	-1.848*	0.09227	0.077	0.767	-0.05798	0.166	-0.348	0.19348	0.170	1.134
Communication	0.22863	0.146	1.588	0.25186	0.084	2.979***	0.10791	0.100	1.072	0.20424	0.155	1.314
Coaching*	0.06978	0.270	0.258	-0.17404	0.140	-1.236	0.37562	0.155	2.421**	0.29202	0.282	1.033
Discipline*	0.08527	0.367	0.232	-0.11958	0.173	-0.690	-0.27511	0.192	-1.420	-0.11916	0.326	-0.36
Serve QC*	-0.05747	0.198	-0.290	-0.17505	0.096	-1.807*	0.16344	0.133	1.232	-0.17009	0.182	0.93
Serve QIT*	0.00510	0.189	0.027	0.12879	0.094	1.363	-0.00448	0.141	-0.032	-0.24839	0.239	-1.03
QIT Train*	-0.10125	0.196	-0.517	0.01914	0.099	0.192	-0.09530	0.130	0.729	-0.08306	0.178	0.465
Skill Train*	0.19410	0.226	0.858	0.04839	0.116	0.415	-0.01463	0.130	-0.112	-0.28829	0.186	-1.547
Backgrnd. vars:												
Mgr/Non-mgr*	-0.59276	0.958	-0.619	-0.36408	0.247	-1.469	-0.45574	0.461	-0.988	-0.69662	0.546	-1.274
Reorg Y/N*	-0.62349	0.297	-2.093**	0.16979	0.187	0.906	0.12293	0.269	0.455	0.43047	0.349	1.232
1/Reorg Time	0.08110	0.041	1.974**	0.01754	0.045	0.388	0.00590	0.049	0.119	-0.23587	0.125	-1.875*
Chng Nonmgr*	0.10213	0.933	0.109	-0.11218	0.181	-0.617	0.41662	0.240	1.733*	1.26266	0.446	2.827***
Mgr Changed*	0.10691	0.243	0.439	-0.13654	0.089	-1.518	0.05029	0.116	0.430	-0.06558	0.194	-0.337
More rpt to me*	-0.18839	0.377	-0.499	0.12688	0.202	0.626	0.12287	0.363	0.338	-0.46276	0.525	-0.881
Fewr rpt to me*	0.70423	0.847	0.831	-0.09553	0.218	-0.438	-0.27896	0.274	-1.017	-0.61143	0.631	-0.969
Scope increase*	0.15556	0.255	0.610	-0.15236	0.102	-1.480	-0.07462	0.122	-0.610	0.04575	0.184	0.248
Scope decrease*	0.01299	0.481	0.027	0.13907	0.156	0.887	-0.39171	0.254	-1.541	0.07741	0.538	0.144
Years in job	0.01062	0.014	0.714	0.01327	0.009	1.461	0.00698	0.015	0.462	0.05457	0.027	2.008**
Age	-0.00461	0.010	-0.427	-0.00084	0.005	-0.158	-0.00076	0.006	-0.114	0.00057	0.012	0.047
Race*	0.12055	0.259	0.465	0.15387	0.121	1.268	0.06082	0.127	0.477	0.19858	0.187	1.059
Gender*	0.09121	0.178	0.511	-0.01944	0.095	-0.204	-0.01933	0.137	-0.140	-0.43334	0.205	-2.112**
Grade 7-11*	-0.02994	0.467	-0.064	0.31755	0.194	1.630*	-0.34554	0.199	-1.735*	0.15587	0.448	0.348
Grade 12-13*	-0.07570	0.414	-0.182	0.19554	0.207	0.943	-0.33749	0.221	-1.523	0.03724	0.402	0.092
Grade 14/15/CC*	-0.16995	1.082	-0.157	-0.02878	0.283	-0.102	-0.43981	0.396	-1.110	-0.12374	0.472	-0.262
AA degree*	0.58663	0.461	1.272	-0.21747	0.141	-1.539	-0.06484	0.160	-0.405	0.81277	0.420	1.934*
BS/Grad work*	0.35349	0.491	0.720	-0.22970	0.148	-1.551	-0.21163	0.200	-1.057	1.09573	0.449	2.437**
Masters/Ph.D.*	0.33387	0.516	0.646	-0.24676	0.196	-1.255	-0.15904	0.230	-0.690	0.98986	0.439	2.254**

n = 78	n = 152	n = 111	n = 75
Sum Square (model): 14.4889	Sum Square (model): 16.3839	Sum Square (model): 19.1341	Sum Square (model): 23.9814
Sum Square (error): 18.0710	Sum Square (error): 27.4026	Sum Square (error): 21.1037	Sum Square (error): 13.5831
r <sup>2</sup> = .4450	r <sup>2</sup> = .3742	r <sup>2</sup> = .4755	r <sup>2</sup> = .6384
F = 1.327	F = 2.515***	F = 2.532***	F = 2.740***
Cluster F Statistics: Grade: 0.0233 Education: 0.7617	Cluster F Statistics: Grade: 1.4192 Education: 0.9475	Cluster F Statistics: Grade: 1.0669 Education: 0.3951	Cluster F Statistics: Grade: 0.1678 Education: 1.9857

# dichotomous variable; \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001

### Summary of Research Question 1

Table 25 summarizes the results of the analysis for the first research question. As seen in the table, managerial commitment, empowerment, and to some extent, participatory management and communication are related to the three dependent variables. Perceived managerial commitment to TQM is the most consistently important (statistically) across the twelve regression equations. The coefficient for managerial commitment is positive in all regression models, and is statistically significant in half of them. Empowerment appears as an important predictor of the dependent variables as well, with all but one coefficient being positive, and two-thirds of them both positive and significant. Among the independent variables, these are the most consistent predictors of job satisfaction, trust, and teamwork, as indicated in table 25.

In some cases, there appears to be no relationship at all. The parameter estimates for participatory management are less consistent across the equations. Participatory management appears to most consistently affect trust. Its relationship to job satisfaction and teamwork is less clear. The coefficient of communication is consistently positive, but rarely statistically significant.

The remainder of the ten independent variables have a much less consistent relationship to the dependent variables. While coaching is highly associated with teamwork in bureau 3, it does not appear to be an important determinant of the other two dependent variables. Use of discipline, serving on a quality council or quality improvement team, and quality-oriented training were not consistent or significant across the regression equations.



Table 25. Summary of Regression Results for Research Question 1												
Dep. Vars →	Job Satisfaction				Trust				Teamwork			
Bureaus →	1	2	3	4	1	2	3	4	1	2	3	4
Mgr. Commitment	++	++	+	+	++	++	++	+	++	+	+	+
Empowerment	+	++	++	++	++	++	++	++	+	-	+	++
Partic. Mgt.	-	++	+	--	+	++	+	++	--	+	-	+
Communication	-	+	+	+	+	++	+	+	+	++	+	+
Coaching	-	-	+	-	+	-	+	+	+	-	++	+
Discipline	-	+	-	-	+	-	--	-	+	-	-	-
Serve QC	+	-	--	+	+	-	-	+	-	--	+	+
Serve QIT	-	+	-	-	+	-	--	+	+	+	-	-
Prob. Solv./QIT trng.	-	+	+	-	-	+	+	-	-	+	+	+
TQM Skills Trng.	+	+	--	+	+	-	-	+	+	+	-	-
++ = positive and significant      -- = negative and significant + = positive and not significant      - = negative and not significant												

**Research Question 2:** Controlling for background factors, what is the effect of variations in the ways employees perceive and experience TQM implementation on customer service focus (customer awareness and customer feedback)?

#### Customer Awareness

Customer awareness, which is the extent to which others are regarded as customers and others' interests are considered in decision making, appears to be strongly predicted by level of empowerment, participatory management, and the use of a coaching approach by managers (see table 26).

The coefficient of empowerment is positive and statistically significant in bureaus 2, 3, and 4. In bureau 1 the coefficient is mildly negative (nearly zero). The coefficient of participatory management is positive and statistically significant in all models except for bureau 2, where it too is mildly negative. The parameter estimate for presence of a coaching approach is positive and significant in bureaus 2 and 4 only ( $p < .05$ ); positive (though not statistically significant) in bureau 3; and negative and not significant in bureau 1.

Managerial commitment does not appear to influence customer awareness according to this model. Its coefficient is statistically significant only in bureau 4 at the .10 level, and is negative in one bureau.

Of the six possible results of reorganization, the coefficient of increase in scope of job responsibilities is positive and significant at the .05 level in two bureaus, positive and significant at the .10 level in one bureau, and is mildly negative (and not significant) in bureau 2. The coefficient of change in position from manager to non-manager is not significant in any equations, but is positive in all. These positive coefficients are somewhat counter-intuitive, because they suggest that when individuals change position to a non-manager, awareness of the customers increases. It is not evident theoretically why this would be so.

Two of the grade cluster estimates are statistically significant; however, in bureau 1 all three dummy variable coefficients in the cluster are positive, and in bureau 2 all are negative. In bureaus 3 and 4 the coefficients are all negative and not significant. Thus, the

results do not appear to indicate any consistent effect of grade level on customer awareness.

### Customer Feedback

Few consistent relationships exist in the customer feedback models (see table 27). Overall, skills training has the strongest relationship to customer feedback. Parameter estimates for TQM skills training (how to empower, how to get customer feedback and measure customer needs, customer service training, and leadership/coaching training) are positive and statistically significant in bureaus 1 and 3. However, in bureau 4 the coefficient is negative, though not significant. In bureau 2 it is positive and not significant. While empowerment is positive across all four equations, it is not significant in any.

The coefficient for managerial commitment is positive and statistically significant only in bureau 4 at the .10 level (the same as in customer focus), but is negative and not statistically significant in bureaus 1 and 2. In bureau 3 the coefficient is positive and not significant.

Among the background variables, the coefficient of change in manager is negative (but not significant) in all bureaus. The coefficient of increased scope of job is positive across all bureaus and statistically significant at the .05 level in bureau 3. The estimates for the education dummy variable clusters are significant in bureau 2 ( $p < .05$ ) and bureau 4 ( $p < .10$ ). However, all the coefficients are negative in bureau 2, while two are positive and one is negative in bureau 4. In bureau 1, all education coefficients are positive and not significant; in bureau 3 one is positive and two are negative and none are significant. No consistent effect of education is detectible.

Table 26. Customer Awareness Regression Results by Bureau

Independent Variables	Bureau 1			Bureau 2			Bureau 3			Bureau 4																																					
	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.																																			
Mgr. Commitment	0.071087	0.132	0.535	-0.12965	0.098	-1.319	0.09642	0.086	1.120	0.19997	0.122	1.636*																																			
Empowerment	-0.005757	0.230	-0.025	-0.62928	0.152	-4.136***	-0.29569	0.134	-2.204**	0.33369	0.198	1.683*																																			
Partic. Mgt	0.385387	0.203	1.894*	-0.03501	0.127	-0.274	0.28107	0.130	2.152**	0.32789	0.130	2.514**																																			
Communication	0.115689	0.130	0.887	0.21387	0.089	2.396**	-0.12556	0.078	-1.590	0.02665	0.116	0.228																																			
Coaching*	-0.156123	0.237	-0.657	0.29927	0.152	1.963**	0.22927	0.121	1.009	0.43753	0.210	2.076**																																			
Discipline*	0.848161	0.337	2.510**	0.00911	0.184	0.049	-0.28142	0.150	-1.866*	0.57314	0.254	2.252**																																			
Serve QC*	-0.299896	0.173	-1.728*	0.00126	0.105	0.012	-0.06080	0.105	-0.578	0.07685	0.136	0.565																																			
Serve QIT*	-0.214660	0.163	-1.312	-0.07817	0.102	-0.764	0.01202	0.110	0.108	-0.22964	0.180	-1.274																																			
QIT Train*	0.013525	0.173	0.078	0.01891	0.105	0.178	-0.05866	0.102	-0.571*	0.13581	0.133	1.016																																			
Skill Train*	0.166846	0.198	0.839	-0.04716	0.125	-0.377	-0.25191	0.102	-2.456**	0.09646	0.138	0.694																																			
Backgrnd. vats:																																															
Mgr/Non-mgr*	2.382975	0.834	2.856**	-0.34492	0.261	-1.318	-0.67963	0.361	-1.878*	0.04356	0.407	0.107																																			
Reorg Y/N*	-0.184750	0.259	-0.711	-0.05003	0.196	-0.255	0.30857	0.211	1.456	-0.09158	0.262	-0.349																																			
1/Reorg Time	0.006652	0.040	0.163	-0.05163	0.048	-1.074	0.02182	0.038	-0.560	-0.06534	0.093	-0.696																																			
Chng Nonmgr*	0.854885	0.823	1.038	0.02861	0.189	0.151	0.27332	0.188	1.449	0.23438	0.333	0.704																																			
Mgr Changed*	-0.305874	0.209	-1.458	0.04058	0.095	0.423	0.03441	0.091	0.375	0.09012	0.145	0.619																																			
More rpt to me*	-0.307206	0.356	-0.862	0.01177	0.216	0.054	0.05027	0.285	0.176	-0.01479	0.391	-0.038																																			
Fewr rpt to me*	-1.631770	0.766	-2.130**	0.02529	0.228	0.111	-0.09148	0.215	-0.425	-0.25699	0.471	-0.545																																			
Scope increase*	0.751272	0.229	3.271***	-0.08393	0.108	-0.771	0.22395	0.095	2.333**	0.26280	0.140	1.865*																																			
Scope decrease*	0.973728	0.421	2.309**	-0.08008	0.163	-0.489	-0.15940	0.199	-0.799	0.63396	0.403	1.571																																			
Years in job	-0.001675	0.012	-0.130	-0.00903	0.009	-0.949	0.00020	0.011	0.017	0.03573	0.020	1.752*																																			
Age	-0.000892	0.009	-0.094	0.00964	0.005	1.693*	0.00924	0.005	1.759*	-0.00470	0.009	-0.517																																			
Race*	0.339448	0.246	1.379	-0.25517	0.131	-1.943**	0.14989	0.100	1.497	-0.06930	0.141	-0.488																																			
Gender*	0.112074	0.155	0.720	0.05795	0.101	0.572	-0.06186	0.108	-0.572	-0.11499	0.152	-0.752																																			
Grade 7-11*	0.772174	0.405	1.903*	-0.27453	0.220	-1.293	-0.15503	0.156	-0.992	-0.36010	0.334	-1.077																																			
Grade 12-13*	0.347198	0.357	0.971	-0.53171	0.220	-2.406**	-0.25125	0.173	-1.445	-0.37379	0.300	-1.243																																			
Grade 14/15/CC*	3.449725	0.947	3.640***	-0.86447	0.300	-2.881***	-0.47306	0.310	-1.522	-0.18787	0.352	-0.533																																			
AA degree*	0.502328	0.440	1.141	-0.06437	0.148	-0.433	0.16569	0.125	1.317	0.19930	0.314	0.634																																			
BS/Grad work*	0.309357	0.464	0.665	0.07106	0.157	0.451	0.06802	0.157	0.433	0.35352	0.335	1.055																																			
Masters/Ph.D.*	0.725272	0.478	1.517	0.23948	0.207	1.155	-0.09749	0.180	-0.539	0.29840	0.327	0.912																																			
<table border="0" style="width:100%; border:none;"> <tr> <td style="width:33%; vertical-align:top;"> <table border="1" style="width:100%; border:none;"> <tr> <td>n = 75</td> <td>n = 148</td> <td>n = 111</td> <td>n = 74</td> </tr> <tr> <td>Sum Square (model): 23.43770</td> <td>Sum Square (model): 23.50117</td> <td>Sum Square (model): 20.10908</td> <td>Sum Square (model): 14.96128</td> </tr> <tr> <td>Sum Square (error): 12.50897</td> <td>Sum Square (error): 28.85693</td> <td>Sum Square (error): 12.99902</td> <td>Sum Square (error): 7.37655</td> </tr> <tr> <td>R<sup>2</sup> = .6520</td> <td>R<sup>2</sup> = .4489</td> <td>R<sup>2</sup> = .6074</td> <td>R<sup>2</sup> = .6698</td> </tr> <tr> <td>F = 2.907***</td> <td>F = 3.314***</td> <td>F = 4.321***</td> <td>F = 3.077***</td> </tr> </table> </td> <td style="width:33%; vertical-align:top;"> <table border="1" style="width:100%; border:none;"> <tr> <td>Cluster F Statistics:</td> <td>Cluster F Statistics:</td> </tr> <tr> <td>Grade: 5.3203***</td> <td>Grade: 0.9249</td> </tr> <tr> <td>Education: 1.6843</td> <td>Education: 1.2106</td> </tr> </table> </td> <td style="width:33%; vertical-align:top;"> <table border="1" style="width:100%; border:none;"> <tr> <td>Cluster F Statistics:</td> <td>Cluster F Statistics:</td> </tr> <tr> <td>Grade: 0.7355</td> <td>Grade: 0.7355</td> </tr> <tr> <td>Education: 0.4163</td> <td>Education: 0.4163</td> </tr> </table> </td> </tr> </table>													<table border="1" style="width:100%; border:none;"> <tr> <td>n = 75</td> <td>n = 148</td> <td>n = 111</td> <td>n = 74</td> </tr> <tr> <td>Sum Square (model): 23.43770</td> <td>Sum Square (model): 23.50117</td> <td>Sum Square (model): 20.10908</td> <td>Sum Square (model): 14.96128</td> </tr> <tr> <td>Sum Square (error): 12.50897</td> <td>Sum Square (error): 28.85693</td> <td>Sum Square (error): 12.99902</td> <td>Sum Square (error): 7.37655</td> </tr> <tr> <td>R<sup>2</sup> = .6520</td> <td>R<sup>2</sup> = .4489</td> <td>R<sup>2</sup> = .6074</td> <td>R<sup>2</sup> = .6698</td> </tr> <tr> <td>F = 2.907***</td> <td>F = 3.314***</td> <td>F = 4.321***</td> <td>F = 3.077***</td> </tr> </table>	n = 75	n = 148	n = 111	n = 74	Sum Square (model): 23.43770	Sum Square (model): 23.50117	Sum Square (model): 20.10908	Sum Square (model): 14.96128	Sum Square (error): 12.50897	Sum Square (error): 28.85693	Sum Square (error): 12.99902	Sum Square (error): 7.37655	R <sup>2</sup> = .6520	R <sup>2</sup> = .4489	R <sup>2</sup> = .6074	R <sup>2</sup> = .6698	F = 2.907***	F = 3.314***	F = 4.321***	F = 3.077***	<table border="1" style="width:100%; border:none;"> <tr> <td>Cluster F Statistics:</td> <td>Cluster F Statistics:</td> </tr> <tr> <td>Grade: 5.3203***</td> <td>Grade: 0.9249</td> </tr> <tr> <td>Education: 1.6843</td> <td>Education: 1.2106</td> </tr> </table>	Cluster F Statistics:	Cluster F Statistics:	Grade: 5.3203***	Grade: 0.9249	Education: 1.6843	Education: 1.2106	<table border="1" style="width:100%; border:none;"> <tr> <td>Cluster F Statistics:</td> <td>Cluster F Statistics:</td> </tr> <tr> <td>Grade: 0.7355</td> <td>Grade: 0.7355</td> </tr> <tr> <td>Education: 0.4163</td> <td>Education: 0.4163</td> </tr> </table>	Cluster F Statistics:	Cluster F Statistics:	Grade: 0.7355	Grade: 0.7355	Education: 0.4163	Education: 0.4163
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# dichotomous variable; \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001



Table 27. Customer Feedback Regression Results by Bureau

Independent Variables	Bureau 1			Bureau 2			Bureau 3			Bureau 4		
	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.	Par. Est.	Std. Error	t-stat.
Mgr. Commitment	-0.22153	0.157	-1.405	-0.07564	0.117	-0.646	0.17109	0.163	1.047	0.32191	0.168	1.914*
Empowerment	0.28692	0.270	1.061	0.11306	0.191	0.590	0.28973	0.269	1.077	0.27697	0.289	0.956
Partic. Mgt	0.43549	0.238	1.829*	0.16388	0.159	1.026	-0.01355	0.233	-0.058	0.00887	0.193	0.046
Communication	-0.12518	0.152	-0.819	0.20000	0.110	1.802*	-0.09649	0.150	-0.642	0.28625	0.183	1.557
Coaching*	-0.10181	0.336	-0.302	-0.11056	0.194	-0.569	-0.00203	0.217	-0.009	0.14301	0.304	0.470
Discipline*	0.50136	0.411	1.218	-0.02367	0.235	-0.101	-0.20914	0.272	-0.768	0.48050	0.358	1.341
Serve QC*	-0.13286	0.221	-0.600	-0.13741	0.132	-1.038	-0.01398	0.203	-0.072	-0.27801	0.189	-1.471
Serve QIT*	0.00133	0.226	0.006	-0.12868	0.127	-1.008	-0.00844	0.203	-0.041	0.06001	0.280	0.214
QIT Train*	-0.14097	0.217	-0.649	-0.01992	0.133	-0.150	0.11749	0.194	0.604	-0.12826	0.192	-0.667
Skill Train*	0.52008	0.238	2.184**	0.00938	0.155	0.060	0.33293	0.191	1.739*	-0.26987	0.198	-1.358
Backgrnd. vars:												
Mgr/Non-mgr*	1.52282	0.986	1.543	-0.22801	0.321	-0.710	-0.31537	0.640	-0.492	0.68721	0.581	1.182
Reorg Y/N*	0.10818	0.337	0.321	0.00327	0.258	0.013	0.37361	0.380	0.983	0.21290	0.406	0.524
1/Reorg Time	-0.00357	0.048	-0.074	-0.05538	0.060	-0.920	-0.10518	0.076	-1.381	-0.11451	0.132	-0.867
Chng Nonmgr*	0.01343	0.940	0.014	-0.01786	0.235	-0.076	-0.13254	0.336	-0.394	-0.29550	0.454	-0.650
Mgr Changed*	-0.15169	0.269	-0.564	-0.09540	0.120	-0.788	-0.11022	0.173	-0.635	-0.03185	0.200	-0.159
More rpt to me*	-0.14686	0.394	-0.372	-0.05587	0.263	-0.212	-0.27811	0.509	-0.545	1.04029	0.555	1.871*
Fewr rpt to me*	-0.72433	0.854	-0.847	0.20792	0.282	0.737	0.13017	0.381	0.341	0.08479	0.661	0.128
Scope increase*	0.07231	0.294	0.245	0.09380	0.136	0.686	0.42605	0.189	2.251**	0.06625	0.210	0.315
Scope decrease*	-0.14368	0.522	-0.275	0.07341	0.204	0.360	0.25573	0.357	0.715	0.10958	0.579	0.189
Years in job	0.01520	0.016	0.923	-0.02460	0.012	-2.005**	0.02723	0.022	1.216	0.02947	0.027	1.060
Age	-0.00627	0.011	-0.551	0.01023	0.007	1.378	0.01697	0.010	1.632*	0.00870	0.014	0.586
Race*	0.45715	0.277	1.647*	0.05777	0.169	0.341	0.04755	0.196	0.242	-0.32647	0.201	-1.620
Gender*	-0.22342	0.196	-1.137	0.07021	0.128	0.546	-0.19295	0.198	-0.970	0.14522	0.211	0.686
Grade 7-11*	0.06953	0.573	0.121	0.05558	0.278	0.200	-0.23400	0.340	-0.687	0.44044	0.487	0.904
Grade 12-13*	-0.16887	0.496	-0.340	-0.25736	0.293	-0.877	-0.89793	0.361	-2.483**	0.08130	0.427	0.190
Grade 14/15/CC*	1.18997	1.132	1.051	-0.55145	0.380	-1.450	-1.44679	0.579	-2.496***	-0.01633	0.504	-0.032
AA degree*	0.31317	0.495	0.632	-0.33730	0.191	-1.759*	0.01846	0.246	0.075	0.67257	0.488	1.377
BS/Grad work*	0.55429	0.520	1.066	-0.48358	0.201	-2.396**	-0.04632	0.314	-0.147	-0.04094	0.529	-0.077
Masters/Ph.D.*	0.51778	0.553	0.936	-0.74043	0.257	-2.875***	-0.13763	0.355	-0.387	0.15027	0.508	0.296
n = 69 Sum Square (model): 11.5167 Sum Square (error): 14.558 F <sup>2</sup> = .4417 F = 1.064												
Cluster F Statistics: Grade: 0.7024 Education: 0.4118												
n = 141 Sum Square (model): 21.1468 Sum Square (error): 41.1866 F <sup>2</sup> = .3393 F = 1.965**												
Cluster F Statistics: Grade: 1.4821 Education: 2.9292*												
n = 99 Sum Square (model): 27.2524 Sum Square (error): 34.1618 F <sup>2</sup> = .4437 F = 1.898**												
Cluster F Statistics: Grade: 3.7761*** Education: 0.0872												
n = 67 Sum Square (model): 17.4252 Sum Square (error): 10.9927 F <sup>2</sup> = .6132 F = 2.022**												
Cluster F Statistics: Grade: 0.4212 Education: 2.5591*												

# dichotomous variable; \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001



### Summary of Research Question 2

Table 28 summarizes the regression results for the two customer focus dependent variables, the ten independent variables, and each of the four bureaus. As seen from the table, the coefficient of empowerment is positive in all except one equation, and is positive and significant in three of the four customer awareness models. Perceived managerial commitment to organizational improvements is less consistently important (statistically) across the eight regression equations, but appeared to be consistently positive and significant in bureau 4. Similarly, while communication is not consistent in terms of sign and significance across the equations, it is positive and significant only in bureau 2. Participatory management is clearly positively related to customer awareness, but less strongly consistently related to customer feedback.

Coaching appears to have a positive and significant relationship to customer awareness. It is plausible that with all the customer-focussed training managers receive, much of their coaching activities involve awareness of internal and external customers.

Skills training is important only in predicting customer feedback. As shown in table 28, the coefficient for TQM skills training in the model for predicting customer feedback is positive and significant in two bureaus, positive and not significant in one, and negative and not significant in another bureau.

The implications of the findings with respect to customer focus are less clear-cut than those for the first research question. Greater empowerment appears to be associated with greater awareness of customers, and perhaps greater efforts toward obtaining customer feedback. A high level of managerial commitment is important consistently only

in bureau 4 (with no apparent reason for this emerging in the qualitative data analysis). High levels of both participatory management and a managerial approach of coaching appear to produce high levels of customer awareness. Finally, an investment in TQM-related skills training is positively and strongly associated with efforts to gain and act on customer feedback.

Table 28. Summary of Regression Results for Research Question 2								
Dep. Vars →	Customer Awareness				Customer Feedback			
Bureaus →	1	2	3	4	1	2	3	4
Mgr. Commitment	+	-	+	++	-	-	+	++
Empowerment	-	++	++	++	+	+	+	+
Participatory Mgt.	++	-	++	++	++	+	-	+
Communication	+	++	-	+	-	++	-	+
Coaching	-	++	+	++	-	-	-	+
Discipline	++	+	--	++	+	-	-	+
Serve on a QC	--	+	-	+	-	-	+	-
Serve on a QIT	-	-	+	-	+	-	-	+
Prob. Solv./QIT trng.	+	+	--	+	-	-	+	-
TQM Skill Training	+	-	--	+	++	+	++	-
++ = positive and significant      -- = negative and significant + = positive and not significant      - = negative and not significant								

### Overall Summary

Perceived managerial commitment to organizational improvements is the most consistently important (statistically) across all twenty of the regression equations. Beyond managerial commitment, empowerment appears as an important predictor of intermediate

outcomes as well. Both of these independent variables are strong predictors of job satisfaction, trust, teamwork, and customer awareness. Participatory management is related to trust and customer awareness. It is related to job satisfaction in bureau 2 and to customer feedback in bureau 1.

Communication appears to be related to both trust and teamwork. A pattern emerged with respect to communication and bureau 2. The coefficient for communication is significant only for bureau 2 when predicting trust, teamwork, customer awareness, and customer feedback. In the job satisfaction model, communication is not statistically significant, but is the highest parameter estimate and *t*-statistic of all other bureaus. There is no compelling qualitative evidence that would explain the significance of communication in bureau 2 only.

Coaching appears to have an effect on customer awareness. It is plausible that with all the customer-focussed training managers receive, much of their coaching activities involve awareness of internal and external customers. Coaching is highly associated with teamwork in bureau 3.

Service on a QC or QIT, and problem solving/QIT training are not consistently important determinants, according to the model tested. The lack of significance of the coefficients for quality council structures (QCs and QITs) is consistent with numerous interviewee comments (chapter 6) which indicated that QCs and QITs are too formal, structured, and rules-bound to be effective. Numerous commenters said that informal groups tended to work more efficiently and effectively. Additionally, until recent development of the Change Acceleration Process training, interview results indicated that



employees found the eight step problem solving model cumbersome and time consuming to use. Another plausible explanation is that formal TQM structures are needed for moving organizations toward other more important implementation steps, such as managerial commitment and empowerment, but are not important in themselves.

Skills training is important only in predicting customer feedback. The coefficient for TQM skills training is significant in bureaus 1 and 3 only.

In interpreting the results of this analysis, several caveats are in order. first, managerial commitment, empowerment, participatory management, and communication are all somewhat correlated with each other. Among them, the lowest correlation is communication and managerial commitment, which is .51. Since participatory management is highly correlated with communication ( $r = .64$ ) and with empowerment ( $r = .63$ ), the standard errors in the regression models could be inflated, and the actual effects of these variables could be masked (the levels of their statistical significance are reduced). The models presented here implicitly assume that all of the independent variables measured have a direct affect on the dependent variables. An alternative model is that there is an indirect affect, or a path model. The test of this theory would be the subject of a future study.

Another limitation of the study is that it does not establish causality. While a relationship between independent and dependent variables is a necessary condition for causality, it is not a sufficient one. Finally, the study measures intermediate results rather than ultimate outcomes predicted by TQM principles: service quality and external customer satisfaction.

## CHAPTER EIGHT

### CONCLUSIONS, POLICY IMPLICATIONS, AND FUTURE RESEARCH

This chapter reviews the relationships predicted by TQM; the findings of this study; what empirical research finds concerning those relationships and whether this study is consistent with existing research findings; the policy implications of the findings; and types of additional research that would further contribute to the state of knowledge about TQM.

#### What TQM Literature Says Will Occur

According to TQM prescriptions, it is critical to have commitment from management to adopt the TQM approach of changing practices and to improve the procedures and systems in which employees operate (George and Weimerskirch 1994, 78-79). Commitment to change includes a sincere effort to become a leader/coach rather than a director/supervisor (Laurent 1991, 9; Fellers 1992, 117). Employees, in a TQM organization, should be empowered, which means providing them with the authority, responsibility, and resources needed to identify and put improvement initiatives into effect (Doherty 1994, 48). Participatory management and open communication are theorized to contribute to employees' sense of involvement and being valued in the organization. Part of being involved is participating in quality-related teams designed to implement quality throughout the organization as well as short term action-oriented teams designed to

improve specific processes. Skills training in the areas of obtaining customer feedback, customer service, leadership, empowerment, teamwork, and TQM related tools is an important component in TQM implementation (Bank 1992).

Customer service is the basis on which quality improvement initiatives take place (Dean and Bowen 1994, 394). The rationales for this focus are the beliefs that long-term organizational success depends on customer satisfaction, and this satisfaction requires that everyone in an organization be focused on determining what customer needs are and fulfilling them (Dean and Bowen 1994, 394; Spencer, 1994, 447). Adopting TQM necessitates that employees regard and treat each other as internal customers. They in turn value and serve other internal customers and partners (such as contractors) and, ultimately, the organization's external customers.

As discussed in chapters 1 and 2, TQM's logic for the investment in employee involvement and skills training is that the way that employees are treated determines how they treat the organization's customers (Harber, Burgess, and Barclay 1993, 37; Shetty 1989, 176). Accordingly, distrustful, dissatisfied employees lacking communications or customer focus skills are not capable of satisfying customers, while highly satisfied and skilled employees are much more likely to please customers (Deming 1986; Crosby 1989; Juran 1988). The effectiveness, then, of TQM interventions determines the level of employee satisfaction, degree of trust, teamwork, and customer focus, which in turn determine the level of external customer satisfaction (Anderson, Rungtusanatham, and Schroeder 1994, 481).

### The Approach Taken in This Study

The Two-Step theoretical model was used for this analysis to monitor interim progress toward goals when measures of final success were not yet expected to be evident, or time constraints precluded waiting for long-term results (Wilson and Durant 1994). To apply the Two-Step model, five intervening variables were identified which were milestones toward achieving more distant, less tangible results representing the ultimate objectives were identified. Using this model, it is presumed that if there was progress on the intervening variables, the interventions were linked to the long term goal of the TQM interventions (Wilson and Durant 1994, 141).

Applying the two step model for this research consisted of measuring perceptions of management commitment, TQM interventions, and intermediate outcomes. The research questions of this study asked what the effect of variations in the ways that employees perceive and experience TQM implementation was on five important intermediate outcomes that TQM designers deem important to reach bottom line outcomes. The independent variables (necessary condition and TQM interventions) were managerial commitment, empowerment, participatory management, communication openness and frequency, coaching, discipline, serving on a Quality Council, serving on a Quality Improvement Team, problem solving training, and TQM skills training. The dependent variables (intermediate outcomes) were: job satisfaction, trust, teamwork, customer awareness, and customer feedback. Four organizational sub-units (bureaus) in the Health Care Financing Organization (HCFA), within the federal Department of Health and Human Services were selected as the study sites. The four HCFA bureaus began

TQM implementation approximately two years prior to the study. A 59 question survey instrument, designed by the researcher, was utilized to gather information on the variables. The relationship between the independent and dependent variables was tested in the four bureaus using multiple regression. A number of environmental factors and demographics in the bureaus were controlled for.

In order to place the findings into context and document the type and nature of TQM implementation in the study sites, 28 semi-structured interviews were conducted: one with each bureau director, 12 randomly selected middle managers, and 12 randomly selected non-managers. The extensive interviews, combined with a review of agency documentation, produced detailed accounts and examples of TQM implementation, lack (in some cases) of TQM implementation, and events that occurred during the time of TQM implementation. This documentation was essential for knowing what was being measured in the quantitative phase of the study, especially since it was possible that implementation steps could have existed on paper only rather than in actual fact. Detailed documentation of the implementation effort also allowed for replication of the study. Descriptions of the events that occurred during and preceding the time of TQM implementation permitted an assessment to be made about whether any events affected independent and dependent variables, and whether affects varied among individuals. If an event affected only independent or dependent variables, validity was not threatened. Additionally, if an event did affect both independent and dependent variables, but it had a uniform affect on individuals within a bureau, validity was not threatened.

### Qualitative Findings of the Study

Context in which TQM was implemented. As discussed in chapter 5, qualitative and quantitative analysis found that, while four study bureaus were facing a number of environmental factors and events during the time of TQM implementation, threats to validity were unlikely. One of the most profound events the bureaus faced was reorganization/streamlining; this event was measured and incorporated into the regression model. In the midst of implementation, the four bureaus collectively underwent major reorganization which increased managerial span of control by 50 to 100 percent. Reorganization occurred approximately nine months prior to administration of the survey. Two variables capturing reorganization<sup>10</sup> and six possible effects of reorganization, yielded no consistent significant results.

All four bureaus faced streamlining, which was required by Al Gore's National Performance Review (NPR), approximately a year ago. The reorganization/streamlining required each bureau to increase its span of managerial control from an average of 1:6 to an average of 1:15. Each of the bureaus has consolidated branches and created technical assistants instead of branch chiefs. The role of the technical assistants was not completely clear in all work units within the study bureaus. Just prior to reorganization, there was an above-average number of retirements due to buy-outs for retiring early. All bureaus were

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<sup>10</sup> The two reorganization variables were (1) a dummy variable for whether reorganization occurred or not, and (2) a time-based continuous variable which was the inverse of the number of years since reorganization took place. An attempt at running the regression with only the time-based variable yielded the same results as with the dummy variable included.

affected by this, and generally report that it made the reorganization smoother since mostly managers retired.

The agency in which the bureaus operate was implementing a Strategic Plan, but respondents overall report minimal involvement or awareness of the Strategic Plan. All of the bureaus also faced advancements and changes in technology, election year anti-government politics.

Some events were relatively common, but not universal to all four bureaus. For example, both bureaus 2 and 4 offered employees an opportunity to switch to new areas as part of the reorganization in the late summer/fall of 1994. Bureaus 1 and 4 experienced job functions moving from bureau 4 out to bureau 1 (and to all the other Regional Offices as well). New responsibilities and ways of interacting exist for both bureaus 1 and 3 due to the Office of the Secretary withdraw from performing personnel-related administrative functions for the regions.

Each bureau faced certain unique factors, such as the consortia concept (specialization of regions) in bureau 1, implementing technology upgrades for bureau 2, global budgetary practices in bureau 3, and bureau 4 has experienced a transfer of nearly half its staff from Washington D.C. to Baltimore, shifting work out to Regional Offices, and ongoing leadership turnover (a continuous event in bureau 4). More specifically, bureau 1 (the regional study site) underwent plans for taking part in a regional consortium, whereby each region would specialize in certain areas. There was some uncertainty and contention surrounding the consortia concept plans since employees were unsure of their future roles, and many believed that some elements of the consortia concept would end up

being more costly in the long run. If the consortia concept affected any of the variables, it is most likely to have affected managerial commitment (an independent variable), which did not threaten validity.

Bureau 2 was responsible for implementing technological advances throughout the agency. This was a routine part of work done by bureau 2 and was not expected to affect the results in any way. The bureau 3 global budgeting meant a change from preparing the budget in isolation to working with several different bureau representatives in preparing budgets. This event affects one or two work units in the bureau. Bureau 3 was also responsible for planning the HCFA-wide move to a new single site. However, given the nature and intensity of this effort, and the fact that the move would commence only a few weeks following the survey, personnel involved in the move were removed from the sample. Therefore, this event would not affect the results. Finally, bureau 4 faced a shift in elements of the work load out to the Regional Offices. The aspect of this change that surfaced the most prominently in interviews was the fact that the decision to move work out came from above. Middle managers and non-managers alike reported being left out of the decision making process on this issue. This event in bureau 4 may have effected the measurement of participatory management and/or empowerment (though comments overwhelmingly indicated that people perceive that they are involved in decision making and are empowered to a great extent).

TQM Implementation. The four study bureaus implemented a number of TQM related initiatives which are consistent with pure TQM. The bureaus established Quality Councils and other structures which contained equal numbers of manager and non-



manager representatives. The HCFA study bureaus also implemented a great deal of training. The bureaus were more consistent with TQM principles than with common practice of other TQM organizations in the style and manner of implementation. For example, rather than each organizational level learning and in turn teaching TQM concepts to the next lower level, the senior (top) executives were trained first, then everyone else was trained together. As do most TQM practicing organizations in the U.S., the bureaus were also implementing varieties and styles of employee involvement in the forms of empowerment, participatory management, and open communications. Teamwork in all of the study bureaus was strong, as was the use of heuristic tools. As was the case with their U.S. industry wide TQM counterparts, the bureaus did not utilize scientific methods to a great extent. Both HCFA and U.S. TQM firms diverged from TQM principles on this practice. Consistent with pure TQM, but divergent from other TQM organizations, the HCFA bureaus (three of them) rewarded quality, not performance. The rewards, appraisal, and promotion systems were disassociated from one another and changed dramatically to encourage and reward cooperation rather than unhealthy forms of competition. At the time of the survey, employees had not yet experienced the new performance appraisal system since neither a semi-annual or annual evaluation had taken place.

#### Empirical Findings on TQM and How This Study Relates

In this section, the research findings of this study will be reviewed as they relate to each of the two research questions. Then, the consistency between the findings of this study and existing empirical literature will be discussed.

**Research Question 1:** What is the effect of variations in the ways employees perceive and experience TQE implementation on job satisfaction, organizational trust, and teamwork?

This research found that variations in employee perceptions of managerial commitment, empowerment, participatory management, and to some extent, communication are related to job satisfaction, trust, and teamwork. The findings concerning these relationships are summarized below:

**Managerial Commitment.** The statistical findings of this study confirm the claims of TQM principles that managerial commitment to organizational improvement is of paramount importance, at least in achieving the intermediate outcomes of job satisfaction, trust, and teamwork. Perceived managerial commitment was the most consistently important (statistically) across the regression equations. The higher the perceived levels of managerial commitment, the higher were job satisfaction, trust, and teamwork. These three human relations-type elements are considered necessary and important to achieving greater bottom line quality service and/or products for an organization's customers.

**Employee Involvement Implementation Techniques Collectively.** Employee involvement-related variables (empowerment, participatory management, and communication) were more important than were TQM structures and training. (In fact, the TQM structure-oriented variables of participation on a Quality Council or Quality Improvement Team were not found to be determinants of any of the dependent variables.) Among these, empowerment, and participatory management were the most important predictors of job satisfaction, trust, and teamwork. Empowerment, a key TQM concept,

emerged as a strong predictor of job satisfaction and trust, and somewhat weaker predictor of teamwork. Participatory management was related to trust in all four bureaus, and to job satisfaction in one of the four study sites. Openness/frequency of communication had a positive and mildly significant relationship with both trust and teamwork.

### Existing Empirical Literature

Managerial Commitment. The results of this study were consistent with previous research findings. Existing empirical work in the field of TQM indicates that management commitment is important to TQM success. Kravchuk and Leighton's (1993) study of TQM in states concluded that the most critical role is senior agency management. The conclusion is based on the fact that 29 states cited agency head interest as a primary criterion for selecting which state agencies should implement TQM, and survey responses which indicate agency head leadership as being more crucial than gubernatorial commitment for TQM success (Kravchuk and Leighton 1993, 75-76). Powell (1995) found that, among other determinants, managerial commitment is important to the success of TQM. Stronger empirically-based evidence is accumulating which indicates that managerial commitment is a necessary and critically important prerequisite for TQM intermediate and long term success.

Employee Involvement Implementation Techniques Collectively. This research is consistent with empirical studies reviewed in several ways. Studies of TQM critical success factors find that people-oriented factors, such as communication, empowerment of employees, and involving employees in decision making, are more strongly associated with

TQM success than are technically-oriented factors, such as the use of TQM statistical tools and information technology (Shetty 1989; Cho 1994). The research results of Powell (1995), Hardcastle (1994), Blackburn (1992), Favorite (1994) and Hernandez (1994) indicate that if TQM efforts do not focus on involving employees in decision making (participatory management), empowering employees, and improving communications, the effort will not be likely to succeed. In a comparison of a TQM and a non TQM organization, Harber, Burgess, and Barclay (1993) found that effective communication is vital to the success of TQM. Powell (1995) found that the behavioral factors, such as an open culture, employee empowerment, and management commitment, rather than TQM tools and techniques, are more important to the success of TQM.

Empowerment. This research supports the findings in literature that empowerment is important to TQM success. Blackburn (1992) and Favorite (1994) found that empowerment of employees was the key to successful adoption of TQM in their respective case study sites. Staff persons who feel empowered by their supervisors have the most positive view of the value of TQM; conversely, staff members who feel they are not empowered are the most dissatisfied with TQM (Blackburn 1992). Favorite's (1994) interview study indicated that effective leadership of a TQM effort requires that managers empower employees and should be proactive in establishing opportunities for teamwork among employees. Shetty (1989) found that among various quality improvement techniques, employee motivation, change in corporate culture, and employee education were rated most important, and that leaders in successful TQM practicing organizations focus on human resource management issues such as genuine concern for people. This

study adds to the evidence that empowerment is a critical element of TQM implementation.

Communication. This research differs in the strength of importance of communication in determining job satisfaction, and to some extent, trust and teamwork as well. In this study, results for communication were not consistently significant determinants of these variables, unlike Harber, et al.'s study and other research which shows that communication is critical to success.

Training. This study not only supports those that found training less important than other factors, it found training barely important at all. In this study, training in TQM-related skills and problem solving skills was completely unrelated to job satisfaction, trust, and teamwork.

Research Question 2: What is the effect of variations in the ways that employees perceive and experience TQM implementation on customer service focus (customer awareness and customer feedback)?

#### Research Findings of This Study

The effect of variations in employee perceptions of implementation efforts on the single construct of customer service focus is unclear. The effects of the independent variables on the two constituents of customer focus--customer awareness and customer feedback--were inconsistent. While empowerment and participatory management, and coaching appeared to be strongly associated with customer awareness, these variables were not strongly related to customer feedback.

Skills training was important in predicting customer feedback (the extent to which organizational employees obtain and act on customer feedback), but not customer awareness. Results of managerial commitment were mixed/mildly significant with respect to customer awareness and customer feedback.

#### Existing Empirical Literature

Research on the importance and effect of training has had mixed results. While a study of 149 randomly selected U.S. corporations found that training was a critical component of TQM success (Maddox 1994), other studies indicate that if organizations attempt to implement training alone, TQM efforts do not succeed in improving organizational culture or quality (Hardcastle 1994). Using regression analysis and Spearman correlations, Maddox (1994) found that *employee involvement* in the identification of what types of TQM training should be utilized was found to be a predictor of perceived TQM success, accounting for 20 percent of the variance of perceived TQM success. The more managers seek and utilize input from employees concerning training needs, the more successful TQM was perceived to be overall (Maddox 1994). Hardcastle's (1994) ethnographic study found that when TQM implementation focused largely on training efforts without empowering employees, developing teamwork, or increasing trust, employees were unwilling to accept a new system of beliefs (Hardcastle 1994). In this study, participatory management in fact was strongly related to customer awareness, and mildly related to customer feedback (its coefficient was positive in three of the four bureaus, and statistically significant in one of these). Therefore, there

is some support for Maddox and Hardcastle's findings concerning the importance of employee involvement.

### Policy Implications

There has been much contention among policy makers and practitioners concerning whether the time, effort, energy, and money needed to implement TQM is worthwhile. This study presented qualitative and quantitative findings concerning not only what is involved in implementing TQM, but also what some of the intermediate outcomes are expected to be. The study provides practitioners with empirically-based knowledge on what is likely to occur if TQM's necessary condition of managerial commitment is met and the implementation steps are taken. Rather than primarily advocacy literature-based and anecdotally-based information, decision makers now have research-based information supporting much of what the TQM advocacy literature has stressed. Senior, middle, and first line managerial commitment is clearly related to TQM success. Empowerment of employees at all levels to make decisions on their own, experiment with new ways of doing work, make mistakes without fear of retribution, and the like is critical for attaining intermediate and long term outcomes valued by organizational decision makers. Involving employees in decisions affecting them and the organization at large (participatory management) is important as well. Overall, this study provides stronger empirically-based evidence of the effect of all the constituents of TQM together in context of one another, considering important exogenous events, and a host of demographic factors as well. Practitioners can use this information to make determinations about whether to implement

TQM, how to implement TQM, and what actions (according to TQM literature) they should ensure are taken when implementing TQM.

More specifically, this research indicates that without managerial commitment, employee empowerment, participatory management, and communication, TQM implementation will not achieve desired intermediate results. Managerial commitment is frequently referred to as “walking the talk.” This is accomplished primarily by setting an example from upper organizational echelons, i.e., modeling the desired TQM behaviors, such as open sharing of information with employees of all levels of the organization. By extension (and in accordance with the Two-Step model utilized in this study), organizations implementing TQM will not achieve increased quality in products or services unless management is fully committed to the implementation effort, employees are empowered to make decisions on their own, and communication throughout the organization flows openly and freely.

While skills training is an important determinant only of customer feedback, this does not indicate that policy makers implementing TQM should abandon training efforts. Research results suggest that training in itself does not constitute TQM implementation. Implementing training without real managerial commitment, empowerment of the workforce, participatory forms of management, and communication openness will doom the effort to failure. Though the collective empirical evidence points to the fact that training alone is insufficient for TQM intermediate or long run success, further research on the effects of training, as well as the optimal types of training, is warranted.



Concrete behaviors concerning managerial commitment, empowerment, and other TQM elements are indicated in TQM literature. TQM literature indicates that, to demonstrate commitment, Senior managers should openly and frequently share information throughout the organization, and continuously encourage other managers to do the same. Another concrete behavior is to work toward empowering staff to the greatest extent reasonable and possible, while tailoring the degree of empowerment to each employee's abilities, skills, knowledge, and inclinations. In meetings, staff members could continuously ask questions about what effect their decisions might have on their customers. According to TQM literature, questions such as, "what do your customers think about this," or "have you queried your customers?" are asked before any decisions or policy changes are made. Additionally, these questions are intended to be asked when continuing current practices, because what has always been done may not be meeting the customers' needs. To provide incentive for performing these activities, managers typically structure performance appraisals so that they measure and reward desired TQM-related activities, such as empowering others or ones self, working supportively in teams, and focussing on internal and external customers.

On an ongoing basis, senior managers, according to TQM literature, continuously ask other managers about their efforts to empower their employees, and request that the employee who does the work be present for and conduct presentations and briefings on their subject matter, rather than the manager doing so. Part of TQM implementation involves establishing organizational recognition systems to reward managers who strive to empower employees (at the optimal level of empowerment, given the nature of the task

and inclination of the employee) to make decisions on their own. A primary method of ensuring empowerment is to create an environment where experimentation with new methods of conducting work is accepted and expected, and to regard errors or mistakes as learning experiences. The rationale for this is that if employees believe and understand that they can experiment, and operate outside the narrow confines of their job descriptions without being reprimanded or otherwise punished, an empowering environment will be created. Additionally, if employees revert to old habits of checking with the manager before making a decision on something not requiring consultation, TQM precepts recommend that the manager act more as a sounding board and a partner in the decision, rather than an authoritative supervisor. This role requires a delicate balance of assisting with and working with the employees, giving enough leeway and freedom to grow and learn, but at the same time not abandoning them altogether when they are unsure or uncertain about how to handle a situation.

According to TQM principles, designing the appropriate degrees of empowerment requires that both managers and employees use logic and intelligence. Managers need to understand that empowering employees does not mean abdicating coaching or leadership responsibilities. It also does not mean that all employees will be empowered at the same level. In fact, the same employee may require different degrees of empowerment for different projects or situations, depending, again, on the level of knowledge, expertise, and abilities. Implementing TQM requires employees to understand that empowerment does not mean that they can do anything and everything at any time, or that they will be consulted or involved in every decision. Employees also are responsible for empowering

themselves and for communicating clearly, directly, and professionally with their managers concerning the proper levels of empowerment. Empowering themselves means taking the *appropriate amount* of initiative, which is often found through trial and error. TQM logic presumes that open, honest, and frequent communication among all parties will enhance understanding and accurate tailoring of empowerment while increasing trust at the same time.

This research indicates that implementing TQM structures and training alone will not affect intermediate outcomes deemed critical to ultimate TQM success. As indicated by other empirical studies reviewed, as well as by TQM principles, the elements of TQM should be implemented together rather than piecemeal in order to achieve the ultimate results of quality and external customer satisfaction.

#### Future Research

There are several opportunities for additional research in the field of TQM which would assist practitioners in knowing what strategies to invest in. Additional research in TQM is warranted for several reasons. First, while this study indicated relationships between variables, it did not establish causality. Second, the findings may be contingent upon the context and environment in which TQM is implemented, and, therefore, may not be generalizable to environments significantly different from those in the study units. Finally, the findings of the study are based on perceptions rather than direct measurement or observation of events.

Further research could build on these empirical findings by replicating this study as closely as possible in other bureaus within HCFA, other Department of Health and Human

Services Operating Divisions, or other federal agencies. The primary value in replicating the study is to test the contingency theory, i.e., measure whether the findings hold regardless of environment or situation, or whether they are different under differing conditions. In replicating the study, researchers could attempt to measure behaviors of managers, rather than reported perceptions of managers' attitudes (as did this study). Exactly replicating this study, however, would mean sacrificing the examination of alternative models and/or testing different hypotheses.

This study could also be replicated by administering a cross sectional attitudinal survey in multiple work units (bureaus, offices, etc.) considered as the unit of analysis, rather than individuals. Different varieties of TQM could be administered (and withheld) in these work units and the results compared among the units. Such a study would require the participation of a large number of units, and thus a significant amount of analytical resources.

In addition to replicating the study, other types of research could be conducted to attempt to show causality. For example, causality could be measured using an experimental and control group design (with and without TQM) along with a longitudinal research design (multiple observations over time before and after the intervention). A longitudinal study could also be used to examine the effects of TQM on long term outcomes, such as product/service quality and external customer satisfaction. While a single study site could be utilized to measure results before and after TQM implementation, such a study would require an immense amount of documentation of precisely what was done to implement TQM as well as what other events occurred in the

intervening time period. Intervening changes and events would need to be controlled for. Dangers of this single site long term study approach are that the organization under study will abandon its TQM efforts or will implement them so slowly, the study is drawn out for several years.

Since some of the independent variables in this study are correlated with each other, future quantitative research could test whether there is an indirect affect using a recursive path model (without a feedback loop). For example, a path model could be tested to determine if training, managerial commitment, and communication affect empowerment and participatory management, which in turn affect job satisfaction, teamwork, trust, customer awareness, and customer feedback. The lack of significant results for customer feedback might suggest that job satisfaction, teamwork, and trust (which were not independent variables in the model) affect customer feedback. Another possible path model, therefore, would specify job satisfaction, teamwork and trust as predictors of customer awareness and customer feedback, with training, managerial commitment, communication, empowerment, and participatory management being direct determinants of job satisfaction, trust and teamwork as well as of customer awareness and customer feedback. As a next step in TQM research, a path model is intuitively appealing because the behavioral and attitudinal phenomenon measured and tested in this study are complex and may interact in less straightforward ways than described in TQM doctrine itself. Further empirical examination of alternative relationships among TQM elements will advance the strength and understanding of TQM precepts.

The importance and effect of formal TQM structures is another area ripe for future research. Empirical studies have not analyzed the effect formal Quality Councils or quality-related teams. While this research found that service on a Quality Council or Quality Improvement Team were not determinants of the five intermediate outcomes measured, further research is necessary. In the qualitative phase of the study, a number of respondents indicated that Quality Councils are too structured and formal to be effective. A plausible explanation is that formal TQM structures are needed in relatively early stages to move organizations toward other more important implementation steps, such as managerial commitment and empowerment, but are not important in themselves. The fact that formal structures were not determinants of important intermediate TQM outcomes may support the notion in TQM that to be successful, TQM practices should become a routine part of the way work is conducted rather than something separate and distinct from the work itself. Future research should examine more closely the effect of formal and informal teams, groups, and processes on TQM measures of success. In particular, practitioners need to know much more about whether formal TQM structures (such as Quality Councils) should be continued or dissolved, and if so, what the optimal times and methods are for creating them and/or phasing them out. There is a great need among practitioners for empirical data on the importance and nature of formal TQM structures.

Ideally, any further research that is conducted in the field of TQM should include both quantitative measures and qualitative documentation and measurement of the nature of implementation efforts. For the reasons discussed above, additional case studies or

quantitative analyses alone are unlikely to contribute empirical knowledge about the effects of TQM interventions.

**APPENDIX 1**

**HEALTH CARE FINANCING ADMINISTRATION  
ORGANIZATIONAL CHARTS**

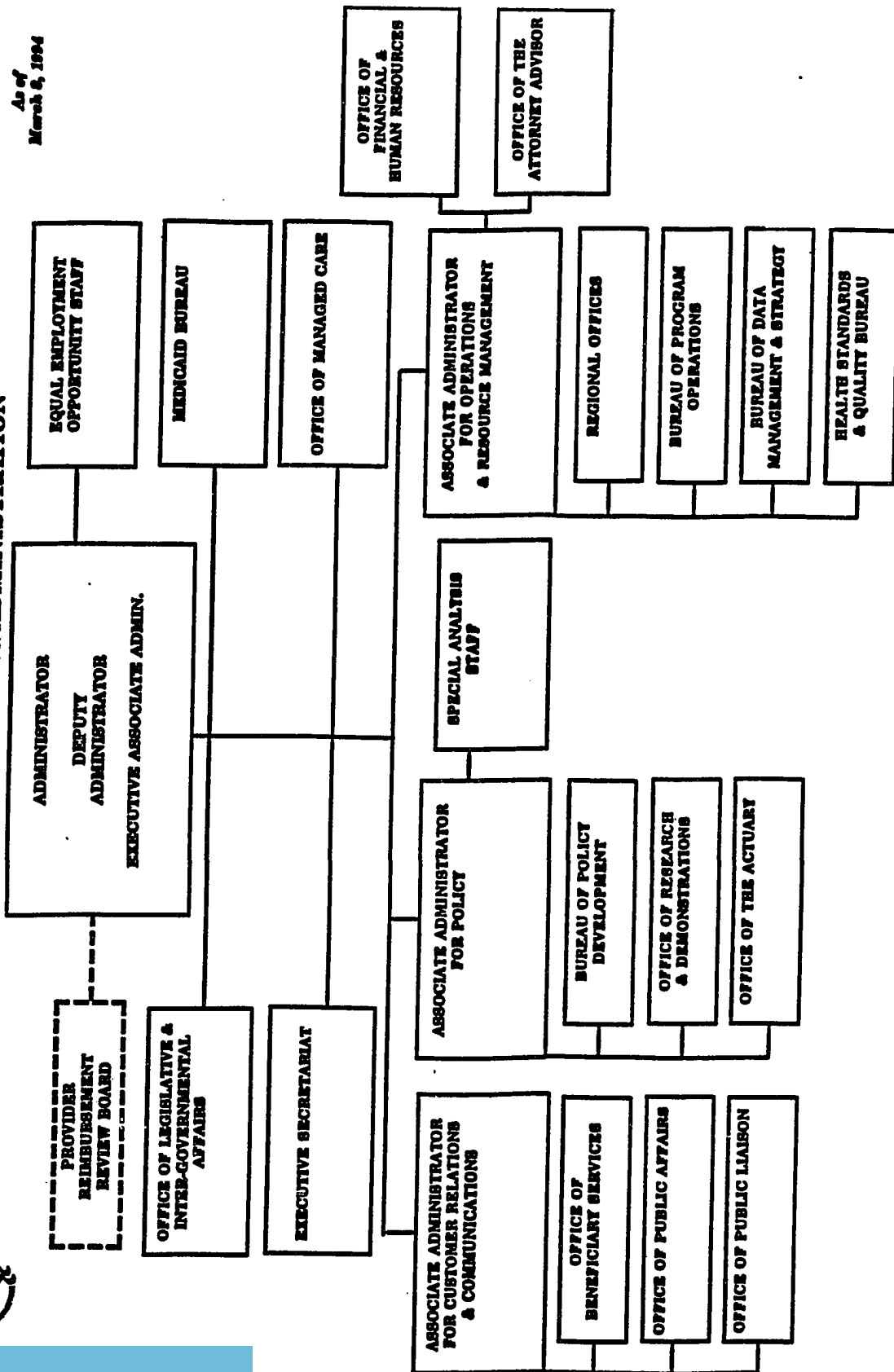




# DEPARTMENT OF HEALTH AND HUMAN SERVICES HEALTH CARE FINANCING ADMINISTRATION

**APPROVED  
STRUCTURE**

**As of  
March 8, 1994**



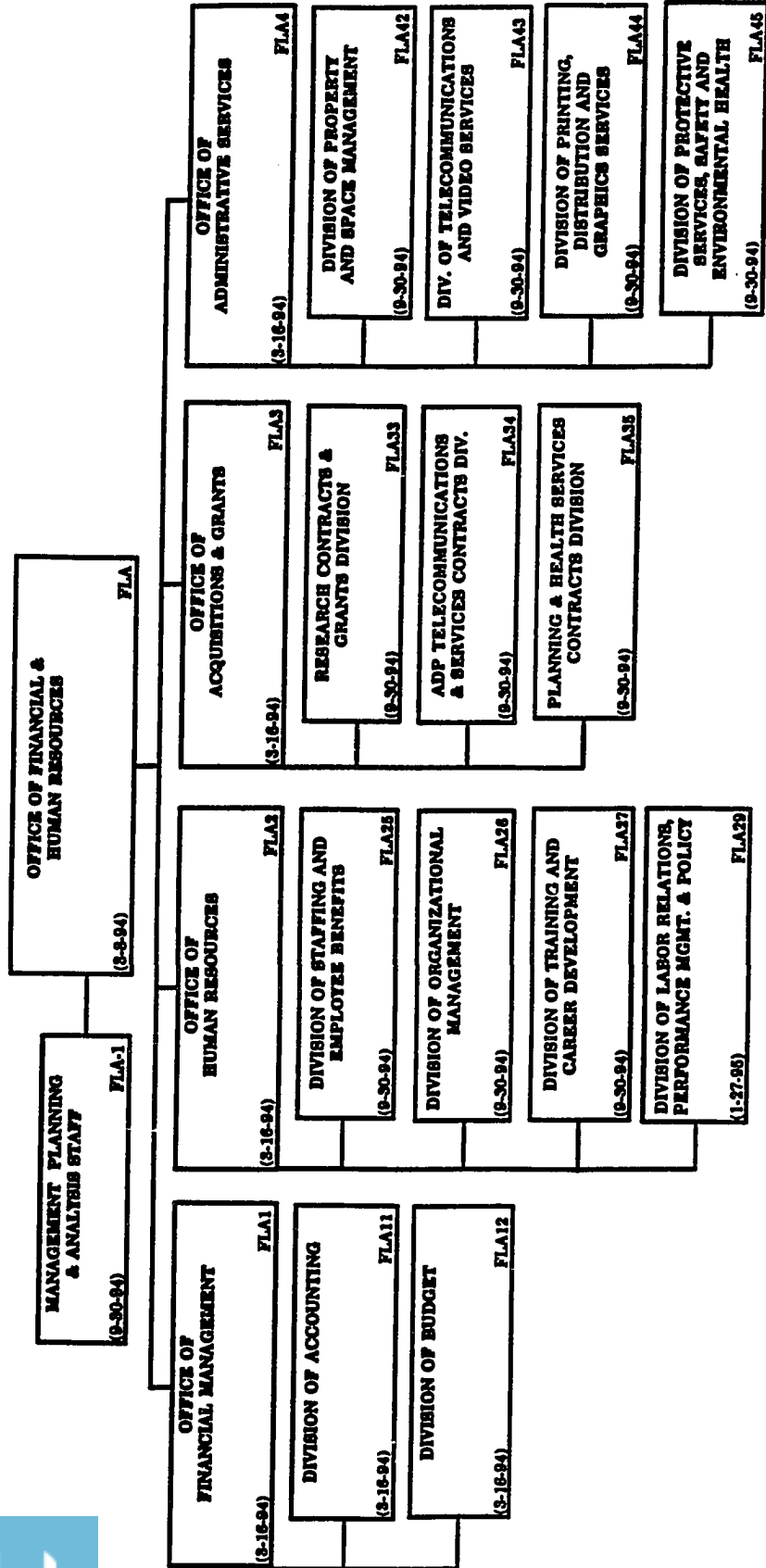


**DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**HEALTH CARE FINANCING ADMINISTRATION**  
**ASSOCIATE ADMINISTRATOR FOR OPERATIONS & RESOURCE MANAGEMENT**

APPROVED  
STRUCTURE

As of  
January 27, 1986

**OFFICE OF FINANCIAL & HUMAN RESOURCES**

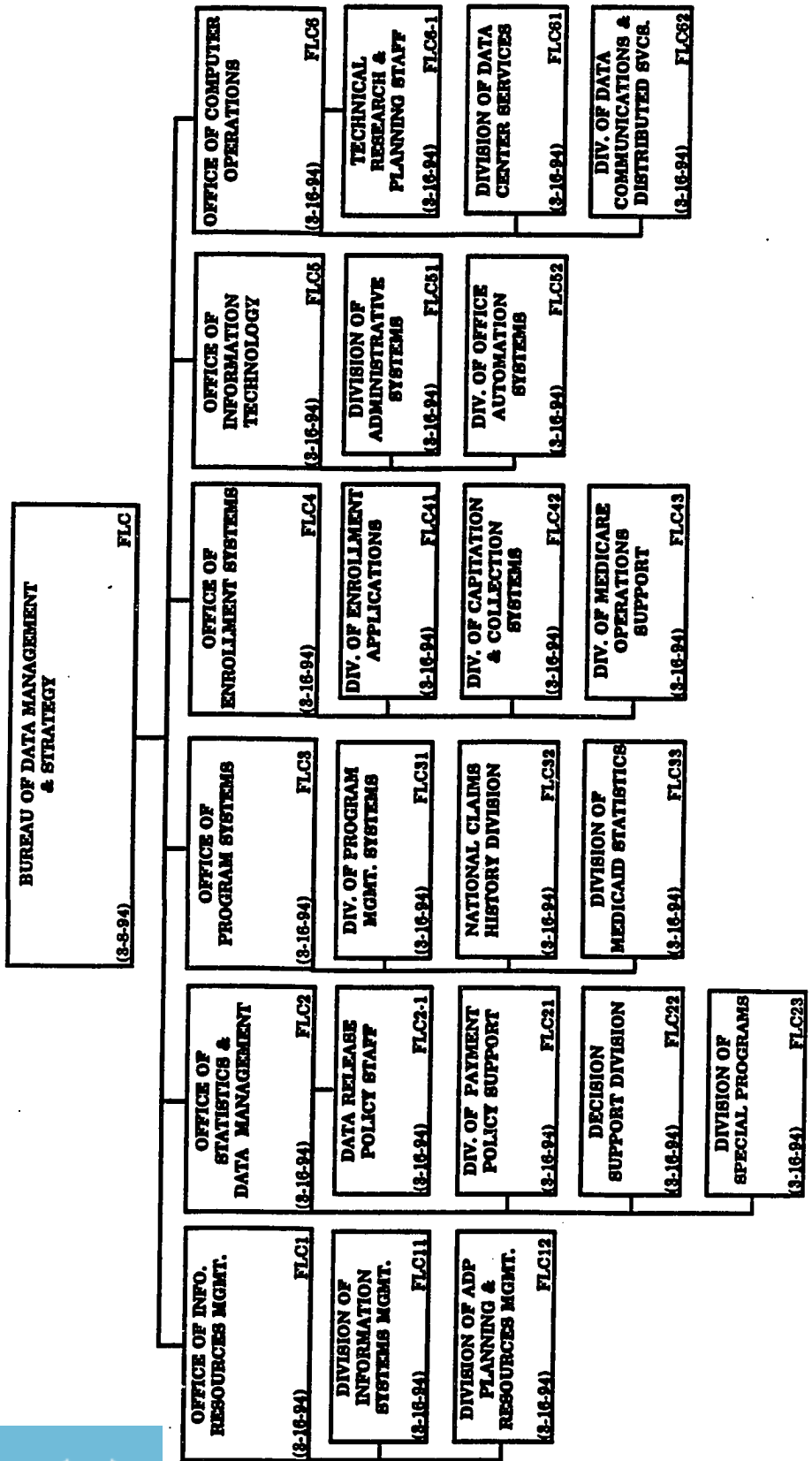




**DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**HEALTH CARE FINANCING ADMINISTRATION**  
**ASSOCIATE ADMINISTRATOR FOR OPERATIONS & RESOURCE MANAGEMENT**

**APPROVED STRUCTURE**  
 As of  
 March 16, 1994

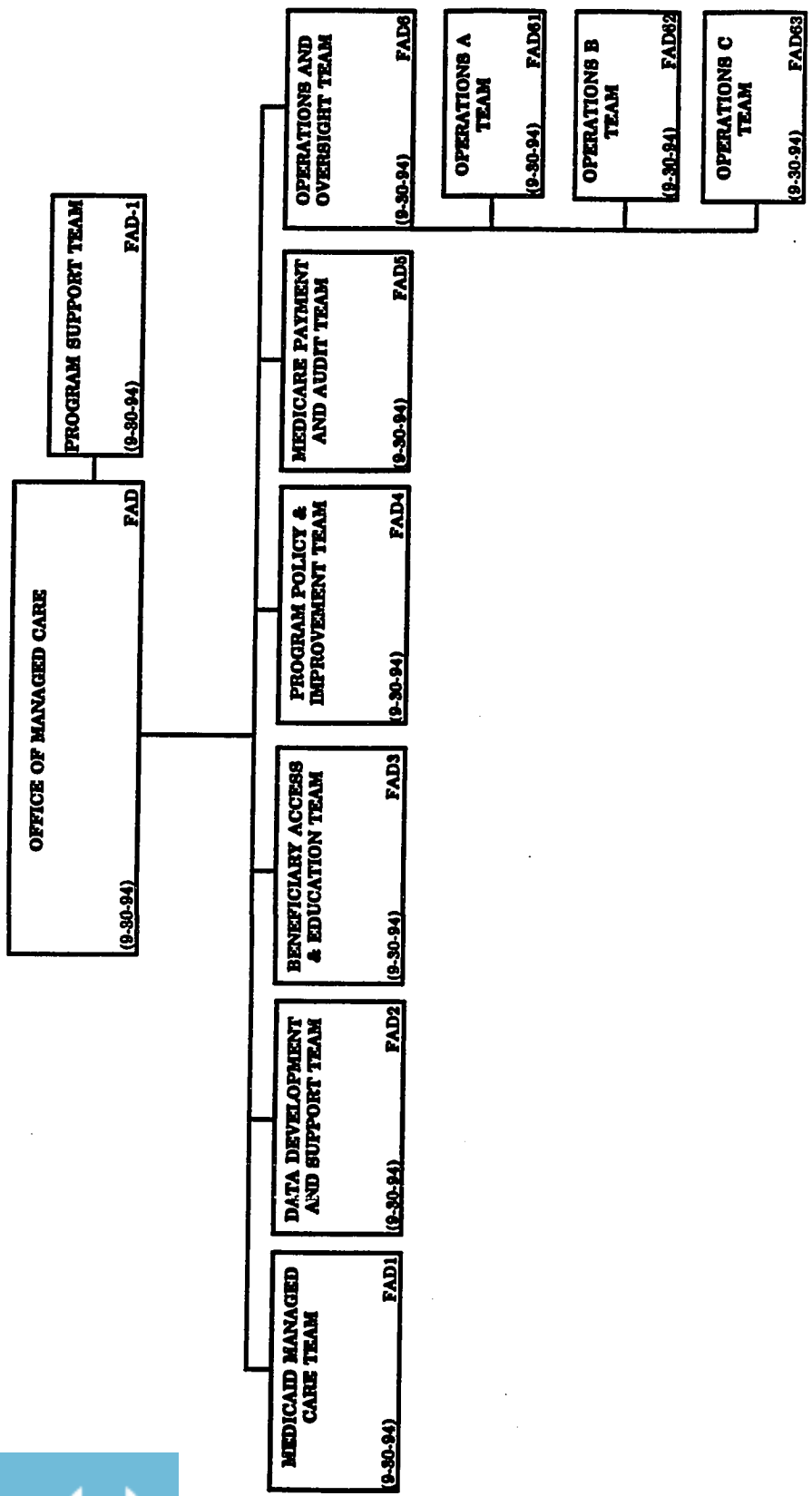
**BUREAU OF DATA MANAGEMENT & STRATEGY**



**DEPARTMENT OF HEALTH AND HUMAN SERVICES  
HEALTH CARE FINANCING ADMINISTRATION**

**APPROVED  
STRUCTURE**  
As of  
September 30, 1994

**OFFICE OF MANAGED CARE**





**DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**HEALTH CARE FINANCING ADMINISTRATION**  
**ASSOCIATE ADMINISTRATOR FOR OPERATIONS & RESOURCE MANAGEMENT**  
**OFFICE OF THE REGIONAL ADMINISTRATOR**

APPROVED  
STRUCTURE

As of  
March 16, 1994

REGION I -- BOSTON

OFFICE OF THE REGIONAL ADMINISTRATOR

REGION I -- BOSTON

(3-8-94)

FLD1

DIVISION OF HEALTH  
STANDARDS AND QUALITY

(3-16-94)

FLD1A

MEDICAL REVIEW  
BRANCH

(3-16-94)

FLD1A1

SURVEY & CERTIFICATION  
OPERATIONS BRANCH

(3-16-94)

FLD1A2

SURVEY & CERTIFICATION  
REVIEW BRANCH

(3-16-94)

FLD1A3

DIVISION OF MEDICAID

(3-16-94)

FLD1B

MEDICAID QUALITY  
CONTROL BRANCH

(3-16-94)

FLD1B1

MEDICAID FINANCIAL  
MANAGEMENT BRANCH

(3-16-94)

FLD1B2

MEDICAID OPERATIONS  
BRANCH

(3-16-94)

FLD1B3

DIVISION OF MEDICARE

(3-16-94)

FLD1C

MEDICARE FINANCIAL  
MANAGEMENT BRANCH

(3-16-94)

FLD1C1

MEDICARE BENEFICIARY  
SERVICES BRANCH

(3-16-94)

FLD1C2

MEDICARE POLICY &  
TECHNICAL ASSISTANCE BR.

(3-16-94)

FLD1C3

MEDICARE CONTRACTOR  
OPERATIONS BRANCH

(3-16-94)

FLD1C4

## **APPENDIX 2**

### **SEMI-STRUCTURED INTERVIEW GUIDES**

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## APPENDIX 2. SEMI-STRUCTURED INTERVIEW GUIDES

Interview subjects were called and informed that they were randomly selected.

**TELEPHONE CALL TO:** \_\_\_\_\_ (selected mid-level manager/employee)

**SUBJECT:** Total Quality Environment (TQE) Assessment Interviews

This is Vicki Chilton of the Management Planning and Analysis Staff in OFHR. I am evaluating certain aspects of quality improvement efforts in HCFA. As part of this evaluation, I have randomly selected several people, including yourself, to participate in confidential interviews about the Total Quality Environment initiative. The interview should last approximately one hour.

In keeping with the Privacy Act, information gathered will be held in strict confidence. In keeping with that promise, I will not record your name anywhere and will not disclose the identity of any participants in the interview.

Your participation is very important. Most of the interviews are being conducted over the telephone; however If you would like to do the interview in person in a conference room, I'll be happy to do that. The interview could be conducted over the phone if you prefer. Would it be convenient for you to schedule the interview for \_\_\_\_\_ [date/time].

## INTERVIEW GUIDE: BUREAU DIRECTORS/REGIONAL ADMINISTRATORS

*The purpose of the interview is to obtain a profile of the bureau from the Bureau Director's/Regional Administrator's perspective. I also need to know about exogenous factors that affect HCFA's work environment.*

1. What factors, events, forces, reforms, changes in laws and regulations, etc. have occurred in the past year or so, or are occurring, that might affect the work environment in your bureau? (Please describe the nature of each factor: What IS the factor, when did it occur, and what has each entailed?)

How about reorganization? . . . When was reorganization/streamlining begun in your bureau/RO? \_\_\_\_\_

- What changes have occurred in \_\_\_\_\_ [bureau/RO] as part of reorganization/streamlining?
- What is the nature/type of these changes?

How about the Strategic Plan? . . . Tell me about its implementation in your bureau/RO.

2. Do any other changes come to mind which have affected the work environment in your bureau/RO?
3. Have all managers in your bureau had high performance leadership training? \_\_\_\_  
When? \_\_\_\_\_ Followup training? \_\_\_\_\_ When? \_\_\_\_\_
4. About how long has \_\_\_\_\_ [bureau/RO] been implementing TQE? \_\_\_\_\_  
What are the elements of the implementation effort (structures, training, etc.)?
5. a) How high a priority is implementing TQE is in \_\_\_\_\_ [the bureau/RO]?  
b) In what ways is that priority demonstrated?
6. Please describe the activities/changes promoted in [bureau] concerning TQE.
7. The literature is filled with examples of how difficult it is to implement organizational changes--what barriers/practical difficulties have you identified as you work toward implementing customer service, empowerment, teamwork, etc.? What examples come to mind as to how you have overcome these obstacles?



**INTERVIEW GUIDE FOR MID-LEVEL MANAGERS**  
(Division Directors, Staff Directors, Branch Chiefs)

1. What factors, events, forces, reforms, changes in laws and regulations, have occurred in the past year or so, or are occurring, that might affect the work environment in your bureau/RO? (Please describe the nature of each factor: What IS the factor, when did it occur, and what has each entailed?)

How about reorganization? . . . When was reorganization/streamlining begun in your work unit? \_\_\_\_\_

- What changes have occurred in your work unit as part of reorganization/streamlining?
- What is the nature/type of these changes?

How about the Strategic Plan? . . . Tell me about its implementation in your division/office.

2. Do any other changes come to mind which have affected the work environment in your work unit?
3. Have you had high performance leadership training? \_\_\_\_\_ When? \_\_\_\_\_  
Followup training? \_\_\_\_\_ When? \_\_\_\_\_  
If YES, please describe the nature of the training.
4. About how long has [Bureau/RO] been implementing TQE?  
What are the elements of the implementation effort (structures, training, etc.)?
5. a) How high a priority do you think implementing TQE is in the bureau?  
b) How is that priority demonstrated?
6. Please describe the activities/changes promoted in this bureau concerning TQE.
7. The literature is filled with examples of how difficult it is to implement organizational changes--what barriers/practical difficulties have you identified as you work toward implementing customer service, empowerment, teamwork, etc.? What examples come to mind as to how you have overcome these obstacles?

## INTERVIEW GUIDE FOR NON-MANAGERS

1. What factors, events, forces, reforms, changes in laws and regulations, have occurred in the past couple of years or are occurring that might affect the work environment in your bureau or work unit? (Please describe the nature of each factor: What IS the factor, when did it occur, and what has each entailed?)

How about reorganization? . . . When was reorganization/streamlining begun in your work unit? \_\_\_\_\_

- What changes have occurred in your work unit as part of reorganization/streamlining?

- What is the nature/type of these changes?

How about the Strategic Plan? . . . Tell me about its implementation in your work unit.

2. Do any other changes come to mind which have affected the work environment in your bureau/RO?
3. About how long has your bureau/RO been implementing TQE? \_\_\_\_\_

What are the elements of the implementation effort (structures, training, etc.)?

4. a) How high a priority do you think implementing TQE is in \_\_\_\_\_ the bureau/RO?  
b) How is that priority demonstrated?
5. What activities, changes, or behaviors are encouraged by your manager concerning TQE?
6. The literature is filled with examples of how difficult it is to implement these organizational changes--what barriers/practical difficulties have you identified as you work toward implementing customer service, empowerment, teamwork, etc.? What examples come to mind as to how you have overcome these obstacles?

### Closing for Each Interview

Is there anything else, in the context of what we have been discussing, that you would like to add? Are there any suggestions that you would like to make in this confidential setting?

Thank you very much for participating in this interview. Again, all answers will be kept strictly confidential--no record will be made of your name or organization below bureau level.

### **APPENDIX 3**

### **CORRELATION MATRIX TABLES FOR INDEX VARIABLES**

## APPENDIX 3. CORRELATION MATRIX TABLES FOR INDEX VARIABLES

Question	1	2	3	4	5	6
1	1.0000					
2	0.5718	1.0000				
3	0.7481	0.6217	1.0000			
4	0.4969	0.5656	0.5856	1.0000		
5	0.4333	0.4476	0.4219	0.2708	1.0000	
6	0.5055	0.5378	0.5499	0.5908	0.2695	1.0000

1. My job is challenging.
2. My job gives me a sense of accomplishment.
3. My skills and abilities are not well utilized in my present job.
4. I involve myself with my work to a great extent.
5. I take great delight in my work and find it exhilarating.
6. My job provides me with sufficient opportunities for personal or professional growth.

Question	1	2	3	4	5
1	1.0000				
2	0.1757	1.0000			
3	0.4789	0.2383	1.0000		
4	0.5574	0.1854	0.5114	1.0000	
5	0.2278	0.2067	0.3125	0.2678	1.0000

1. Employees' opinions are not respected or valued in my work unit.
2. Employees feel free to tell me what they really think, not just what they believe I want to hear.
3. People in my work unit feel free to express their honest opinions to managers about all work issues, decisions, or other work-related matters.
4. My manager is interested in increasing his or her own power and control rather than truly improving the cultural climate at HCFA.
5. People in my work unit learn from mistakes rather than cover them up or blame people.

Question	1	2	3
1	1.0000		
2	0.3723	1.0000	
3	0.4020	0.6255	1.0000

1. My coworkers and I rarely help each other out when one of us is "overloaded."  
 2. People in my work unit openly share information and ideas with each other.  
 3. A spirit of cooperation exists among people in my work unit.

Question	1	2	3	4	5
1	1.0000				
2	0.1875	1.0000			
3	0.4325	0.2698	1.0000		
4	0.4664	0.1251	0.3933	1.0000	
5	0.4329	0.0897	0.3752	0.5086	1.0000

1. I am not consulted or involved in decisions that affect the work I do.  
 2. I consult my manager before making even minor changes to my work procedures.  
 3. I am encouraged to use my own judgement when solving problems.  
 4. Effective actions have been taken to increase the authority of employees in my work unit to make job-related decisions.  
 5. A promising new approach for the way we do work is likely to be approved quickly for trial.

<b>Table 33. Participatory Management Correlation Coefficients</b>				
Question	1	2	3	4
1	1.0000			
2	0.6209	1.0000		
3	0.5674	0.5633	1.0000	
4	0.3637	0.4711	0.3404	1.0000

1. My manager utilizes ideas offered for improving the way work gets done.  
 2. My manager seeks input from employees in my work unit when making decisions affecting the work unit.  
 3. My manager is not receptive to ideas for improving how the work gets done.  
 4. My manager assigns major work projects to me without consulting me.

<b>Table 34. Communication Correlation Coefficients</b>			
Question	1	2	3
1	1.0000		
2	0.5203	1.0000	
3	0.2712	0.4687	1.0000

1. My manager gives me formal or informal feedback on my work:  
 never / once / twice / three times / more than three times a year  
 2. My manager gives me informal feedback which helps me to improve my job performance.  
 3. I am not kept informed about major issues affecting my job.

## **APPENDIX 4**

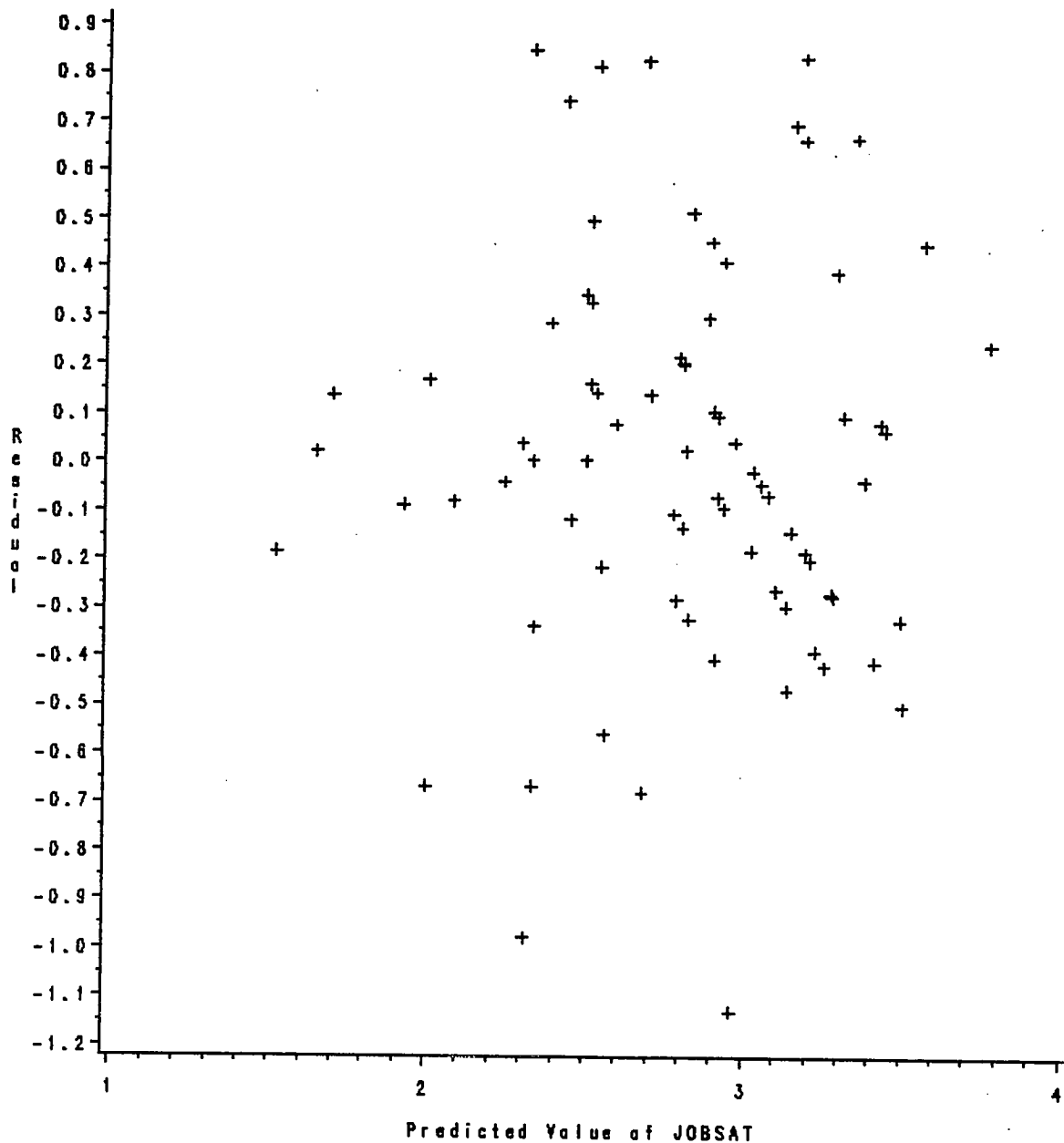
### **RESIDUAL PLOTS FOR REGRESSION MODELS**





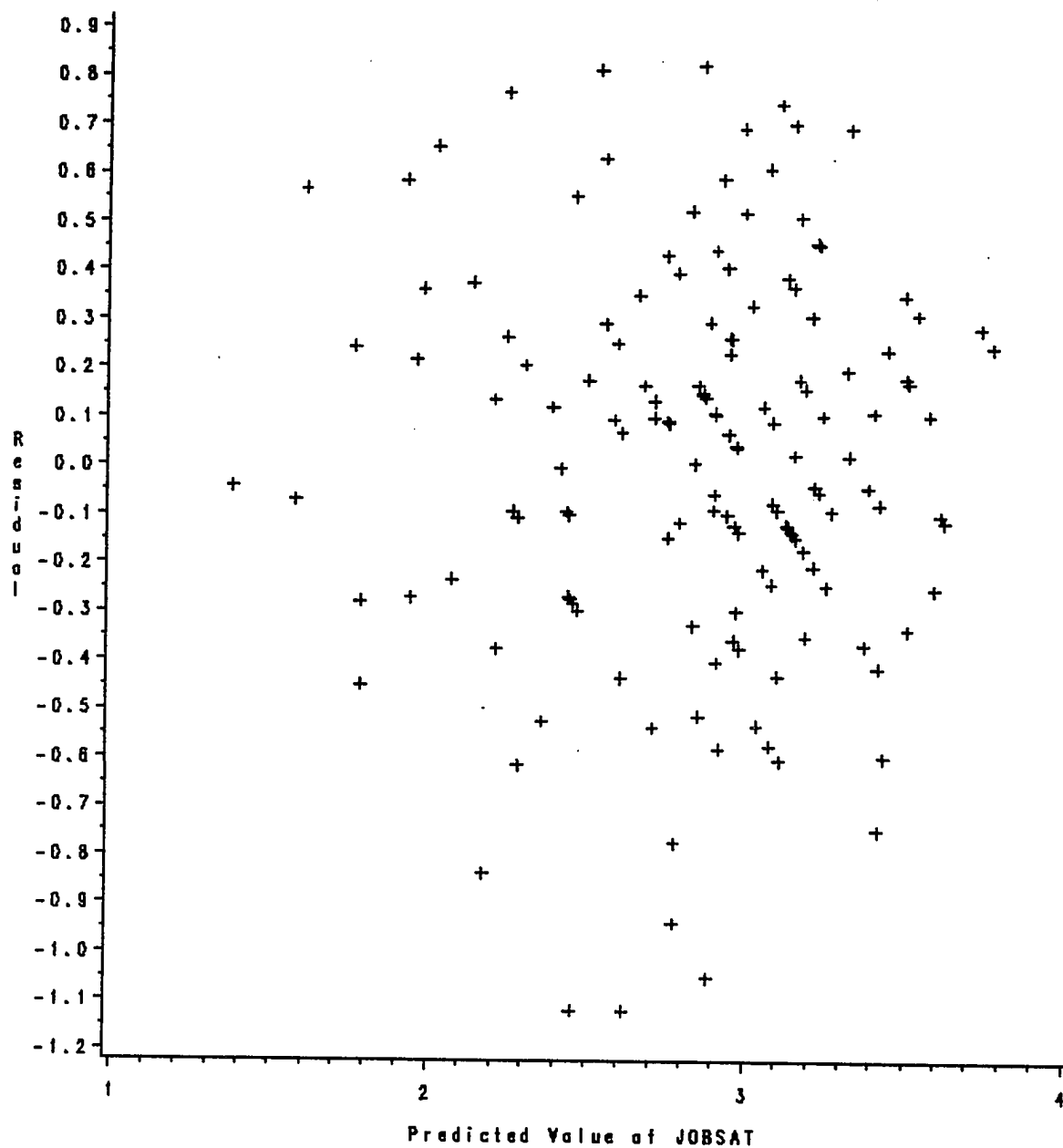
### BUREAU 1 REGRESSION

Residual Plot for Job Satisfaction



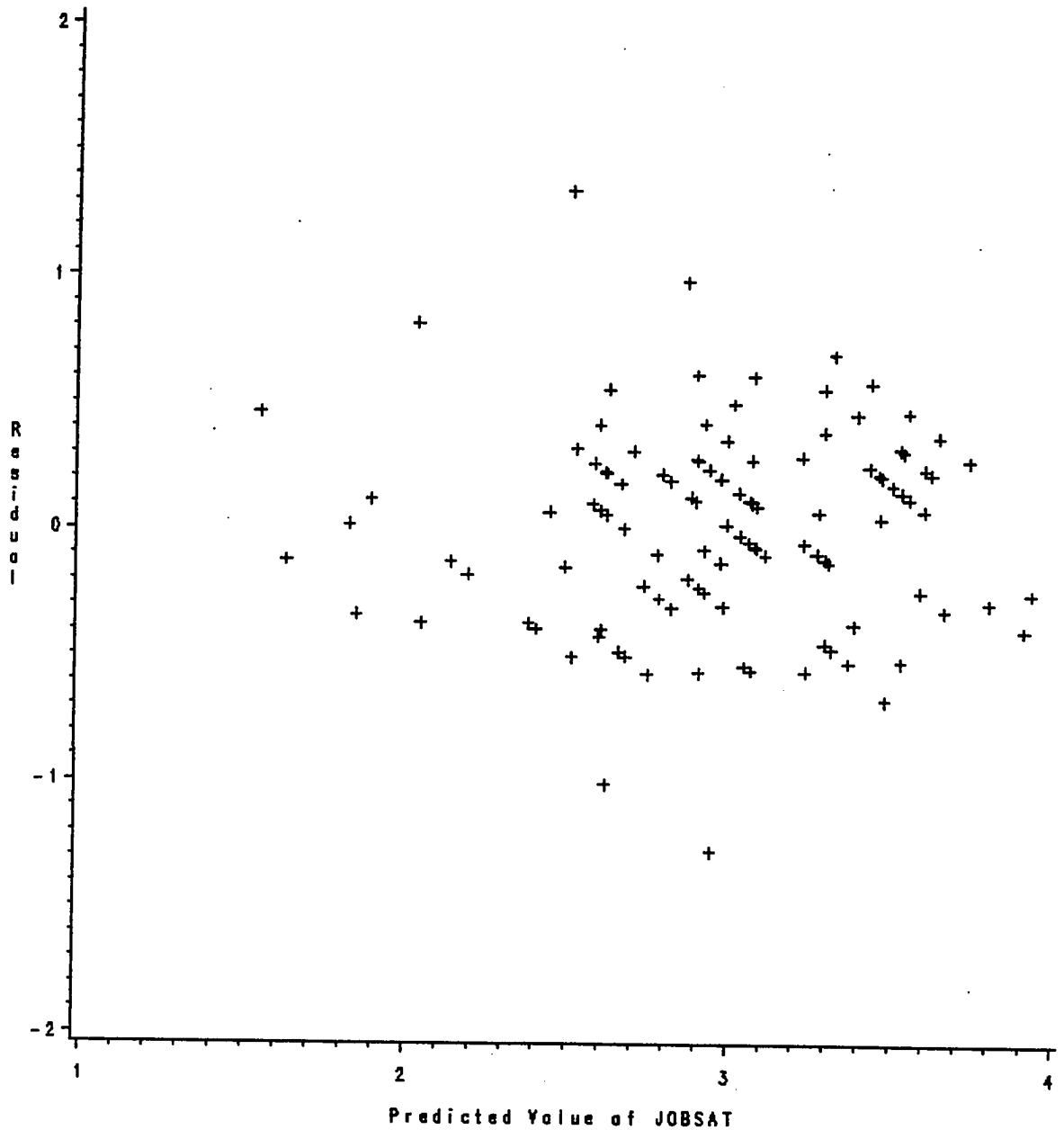
## BUREAU 2 REGRESSION

Residual Plot for Job Satisfaction



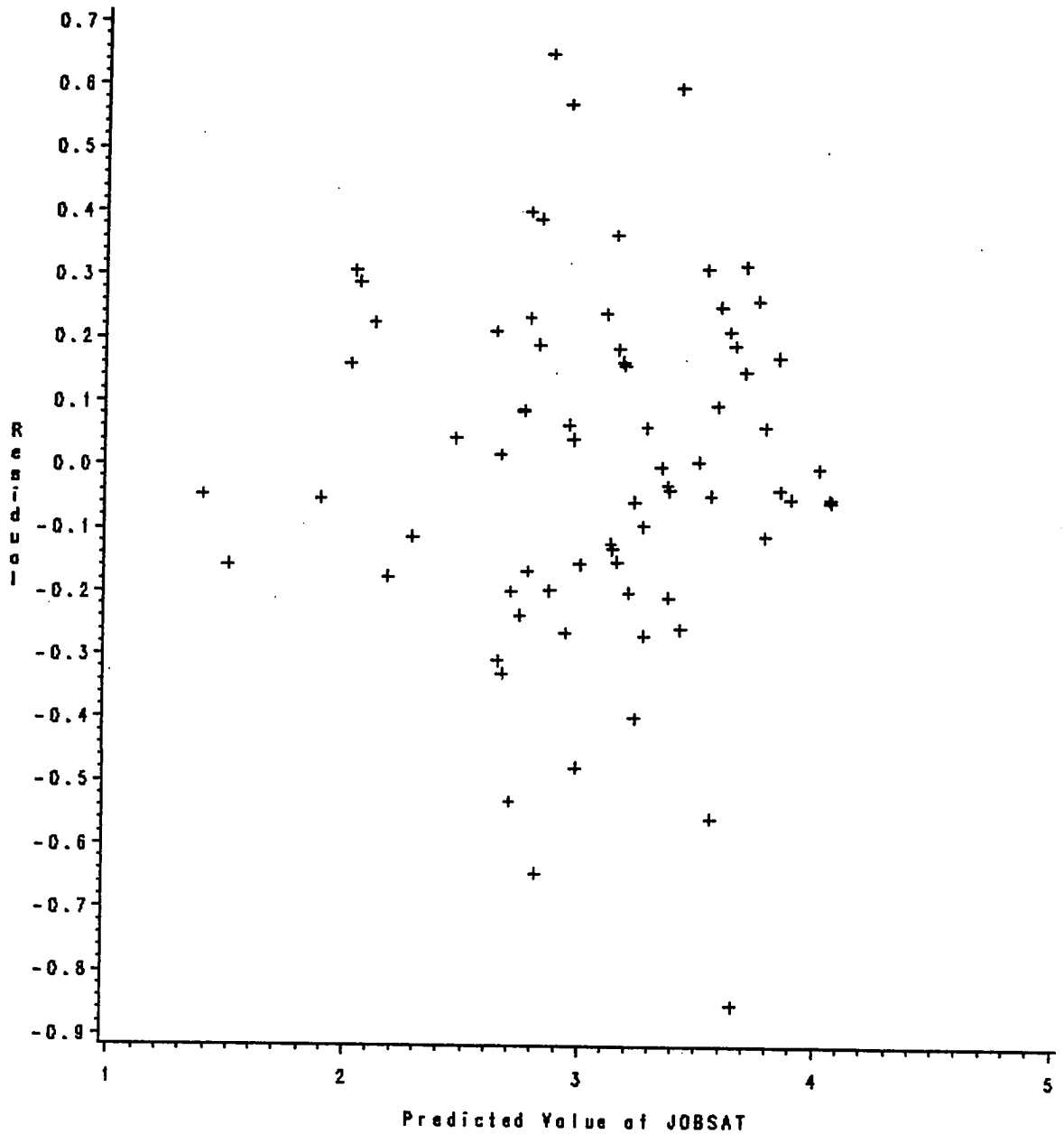
## BUREAU 3 REGRESSION

Residual Plot for Job Satisfaction



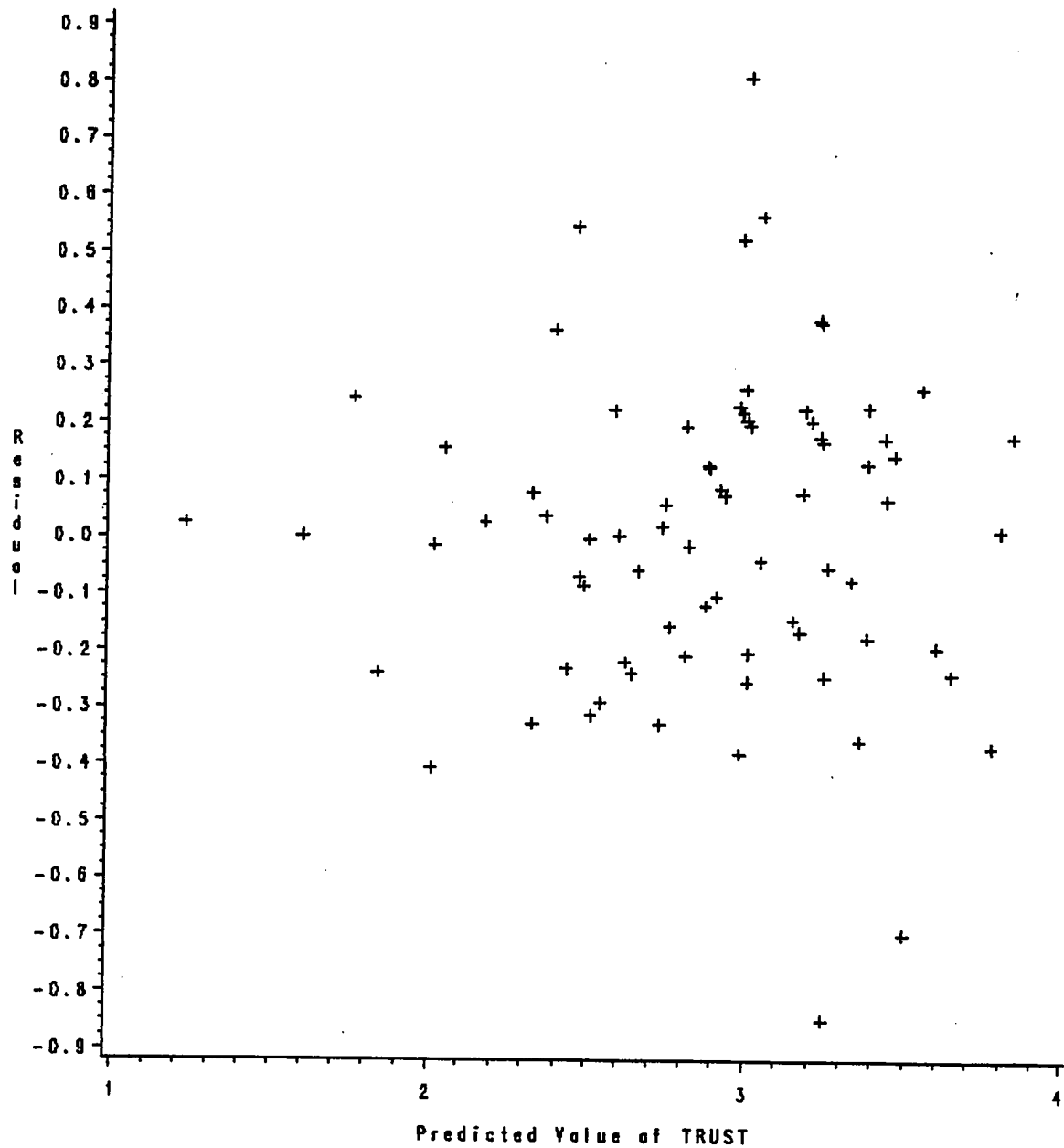
## BUREAU 4 REGRESSION

Residual Plot for Job Satisfaction



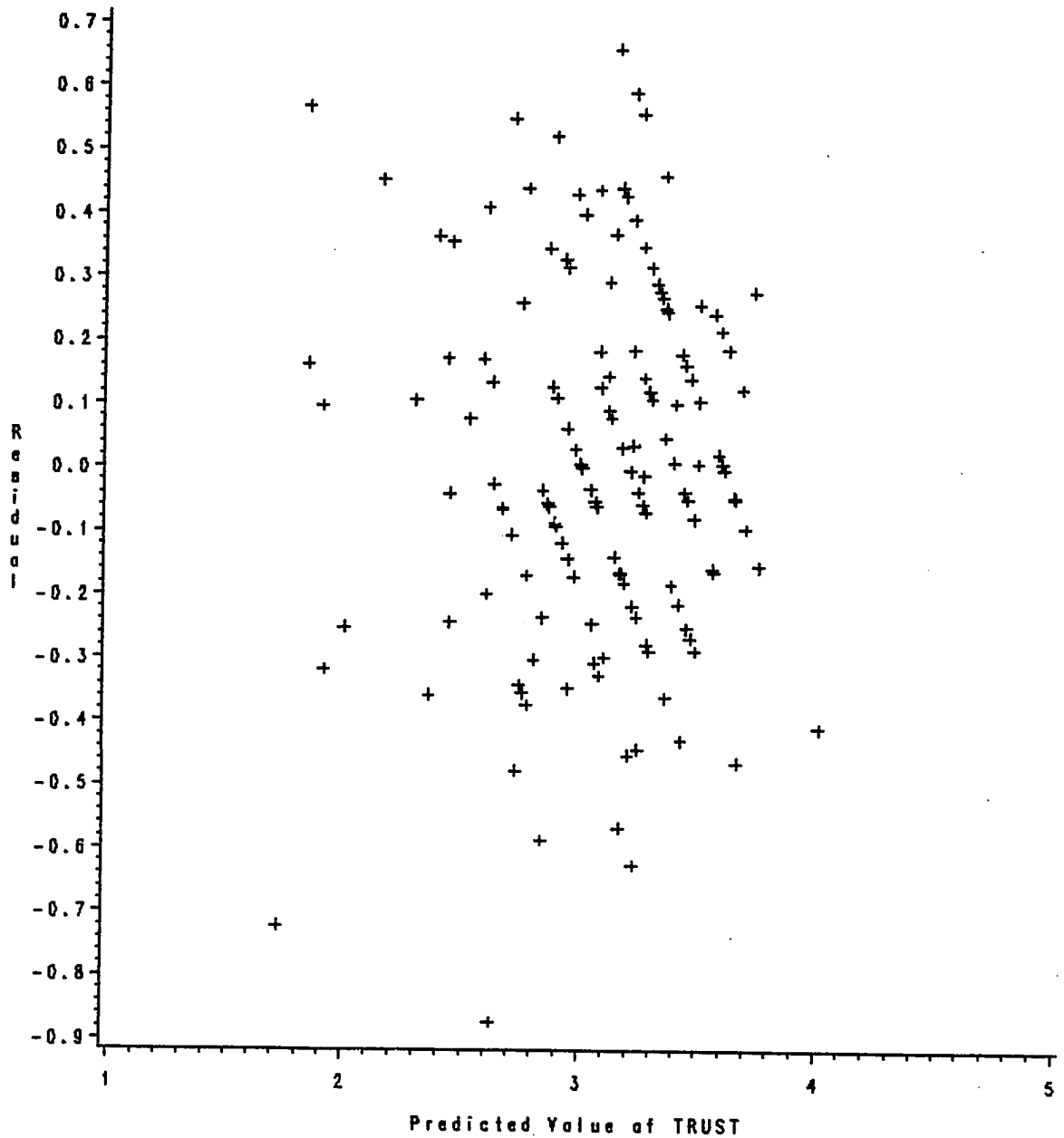
## BUREAU 1 REGRESSION

Residual Plot for Trust



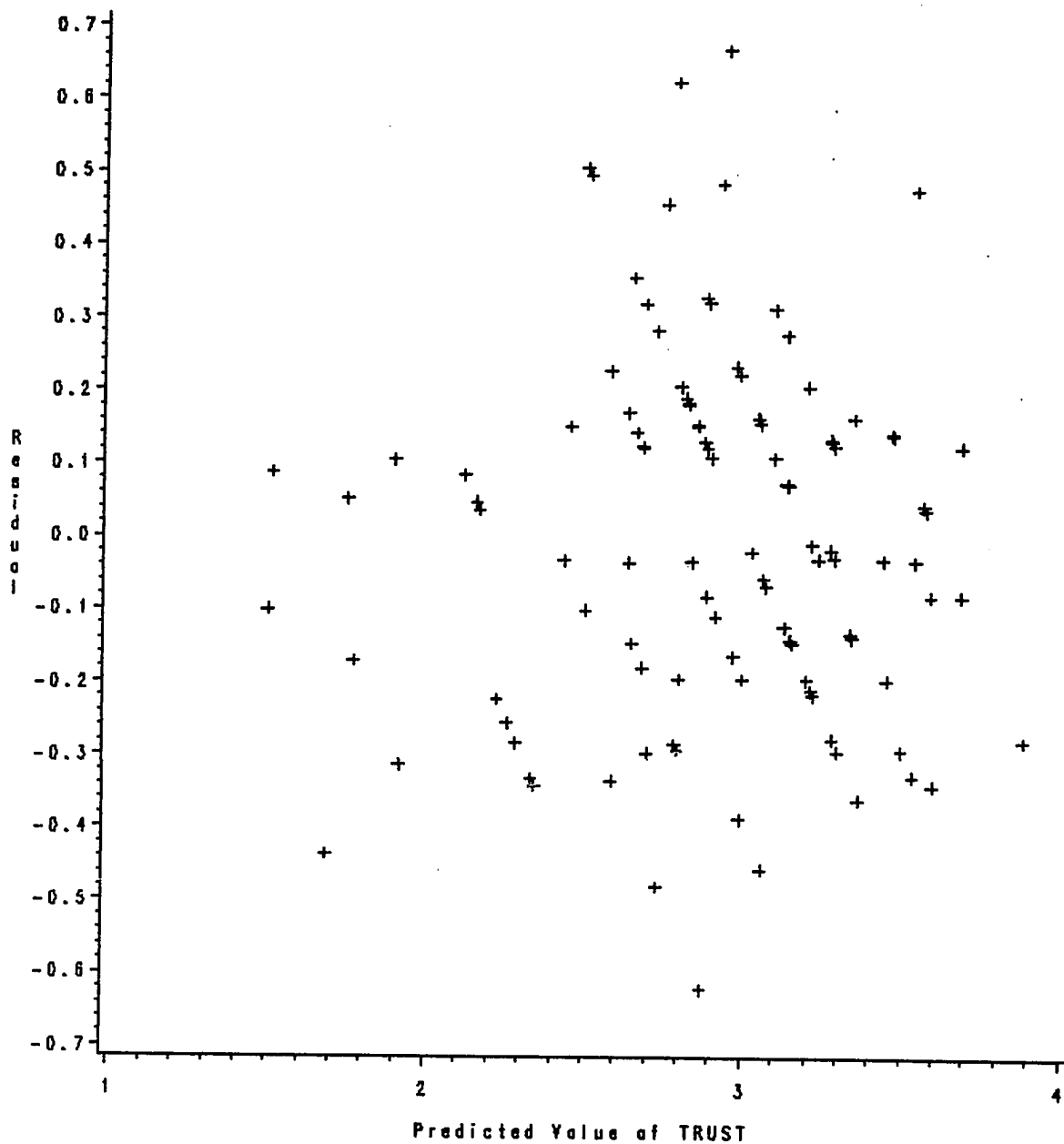
## BUREAU 2 REGRESSION

Residual Plot for Trust



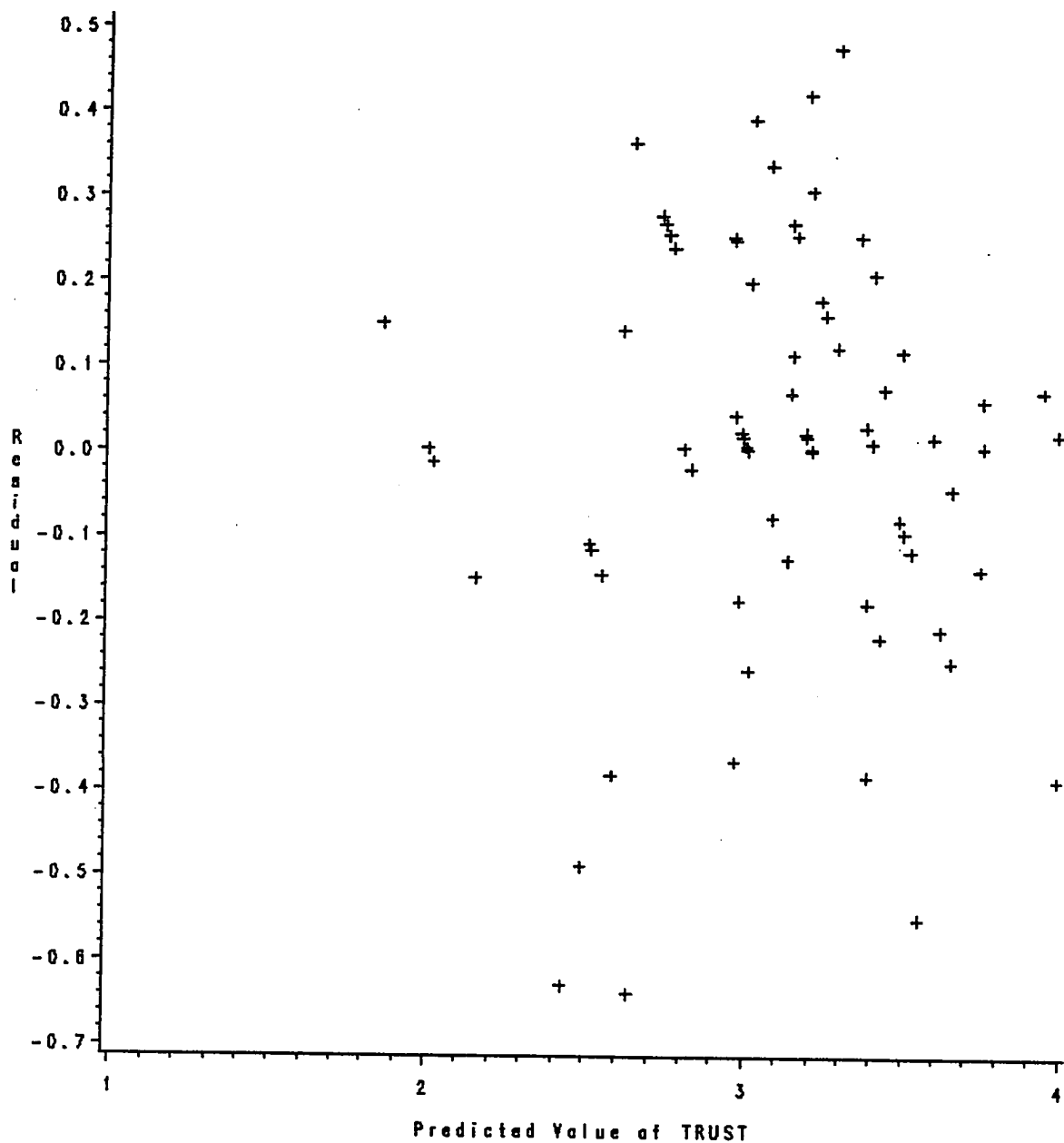
### BUREAU 3 REGRESSION

Residual Plot for TRUST



## BUREAU 4 REGRESSION

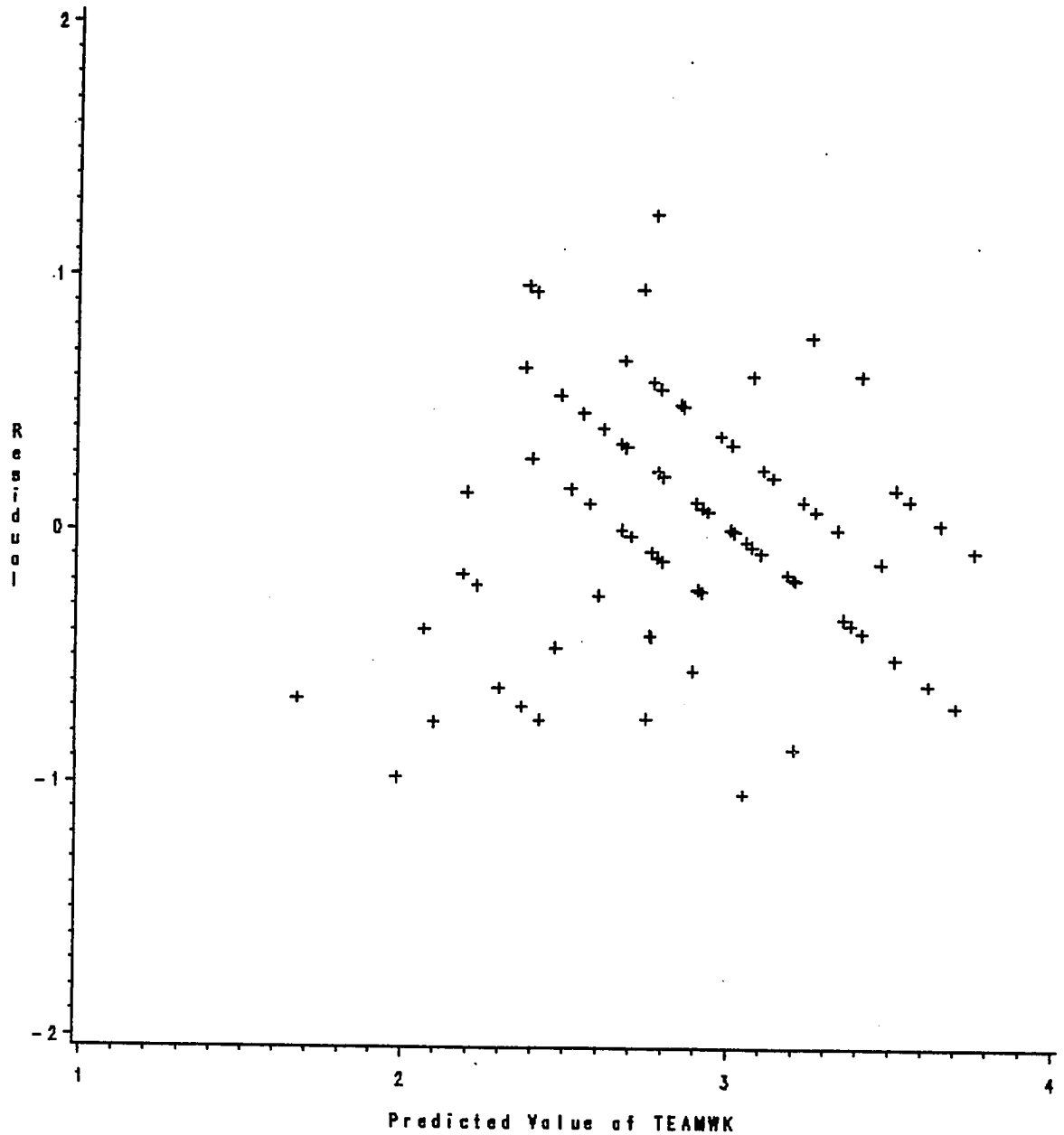
Residual Plot for TRUST





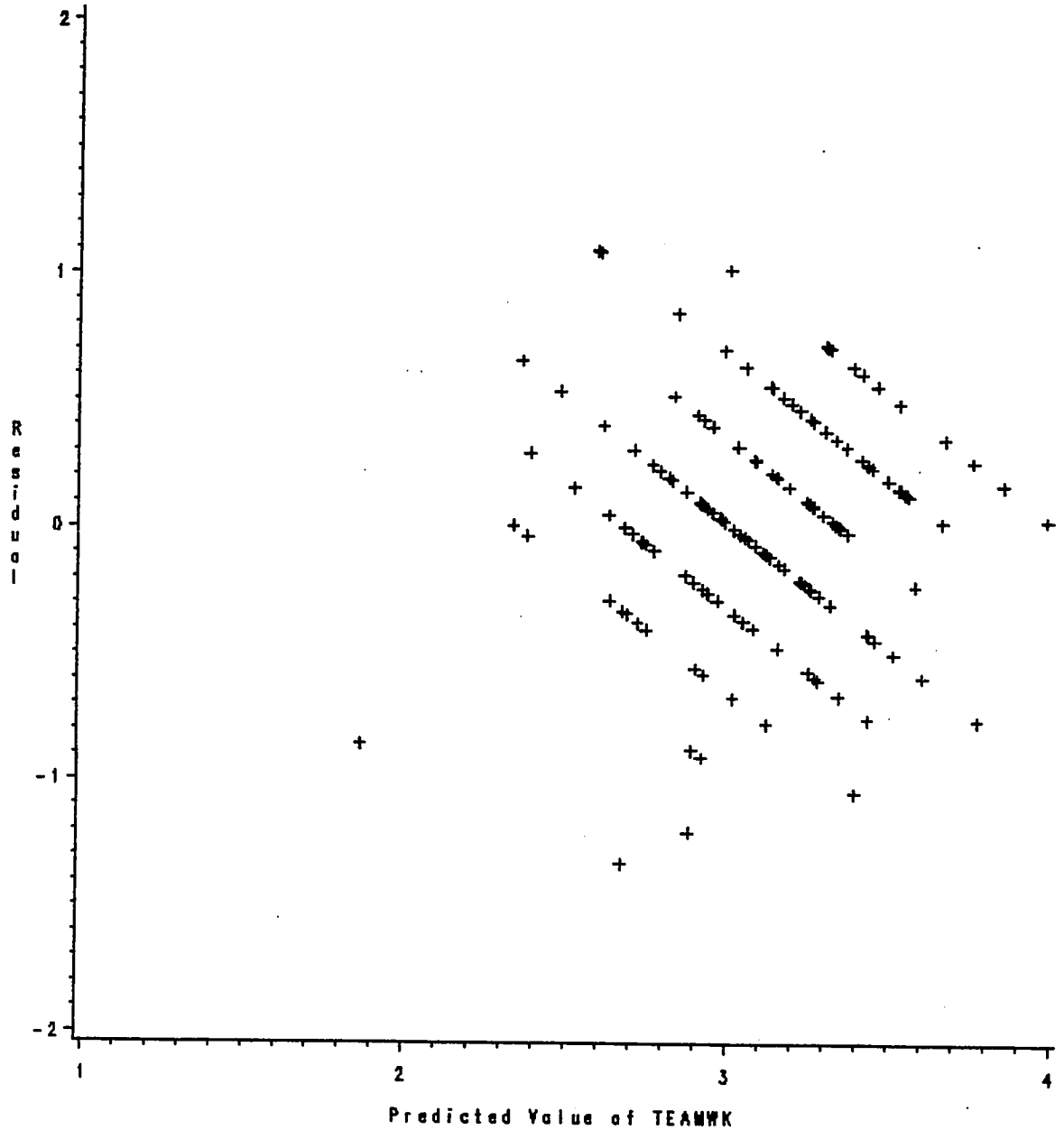
# BUREAU 1 REGRESSION

Residual Plot for Teamwork



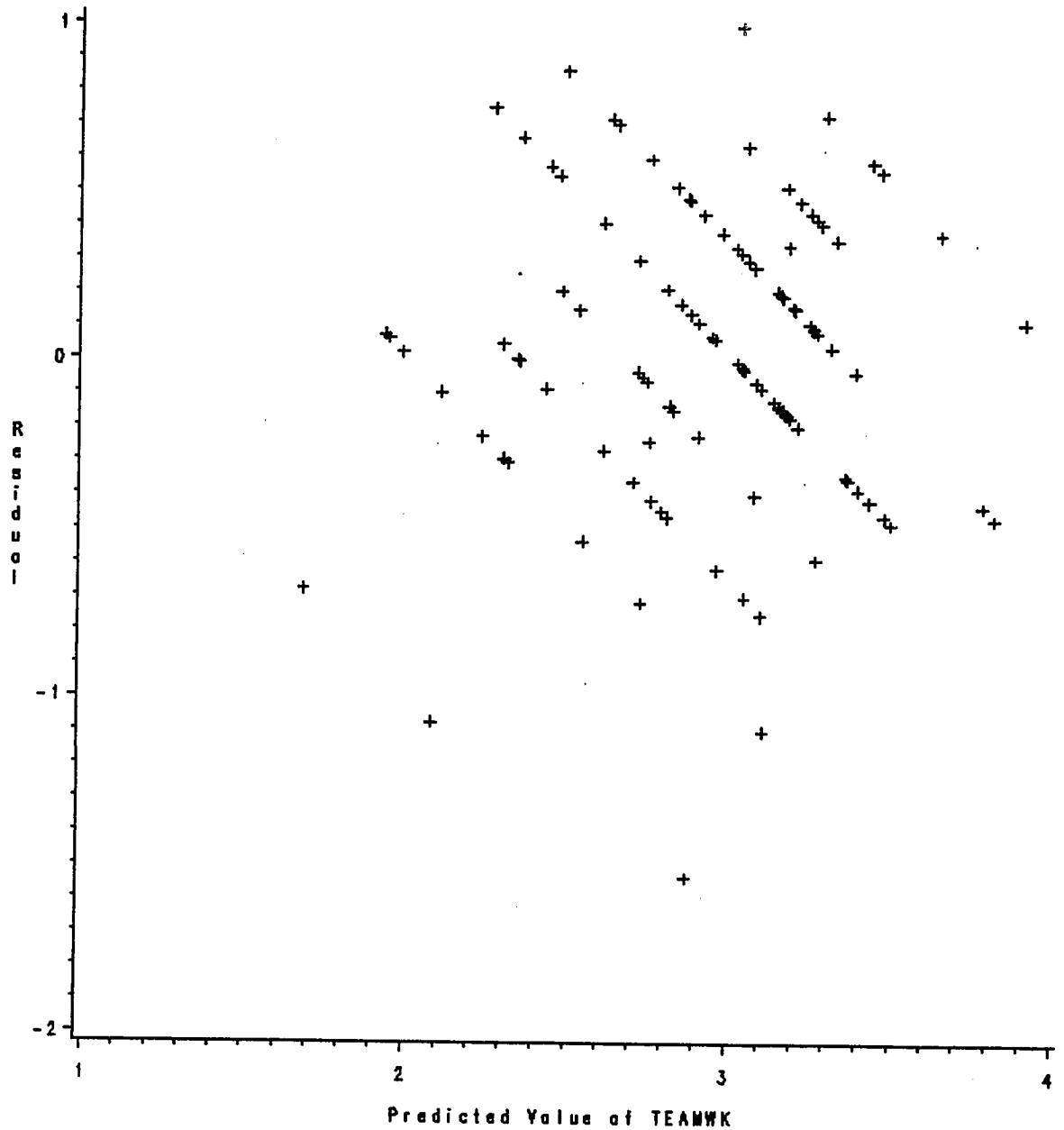
## BUREAU 2 REGRESSION

Residual Plot for Teamwork



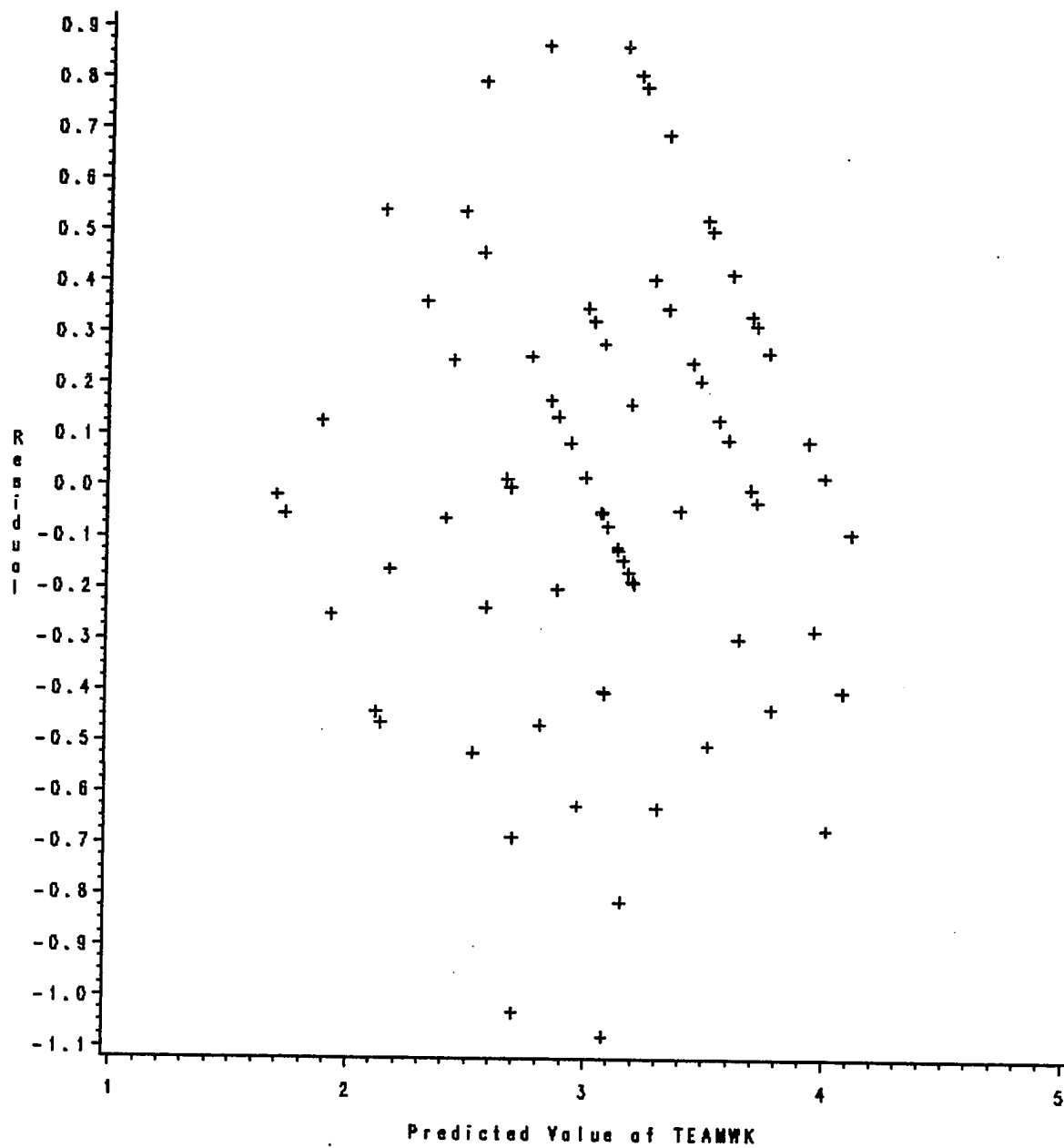
# BUREAU 3 REGRESSION

Residual Plot for Teamwork



## BUREAU 4 REGRESSION

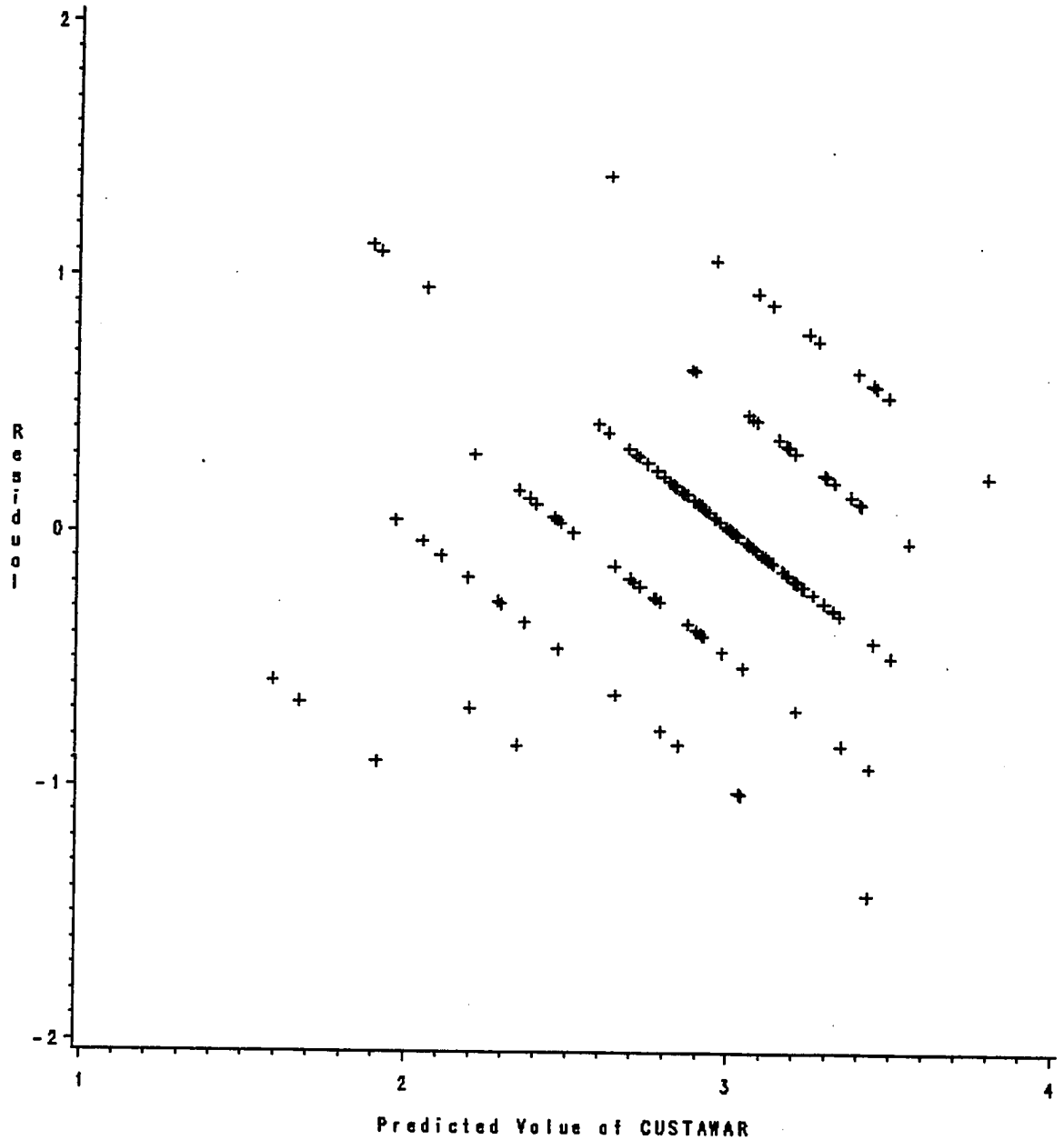
Residual Plot for Teamwork





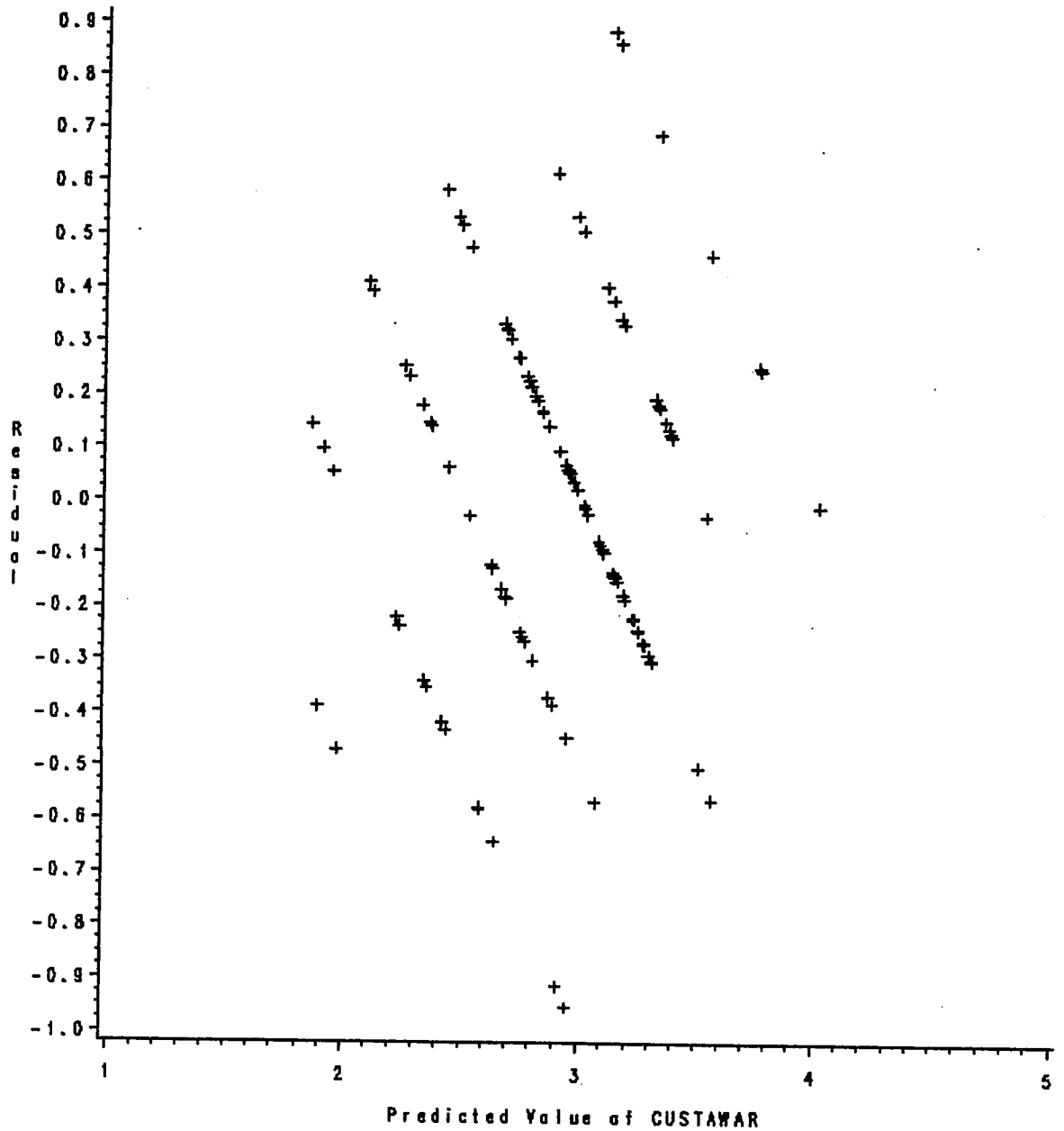
## BUREAU 2 REGRESSION

Residual Plot for Customer Awareness



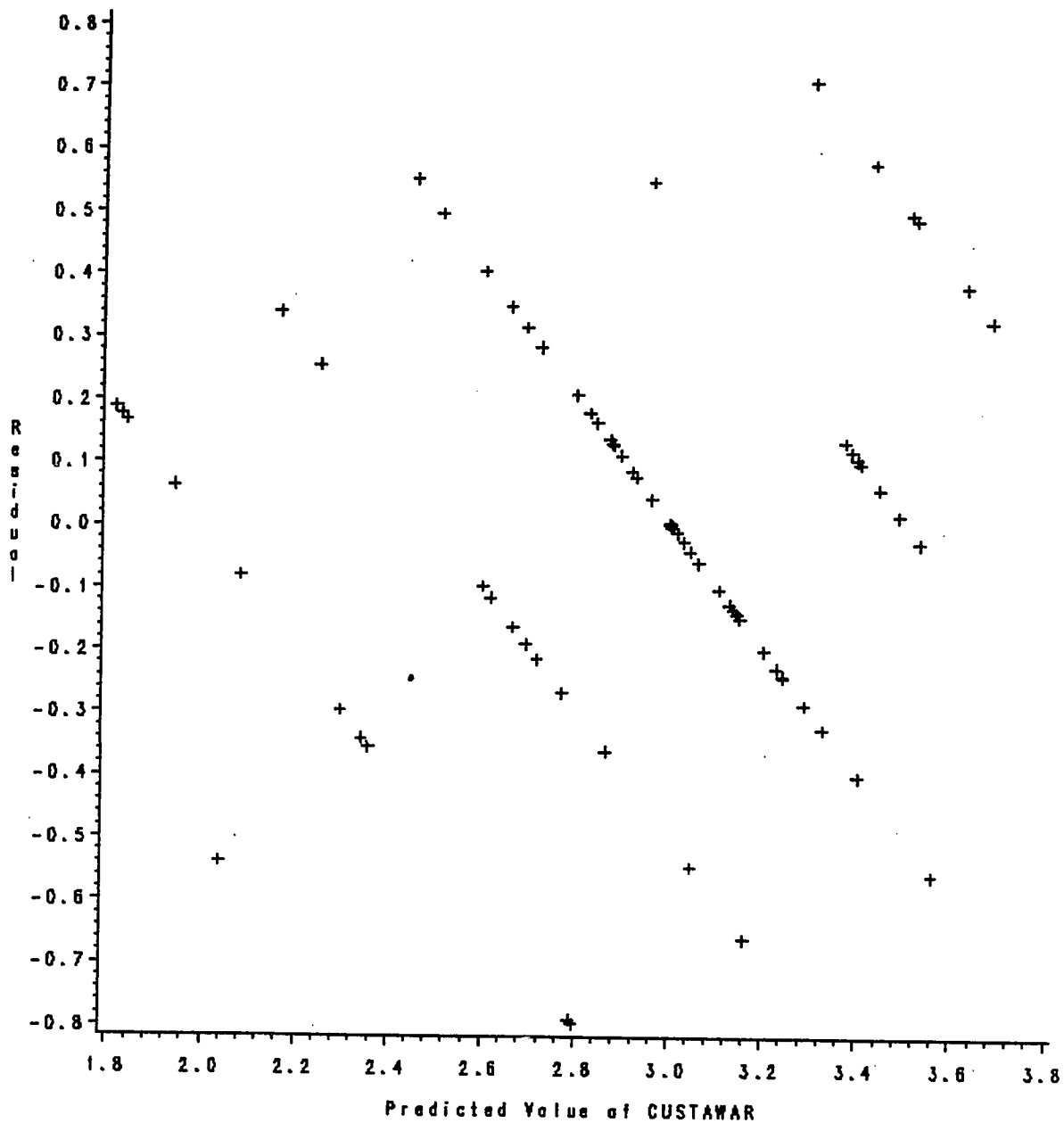
## BUREAU 3 REGRESSION

Residual Plot for Customer Awareness



### BUREAU 4 REGRESSION

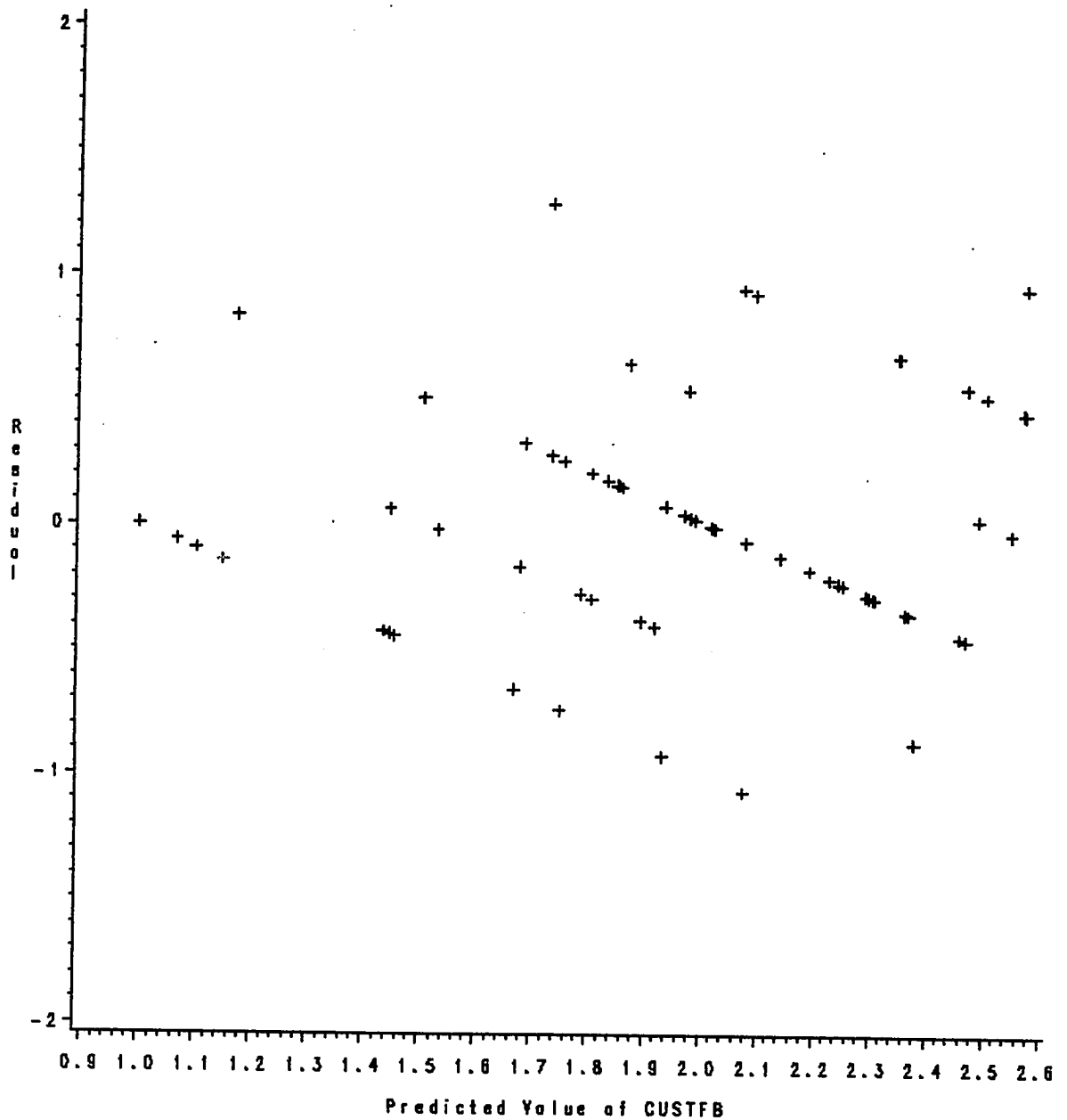
Residual Plot for Customer Awareness





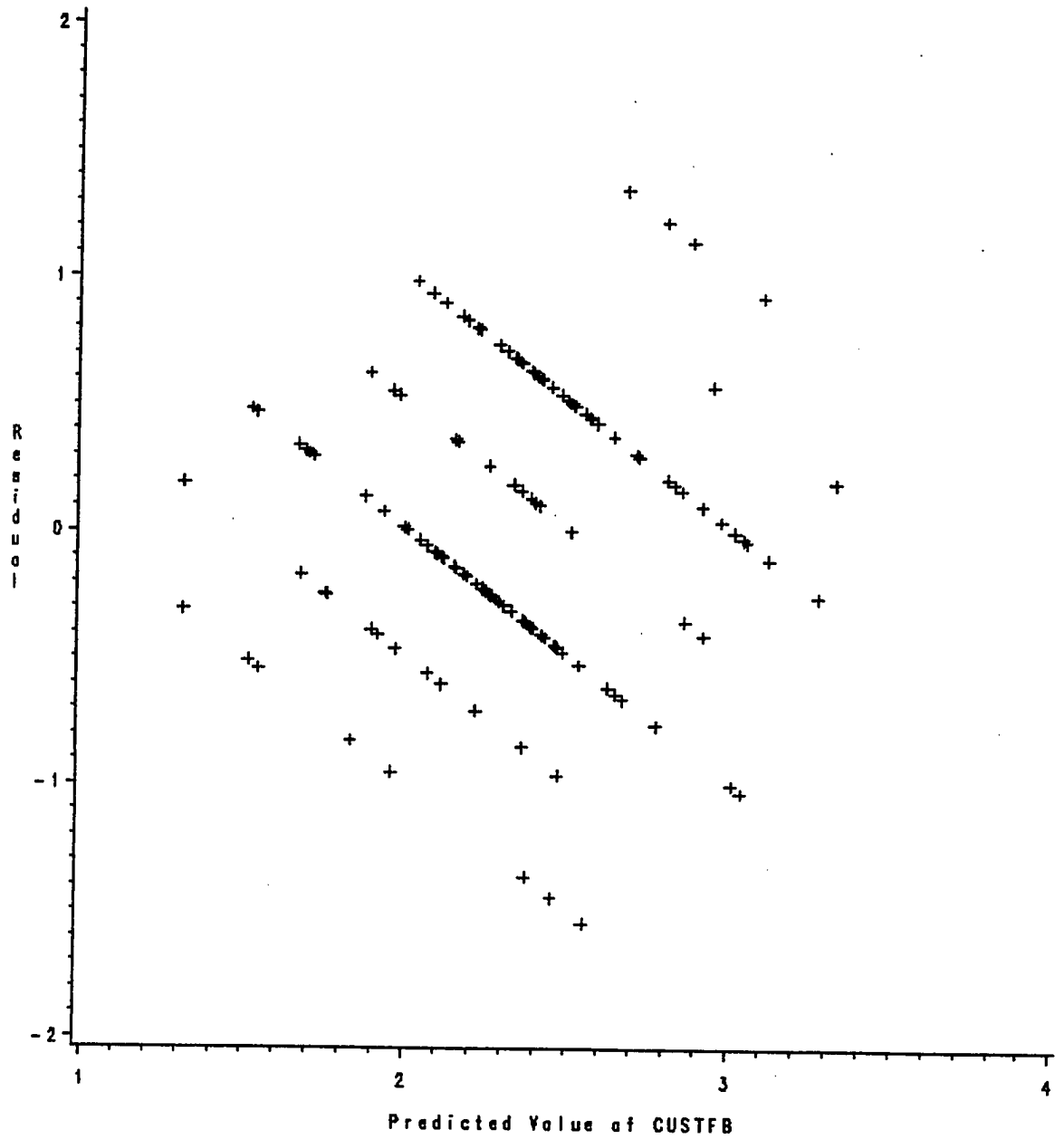
## BUREAU 1 REGRESSION

Residual Plot for Customer Feedback



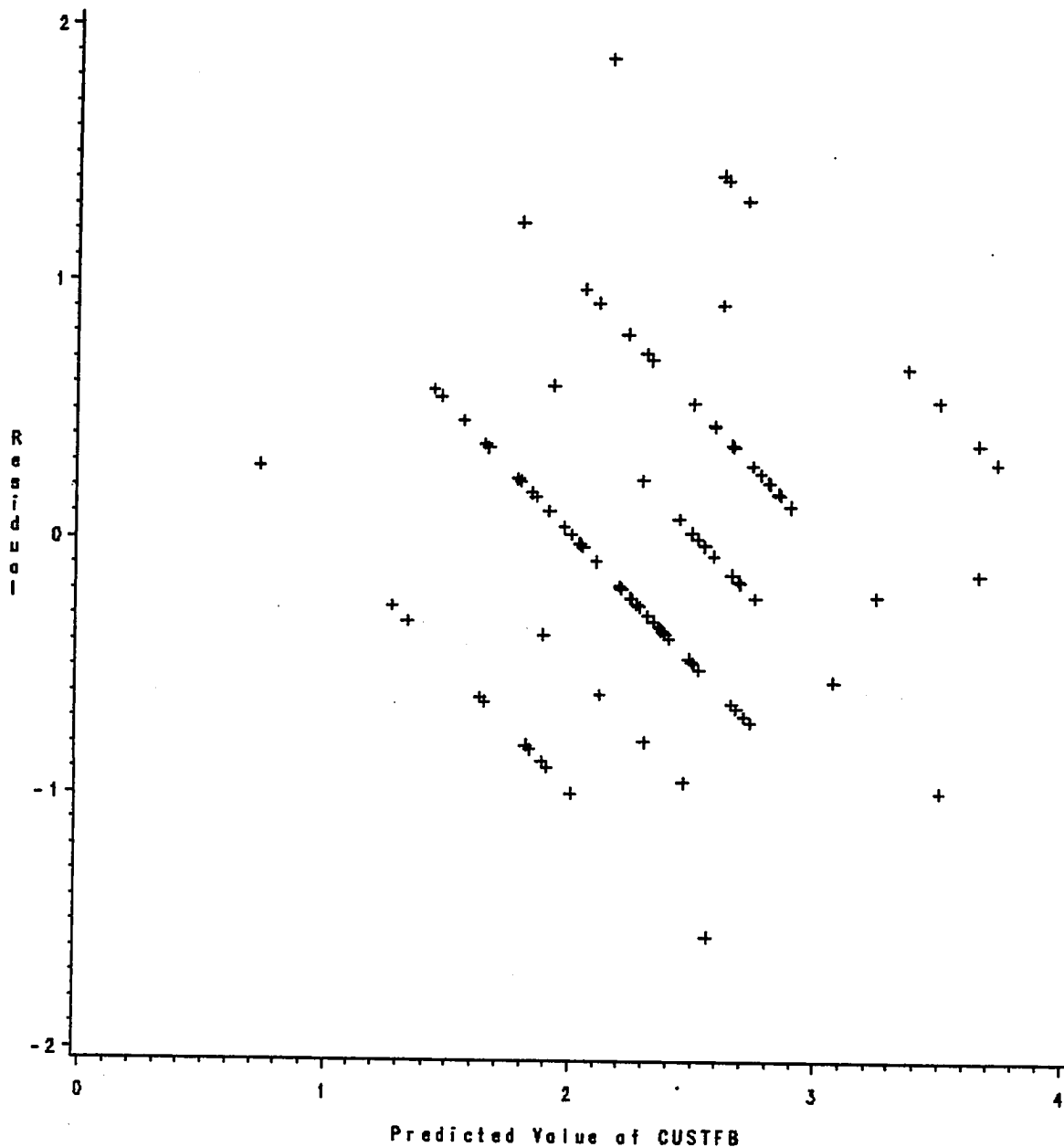
## BUREAU 2 REGRESSION

Residual Plot for Customer Feedback



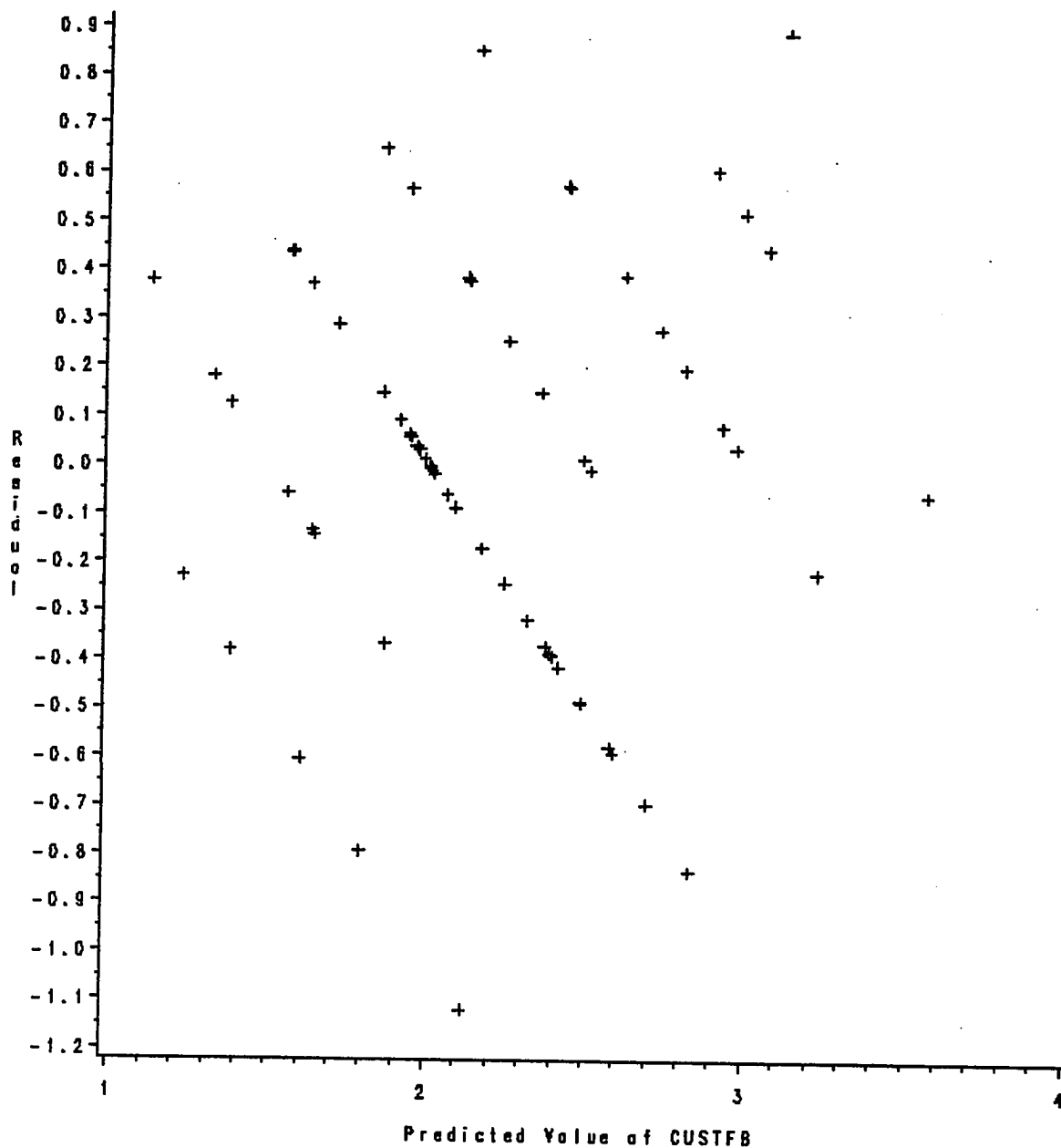
### BUREAU 3 REGRESSION

Residual Plot for Customer Feedback



### BUREAU 4 REGRESSION

Residual Plot for Customer Feedback



## **APPENDIX 5**

### **COMBINED BUREAUS REGRESSION MODELS**

### Appendix 5: Combined Bureaus Regression Models

The regression results for job satisfaction with the bureaus combined are as follows:

**Table 35(a). Combined Bureaus Regression Model for Job Satisfaction**

Variable	Parameter Estimate	Standard Error	t-statistic	Prob >  t
<b>Independent:</b>				
Mgr. Commitment	0.207017	0.04475043	4.626	0.0001*
Empowerment	0.464301	0.06850083	6.778	0.0001*
Partic. Mgt.	0.029143	0.06105817	0.477	0.6334
Communication	0.074632	0.04294024	1.738	0.0830*
Coaching	-0.016435	0.07274088	-0.226	0.8214
Discipline	-0.053522	0.08799074	-0.608	0.5434
Serve QC (D)	-0.032527	0.05568190	-0.584	0.5595
Serve QIT (D)	-0.024011	0.05543295	-0.433	0.6652
QIT Train (D)	-0.020105	0.05432397	-0.370	0.7115
Skill Train (D)	0.075777	0.05779792	1.311	0.1906
<b>Background:</b>				
Mgr/Non-mgr (D)	-0.335413	0.14144925	-2.371	0.0182*
Reorg Y/N (D)	-0.077585	0.09451013	-0.821	0.4122
1/Reorg Time (D)	-0.010482	0.01830096	-0.573	0.5671
Chng Nonmgr (D)	-0.020484	0.11153258	-0.184	0.8544
Mgr. Changed (D)	-0.027525	0.05236308	-0.526	0.5994
More rpt to me (D)	-0.064316	0.11723183	-0.549	0.5836
Few rpt to me (D)	0.254002	0.13323953	1.906	0.0574*
Scope increase (D)	0.021616	0.05533940	0.391	0.6963
Scope decrease (D)	-0.127635	0.09928157	-1.286	0.1994
Years in job	-0.007609	0.00525450	-1.448	0.1484
Age	0.001049	0.00282141	0.372	0.7103
Race (D)	-0.055538	0.06017828	-0.923	0.3566
Gender (D)	-0.108817	0.05354833	-2.032	0.0428*
Grade 7-11 (D)	-0.085138	0.10406841	-0.818	0.4138
Grade 12-13 (D)	0.083218	0.10462764	0.795	0.4269
Grade 14-15/CC (D)	0.004002	0.15508567	0.026	0.9794
AA degree (D)	0.047736	0.08360186	0.571	0.5683
BS/Grad Work (D)	-0.005221	0.09194743	-0.057	0.9547
Masters/Ph.D. (D)	0.124141	0.10106405	1.228	0.2201
Bureau 2 (D)	-0.053821	0.07804389	-0.690	0.4908
Bureau 3 (D)	0.073760	0.08378447	0.880	0.3792
Bureau 4 (D)	0.000189	0.08857621	0.002	0.9983
n = 415				
Sum of Squares model: 82.34943				
Sum of Squares error: 81.20300				
R-square: 0.5035				
F = 12.106 (p < .0001)				

(D) = Dummy Variable

Dummy Variable	Partial F-Stat.	Prob > F
Education	1.4119	0.2389
Grade	1.9928	0.1146
Bureau	1.4063	0.2405

Calculation of F Statistic for Comparison of  
Combined Bureaus Regression Model to Separate Models:

The calculation of the F statistic ( $F_{calc.}$ ) is:

$$(F_{calc.}) = \frac{[RSSR - (SSR_1 + SSR_2 + SSR_3 + SSR_4)] / (4*k-K)}{(SSR_1 + SSR_2 + SSR_3 + SSR_4) / (n-4*k)}$$

where,

$SSR_i$  = the error sum of squares for the regression model for bureau  $i$  only;

$RSSR$  = the error sum of squares for the regression model for the four bureaus combined (with a dummy variable for the bureaus);

$n$  = the number of observations in the combined bureaus model (415);

$k$  = the number of parameters (including the intercept) in each regression model for the separate bureaus (30);

$K$  = the number of parameters (including the intercept and bureau dummy variables) in the regression model for the four bureaus combined (33).

The null hypothesis is that there is no difference among the models for the bureaus. If  $F_{calc.}$  is greater than  $F_{crit.}$ , the null hypothesis is rejected, and the bureaus should be analyzed separately.

As shown in table 35(a), the error sum of squares for the regression model for with the four bureaus combined is 81.203. As shown in table 22 in chapter 6, the error sum of squares for the regression models for the separate four bureaus are: 12.62728, 23.04091, 17.31792, and 5.55731.

Therefore, for job satisfaction:

$$F_{calc.} = 0.260454/0.198452 = 1.312431$$

Since the critical value from the F table is 1.31 at the .05 level of significance, the results of the F test for job satisfaction are borderline.

The regression results for Trust with the bureaus combined are as follows:

**Table 36(a). Combined Bureaus Regression Model for Trust**

Variable	Parameter Estimate	Standard Error	t-statistic	Prob >  t
<b>Independent:</b>				
Mgr. Commitment	0.172373	0.03204823	5.379	0.0001*
Empowerment	0.284772	0.04988052	5.709	0.0001*
Partic. Mgt.	0.206645	0.04449666	4.644	0.0001*
Communication	0.101976	0.03100966	3.289	0.0011*
Coaching (D)	0.020942	0.05211323	0.402	0.6880
Discipline (D)	-0.135371	0.06461775	-2.095	0.0369*
Serve QC (D)	-0.022425	0.04002978	-0.560	0.5757
Serve QIT (D)	-0.004635	0.04047327	-0.115	0.9089
QIT Train (D)	-0.015895	0.03951983	-0.402	0.6878
Skill Train (D)	-0.005426	0.04172130	-0.130	0.8966
<b>Background:</b>				
Mgr/Non-mgr (D)	-0.063618	0.10360668	-0.614	0.5396
Reorg Y/N (D)	-0.118130	0.06912376	-1.709	0.0883*
1/Reorg Time	0.038967	0.01299125	2.999	0.0029*
Chng Nonmgr (D)	0.047758	0.08267066	0.578	0.5638
Mgr. Changed (D)	-0.037969	0.03756006	-1.011	0.3127
More rpt to me (D)	0.114405	0.08362895	1.368	0.1721
Few rpt to me (D)	-0.084175	0.09588065	-0.878	0.3806
Scope increase (D)	0.007869	0.04003778	0.197	0.8443
Scope decrease (D)	-0.082410	0.07228404	-1.140	0.2550
Years in job	0.003838	0.00376083	1.021	0.3081
Age	0.001985	0.00202542	0.980	0.3277
Race (D)	0.018328	0.04367077	0.420	0.6750
Gender (D)	-0.037029	0.03870280	-0.957	0.3393
Grade 7-11 (D)	0.095061	0.07511762	1.265	0.2065
Grade 12-13 (D)	0.110086	0.07528393	1.462	0.1445
Grade 14-15/CC (D)	0.028079	0.11418497	0.246	0.8059
AA degree (D)	0.081617	0.06056282	1.348	0.1786
BS/Grad Work (D)	0.069174	0.06662525	1.038	0.2998
Masters/Ph.D. (D)	0.052741	0.07289852	0.723	0.4698
Bureau 2 (D)	0.111032	0.05632838	1.971	0.0495*
Bureau 3 (D)	-0.021578	0.06004297	-0.359	0.7195
Bureau 4 (D)	0.080070	0.06388279	1.253	0.2109
n = 403				
Sum of Squares model: 78.04697				
Sum of Squares error: 39.84278				
R-square: 0.6620				
F = 22.649 (p< .0001)				

(D) = Dependent Variable



<b>Table 36(b) . Combined Bureaus Regression Model Cluster F Tests for Trust</b>		
Dummy Variable	Partial F-Stat.	Prob > F
Education	0.6474	0.5850
Grade	1.0730	0.3604
Bureau	3.6727	0.0124

**Calculation of F Statistic for Comparison of  
Combined Bureaus Regression to Separate Regressions for Trust:**

As shown in table 36(a), the error sum of squares for the regression model for with the four bureaus combined is 39.84278. As shown in table 23 in chapter 6, the error sum of squares for the regression models for the separate four bureaus are: 5.61729, 11.99187, 6.74698, and 4.06478.

Therefore, for Trust:

$$F_{\text{calc.}} = 0.131285/0.096342 = \mathbf{1.362703}$$

Since the critical value from the F table is **1.31** at the .05 level of significance, the null hypothesis is rejected, and the bureaus should not be combined.

The regression results for Teamwork with the bureaus combined are as follows:

**Table 37(a). Combined Bureaus Regression Model for Teamwork**

Variable	Parameter Estimate	Standard Error	t-statistic	Prob >  t
<b>Independent:</b>				
Mgr. Commitment	0.110924	0.05189328	2.138	0.0332*
Empowerment	0.217098	0.07958366	2.728	0.0067*
Partic. Mgt. Communication	-0.067108	0.07104252	-0.945	0.3454
Communication	0.209230	0.04998509	4.186	0.0001*
Coaching (D)	0.086301	0.08467483	1.019	0.3087
Discipline (D)	-0.083394	0.10242437	-0.814	0.4160
Serve QC (D)	-0.014565	0.06427397	-0.227	0.8208
Serve QIT (D)	0.057293	0.06432989	0.891	0.3737
QIT Train (D)	-0.020934	0.06323493	-0.331	0.7408
Skill Train (D)	0.088331	0.06727028	1.313	0.1899
<b>Background:</b>				
Mgr/Non-mgr (D)	-0.237526	0.16458469	-1.443	0.1498
Reorg Y/N (D)	-0.114403	0.11000974	-1.040	0.2990
1/Reorg Time	0.051946	0.02115571	2.455	0.0145*
Chng Nonmgr (D)	0.167149	0.12983105	1.287	0.1987
Mgr. Changed (D)	-0.025965	0.06082486	-0.427	0.6697
More rpt to me (D)	0.050297	0.13639266	0.369	0.7125
Fewr rpt to me (D)	-0.096994	0.15507279	-0.625	0.5320
Scope increase (D)	-0.090115	0.06435177	-1.400	0.1622
Scope decrease (D)	0.016922	0.11543927	0.147	0.8835
Years in job	0.009779	0.00611365	1.600	0.1105
Age	-0.000531	0.00325234	-0.163	0.8703
Race (D)	0.049654	0.07000314	0.709	0.4786
Gender (D)	-0.026986	0.06224115	-0.434	0.6648
Grade 7-11 (D)	0.000840	0.12099117	0.007	0.9945
Grade 12-13 (D)	-0.047110	0.12160992	-0.387	0.6987
Grade 14-15/CC (D)	-0.109866	0.18020594	-0.610	0.5424
AA degree (D)	-0.042157	0.09731646	-0.433	0.6651
BS/Grad Work (D)	-0.085997	0.10696843	-0.804	0.4219
Masters/Ph.D. (D)	-0.037955	0.11725316	-0.324	0.7463
Bureau 2 (D)	0.182158	0.09068742	2.009	0.0453*
Bureau 3 (D)	0.077763	0.09745631	0.798	0.4254
Bureau 4 (D)	0.113174	0.10305241	1.098	0.2728
n = 406				
Sum of Squares model: 47.61965				
Sum of Squares error: 110.32239				
R-square: 0.3015				
F = 5.166 (p < .0001)				

(D) = Dependent Variable

<b>Table 37(b). Combined Bureaus Regression Model Cluster F Tests for Teamwork</b>		
Dummy Variable	Partial F-Stat.	Prob > F
Education	0.2947	0.8293
Grade	0.1997	0.8965
Bureau	1.6190	0.1845

**Calculation of F Statistic for Comparison of  
Combined Bureaus Regression to Separate Regressions for Teamwork:**

As shown in table 37(a), the error sum of squares for the regression model for with the four bureaus combined is 110.32239. As shown in table 24 in chapter 6, the error sum of squares for the regression models for the separate four bureaus are: 18.07101, 27.40262, 21.10368, and 13.58305.

Therefore, for Teamwork:

$$F_{\text{calc.}} = 0.34669/0.271730 = \mathbf{1.275861}$$

Since the critical value from the F table is **1.31** at the .05 level of significance, the null hypothesis is not rejected, and the bureaus can be combined.

The regression results for Customer Awareness with the bureaus combined are as follows:

**Table 38(a). Combined Bureaus Regression Model for Customer Awareness**

Variable	Parameter Estimate	Standard Error	t-statistic	Prob >  t
<b>Independent:</b>				
Mgr. Commitment	0.074042	0.04829201	1.533	0.1261
Empowerment	0.304636	0.07394847	4.120	0.0001*
Partic. Mgt.	0.245315	0.06679911	3.672	0.0003*
Communication	0.069502	0.04651375	1.494	0.1360
Coaching (D)	0.110808	0.07945018	1.395	0.1639
Discipline (D)	0.096012	0.09667130	0.993	0.3213
Serve QC (D)	-0.060213	0.05996870	-1.004	0.3160
Serve QIT (D)	-0.014377	0.06002421	-0.240	0.8108
QIT Train (D)	-0.032412	0.05879509	-0.551	0.5818
Skill Train (D)	0.000501	0.06287683	0.008	0.9936
<b>Background:</b>				
Mgr/Non-mgr (D)	-0.316835	0.15279952	-2.074	0.0388*
Reorg Y/N (D)	-0.099322	0.10213350	-0.972	0.3314
1/Reorg Time	0.029973	0.02031881	1.475	0.1410
Chng Nonmgr (D)	0.061793	0.11965878	0.516	0.6059
Mgr. Changed (D)	-0.002598	0.05645195	-0.046	0.9633
More rpt to me (D)	-0.081950	0.12948539	-0.633	0.5272
Fewr rpt to me (D)	-0.001390	0.14300043	-0.010	0.9923
Scope increase (D)	0.167630	0.05993213	2.797	0.0054*
Scope decrease (D)	0.028200	0.10653422	0.265	0.7914
Years in job	-0.002613	0.00563881	-0.463	0.6433
Age	0.002425	0.00304658	0.796	0.4265
Race (D)	-0.027534	0.06595460	-0.417	0.6766
Gender (D)	-0.006166	0.05789874	-0.106	0.9153
Grade 7-11 (D)	-0.073695	0.11358121	-0.649	0.5168
Grade 12-13 (D)	-0.142250	0.11332360	-1.255	0.2102
Grade 14-15/CC (D)	-0.246676	0.16680574	-1.479	0.1400
AA degree (D)	0.032029	0.09033718	0.355	0.7231
BS/Grad Work (D)	0.004411	0.09962751	0.044	0.9647
Masters/Ph.D. (D)	0.006054	0.10896404	0.056	0.9557
Bureau 2 (D)	0.279552	0.08468015	3.301	0.0011*
Bureau 3 (D)	0.279809	0.09096001	3.076	0.0023*
Bureau 4 (D)	0.262186	0.09554951	2.744	0.0064*
n = 408				
Sum of Squares model: 60.73667				
Sum of Squares error: 91.59421				
R-square: 0.3987				
F = 7.771 (p < .0001)				

(D) = Dependent Variable

Dummy Variable	Partial F-Stat.	Prob > F
Education	0.0769	0.9724
Grade	0.8399	0.4726
Bureau	4.1920	0.0062

**Calculation of F Statistic for Comparison of  
Combined Bureaus Regression to Separate Regressions for Customer Awareness:**

As shown in table 38(a), the error sum of squares for the regression model for with the four bureaus combined is 91.59421. As shown in table 26 in chapter 6, the error sum of squares for the regression models for the separate four bureaus are: 12.50897, 28.85693, 12.99902, and 7.37655.

Therefore, for Customer Awareness:

$$F_{\text{calc.}} = 0.343134/0.209293 = \mathbf{1.639494}$$

Since the critical value from the F table is **1.31** at the .05 level of significance, the null hypothesis is rejected, and the bureaus should not be combined.

The regression results for Customer Feedback with the bureaus combined are as follows:

**Table 39(a). Combined Bureaus Regression Model for Customer Feedback**

Variable	Parameter Estimate	Standard Error	t-statistic	Prob >  t
<b>Independent:</b>				
Mgr. Commitment	0.044814	0.06400499	0.700	0.4843
Empowerment	0.214082	0.09941240	2.153	0.0320*
Partic. Mgt.	0.139069	0.08789711	1.582	0.1145
Communication	0.039794	0.06224080	0.639	0.5230
Coaching (D)	-0.064753	0.10667439	-0.607	0.5442
Discipline (D)	0.069447	0.12774079	0.544	0.5870
Serve QC (D)	-0.111487	0.08023126	-1.390	0.1656
Serve QIT (D)	-0.046619	0.08207035	-0.568	0.5704
QIT Train (D)	-0.043607	0.07893635	-0.552	0.5810
Skill Train (D)	0.114221	0.08407935	1.358	0.1752
<b>Background:</b>				
Mgr/Non-mgr (D)	-0.157042	0.19838516	-0.792	0.4291
Reorg Y/N (D)	-0.044350	0.13907479	-0.319	0.7500
1/Reorg Time	-0.024044	0.02682945	-0.896	0.3708
Chng Nonmgr (D)	-0.076154	0.15599529	-0.488	0.6257
Mgr. Changed (D)	-0.026484	0.07627345	-0.347	0.7286
More rpt to me (D)	-0.089382	0.16493876	-0.542	0.5882
Fewr rpt to me (D)	0.073620	0.18683928	0.394	0.6938
Scope increase (D)	0.234901	0.08128377	2.890	0.0041*
Scope decrease (D)	0.065942	0.13884533	0.475	0.6351
Years in job	-0.002482	0.00757126	-0.328	0.7432
Age	0.006163	0.00412565	1.494	0.1361
Race (D)	0.026961	0.08766807	0.308	0.7586
Gender (D)	-0.001274	0.07729444	-0.016	0.9869
Grade 7-11 (D)	-0.011653	0.15980258	-0.073	0.9419
Grade 12-13 (D)	-0.299382	0.16049156	-1.865	0.0630*
Grade 14-15/CC (D)	-0.564126	0.22644657	-2.491	0.0132*
AA degree (D)	-0.111749	0.12527453	-0.892	0.3730
BS/Grad Work (D)	-0.312644	0.13599014	-2.299	0.0221*
Masters/Ph.D. (D)	-0.414658	0.14843088	-2.794	0.0055*
Bureau 2 (D)	0.244819	0.11298784	2.167	0.0309*
Bureau 3 (D)	0.187988	0.12239973	1.536	0.1255
Bureau 4 (D)	0.170745	0.12968103	1.317	0.1888
n = 376				
Sum of Squares model: 48.06993				
Sum of Squares error: 138.37621				
R-square: 0.2578				
F = 3.724 (p < .0001)				

(D) = Dependent Variable

<b>Table 39(b). Combined Bureaus Regression Model Cluster F Tests for Customer Feedback</b>		
Dummy Variable	Partial F-Stat.	Prob > F
Education	3.5146	0.0155
Grade	3.5867	0.0140
Bureau	1.5687	0.1967

**Calculation of F Statistic for Comparison of  
Combined Bureaus Regression to Separate Regressions for Customer Feedback:**

As shown in table 39(a), the error sum of squares for the regression model for with the four bureaus combined is 138.37621. As shown in table 27 in chapter 6, the error sum of squares for the regression models for the separate four bureaus are: 14.55578, 41.18658, 34.16175, and 10.99273.

Therefore, for Customer Feedback:

$$F_{\text{calc.}} = 0.430797/0.342023 = \mathbf{1.259555}$$

Since the critical value from the F table is **1.31** at the .05 level of significance, the null hypothesis is not rejected, and the bureaus can be combined.

Given that, overall, F tests indicated that the bureaus could be combined for only two of the dependent variables (Teamwork and Customer Feedback), the regression models were run separately for all five of the dependent variables.

## **APPENDIX 6**

### **CONSTRUCTS, SURVEY QUESTIONS, SCALES AND QUESTION NUMBER**



## APPENDIX 6. CONSTRUCTS, SURVEY QUESTIONS, AND QUESTION NUMBER

## DEPENDENT VARIABLES

## JOB SATISFACTION:

8. I take great delight in my work and find it exhilarating.  
Strongly Agree   Agree   Disagree   Strongly Disagree
12. My job is challenging.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know
22. My job gives me a sense of accomplishment.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know
25. My skills and abilities are not well utilized in my present job.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know
29. I involve myself with my work to a great extent.  
Strongly Agree   Agree   Disagree   Strongly Disagree
46. My job provides me with sufficient opportunities for personal or professional growth.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know

## TRUST:

1. Employees' opinions are not respected or valued in my work unit.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know
11. Employees feel free to tell me what they really think, not just what they believe I want to hear.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Not Applicable/Don't Know
14. People in my work unit feel free to express their honest opinions to managers about all work issues, decisions, or other work-related matters.  
Always   Usually   Seldom   Never   Not Applicable/Don't Know
19. My manager is interested in increasing his or her own power and control rather than truly improving the cultural climate at HCFA.  
Strongly Agree   Agree   Disagree   Strongly Disagree   Don't Know
21. People in my work unit learn from mistakes rather than cover them up or blame people.  
Always   Usually   Seldom   Never   Don't Know

**TEAMWORK:**

9. I readily help people in another office, division, region, or bureau if called on.  
Strongly Agree Agree Disagree Strongly Disagree Not Applicable
15. My coworkers and I rarely help each other out when one of us is "overloaded."  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
23. People in my work unit openly share information and ideas with each other.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
33. A spirit of cooperation exists among people in my work unit.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know

**CUSTOMER AWARENESS**

34. Customer feedback received in my work unit is used to improve services.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
40. There are discussions concerning customer needs, or the effects of decisions on work unit customers, during meetings with my work unit.  
Always Usually Seldom Never Not Applicable/Don't Know

**CUSTOMER FEEDBACK**

28. The quality of services provided to internal customers is formally measured in my work unit.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
36. Internal customer needs are formally measured in my work unit.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know

### INDEPENDENT VARIABLES

#### **MANAGERIAL COMMITMENT:**

7. The Bureau Director/Regional Administrator is committed to creating an organizational culture which values and trusts employees.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
31. My manager is committed to creating an organizational culture which values and trusts employees.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know

#### **QUALITY COUNCIL/TEAM/OTHER QUALITY GROUP:**

44. Have you served on a Quality Council at the Bureau, Division, Office, Regional, or other level? \_\_\_Yes \_\_\_No
45. Have you ever been a member of a Quality Improvement Team (QIT) or any other formal or informal group established to make improvements or address organizational issues? \_\_\_Yes \_\_\_No

#### **EMPOWERMENT:**

3. I am not consulted or involved in decisions that affect the work I do.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
6. I consult my manager before making even minor changes to my work procedures.  
Always Usually Seldom Never Not Applicable/Don't Know
13. I am encouraged to use my own judgement when solving problems.  
Always Usually Seldom Never Not Applicable/Don't Know
38. Effective actions have been taken to increase the authority of employees in my work unit to make job-related decisions.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
39. A promising new approach for the way we do work is likely to be approved quickly for trial.  
Always Usually Seldom Never Not Applicable/Don't Know

**PARTICIPATORY MANAGEMENT:**

4. My manager utilizes ideas offered for improving the way work gets done.  
Always Usually Seldom Never Not Applicable/Don't Know
16. My manager seeks input from employees in my work unit when making decisions affecting the work unit.  
Always Usually Seldom Never Not Applicable/Don't Know
17. My manager is not receptive to ideas for improving how the work gets done.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
18. My manager assigns major work projects to me without consulting me.  
Always Usually Seldom Never Not Applicable/Don't Know

**COMMUNICATION:**

20. My manager gives me formal or informal feedback on my work:  
once a year only                      twice a year only  
three times a year only    more than three times a year    never
24. My manager gives me informal feedback which helps me to improve my job performance.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know
37. I am not kept informed about major issues affecting my job.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know

**TRAINING:**

47. I have received training in (check as many as apply):

**TRAINING1 (council/team):**

\_\_\_ Quality Improvement Team problem-solving process--> approximate number of days:

**TRAINING2 (specific skills):**

- \_\_\_ How to empower
- \_\_\_ How to get customer feedback or measure customer needs
- \_\_\_ Customer identification and service training
- \_\_\_ Leadership/coaching training

**TRAINING3 (peripheral/general TQM): (not utilized in regression)**

\_\_\_ Facilitator training--> approximate number of days: \_\_\_\_\_

\_\_\_ Total Quality Management-related seminars or conferences: Please indicate topic(s) and approximate number of days: \_\_\_\_\_

\_\_\_ Other Total Quality Management-related training:

\_\_\_ I have received no Total Quality Management-related training.

**USE OF COACHING VERSUS REPRIMAND:**

32. When I make an error or my work does not meet the intended goals, it is regarded by my manager as an opportunity for: (check all that apply)

\_\_\_ learning \_\_\_ coaching \_\_\_ discipline/reprimand \_\_\_ other: please describe:

**BACKGROUND VARIABLES****EXOGENOUS FACTORS:****STRATEGIC PLAN: (not utilized in regression model)**

35. Implementation of HCFA's Strategic Plan directly affects my daily work.  
Strongly Agree Agree Disagree Strongly Disagree Don't Know

**REORGANIZATION:**

48. Did reorganization/streamlining occur in your work unit?

\_\_\_ Yes \_\_\_ No \_\_\_ Don't Know **If YES,**

a) About how long ago was that? \_\_\_\_\_

b) How did reorganization/streamlining affect your job/work? (check all that apply):

\_\_\_ my position was changed from a manager to a technical analyst or other non-manager.

\_\_\_ the person to whom I directly report was changed.

\_\_\_ the number of people reporting directly to me was increased.

\_\_\_ the number of people reporting directly to me was decreased.

\_\_\_ the scope of my job responsibilities has increased.

\_\_\_ the scope of my job responsibilities has decreased.

DEMOGRAPHIC VARIABLES:

51. How long have you been employed by HCFA? \_\_\_\_ year(s) (to the closest year).

52. How long have you been in your present job? \_\_\_\_ year(s) (to the closest year).

53. What is your gender? \_\_\_ Male \_\_\_ Female

54. What is your age group?                    \_\_\_ 25 or younger  
     \_\_\_ 26 to 35  
     \_\_\_ 36 to 45  
     \_\_\_ 46 to 55  
     \_\_\_ 56 or older

55. My racial or ethnic identification is:       \_\_\_ American Indian  
     \_\_\_ Asian or Pacific Islander  
     \_\_\_ Black, African American  
     \_\_\_ Caucasian  
     \_\_\_ Hispanic  
     \_\_\_ Other (please specify) \_\_\_\_\_

56. What is your highest level of education (check only one)?

\_\_\_ High school diploma/equivalent  
 \_\_\_ Technical/trade school  
 \_\_\_ Some Associate degree or other undergraduate work  
 \_\_\_ Associate's degree  
 \_\_\_ Bachelor's degree  
 \_\_\_ Some graduate work  
 \_\_\_ Master's degree  
 \_\_\_ Doctorate degree

57. My job position is a (check only 1):

\_\_\_ non-manager  
 \_\_\_ manager (formal manager with authority to rate employees, sign leave slips, etc.)  
 - a) If you are a manager, how long have you been in your present management position?

58. What is the grade level of your position? (please circle one):

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 SES Commission Corp

59. My job is somewhat routine with little change day to day in my tasks.

Strongly Agree    Agree    Disagree    Strongly Disagree    Don't Know

Questions not used in dissertation, but are part of survey for agency-specific analysis:

EFFICIENCY:

26. People in my work unit examine work procedures or requirements to determine if improvements are needed.
27. In HCFA, there are unnecessary (non-value added) approval/signature levels.
41. In my work unit, procedures are efficient (non-wasteful, done in as few steps as necessary).

REWARDS AND RECOGNITION:

43. The formal performance appraisal system is fair and equitable.
50. Is the rewards and recognition system based on an accurate assessment of your work?  
 Yes  No If not, why not? (check all that apply):
- the criteria for evaluating employee contributions are not related to my work
  - the criteria do not fairly evaluate my work
  - decision maker has no objective means of evaluating my contribution
  - decision maker is unfamiliar with my work
  - decision maker is biased
  - other (please explain):

BROAD MEASURE OF INTERNAL CUSTOMER SATISFACTION:

49. I have not been able to do my job most effectively because output from another work unit was not completed in a timely or quality manner.

**APPENDIX 7**

**ACTUAL SURVEY AND COVER NOTE**



## APPENDIX 7. ACTUAL SURVEY AND COVER NOTE

May 3, 1995

Dear HCFA Employee,

Your views are very important. Here is an opportunity to share your views on various aspects of work life and environment at HCFA in a completely confidential way. As part of the valuing employees initiative, a critical element of HCFA's Strategic Plan, representative employees (non-managers and managers) have designed the enclosed survey to determine whether HCFA is a place where employees are valued.

The enclosed survey should take about 15 minutes to complete. There is a comment page at the end should you wish to provide additional remarks. The results will complement the efforts of the Quality Support Team and will build upon the results of the General Research Corporation survey you may have taken about 2 years ago. This survey is supported by the Executive Steering Committee (ESC), which is represented by HCFA senior management and the Union.

You were randomly selected to respond to this work life survey. Only a limited proportion of HCFA received this survey, so your response is important to the success of this effort. Your responses are valuable, and the information you provide will give HCFA leadership input on issues of concern in HCFA.

Your answers will remain strictly anonymous and confidential. Answers will be reported in summary form; no responses will be reported or traceable to any individual. The final summary report will be submitted to the ESC. Copies of the final report will be available in the fall of 1995 from your bureau level or Regional Office administrative officer.

Please complete the survey and return it to Vicki Chilton at 2-H-4 ELR in the self-addressed return envelope provided by **May 19, 1995**. It would be most helpful if you are able to respond by this date.

Thank you very much for investing the time to respond. Should you have any questions, please feel free to call Vicki Chilton, Project Researcher, on (410) 966-1437.

Sincerely,

Executive Steering Committee

Enclosures

### 1995 Work Life in HCFA Survey

#### Instructions and definition of terms used in this survey:

- ◆ The term **WORK UNIT** is your immediate BRANCH, STAFF, DIVISION, OFFICE, or BUREAU which ever is the smallest unit/group in which you work. For example, if you work in BDMS/Office of Program Systems/Division of Medicaid Statistics, you would understand "work unit" to mean Division of Medicaid Statistics. However, if you work in the BDMS immediate office, BDMS is your work unit. Unless otherwise specified, please answer each item based on the work unit in which you work.
- ◆ The term **CUSTOMER** refers to the individual(s) that you supply work to. **INTERNAL CUSTOMER** refers to people within HCFA to whom you provide services or products.
- ◆ The term **MANAGER**, for survey purposes, refers to the person who evaluates your work performance and approves leave.
- ◆ Check the response that is closest to your beliefs and experiences in your job. For example, if something occurs *almost always*, check always; if it is *almost never*, check never.
- ◆ Respond by checking the **DON'T KNOW** category **ONLY** if you feel that you do not have enough information to respond to an item.

Thank you for participating in the Work Life in HCFA Survey. The survey will take about 15 minutes to complete. Please answer honestly.

1. Employees' opinions are not respected or valued in my work unit.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

2. What is expected of me in my job is clearly defined.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

3. I am not consulted or involved in decisions that affect the work I do.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

4. My manager utilizes ideas offered for improving the way work gets done.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

5. Internal customer needs are informally measured in my work unit.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

6. I consult my manager before making even minor changes to my work procedures.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

7. The Bureau Director/Regional Administrator is committed to creating an organizational culture which values and trusts employees.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

8. I take great delight in my work and find it exhilarating.

Strongly Agree  Agree  Disagree  Strongly Disagree

9. I readily help people in another office, division, region, or bureau if called on.

Strongly Agree  Agree  Disagree  Strongly Disagree  Not Applicable

10. I expect there to be major changes in my job within the next year.

Strongly Agree  Agree  Disagree  Strongly Disagree  Not Applicable

11. Employees feel free to tell me what they really think, not just what they believe I want to hear.

Strongly Agree  Agree  Disagree  Strongly Disagree  Not Applicable/Don't Know

12. My job is challenging.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

13. I am encouraged to use my own judgement when solving problems.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

14. People in my work unit feel free to express their honest opinions to managers about all work issues, decisions, or other work-related matters.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

15. My coworkers and I rarely help each other out when one of us is "overloaded."

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

16. My manager seeks input from employees in my work unit when making decisions affecting the work unit.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

17. My manager is not receptive to ideas for improving how the work gets done.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

18. My manager assigns major work projects to me without consulting me.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

19. My manager is interested in increasing his or her own power and control rather than truly improving the cultural climate at HCFA.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

20. My manager gives me formal or informal feedback on my work:

once a year only  twice a year only  
 three times a year only  more than three times a year  never

21. People in my work unit learn from mistakes rather than cover them up or blame people.

Always  Usually  Seldom  Never  Don't Know

22. My job gives me a sense of accomplishment.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

23. People in my work unit openly share information and ideas with each other.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

24. My manager gives me informal feedback which helps me to improve my job performance.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

25. My skills and abilities are not well utilized in my present job.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

26. People in my work unit examine work procedures or requirements to determine if improvements are needed.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

27. In HCFA, there are unnecessary (non-value added) approval/signature levels.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

28. The quality of services provided to internal customers is formally measured in my work unit.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

29. I involve myself with my work to a great extent.

Strongly Agree  Agree  Disagree  Strongly Disagree

30. My manager signs out official memos/notes to other managers, even if I write the memo/note.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

31. My manager is committed to creating an organizational culture which values and trusts employees.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

32. When I make an error or my work does not meet the intended goals, it is regarded by my manager as an opportunity for: (check all that apply)

learning  coaching  discipline/reprimand  other: please describe: \_\_\_\_\_

33. A spirit of cooperation exists among people in my work unit.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

34. Customer feedback received in my work unit is used to improve services.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

35. Implementation of HCFA's Strategic Plan directly affects my daily work.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

36. Internal customer needs are formally measured in my work unit.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

37. I am not kept informed about major issues affecting my job.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

38. Effective actions have been taken to increase the authority of employees in my work unit to make job-related decisions.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

39. A promising new approach for the way we do work is likely to be approved quickly for trial.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

40. There are discussions concerning customer needs, or the effects of decisions on work unit customers, during meetings with my work unit.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

41. In my work unit, procedures are efficient (non-wasteful, done in as few steps as necessary).

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

42. If I am given greater authority and responsibility, I am willing to be accountable for decisions that I make.

Strongly Agree  Agree  Disagree  Strongly Disagree  Not Applicable/Don't Know

43. The formal performance appraisal system is fair and equitable.

Strongly Agree  Agree  Disagree  Strongly Disagree  Not Applicable/Don't Know

44. Have you served on a Quality Council at the Bureau, Division, Office, Regional, or other level?

Yes  No

45. Have you ever been a member of a Quality Improvement Team (QIT) or any other formal or informal group established to make improvements or address organizational issues?  Yes  No

46. My job provides me with sufficient opportunities for personal or professional growth.

Strongly Agree  Agree  Disagree  Strongly Disagree  Don't Know

47. I have received training in (check as many as apply):

- Quality Council functions and operations--> approximate number of days: \_\_\_\_\_
- Quality Improvement Team problem-solving process--> approximate number of days: \_\_\_\_\_
- How to empower--> approximate number of days: \_\_\_\_\_
- How to get customer feedback or measure customer needs--> approximate number of days: \_\_\_\_\_
- Customer identification and service training--> approximate number of days: \_\_\_\_\_
- Leadership/coaching training--> approximate number of days: \_\_\_\_\_
- Facilitator training--> approximate number of days: \_\_\_\_\_
- Total Quality Management-related seminars or conferences: Please indicate topic(s) \_\_\_\_\_ and approximate number of days: \_\_\_\_\_
- Other Total Quality Management-related training: Please indicate what kind(s): \_\_\_\_\_ and approximate number of days: \_\_\_\_\_
- I have received no Total Quality Management-related training.

48. Did reorganization/streamlining occur in your work unit?  Yes  No  Don't Know **If YES,**

a) About how long ago was that? \_\_\_\_\_

b) How did reorganization/streamlining affect your job/work? (check all that apply):

- my position was changed from a manager to a technical analyst or other non-manager.
- the person to whom I directly report was changed.
- the number of people reporting directly to me was increased.
- the number of people reporting directly to me was decreased.
- the scope of my job responsibilities has increased.
- the scope of my job responsibilities has decreased.

49. I have not been able to do my job most effectively because output from another work unit was not completed in a timely or quality manner.

Always  Usually  Seldom  Never  Not Applicable/Don't Know

50. Is the rewards and recognition system based on an accurate assessment of your work?

Yes  No If not, why not? (check all that apply):

- the criteria for evaluating employee contributions are not related to my work
- the criteria do not fairly evaluate my work
- decision maker has no objective means of evaluating my contribution
- decision maker is unfamiliar with my work
- decision maker is biased
- other (please explain): \_\_\_\_\_

These questions are pertinent to the data analysis and are being asked for demographic reasons only; they will not be used to identify you in any way:

51. How long have you been employed by HCFA? \_\_\_\_ year(s) (to the closest year).
52. How long have you been in your present job? \_\_\_\_ year(s) (to the closest year).
53. What is your gender? \_\_\_ Male \_\_\_ Female
54. What is your age group?     \_\_\_ 25 or younger  
   \_\_\_ 26 to 35  
   \_\_\_ 36 to 45  
   \_\_\_ 46 to 55  
   \_\_\_ 56 or older
55. My racial or ethnic identification is:     \_\_\_ American Indian  
   \_\_\_ Asian or Pacific Islander  
   \_\_\_ Black, African American  
   \_\_\_ Caucasian  
   \_\_\_ Hispanic  
   \_\_\_ Other (please specify) \_\_\_\_\_
56. What is your highest level of education (check only one)?
- \_\_\_ High school diploma/equivalent  
       \_\_\_ Technical/trade school  
       \_\_\_ Some Associate degree or other undergraduate work  
       \_\_\_ Associate's degree  
       \_\_\_ Bachelor's degree  
       \_\_\_ Some graduate work  
       \_\_\_ Master's degree  
       \_\_\_ Doctorate degree
57. My job position is a (check only 1):
- \_\_\_ non-manager  
       \_\_\_ manager (formal manager with authority to rate employees, sign leave slips, etc.)
- a) If you are a manager, how long have you been in your present management position? \_\_\_\_
58. What is the grade level of your position? (please circle one):
- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 SES Commission Corp
59. My job is somewhat routine with little change day to day in my tasks.
- \_\_\_ Strongly Agree   \_\_\_ Agree   \_\_\_ Disagree   \_\_\_ Strongly Disagree   \_\_\_ Don't Know



**YOUR COMMENTS PLEASE**

In addition to the questions below, you may make general comments connected or unconnected to any particular question in the survey. All hand written comments will be typed into a general comment pool and this original comment page will be destroyed. Attach extra pages if necessary. Please write legibly. *Thanks again for completing this survey.*

Which actions, behaviors, or programs are working well at HCFA and should be continued because they support the goals of: excellence in customer service, employee empowerment, and continuous quality improvement?

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What actions, behaviors, or programs should be taken/implemented to further support the goals of: excellence in customer service, employee empowerment, and continuous quality improvement?

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What policies, actions, behaviors, or attitudes at HCFA should be stopped because they hinder the goals of: excellence in customer service, employee empowerment, and continuous quality improvement?

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**YOUR RESPONSES ARE VERY IMPORTANT**  
**PLEASE USE THE ENCLOSED ENVELOPE TO RETURN THIS SURVEY**  
***THANK YOU VERY MUCH FOR YOUR TIME AND ATTENTION***

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