The Effect of Leadership Styles on Hospital Labor Productivity

Anthony R. Tersigni
Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/dissertations
Part of the Educational Assessment, Evaluation, and Research Commons

Recommended Citation
https://scholarworks.wmich.edu/dissertations/1991

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
THE EFFECT OF LEADERSHIP STYLES ON
HOSPITAL LABOR PRODUCTIVITY

by

Anthony R. Tersigni

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Education
Department of Educational Leadership

Western Michigan University
Kalamazoo, Michigan
April 1992
THE EFFECT OF LEADERSHIP STYLES ON HOSPITAL LABOR PRODUCTIVITY

Anthony R. Tersigni, Ed.D.
Western Michigan University, 1992

This research examined hospital management leadership style and its effects on hospital labor productivity. Information derived from this research will be useful in the education and training of future health care executives and in the continuing education of those responsible for the day-to-day operations of general acute hospitals.

The hypothesis that was researched in the study was that high consideration/high structure and high consideration/low structure leadership styles would increase productivity in hospital employees who are in the middle stages of organizational development. This was operationally defined in the alternate hypothesis as a relationship between productivity as measured by the Paid Hours Per Adjusted Discharge reporting in the HAS/Monitrend Report, a research report prepared for hospitals by the American Hospital Association, and the leadership style measured by structure and consideration scores on the Leadership Opinion Questionnaire (Fleishman, 1960).

The population defined for the purpose of this research was the middle managers responsible for the function centers defined by HAS/Monitrend. The management population was limited in this research to those working for short-term community general hospitals within
the Detroit Standard Metropolitan Statistical Area as defined by the
United States government. A cluster sampling technique was used to
select the individual managers included in the sample. Data were
generated by two means. The variable of leadership style was deter-
mined by using the Leadership Opinion Questionnaire (Fleishman,
1960). The productivity measure was taken from the HAS/Monitrend
Report for the selected hospitals or, for nonreporting institutions,
identical data were gathered directly from the hospital using a data
gathering sheet. In order to determine if differences found were
statistically significant, a t test for independent means was used.
An alpha of .10 determined the level at which a decision to reject
the null hypothesis was made.

The comparisons between the identified leadership styles of the
managerial groups showed no statistical differences. Support for
the research hypothesis was not borne out by the data collected and
analyzed. The research represents another building block in improv-
ing hospital performance; and at the same time, it indicates and
stresses a need for further research.
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI
University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700  800/521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The effect of leadership styles on hospital labor productivity

Tersigni, Anthony Rocco, Ed.D.
Western Michigan University, 1992
# TABLE OF CONTENTS

LIST OF TABLES ................................................................. v
LIST OF FIGURES .............................................................. vi

CHAPTER

I. THE RESEARCH SETTING ................................................... 1
   Definition of the Problem ................................................. 3
   The Importance of This Study ............................................. 4
   Organization of the Study .................................................. 5

II. REVIEW OF SELECTED LITERATURE ................................. 7
   Introduction ................................................................... 7
   Leadership ..................................................................... 7
   Literature Specific to the Health Care Industry .... 25
   Summary ........................................................................ 29

III. DESIGN AND METHODOLOGY ........................................ 31
   Population ..................................................................... 31
   Sampling ......................................................................... 33
   Leadership Opinion Questionnaire .............................. 34
   HAS/Monitrend Data .......................................................... 35
   Design and Procedure .................................................... 36
   Data Analysis ................................................................. 37
   Statistical Analysis .......................................................... 38
   Limitations Due to the Choice of the Sample ............ 38

IV. RESULTS ................................................................. 40
   Sample Response Characteristics ................................. 40
# Table of Contents--Continued

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Findings of the Study</td>
<td>43</td>
</tr>
<tr>
<td>Leadership Opinion Questionnaire</td>
<td>43</td>
</tr>
<tr>
<td>HAS/Monitrend Report/Productivity Survey</td>
<td>45</td>
</tr>
<tr>
<td>Analysis of Data</td>
<td>47</td>
</tr>
<tr>
<td>Function Center 01</td>
<td>47</td>
</tr>
<tr>
<td>Function Center 02</td>
<td>48</td>
</tr>
<tr>
<td>Function Center 03</td>
<td>49</td>
</tr>
<tr>
<td>Function Center 04</td>
<td>51</td>
</tr>
<tr>
<td>Function Center 06a and 06b</td>
<td>52</td>
</tr>
<tr>
<td>Function Center 07a and 07b</td>
<td>53</td>
</tr>
<tr>
<td>Function Center 08</td>
<td>54</td>
</tr>
<tr>
<td>Function Center 09a and 09b</td>
<td>55</td>
</tr>
<tr>
<td>Function Center 10</td>
<td>56</td>
</tr>
<tr>
<td>Comparison of Aggregated Data</td>
<td>58</td>
</tr>
<tr>
<td>Summary</td>
<td>58</td>
</tr>
<tr>
<td>V. CONCLUSIONS AND RECOMMENDATIONS</td>
<td>61</td>
</tr>
<tr>
<td>Conclusions</td>
<td>61</td>
</tr>
<tr>
<td>Leadership Style</td>
<td>62</td>
</tr>
<tr>
<td>HAS/Monitrend</td>
<td>64</td>
</tr>
<tr>
<td>Conclusions Regarding Function Centers</td>
<td>65</td>
</tr>
<tr>
<td>Recommendations for Further Research</td>
<td>68</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>70</td>
</tr>
<tr>
<td>A. Data Gathering Sheet</td>
<td>71</td>
</tr>
</tbody>
</table>
Table of Contents--Continued

B. Letter to Chief Executive Officer of Selected Hospitals ................................................. 73

C. Approval Letter From Human Subjects Institutional Review Board ............................. 75

BIBLIOGRAPHY ..................................................................................................................... 77
### LIST OF TABLES

1. Demographic Response by Hospital and Function .................. 42
2. Leadership Style of Managers by Function Center ................ 44
3. Paid Hours Per Adjusted Discharge Compared by Hospital and Function Center ........................................ 46
4. Leadership Style and Productivity Means for Function Center 01 .................................................. 48
5. Leadership Style and Productivity Means for Function Center 02 .................................................. 49
6. Leadership Style and Productivity Means for Function Center 03 .................................................. 50
7. Leadership Style and Productivity Means for Function Center 04 .................................................. 51
8. Leadership Style and Productivity Means for Function Center 06a/06b ............................................. 52
9. Leadership Style and Productivity Means for Function Center 07a/07b ............................................. 54
10. Leadership Style and Productivity Means for Function Center 08 ................................................ 55
11. Leadership Style and Productivity Means for Function Center 09a ................................................ 56
12. Leadership Style and Productivity Means for Function Center 10 ................................................ 57
13. Leadership Style and Productivity Means Across All Function Centers ........................................ 59
LIST OF FIGURES

1. Likert's Paradigm ......................................................... 12
2. Relationships Between Basic Characteristics of Theory Z ... 13
3. The Ohio State Leadership Quadrants ......................... 15
4. The Managerial Grid ................................................... 17
5. 3-D Leadership Theory ............................................... 20
6. Life Cycle Leadership Theory ................................. 22
CHAPTER I

THE RESEARCH SETTING

A great deal of national and local attention has focused on the cost of health care and hospital labor productivity as well as the effectiveness of hospital management. Health care consumers, whether employers or employees, together with elected officials and health professionals are concerned with controlling spiraling costs, increasing labor productivity, and improving hospital operating efficiencies through the use of improved management skills and techniques.

According to the U.S. Department of Commerce (cited in Blendon & Edwards, 1991), health care expenditures in 1990 were $675 billion, or about $2,660 per person. This figure is up from the health care bill of $618.4 billion in 1989. Health care expenditures in the Midwest region have more than doubled between 1976 and 1991. Although the rate of increase has recently slowed slightly, it is still greater than the national Consumer Price Index. The U.S. Department of Commerce (cited in Blendon & Edwards, 1991) reports health care costs will exceed $1.5 trillion by 1996. The Health Care Financing Administration (cited in Altman, 1991) projects that national health expenditures will reach $2.5 trillion by the year 2000, representing 15% of the Gross National Product.
The cost of health care is a highly charged issue in which the perspectives of business firms, organized labor, providers, third party payers, community groups, and government agencies often differ. Business firms, the major purchasers of health care for employees, dependents, and retirees now view health care costs as an expensive budget item. These companies look for ways to hold down costs. The effect of health care expenses on corporate profits has become a major concern.

Labor organizations, which negotiated for health care benefits for their members, are increasingly faced with the challenge of protecting those benefits. As health care becomes a more expensive cost factor, it must compete with other compensation items during negotiations.

Government agencies, specifically Medicare and Medicaid, find themselves faced with rapidly increasing costs. As the population ages these expenditures will continue to rise sharply, easily surpassing already record levels.

Insurers are pressured to control costs. Caught between purchasers who wish to pay less for coverage, providers seeking compensation for services, and consumers expecting services to be covered, insurers must pursue strategies that will contribute to cost effective health care delivery.

Hospitals are faced with cost containment pressure from all of these parties and with increased competition as well. In addition, they are confronted with the high cost of new medical technology. Thus, hospitals are also concerned with increasing labor
productivity and improving hospital operating efficiencies. Health care cost containment without a decrease in quality of care is an issue that involves everyone.

The objective of this research is to determine whether or not there is a relationship between leadership style and productivity in community general hospitals. A number of hypotheses are tested using data from 10 community general hospitals. Information from this research can be put to use in the education and training of future health care executives and those engaged in the day-to-day management of general hospitals.

This chapter discusses the definition of the problem, the scope and limitations of the study, and the importance of the research effort. The literature reviewed is divided into two components: first, literature covering the various theories of leadership and, second, literature dealing with contributions in the field of hospital administration.

Definition of the Problem

Productivity in American business and in American hospitals has received a great deal of attention over the last two decades. The National Commission on Productivity was established on July 10, 1970, by President Richard Nixon to make recommendations concerning means for improving the productivity of American industry and labor. Phase III of the Economic Stabilization Act was specific to hospitals and productivity by way of allowing health care providers to increase their profit margins through increased labor productivity.
as long as prices did not increase above those during the base period.

The decade of the 1980s was a period of dramatic change for hospitals. The implementation of the Medicare Prospective Payment System (PPS) changed the way hospitals operate, so that care would be provided more efficiently. A second major impact of PPS was the rapid movement of patients from inpatient to outpatient settings. As a result of these changes, the use of hospitals decreased dramatically during the last half of the 1980s. During the period from 1984 to 1989, hospitals lost 12% of their admissions. PPS induced shorter lengths of stay (LOS) and private payers demanded reduced utilization, causing a loss of patient days during this same period of 18%.

Hospitals, which are service organizations, are labor intensive industries. Hospitals spent $214.9 billion on labor expenses in 1989, up from $196.7 billion in 1988 (Berg, 1991). Productivity is defined as the ratio of volume of production to the volume of labor used in that production (Rimer, 1963). This ratio measures the proportion of a hospital's costs that are attributable to employee labor costs. Therefore, a more productive use of the hospital's labor force is a key ingredient when looking at cost containment or increased profits.

The Importance of This Study

The high cost of general hospital care on a national basis is a serious social and economic problem. The people in the United
States spend in excess of 11% of the Gross National Product for health services. Hospital and physician services are by far the two largest items of expense in the nation's health care budget. In order to deal with this serious social and economic problem, it becomes important to find ways to control increasing hospital costs.

This study examined hospital management leadership style and its affect on hospital labor productivity. The information derived from this study will be useful in the education and training of future health care executives and in the continuing education of those responsible for the day-to-day operations of general hospitals.

Organization of the Study

The nature of the problem to be studied is outlined in Chapter I. The importance of the study is described and how the study is presented is outlined.

A review of selected literature and a framework for the research hypothesis are presented in Chapter II. The theories that are presented provide a justification for the hypothesis under study.

The design and methodology of the study are presented in Chapter III. The chapter includes a description of the population studied, the instrumentation, design of the research and methods for analyzing the data, and limitations of the research.

Presented in Chapter IV are the data along with an analysis and testing of the research hypothesis.
Presented in Chapter V are the conclusions derived from the data analysis and recommendations for future research.
CHAPTER II

REVIEW OF SELECTED LITERATURE

Introduction

The health care industry in the 1990s is the largest industry in the United States. Even though the health field is large, health and hospital literature does not reflect as much research in the specific area of leadership style as reflected in general leadership literature. This fact indicates the need for further research about leadership style in the complex hospital setting.

In this chapter this author presents a review of selected literature divided into two components: first, the review of literature about various theories of leadership and, second, a review of literature dealing with contributions in the field of hospital administration.

Leadership

Hemphill (1968) defined leadership as "the process of facilitating the solution of group problems. This process involves the control or coordination of the behavior of members of the group" (p. 6). Hersey and Blanchard (1972) added the concept of moving toward organizational goals as a dimension of their definition, "a process of influencing the activities of an individual or group in efforts toward accomplishing goals in a given situation" (p. 146).
The important components in these definitions are: (a) that leadership is a process, (b) that an individual influences one or more other people, and (c) that the resulting action of those individuals moves the organization toward the solution of a problem or toward a recognized goal. The definition of leadership used in this study is the process of influencing one or more individuals' actions toward accomplishing organizational goals or toward solving organizational problems (Hersey & Blanchard, 1972).

Some leadership theorists have concentrated on how the organizational view of behavior impacts on performance. McGregor (1960), Hage (1965), Likert (1967), and Ouchi (1981) have expressed in their theories the view that an important dimension in leadership is the basic view of how and why workers deal with work. They have also proposed how organizations should be operated based on their research.

McGregor (1960) proposed that the way in which supervisors viewed subordinates was an important factor in how they behaved toward workers. He determined that there were two opposite views of human nature and that an individual's perspective fell somewhere along a continuum between the two. McGregor expressed these views as Theories X and Y.

Theory X was based on the assumption that the average employee was lazy and would avoid work if possible; therefore, leaders must structure, control, and closely supervise their employees. McGregor (1960) also stated in this theory that the average employee preferred to be directed, to avoid responsibility. These assumptions
led to a management system based on reward and punishment.

Theory Y assumptions were the opposite of Theory X. The employee was viewed as seeking responsibility and being self-directed and self-controlled and that the expenditure of effort in work was natural. Once committed to objectives, employees would exercise a high degree of imagination, creativity, and ingenuity in the solution of organizational problems. McGregor (1960) also stated that the wealth of human potential lies untapped in modern industry. The management system arising from these assumptions is humanistic and aimed at providing subordinates with the opportunity to develop their individual potential. McGregor advocated this view and the strategies aimed at recognizing each employee's contribution toward the accomplishment of organizational objectives.

Hage (1965) proposed that organizations could be described by analyzing eight variables, four organizational means and four organizational ends. These formal characteristics defined how the organization operated. The variables were interdependent and formed a closed system when viewed with accompanying corollaries.

The structural means variables were centralization, formalization, stratification, and complexity. Centralization is the degree to which decisions are made at the top of the organization. Formalization is the reliance on standardized rules and regulations. Stratification is the status differential between hierarchy levels. Complexity is the degree of specialization of tasks. The functional aspects, or organizational ends, are production, efficiency, adaptiveness, and job satisfaction. Production is defined as the amount
of work output. Productivity is the ratio of the volume of production to the volume of the labor used in that production, or real output per man hour. Efficiency is the cost per unit of output. The ability to respond to change is adaptiveness and job satisfaction is related to employee morale.

Hage (1965) determined that these factors are interrelated and form a closed system. As one factor is increased or decreased, there is a corresponding change in another factor. The degree to which the organization is concerned with production is its mechanistic dimension. A high mechanistic organization is characterized by high centralization, formalization, stratification, production, and efficiency and low complexity, adaptiveness, and job satisfaction. The degree to which the organization is concerned with the human element is characterized by the opposite of the mechanistic dimension.

Likert (1967) postulated that management styles of organizations can be depicted on a continuum of four systems from System 1 through System 4. System 1 was defined as the authoritarian end of a continuum extending from authoritarian to democratic. System 1 was exploitative and authoritarian. This system was characterized by the use of fear, punishment, threats, and occasional rewards as motivating factors. Communication was viewed as downward through the organizational hierarchy. Interaction was distrustful. Decision making and goal setting occurred only at the top of the management system. Subordinates were viewed in much the same way as in McGregor's (1960) Theory X. Systems 2 and 3 were transitional
systems along the continuum having some authoritarian characteristics but less than System 1.

System 4 was viewed as participative and characterized by leadership and subordinate behavior that was mutually supportive. Motivation was based on mutually established goals. The communication flow was described as multidirectional. Management was viewed as exhibiting a high degree of confidence and trust. Decisions were made within and by the group with "linking pins," individuals sharing group membership with more than one group, playing an important role in facilitating intergroup communication and coordination.

Likert (1967) advocated the use of System 4 management and stated that performance and satisfaction are both high in groups that have supportive relationships, use group decision making, and set high performance goals. This relationship is best presented in Likert's paradigm wherein the integrated approach is represented by Area D, a blending of high morale and high productivity (see Figure 1).

Ouchi (1981) developed Theory Z to contrast with McGregor's (1960) Theories X and Y. The differing feature of Theory Z is its implicit recognition that people possess the characteristics of the Theory X and Y models simultaneously. The overriding challenge for managers lies in creating a departmental environment in which all organization members realize the objectives of the organization can best be met by meeting the needs and objectives of the members. The central theme of Theory Z is that involved workers are the key to productivity gains.
Ouchi (1981) described five specific attributes of Theory Z organizations: (1) lifetime employment relationships, (2) investment in organization-specific skills, (3) balance between explicit and implicit decision criteria, (4) participative decision making, and (5) a holistic view of people.

The Japanese have developed these attributes to a high degree in many of their organizations, with very successful results. Figure 2 illustrates how these attributes lead to trust, subtlety, intimacy, and on to more involved organizational members who contribute to productivity gains.

McGregor (1960), Hage (1965), Likert (1967), and Ouchi (1981) have determined that leadership styles in organizations will impact
Figure 2. Relationships Between Basic Characteristics of Theory Z.

on the performance of employees. McGregor (1960) expressed a view that leadership style depended on how one viewed human nature. Likert (1967) viewed leadership style as being an important determinant of performance and satisfaction. Hage (1965) proposed that the organization could be analyzed by looking at eight variables and that change could be made by adjusting the degree to which each variable was manifest. It is believed that the style will have bearing on the style exhibited by leaders within the organization. Ouchi (1981) proposed that involved workers are key to productivity gains for an organization.

The behavior of individuals within any organization is a key element in how the organization works as a whole. A description of the organizational behavior deals with the overall climate and environmental impact on workers.

Stogdill (1974) reported that initial studies on leadership style were conducted at Ohio State University under the direction of Shartle in 1945. Extensive research in the area of leadership style led to the conclusion that initiating structure and consideration were key factors in leadership style (Halpin & Winer, 1957; Hemphill, 1949). Using the Leader Behavior Description Questionnaire (LBDQ), researchers found that the subscale scores of Initiation of Structure and Consideration measured two distinct patterns of behavior (as illustrated in Figure 3). Fleishman (1969) wrote:

Consideration (C). Reflects the extent to which an individual is likely to have job relationships with subordinates characterized by mutual trust, respect for their ideas, consideration of their feelings, and a certain warmth between the individual and them.
Structure (S). Reflects the extent to which an individual is likely to define and structure his or her own role and those of his subordinates toward goal attainment. (p. 1)

Figure 3. The Ohio State Leadership Quadrants.


The Initiation of Structure and Consideration dimensions were used to describe different leadership styles by other authors, including four to be described in this section. The LBDQ used in the Ohio State University studies measured subordinate responses to determine leadership behavior. Fleishman (1957) developed the Leadership Opinion Questionnaire (LOQ) as a means of determining style based on the leader's responses to questions. The LOQ, which is used in this study to determine leadership style, gathers data about the self-perceptions that leaders have about their own leadership style.
Blake and Mouton (1964) advocated an understanding of leadership in terms of task (Initiation of Structure) and relationship (Consideration) orientations of the leader. The authors have constructed a managerial grid (see Figure 4) identifying five divisions of leadership behavior based on the factors of task and relationship.

The horizontal axis on the grid indicates concern for the task, while the vertical axis indicates concern for people. The interrelationship of these dimensions defines the basic leadership style of an individual. The grid is divided into nine units on each of the axes. As the score on either the production or people dimension rises, the area of the grid changes. The lower left section is called the 1/1 section. This represents a style viewed as avoidance of both production and people. The leader using this style offers little to the employee in terms of either direction or support. The 1/9 section denotes a leadership style concentrating on providing a climate conducive to meeting people needs. A leader using this style would believe that task or organizational needs would follow once people needs are met. The 9/1 leadership section indicates a task orientation. This authoritarian type leader would expect obedience from followers and would provide continual direction. The 5/5 leader is democratic. This leader would attempt to solve problems by seeking compromise. This manager would be concerned about meeting both the needs of production and the people, but would do so in a manner not likely to meet either needs. The 9/9 manager is team management oriented. This management style fits the Likert
<table>
<thead>
<tr>
<th>Concern for People</th>
<th>1/1 Management</th>
<th>2 Exertion of minimum effort to get required work done is appropriate to sustain organization membership.</th>
<th>3/3 Management</th>
<th>4 Adequate organization performance is possible through the balancing necessary to get out work with maintaining morale of people at a satisfactory level.</th>
<th>5/5 Management</th>
<th>6 Work accomplishment is from committed people; interdependence through a &quot;common stake&quot; in organization purpose leads to relationships of trust and respect.</th>
<th>7/7 Management</th>
<th>8</th>
<th>9/9 Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 - High</td>
<td>Thoughtful attention to needs of people for satisfying relationships leads to a comfortable friendly organization atmosphere and work tempo.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. The Managerial Grid.

Source: From The Style of Management Inventory (p. 1) by J. Hall and M. S. Williams, 1964, Woodland, TX: Telemetrics International.
System 4 style. The 9/9 leader balances the needs of the organization and the needs of individuals with team decision making and commitment of group members.

Blake and Mouton (1964) stated that the 9/9 leadership style will produce both better performance and satisfaction at higher levels than the other leadership styles. They do, however, recognize the need for the use of other styles depending on the situational factors (Blake & Mouton, 1978).

Gordon (1977) found that conflict resolution styles fell into similar categories as those proposed by Blake and Mouton (1964). He stated that the ideal manner in which to handle conflict situations was through the use of "win-win" resolution styles. These styles emphasize both the needs of the individual and the needs of the opponent. This is similar to the needs of production and people. Levin (1979) listed styles of negotiating and conflict resolution on a conflict grid patterned after the managerial grid. The styles proposed by Levin were (a) failure (1/1), (b) dominating (9/1), (c) dominating (1/9), (d) compromise (5/5), and (e) mutual gain (9/9). Levin concluded that the most preferable style for settlement of conflict was mutual gain. This type of settlement of conflict is characterized by a lack of any party losing or winning. It is mutual problem solving. Nierenberg (1968) agreed with Levin stating that where there is a significant winner, there must also be a significant loser waiting for an opportunity in which they will prevail.

Cummins (1971), in a study using the LOQ to determine the interaction of structure and consideration, found that
consideration-structure interaction affected quality but not productivity. Brown and Dalton (1980) found that successful business managers "would exhibit high Initiating Structure and [high] Consideration when working with principals and supervisors in the school organization" (p. 212). This supports the findings of Blake and Mouton (1964) in that the 9/9 style is superior to the other styles of leadership.

Reddin's (1980) work is another example of the consideration and task dimensions of leadership. To the dimensions used by Blake and Mouton (1964), Reddin added the dimension of effectiveness. Reddin is classified as a proponent of contingency management because of his belief in the effect of situational factors on leadership effectiveness. He listed five situational factors that determine effectiveness: (1) leadership style demands of the job, (2) leadership style demands of the superior, (3) corporate philosophy, (4) leadership style demands of the subordinate, and (5) expectations and leadership style of the subordinate.

Using the task orientation dimension as the horizontal axis of this model and the relationship dimension as the vertical axis, Reddin (1980) categorized latent styles of leadership (see Figure 5). In addition to the four latent styles, he proposed four effective and four ineffective styles for a total of 12 style variations.

Hersey and Blanchard (1974) presented a theory based on both Blake and Mouton's (1964) and Reddin's (1980) works. The Life Cycle Theory attempts to define the curvilinear relationship between Initiating Structure and Consideration behavior and the maturity of
Figure 5. 3-D Leadership Theory.

employees.

The theory suggests that as employees mature in the situational aspects of their jobs, the leader should alter his or her style, moving from low relationship (consideration), high task for immature employees through high relationship, high task to high relationship, low task and finally to low relationship, low task for the mature subordinate. This movement is controlled by the rate of maturity of the employee (see Figure 6).

Weed, Mitchell, and Moffitt (1976), in their study of leadership style and employee personality, found that high relationship (consideration) leadership fits with low dogmatism employees. High structured leadership was appropriate with high dogmatism employees. Dogmatism was the degree that an individual believed in and held on to an opinion or method of action. High structure and high consideration were viewed by all employees as the most favorable style, but performance indicators showed differing results for different management styles depending on the employees' orientation.

Fiedler (1967) stated that the group's performance is contingent upon the appropriate matching of leadership style and the degree to favorableness of the group situation for the leader. This theory proposed that group performance could be improved either by modifying the leader's style or by modifying the group task situation.

Using the Least Preferred Co-worker (LPC) scale, Fiedler (1967) assessed leadership style and related it to leadership effectiveness. The LPC required the respondent to indicate or rate the
Figure 6. Life Cycle Leadership Theory.


person with whom he or she worked least effectively. This rating scale consisted of a series of adjectives describing the least preferred co-worker (Wexley & Yukl, 1977). According to Fiedler (1967), the score on the LPC related to the degree of task or relationship orientation of the leader. The high LPC leader is oriented
to relationships and the low LPC leader is oriented toward the task.

Fiedler (1967) found that the favorableness of the situation could be determined by studying leader-employee relations, the task structure, and the positional power of the leader. The results of the study allowed the creation of eight divisions that could be rank ordered according to the favorableness of the situation for the leader. Fiedler constructed eight octants and described the three variables within each octant.

Octant I was the most favorable situation for the leaders and Octant VIII was the least favorable. Octant I was characterized by good member relations, structured task, and strong positional power. This is easily understood as a favorable situation since each variable is in the leader's favor. Octant II is similar to Octant I with the positional power as weak. Octant III has good relationships with low task structure and strong positional power. Octant IV is similar to Octant II with weak positional power.

Octants V through VIII are characterized as having only moderate to poor member relations. Octants V and VI have structured tasks with power being strong in V and weak in VI. Octants VII and VIII have unstructured tasks with VII having strong positional power and VIII having weak. Octant VIII is the least favorable situation since none of the variables are in the manager's favor.

The results of Fiedler's (1967) study indicate that relationship oriented leaders do well in situations that are only moderately favorable. Task oriented leaders do well in situations that are very favorable or very unfavorable.
Beginning with the Ohio State Studies, leadership style was viewed as consisting of two key factors, Initiating Structure and Consideration. Blake and Mouton (1964) found that leadership style could be analyzed and placed on a managerial grid indicating the predominant leadership style. Reddin (1980) proposed that effectiveness was also a key factor, along with task and relationship, and added the third dimension. This created a possible 12 styles—4 latent, 4 effective, and 4 ineffective.

Hersey and Blanchard (1974) indicated that the proper leadership style was dependent on the maturity of the employee. As the employee matured in a given task situation, the leader was to adopt a more mature leadership style. Fiedler (1967) proposed that the situational favorableness determined the most effective style. In high or low favorableness situations, a high task orientation is necessary. In moderate favorableness situations, a democratic, or more relationship orientation is more effective.

Savery and Waters (1990) repeated a 1978 study among white collar employees of a mining company in Perth, Western Australia. The respondents' preferred leadership style was measured on 23 specific situation questions and responses were analyzed using principal component analysis. Five underlying factors were contained in the data: (1) job security, (2) productivity, (3) workload, (4) economics, and (5) promotion.

The ideal leadership style for a majority of the respondents was that at least the decisions that influence the level of work effort should be jointly determined. The authors concluded that
management should recognize that there are different preferred leadership styles for different decisions and that those styles appear to be influenced by the individual's skills. In addition, employees should be allowed to participate in issues close to the daily concerns.

Literature Specific to the Health Care Industry

One of the first systematic studies in the health care industry that linked leadership style to productivity concluded that the hospital is a "matrix" organization at cross purposes with itself (Smith, 1955). Smith hypothesized that physicians, whether in the role of supervisor or not, have a great deal of authority and power at all levels of the organization and that a hospital is in fact two authority systems within one institution.

Researchers on leadership style and its relationship to hospital productivity found that the organization, organizational levels, and tasks involved had a direct impact on the leadership style used and its effect on productivity (Georgopoulos & Mann, 1962). Leadership style in 10 Michigan community hospitals was measured in terms of administrative, human relations, and technical skills, and in terms of nine supervisory practices as follows: (1) understanding an employee's viewpoint; (2) working with people; (3) freedom to resolve conflicts; (4) expressing appreciation; (5) asking for input from subordinates; (6) announcing, in advance, changes that affect workers; (7) planning, organizing, and scheduling; (8) keeping subordinates informed about their work performance; and (9) being open
to employees' ideas. The conclusions with regard to leadership style were that the type of style correlates to the organizational operational philosophy. In 1972, Baldwin applied the concepts of Lawrence and Lorsch (1967) to 14 Florida hospitals to determine the effect of management differentiation and integration on hospital productivity. Based on research with companies in various industries, Lawrence and Lorsch had reached certain conclusions about the use of integrators to achieve continuous coordination and managing conflicts due to different goal orientations. An integrator is a person who is assigned the express function of facilitating communication and coordination between the members of certain interdependent departments. Baldwin concluded that the degree of differentiation and integration are related to productivity; however, unlike Lawrence and Lorsch, he found that differentiation was more significant to productivity than integration.

Gruenfeld and Kassum (1973) assessed the relationship between leadership style and organizational effectiveness in a hospital's department of nursing service. The researchers found that nursing supervisors who use a leadership style that combines high initiating structure and high consideration will have higher subordinate productivity with regard to patient care than those who fail to do so.

In 1976, the Department of Health and the Social Security Administration sponsored a participative management project in a 330-bed community hospital (Herrod, 1978). Herrod reported that a number of benefits resulted from the introduction of the leadership style of participative management. One benefit which evolved was
that frank and open discussions became possible between staff of different grades and disciplines. Another important benefit was that inviting staff to give input through ideas and even solutions to problems had helped relieve frustrations and had provided staff with more job satisfaction and motivation. In turn, this created more commitment, helped working relationships, and improved productivity within the hospital.

In a similar study, a 56-bed neurosurgical unit and a 7-bed neuro-intensive care unit piloted a participative approach to nursing management (Deines, 1981). The results of this pilot had shown that the nursing staff unit became a goal oriented professional group with pride in their work and delivered high level patient care. Among the group's accomplishment was a 2-year record of no decubitus ulcers developed by any patient, no matter how debilitated or how long their length of stay. This pilot demonstrated that a participative management leadership style increased productivity by releasing creative energy.

A further research study on medical departments which included the department of nursing measured the relationship between leadership style and productivity and efficiency in a number of general acute hospitals, concluding and supporting Fiedler's contingency theory (Taylor, 1978). Taylor concluded that in some situations as a leader tends to be participative, employees tend to be more productive or efficient; and in other situations as a leader tends to be authoritative, employees tend to be as productive or efficient.
Another pilot which established a system of activity standards against which individual and departmental performance could be tracked and evaluated was conducted using a department of respiratory therapy (Margulies & Duval, 1984). The respiratory therapy department, which was a unit of the department of medicine, pulmonary division, employed 45 full-time equivalents and provided approximately 30 different services to the patient population. The experience described through this pilot supports the notion of leadership style as a vehicle for productivity improvement. The authors concluded that leader support, organizational preparation, and a long-term perspective were necessary for successful implementation of productivity management, which is a model for participative management leadership style.

In 1986, a field experimental study of the effects of increased participation on job satisfaction and attendance behavior of staff nurses was conducted at a large academic medical center located in the Midwest (Counte, Barhyte, & Christman, 1987). Eight units of nurses from a large teaching hospital were involved. Four units attempted to introduce a participative management leadership style, while four others served as contrast units. Repeated-measures analysis of variance and stepwise multiple regression techniques were used to access the effects of the intervention on job attitudes and attendance behavior. The results of this one-year project suggest that increased involvement in decision making through a participative management leadership style had significant positive effects on attendance behavior and satisfaction with the nurses' work.
supervision, and co-workers.

In 1990, Bruhn reviewed manager indecisiveness and its impact on employee behaviors. The author concluded that managerial indecisiveness was most commonly found in three managerial functions: (1) promoting and dismissing, (2) delegating authority and responsibility, and (3) creating organizational change. The author further stated that when managerial indecisiveness exists, employees learn techniques for circumventing management or forcing decision making. In addition, the indecisive manager usually does not recognize a relationship between their leadership style and unproductive and destructive behavior among their subordinates.

Summary

The measure of leadership style in the literature revealed that as long as organizations strive for financial responsibility, profit, and productivity, there will be a continuing interest in the relationships between leadership style and productivity.

Ouchi (1981) stated in his Theory Z addition to McGregor's (1960) Theory X and Y, that productivity is dependent on involvement and is derived from the five components outlined in Figure 2 (page 13). Of the five attributes of Theory Z organizations, investment in the organization specific skills and balance between explicit and implicit decision criteria would support the assumption that hospital employees would have higher productivity under a high consideration leader. This assumption is based primarily on the prior training that most hospital employees receive prior to hiring into entry
level positions.

Hersey and Blanchard (1974) presented supportive evidence that situational leadership affects productivity. Their Life Cycle Theory stipulates that high consideration/high structure or high consideration/low structure leadership style would be most effective for the mid-range employee. Based on their research findings in this area, an assumption is made throughout this research that high consideration is a major component in an effective leadership style for employees that are past the preliminary stages of corporate development but not yet fully mature as defined by Hersey and Blanchard (1982).

Reddin (1982) further suggested that both high relationship and high structure act to increase productivity toward the more effective strata of his typology as characterized by the Developer/Executive leadership style.

The hypothesis that was researched in this study was that high consideration/high structure and high consideration/low structure leadership styles would increase productivity in hospital employees who are in the middle stages of corporate development. This is operationally defined in the alternate hypothesis as a relationship between productivity as measured by the Paid Hours Per Adjusted Discharge reported in the HAS/Monitrend report and the leadership style measured by structure and consideration scores on the Leadership Opinion Questionnaire.
CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this chapter is to define the various dimensions of this specific research: (a) The population under study is defined, (b) two data gathering methods are described for the purpose of measuring the variables under study, (c) the basic design and procedure are presented, and finally, (d) the method of statistical analysis is described.

Population

The population defined for the purpose of this study was the middle managers responsible for the function centers defined by HAS/Monitrend, a research report prepared for hospitals by the American Hospital Association. HAS/Monitrend defines these function centers as: (a) medical and surgical (includes medical and surgical and intensive care unit), (b) all other patient care units, (c) total administrative and fiscal, (d) laboratory, (e) surgery and recovery, (f) pharmacy and IV therapy, (g) dietary, (h) central services, (i) plant maintenance, (j) utilities, (k) housekeeping, (l) nursing administration, (m) radiology diagnostic, (n) respiratory therapy and pulmonary function, (o) laundry, (p) medical records, and (q) physical therapy.
The management population was limited in this research to those working for short-term community general hospitals within the Detroit Standard Metropolitan Statistical Area (DSMSA) as defined by the United States government.

The selection of short-term community general hospitals from the DSMSA acted to decrease data variation due to extraneous variables. Specifically, the following factors were controlled by the population limitations.

1. The hospitals have overlapping memberships in their medical staffs which tend to standardize, from one hospital to the next, the treatment modalities used.
2. The hospitals draw essentially from the same labor pool and, therefore, have similar wages and benefits.
3. The hospitals purchase supplies, food, and the like from essentially the same vendors in the same market which tends to standardize these costs.
4. State licensure laws apply equally to all hospitals in the area which standardizes licensure requirements.

Short-term community general hospitals are defined as hospitals offering at least inpatient services to short stay, male and female, medical and surgical patients. In addition, only those hospitals that are accredited by either the Joint Commission on Accreditation of Health Care Organizations or the American Osteopathic Association were included in this study.

The hospitals in the population studied ranged in size from 125 beds to 300 beds. Using this range avoided the "size effect" which
has been noted to occur somewhere below 100 beds (Neuhauser, 1971). Even though there was a size range of 175 beds, the departments under study were large enough to compare productivity with consistency. Departments, or function centers, with less than seven employees were not included within the population process to avoid wide variations in the structure of small groups performing similar functions.

Sampling

A cluster sampling technique was used to select the individual managers included in the sample. A list of all short-term community general hospitals in the DSMSA was created. From this list all hospitals with bed spaces falling outside the population parameters were eliminated.

From the remaining list, 10 hospitals were selected using a simple random sampling technique without replacement. These 10 hospitals formed the clusters from which the function center managers were drawn.

The HAS/Monitrend report lists 17 function centers. From this list a random selection of 10 function areas was selected. These 10 areas from the 10 hospitals generated 100 function center managers to participate in the study.

The function centers were held constant across the 10 hospitals to maintain a comparison ability. If a function center was missing from one or more hospitals, it was deleted from the list of 17 function areas before sampling. Data were generated by two means. The
variable of leadership style was determined by using the Leadership Opinion Questionnaire (LOQ, Fleishman, 1960). The productivity measure was taken from the HAS/Monitrend report for the 10 selected hospitals, or for nonreporting institutions, identical data were gathered directly from the hospital using a data gathering sheet (see Appendix A).

Leadership Opinion Questionnaire

The Leadership Opinion Questionnaire was developed by Fleishman (1957). The questionnaire requires respondents to answer a number of items. These answers are then scored to derive a leadership style for the respondent. The leadership style is based on structure and consideration factors described by Fleishman in the Ohio State Studies. The instrument yields one of four leadership styles.

Reliability calculated by the split-half method for the Structure scale are .79 and .80. For the Consideration scale the reliability was .62 and .89 (Buros, 1965).

The validity of the LOQ was reported in Buros (1965) as maintaining high construct validity with evidence that scores correlated with supervisory performance.

The four leadership styles derived from the LOQ depend on the interaction of the structure and consideration scores. The styles are low consideration and low structure (LC/LS), high consideration and low structure (HC/LS), high consideration and high structure (HC/HS), and low consideration and high structure (LC/HS).
HAS/Monitrend Data

The measurement of productivity was based on an examination of the HAS/Monitrend reports available from the selected hospitals and/or the selected institution's data. The HAS/Monitrend reports are generated on a quarterly basis. The latest data available were used. The report generated data that minimize subjective evaluations since the data requested were the same for each reporting institution. It was recognized that errors in reporting to HAS/Monitrend may occur but the overall effect should be minimal. The non-HAS/Monitrend reporting hospitals were surveyed for identical data when the need existed.

The specific data taken from the report were Paid Hours Per Adjusted Discharge for each function center. This measure of productivity uses the cost/unit concept. The yielded data were in interval scale measure.

The underlying assumption for data collection and comparative purposes was that Paid Hours Per Adjusted Discharge reflects a relatively unbiased measure of productivity. This assumption was derived from a number of facts described in the description of the population in this chapter.

The limitations to the Detroit Standard Metropolitan Statistical Area limit the degree of differences between the hospitals used in this study. As indicated previously in this chapter, the hospitals draw from the same labor pool, have similar fixed costs, and share many overlapping medical staff members. These factors support
the assumption that cost factors are comparative across hospitals.

Use of the Paid Hours Per Adjusted Discharge data negates any adverse economic influence not anticipated by the design of this study. The fact that the report is in terms of hours worked rather than hourly costs allows comparison across function centers and hospitals.

Design and Procedure

An alphabetical list was prepared for all short-term community general hospitals meeting all population parameters in the DSMSA. Using a random number table, a sample of 10 hospitals was drawn as a cluster from which to select the research sample.

A HAS/Monitrend and/or report for nonreporting institutions for each of the selected hospitals was obtained. These reports were reviewed to ascertain whether all function centers were common to all hospitals. Any function area that was not common to all hospitals was removed from the list of 17 function centers. A call was made to each hospital to determine the number of employees assigned to each function area excluding the manager. Again, any function area within any hospital falling below seven employees within the center was deleted. From the remaining list a simple random sample of 10 function centers was drawn. The managers of these function centers constituted the sample for this study.

A letter (Appendix B) was sent first-class mail to the chief executive officer (CEO) of each of the selected hospitals. The letter described the research and requested permission to use the
LOQ with function center managers. A personal follow-up call was made to each CEO to discuss making arrangements to administer the LOQ.

If a CEO did not give permission to survey the staff, a meeting was arranged between this researcher and the CEO for the purpose of outlining the research goals. If that was insufficient to elicit approval, an alternate hospital was selected and the same exclusion procedure followed.

Once approval was obtained from the CEO of each of the 10 hospitals, a packet for each of the 10 function center managers was prepared to include a LOQ, a demographic response sheet, a cover letter, and a preaddressed-stamped envelope and was sent to each hospital in care of the CEO. He or she was asked to hand deliver each packet to each manager at a staff meeting. This researcher was available to attend the meeting upon request of the CEO.

Confidentiality was maintained by the direct mailing of the LOQ and demographic response sheet to the researcher. Upon receipt, the LOQ was coded for the purpose of later combining the productivity data with the LOQ managerial response. These data were then combined with other data within the four leadership style groupings. No reference to individual hospitals or managers was made.

Data Analysis

The data yielded by the LOQ permitted the division of the respondent managers into one of the four leadership style groups. This was done for each individual function center as well as a
composite for all function centers.

The productivity measure was paired with each LOQ response within each leadership style for each function center. A composite for each leadership style was also prepared to include all function centers.

For each leadership style within each function center, a mean productivity score was calculated. A mean composite productivity score was calculated using all function centers for each leadership style.

Statistical Analysis

In order to determine if differences found are statistically significant, a t test for independent means was used. An alpha of .10 determined the level at which a decision to reject the null hypothesis was made. If the test statistic fell below the .10 alpha level, the null hypothesis was retained and no support was found for the research hypothesis. If in fact the test statistic fell within the region of rejection, the null was rejected. This showed support for the research hypothesis.

Limitations Due to the Choice of the Sample

The most serious limitation of this research design could be the area of statistical inference. Inferential statistics is defined as the procedure whereby one reaches decisions about a large body of data by examining only a small portion of those data; or statistical inference is a procedure whereby inferences about a
population are made on the basis of results obtained from a sample drawn from that population (Daniel, 1974).

A second limitation of this research is based on the fact that only 10 hospitals were included in the study (N = 10). A larger sample would be preferable so that statistical results could be extrapolated with a high degree of confidence to other short-term community general hospitals. However, if the sample had been beyond the Detroit metropolitan area, the research cost would have been prohibitive.

A third limitation may be the numbers of employees in the function centers researched. If a manager has a large number of employees to supervise, he or she has some opportunity to influence productivity assuming other variables are constant. Also, a relatively large number of departmental employees allows a researcher to determine leadership style of the department manager with a higher degree of confidence. Small departments frequently have varied, diverse, and multiple functions which make productivity comparisons difficult. Also, small departments (less than seven employees) are too small to give dependable management style measures.
CHAPTER IV

RESULTS

Examined in this chapter are the results of this research. The hypothesis studied was the relationship between leadership style and hospital labor productivity. Outlined in this chapter are the response rate from the designated sample, the results of the Leadership Opinion Questionnaire (LOQ), and the results of the labor productivity study. A statistical comparison is made between leadership style subgroups within each function center (FC) and labor productivity.

Sample Response Characteristics

The population for this study was managers of hospital function centers in hospitals within defined parameters. There were four parameters for each hospital selection. The first parameter was that the hospital had to be defined as a short-term community general hospital accredited by either the Joint Commission on Accreditation of Health Care Organizations or the American Osteopathic Association. The second parameter was that each identified hospital was required to have function centers as defined by HAS/Monitrend, a research report prepared for hospitals by the American Hospital Association. The third parameter was that each hospital in the population had to range in size from 125 to 300 beds. The fourth
parameter was that only hospitals within the Detroit Standard Metropolitan Statistical Area (DSMSA) as defined by the U.S. Census Bureau were included in the population.

Using a cluster sampling technique, 10 hospitals were randomly selected without replacement for inclusion in the sample. Ten function centers were selected randomly for this study. One hundred managers in the identified function centers and hospitals were sent the LOQ and demographic response survey.

A total of 78 managers who had responded to the LOQ had completed the demographic response sheet. Table 1 shows the response rate by coded hospital and coded function center. Each of the 10 hospitals were assigned a three digit identification number and each function center was assigned a two digit code.

One hundred percent of the managers from four hospitals responded to the study. Ninety percent of the managers from three hospitals responded. Of the remaining three hospitals, one had 80% of the managers responding, one had 30% response, and the remaining one hospital failed to respond.

Three function centers identified to be studied were represented by 90% response from the managers. Three function centers were represented by an 80% response and three function centers were represented by a 70% response. One function center had a 60% response rate.

In two function centers a single response was voided due to incorrect completion of the LOQ. A total of 80 managers responded by filling out the LOQ and demographic response sheet, but only 78
Table 1
Demographic Response by Hospital and Function

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Function center</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>n₁</th>
<th>% response</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>002</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>003</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>004</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>005</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>007</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>008</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>009</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>010</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>8</td>
<td>80</td>
</tr>
<tr>
<td>n₂</td>
<td></td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>% response</td>
<td></td>
<td>80</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>80</td>
<td>70</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>60</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>

Note. X Denotes response from that specific hospital and function area. n₁ = Number of function center managers with a hospital responding. n₂ = Number of managers responding within a function center.
could be used as data. The response rate of 78% is considered above average by this researcher and contributes to the reliability of the study.

General Findings of the Study

The Leadership Opinion Questionnaire (LOQ) was analyzed to produce four leadership style types for managers of the function centers under study. The HAS/Monitrend report was studied and a labor productivity average was developed representing Paid Hours Per Adjusted Discharge (PHPAD). The following section will outline the development of that data.

Leadership Opinion Questionnaire

The managerial responses on the LOQ were jointly analyzed to produce mean consideration and structure scores of 56.9 and 44.4, respectively. These means compare with a national norm consideration score of 53 and structure score of 50 for general supervisory personnel.

For the purpose of this study, the national norm mean consideration and structure scores will be used to classify responding managers by leadership style. Managers that have individual scores at or above 53 for consideration and 50 for structure will be classified high consideration/high structure (HC/HS). Individual scores at or above 53 for consideration and below 50 for structure will yield a high consideration/low structure (HC/LS) classification. Managers who have scores below 53 for consideration and at or above
50 for structure will be classified low consideration/high structure (LC/HS). The final category of low consideration/low structure (LC/LS) will be formed for those managers who have individual scores below 53 for consideration and below 50 for structure. Table 2 shows the division of the 78 responding managers by leadership style and function area.

Table 2
Leadership Style of Managers by Function Center

<table>
<thead>
<tr>
<th>Function center</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC/LS</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>16</td>
<td>20.5</td>
</tr>
<tr>
<td>LC/HS</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>HC/LS</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>44</td>
<td>56.4</td>
</tr>
<tr>
<td>HC/HS</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>16.7</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>

Fifty-six percent of all managers responding to the questionnaire were classified as high consideration/low structure. The category of low consideration/low structure accounted for 20.5% of the managers. The remaining managers were classified into high consideration/high structure (16.7%) and low consideration/high structure (6.4%).
HAS/Monitrend Report/Productivity Survey

HAS/Monitrend is a report prepared for hospitals by the American Hospital Association. The portion of the report used for this study to define labor productivity is the Paid Hours Per Adjusted Discharge (PHPAD) calculated from the hours paid to individual function center employees and the adjusted discharge rate. Table 3 shows the results of the PHPAD by coded function center and coded hospital. Hospitals not reporting data to HAS/Monitrend were surveyed for identical data using HAS/Monitrend standards.

One hospital (010) responding to the LOQ and demographic response sheet did not have adequate data to allow for completion of the required data and was dropped from further analysis. One hospital (006) did not respond to the LOQ and demographic response sheet and was also dropped from further study.

Hospital 007 reported that a private outside company had been contracted to service and manage Function Center 02. That function center was eliminated from the study but all other Hospital 007 function centers remained under study.

Function Center 05 does not use Paid Hours Per Adjusted Discharge to define labor productivity; therefore, Function Center 5 was eliminated from further study.

Function Centers 06, 07, and 09 were reported by HAS/Monitrend as split centers and are listed in Table 3 as (a) and (b) divisions. Since the (a) division is consistent across all hospitals, it was retained for study while (b) was dropped.
<table>
<thead>
<tr>
<th>Hospital</th>
<th>001</th>
<th>002</th>
<th>003</th>
<th>004</th>
<th>005</th>
<th>006</th>
<th>007</th>
<th>008</th>
<th>009</th>
<th>010</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>15.74</td>
<td>13.09</td>
<td>24.92</td>
<td>8.45</td>
<td>8.36</td>
<td>24.45</td>
<td>3.62</td>
<td>12.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>13.39</td>
<td>12.34</td>
<td>16.01</td>
<td>10.40</td>
<td>10.53</td>
<td>24.55</td>
<td>4.03</td>
<td>9.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>9.24</td>
<td>8.81</td>
<td>17.07</td>
<td>9.84</td>
<td>5.75</td>
<td>13.64</td>
<td>3.83</td>
<td>8.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06a</td>
<td>7.20</td>
<td>9.88</td>
<td>16.74</td>
<td>7.23</td>
<td>5.55</td>
<td></td>
<td>17.41</td>
<td>1.95</td>
<td>9.22</td>
<td></td>
</tr>
<tr>
<td>06b</td>
<td>1.35</td>
<td>1.36</td>
<td>7.79</td>
<td>2.07</td>
<td>1.69</td>
<td></td>
<td>7.02</td>
<td>0.00</td>
<td>3.44</td>
<td></td>
</tr>
<tr>
<td>07a</td>
<td>6.00</td>
<td>6.19</td>
<td>8.78</td>
<td>2.56</td>
<td>1.77</td>
<td></td>
<td>9.78</td>
<td>1.62</td>
<td>4.81</td>
<td></td>
</tr>
<tr>
<td>07b</td>
<td>0.68</td>
<td></td>
<td></td>
<td>0.07</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>34.54</td>
<td>38.99</td>
<td>46.80</td>
<td>44.31</td>
<td>46.01</td>
<td>29.74</td>
<td>36.32</td>
<td>33.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09a</td>
<td>6.41</td>
<td>6.34</td>
<td>8.21</td>
<td>7.15</td>
<td>3.71</td>
<td>7.91</td>
<td>2.02</td>
<td>4.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09b</td>
<td></td>
<td></td>
<td></td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>7.63</td>
<td>8.04</td>
<td>7.44</td>
<td>4.01</td>
<td>3.78</td>
<td>8.29</td>
<td>2.51</td>
<td>2.86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Contracted to service and managed by outside company.*
Analysis of Data

This section will detail the statistical analysis of data obtained from the Leadership Opinion Questionnaire and the HAS/Monitor trend or researcher gathered productivity data. The LOQ subdivides respondents into four leadership style groups on the basis of scores in consideration and structure. The productivity data are reported in terms of Paid Hours Per Adjusted Discharge (PHPAD).

Each function center is analyzed individually and aggregately.

Function Center 01

Table 4 shows the relationships between mean productivity for each leadership style group for Function Center 01. Two managers were designated by the LOQ scores in each of two leadership styles, LC/LS and HC/LS. Three managers fell into the HC/HS leadership group. Hospitals 006 and 008 did not respond to the LOQ from Function Center 01. Hospitals 006 and 010 did not submit productivity data.

A statistical analysis of each of the three possible two sample mean comparisons using a \( t \) test for independent means yielded no statistically significant differences at the .10 alpha level. The \( t \) test between the LC/LS and HC/LS groups resulted in a value of .17. A .9 value was calculated for a comparison between the LC/LS and HC/HS productivity means. The final comparison between the HC/LS and HC/HS leadership group productivity means yielded a .49 value.
Table 4
Leadership Style and Productivity Means for Function Center 01

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>18.41</td>
<td>16.68</td>
<td>12.40</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>8.54</td>
<td>11.64</td>
<td>3.74</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>73.00</td>
<td>135.60</td>
<td>13.98</td>
<td></td>
</tr>
</tbody>
</table>

$t_{c_{y}} = 2.92$ for 2 degrees of freedom
$\alpha = .10; p \text{ less than } .10$
$t^{HC/LS \text{ v. } LC/LS} = .17$
$t^{LC/LS \text{ v. } HC/HS} = .9$
$t^{HC/LS \text{ v. } HC/HS} = .49$

Since the $t$ values calculated did not exceed the established critical value, the null hypothesis was retained. The hypothesis that a relationship exists between leadership style and productivity for Function Center 01 was not supported by this research.

Function Center 02

Productivity means and leadership style information are shown in Table 5 for Function Center 02. Hospital 007 reported that contracted services within the scope of the function center prevented submission of comparable data; and therefore, that function center and hospital were deleted from further study. Hospital 010 reported
no data. Managers from Function Center 02 from Hospitals 004, 006, and 008 did not respond to the LOQ.

Table 5
Leadership Style and Productivity Means for Function Center 02

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>12.71</td>
<td>9.97</td>
<td>14.54</td>
<td>16.66</td>
</tr>
<tr>
<td>Frequency</td>
<td>1</td>
<td>1</td>
<td>2^a</td>
<td>1</td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
<td></td>
<td>8.33</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td></td>
<td></td>
<td>69.38</td>
<td></td>
</tr>
</tbody>
</table>

Note. No comparison possible.

^Hospital 007 reported no data for Function Center 02 because of contracted services.

Of the remaining five managers from Function Center 02, two were grouped in leadership style HC/LS and one each in the remaining three leadership styles. Because of the low frequencies in each leadership style grouping, no statistical comparisons are made.

Function Center 03

Seven hospitals were represented with data from both the function center managers' responses to the LOQ and productivity data for Function Center 03 (see Table 6). Managers from Hospitals 006 and 008 did not respond to the LOQ. Productivity data were not
submitted from Hospitals 006 and 010. Four managers were identified with leadership style HC/LS. Two managers were grouped in style LC/LS with the remaining manager in style LC/HS.

Table 6
Leadership Style and Productivity Means for Function Center 03

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>10.47</td>
<td>16.01</td>
<td>14.98</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>2</td>
<td>1</td>
<td>4(^a)</td>
<td>0</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.90</td>
<td>6.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>0.01</td>
<td>43.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(t_{cv} = 2.13\) for 4 degrees of freedom
\(\alpha = .10; p \text{ less than } .10\)

i\(\text{LC/LS v. HC/LS} = -1.38\)

The productivity means for leadership styles LC/LS and HC/LS were compared using a t test for independent means. Since only one manager was designated LC/HS, that group was deleted from study in Function Center 03.

Statistical analysis failed to show a significant difference between productivity means for the two leadership style groups at the .10 level of significance. The null hypothesis was retained indicating no support for the hypothesis that there is a
relationship between leadership style and productivity for managers in Function Center 03.

Function Center 04

Table 7 shows the leadership style division of the eight managers responding to the LOQ for Function Center 04. Managers from Hospitals 006 and 008 did not submit completed LOQ instruments. Productivity data were unavailable from Hospitals 006 and 010. Five of the remaining seven managers were designated leadership style HC/LS. The remaining two were grouped, one each, in style groups LC/HS and HC/HS.

Table 7
Leadership Style and Productivity Means for Function Center 04

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>-a</td>
<td>8.67</td>
<td>10.96</td>
<td>9.24</td>
</tr>
<tr>
<td>Frequency</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
<td></td>
<td>4.42</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td></td>
<td></td>
<td>19.57</td>
<td></td>
</tr>
</tbody>
</table>

Note. No comparison reported.

*aNo comparison reported.
No statistical comparisons were possible because of the low frequencies in three of the leadership style groups.

Function Center 06a and 06b

Responding managers to the LOQ from Function Center 06a and 06b were grouped into two leadership style categories, HC/LS and HC/HS (see Table 8). Six of the seven managers were designated HC/LS and one as HC/HS.

Table 8
Leadership Style and Productivity Means for Function Center 06a/06b

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean 06(a)</td>
<td>11.01</td>
<td>7.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>24.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity Mean 06(b)</td>
<td>3.89</td>
<td>1.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Variance</td>
<td>7.95</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. No comparison possible.
Hospital managers from Function Center 06 from Hospitals 006, 008, and 010 did not respond to the LOQ. Productivity data were unavailable for Hospitals 006 and 010. Responding hospitals submitted information in both the 06a and 06b categories.

Statistical comparisons of productivity means were not possible because of insufficient frequency of response in leadership style groups.

Function Center 07a and 07b

Table 9 shows the groupings of managers of Function Center 07a into one of three leadership categories. Four responding managers were placed in the HC/LS leadership group. Two managers were designated in each group, LC/LS and HC/HS.

Hospital 006 did not submit managerial response to the LOQ or productivity data. Hospital 010 did not supply productivity data. The productivity data breakout into 07a and 07b did not supply adequate data in 07b to allow for further study.

A t test for independent means was used to compare productivity means between each pair of the three leadership style groups. The comparison between LC/LS and HC/LS yielded a value of .64. A t value of -.64 was obtained in a comparison between LC/LS and HC/HS. The remaining comparison between HC/LS and HC/HS yielded a value of -2.11.

The analysis of each possible pair of leadership groupings failed to produce data that would indicate a statistically significant difference between productivity means at an alpha level of .10.
Table 9
Leadership Style and Productivity Means for Function Center 07a/07b

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean (a)</td>
<td>5.67</td>
<td>3.55</td>
<td>7.98</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.40</td>
<td>2.20</td>
<td>2.54</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>19.30</td>
<td>4.80</td>
<td>6.44</td>
<td></td>
</tr>
</tbody>
</table>

Note. Data for 07(b) were not adequate for comparison.
\[ t_{cy(07a)} = 2.13 \text{ for 4 degrees of freedom} \]
\[ \alpha = .10; p \text{ less than } .10 \]
\[ t_{LC/LS \text{ v. HC/LS}} = .64 \]
\[ t_{LC/LS \text{ v. HC/HS}} = -.64 \]
\[ t_{HC/LS \text{ v. HC/HS}} = -2.11 \]

The null hypothesis was retained. The data do not support the hypothesis that a relationship exists between leadership style and productivity for Function Center 07a.

Function Center 08

Nine managers in Function Center 08 responded to the LOQ. The distribution into leadership style groups is shown along with productivity means in Table 10. Hospital 006 did not submit a LOQ response. Hospital 006 and 010 did not submit productivity data. Seven of the eight managers were designated by the LOQ as leadership style HC/LS. The remaining manager was classified LC/LS.
Table 10
Leadership Style and Productivity Means
for Function Center 08

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>44.31</td>
<td></td>
<td>37.91</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>1</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
<td></td>
<td>6.46</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td></td>
<td></td>
<td>41.72</td>
<td></td>
</tr>
</tbody>
</table>

Note. No comparison possible.

Statistical comparison of productivity means between the two leadership style groups is not possible due to the single managerial designation in LC/LS.

Function Center 09a and 09b

The results of leadership style designation and productivity means are tabulated in Table 11 for Function Center 09a. One hospital submitted data in a subcategory designated 09b. No analysis is made of productivity data from 09b.

Nine managers from Function Center 09 responded to the LOQ. Four managers were classified style HC/LS. Two managers were designated leadership style LC/HS. One manager each scored in the HC/HS and LC/LS grouping. Hospital 006 did not submit productivity or LOQ data. Hospital 010 did not submit productivity data.
Table 11
Leadership Style and Productivity Means for Function Center 09a

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>4.15</td>
<td>4.22</td>
<td>6.28</td>
<td>8.21</td>
</tr>
<tr>
<td>Frequency</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.1</td>
<td>1.83</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>9.63</td>
<td>3.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$t_{cv} = 2.13$ for 4 degrees of freedom

Alpha = .10; $p$ less than .10

$t_{LC/HS \text{ v. } HC/LS} = -.87$

For statistical comparison purposes, leadership style groups LC/HS and HC/LS had sufficient response to warrant further study. A $t$ test for independent means was used to determine if there was a statistically significant difference between productivity means. The analysis yielded a value of -.87, less than the critical value. The null hypothesis was retained at the .10 level of significance. There was no support for the hypothesis that a relationship exists between leadership style and productivity for Function Center 09.

Function Center 10

Table 12 shows the leadership style groupings and productivity means for managers in Function Center 10. Hospitals 006 and 010 did not submit any productivity data or LOQ responses. Of the remaining
eight hospitals, five Function Center 10 managers responded to the
LOQ. Two managers each fell into categories LC/LS and HC/LS. The
remaining manager scored in the HC/HS range.

Table 12
Leadership Style and Productivity Means
for Function Center 10

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>6.04</td>
<td>5.82</td>
<td>3.04</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.19</td>
<td>2.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard variance</td>
<td>10.17</td>
<td>6.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$t_{CV} = 2.92$ for 2 degrees of freedom

At $\alpha = .10$; $p$ less than .10

$^*_{LC/LS \ v. \ HC/LS} = .08$

A statistical comparison was made between leadership style
groups LC/LS and HC/LS using productivity means. A $t$ test for inde­
pendent means yielded a .076 value. These data were not sufficient
to reject the null hypothesis at the .10 level of significance.
This research does not support the hypothesized relationship between
leadership style and productivity for Function Center 10.
Comparison of Aggregated Data

Table 13 shows the leadership styles of all reporting managers disaggregated into four leadership styles: low consideration/low structure (LC/LS), low consideration/high structure (LC/HS), high consideration/low structure (HC/LS), and high consideration/high structure (HC/HS).

Of the 62 managers who completed the LOQ and of which productivity data were available and retrieved, 10 managers had data in two subcategories, 6a and b and 7a and b. This is reflected in Table 13 by a total of 72 managers rather than 62. Eleven of the managers were classified LC/LS, 5 were classified LC/HS, 44 were classified HC/LS, and the 12 managers were classified HC/HS.

A $t$ test of independent means was used to compare each pair of leadership style means. The comparisons yielded $t$ values of between .11 and -.19. None of the six comparisons yielded data that would support the rejection of the null hypothesis that leadership style was not related to hospital labor productivity.

Summary

Seventy-eight managers responded to the Leadership Opinion Questionnaire out of a total 100 surveyed. Of those responding, 56.4% were classified high consideration/low structure, 20.5% were low consideration/low structure, 16.7% were high consideration/high structure, and 6.4% were low consideration/high structure.
Table 13
Leadership Style and Productivity Means for All Function Centers

<table>
<thead>
<tr>
<th>Leadership style</th>
<th>LC/LS</th>
<th>LC/HS</th>
<th>HC/LS</th>
<th>HC/HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity mean</td>
<td>8.92</td>
<td>8.62</td>
<td>8.68</td>
<td>8.99</td>
</tr>
<tr>
<td>Frequency</td>
<td>11</td>
<td>5</td>
<td>44</td>
<td>12</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>6.64</td>
<td>5.12</td>
<td>6.35</td>
<td>4.77</td>
</tr>
<tr>
<td>Standard variance</td>
<td>44.09</td>
<td>26.21</td>
<td>40.32</td>
<td>22.75</td>
</tr>
</tbody>
</table>

$t_{cv}$ HC/LS v. HC/HS = 1.68 for degrees of freedom = 54
alpha = .10; p less than .10
$t$ = -.19

$t_{cv}$ LC/LS v. LC/HS = 1.76 for degrees of freedom = 14
alpha = .10; p less than .10
$t$ = .10

$t_{cv}$ LC/LS v. HC/LS = 1.68 for degrees of freedom = 53
alpha = .10; p less than .10
$t$ = .11

$t_{cv}$ LC/LS v. HC/HS = 1.72 for degrees of freedom = 21
alpha = .10; p less than .10
$t$ = -.03

$t_{cv}$ LC/HS v. HC/LS = 1.68 for degrees of freedom = 47
alpha = .10; p less than .10
$t$ = -.02

$t_{cv}$ LC/HS v. HC/HS = 1.75 for degrees of freedom = 15
alpha = .10; p less than .10
$t$ = .14

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Productivity measures in terms of Paid Hours Per Adjusted Discharge (PHPAD) were taken from HAS/Monitrend and researcher collected data based on HAS/Monitrend standards. Eight hospitals submitted data allowing adequate study.

Each function center was studied independently and aggregately using a t test for independent means where sufficient data were available. The leadership style and productivity means were compared with other leadership style and productivity means within and across function centers.

The statistical analysis for each function center produced no supporting data for acceptance of the hypothesis that leadership style was related to productivity. When the function centers were analyzed aggregately, the statistical analysis produced no supporting data for acceptance of the hypothesis that leadership style was related to productivity.

Although no support was found in this research, the hypothesis is not rejected. Further study with other samples may produce different findings.
CONCLUSIONS AND RECOMMENDATIONS

Presented in Chapter V are the conclusions and recommendations based on the results of the study and future needs. The research hypothesis studied whether a relationship exists between a manager's leadership style and employee productivity. Since there are a myriad of variables affecting any supervisory relationship, this study should be considered a small component of all of those variables that affect productivity.

Conclusions

The hypothesis that was researched in this study was that high consideration/high structure and high consideration/low structure leadership styles would increase productivity in hospital employees who are in the middle stages of corporate development. This is operationally defined as the alternate hypothesis as a relationship between productivity as measured by the Paid Hours Per Adjusted Discharge reported in the HAS/Monitrend report and the leadership style measured by structure and consideration scores on the Leadership Opinion Questionnaire (LOQ, Fleishman, 1960).

The research identified 10 hospitals from the Detroit Standard Metropolitan Statistical Area. From those hospitals a sample of 10 function centers were identified as the sample. A total of 100
questionnaires and demographic information sheets were sent to those individuals identified as function center managers.

Seventy-eight managers responded to the LOQ and completed the demographic response sheet. Hospital managers responded at different percentages ranging from 0% to 100%. The function center response spread over the 10 hospitals ranged from a high of 90% to a low of 60%. Two function center response sheets were voided due to incorrect completion of the LOQ.

In analyzing the response rate for this study, it is determined that it is above average and supports the reliability of the study. Also, the external validity or generalizability of the study is low considering the differences between statistical areas as defined by the U.S. government.

It is believed that the range of responses across function areas from 9 of the 10 hospitals has produced acceptable data to draw conclusions about the Detroit Standard Metropolitan Statistical Area.

Leadership Style

The managerial responses on the LOQ were jointly analyzed to produce mean consideration and structure scores of 56.9 and 44.4, respectively. The national norms for general supervisory personnel are 53 for consideration and 50 for structure.

It is determined that the national norms would be used to distinguish leadership style. By using the national norms, it is considered by this researcher as increasing both the internal and
external validity of the study.

Fifty-six percent of the managers were classified as high consideration/low structure. The remaining categories were: low consideration/low structure, 20.5%; high consideration/high structure, 16.7%; and low consideration/high structure, 6.4%.

The research found that over 72% of the health care industry managers surveyed were classified as high consideration. The field is considered people intensive—one that deals primarily with people/clients in some state of crisis, and/or acute or chronic illness. High consideration managers would reasonably be expected to rise in the organization because of the people centered value.

The data indicate that 76% of hospital management is low structure. This finding is consistent with the general perception that health related professionals have a fairly rigid set of procedures and have a high task relevant maturity. As managers diagnose the maturity of their followers, they can determine the appropriate style of leadership behavior in order to be effective. A manager goes through a three step process which is known as positively reinforcing successive approximations (Hershey & Blanchard, 1982). This three-step process includes: (1) initiating structure or providing direction (task behavior); (2) reducing the amount of direction and supervision; and (3) after adequate performance follows, increasing socioemotional support (relationship behavior). This concept is associated with behavior modification and more recently called performance management.
The expected result of this research would show that productivity would be higher for those function centers managed by high consideration managers. Both Hersey and Blanchard (1982) and Fiedler (1967) proposed that in the mid strata of employees, those that have experience and training but have not yet attained a work level where extrinsic rewards produce higher productivity, consideration is an important correlate to productivity. Further, Maslow (1954) indicated that employees below the self-actualization strata and above the basic needs strata require positive interactions as extrinsic reinforcers to high productivity.

As employees move to higher levels of maturity, they do not require as much psychological reinforcement. As employees become higher on task relevant maturity, the manager demonstrates confidence and trust in the employee by leaving them more and more on their own. Just as socioemotional support from the leader tends to be positive reinforcement for immature employees, too much socioemotional support or relationship behavior for people at higher levels of maturity, is not seen as a reward.

HAS/Monitrend

HAS/Monitrend is a report prepared for hospitals by the American Hospital Association (AHA). For the purpose of this study, labor productivity was defined by applying the AHA definition for Paid Hours Per Adjusted Discharge. The measurement of productivity was based on the examination of the HAS/Monitrend report available for the selected hospitals and/or the selected institution's data.
This productivity approach was used because of its simplicity and application across all function centers studied. Two hospitals were dropped from the study due to either nonresponse or insufficient reported data.

Conclusions Regarding Function Centers

This section deals with the conclusions drawn from the data analyzed in Chapter IV. Each function center was analyzed individually because of the wide variation in Paid Hours Per Adjusted Discharge from one function center to another, and together by leadership style to detect overall differences. The variation was expected because of the labor intensiveness required of some function centers while others require less worked hours to maintain the efficiency required.

The comparisons between the four leadership style managerial groups showed no statistical differences. The hypothesis stated that the expected relationships between leadership style and productivity would produce a higher productivity measure for employees working for a high consideration manager, regardless of the structure score. This was not borne out by the data collected. No significant differences were supported by the analysis of data.

Since there were 10 specific function centers involved, each was analyzed independently by leadership style groups. Of the 10 function centers, adequate data were developed for only 5 function centers.
Function Centers 01, 03, 07, 09, and 10 had sufficient frequencies within each leadership style group to produce some statistical data. Each of the function center productivity means were compared across leadership styles by using a $t$ test for independent means. In all cases, the resulting value at the .10 level of $t$ did not exceed the critical value at the .10 level of significance. Therefore, there was no support established by this research that a relationship existed between the four leadership styles and productivity within hospital function centers.

It is important to understand that although this research found no support for the research hypothesis, it did not establish that a relationship did not exist.

The remaining function centers (02, 04, 06a, 06b, and 08) that had data reported did not have sufficient frequencies to allow any statistical analysis. No conclusions are drawn about these function centers with respect to the research hypothesis.

The basic research hypothesis that there exists a relationship between leadership style and productivity is documented by the review of a number of researchers and studies. The research conducted here failed to develop support for that hypothesis; however, there is still ample reason to maintain that the relationship exists.

This research study assumed that the predominant numbers of employees would fall in the mid-strata of employees as defined by Hersey and Blanchard (1982). There is a need to develop within further study the ability to document or test that assumption. A widely dispersed maturity level of employees could greatly affect...
the resulting productivity measure within each group.

Another assumption made was that an analysis of 100 managers would yield sufficient disbursement of leadership style and allow for adequate statistical analysis. The actual result as indicated above revealed that over 70% of the respondents were classified high consideration. That unequal distribution may have also contributed to the inability to show any significant trends for productivity.

The hypothesis that was researched in this study was that high consideration/high structure and high consideration/low structure leadership styles would increase productivity in hospital employees who are in the middle stages of corporate development. This is operationally defined in the alternate hypothesis as a relationship between productivity as measured by the Paid Hours Per Adjusted Discharge reported in the HAS/Monitrend report and the leadership style measured by structure and consideration scores on the Leadership Opinion Questionnaire. That hypothesis was supported by a review of the literature.

The analysis of the data gathered during the course of this study did not support the existence of this relationship. Neither did the data from it establish that a relationship did not exist. The low frequencies found across all leadership groups and function centers did not yield sufficient data to make any true comparisons.

Within the confines of the population studied, other research supports the existence of this relationship. Additional study is needed to confirm that leadership styles of managers and employee productivity are related.
Recommendations for Further Research

It is hoped that this study has opened the possibility for further research in this area. The basic approach to this study is sound and in keeping with accepted sampling practices; however, changes are needed in order to produce more reliable data.

To establish greater frequencies across the function centers and leadership groups, a larger sampling is required. At a minimum, at least 100 hospitals should be included with the sample. This would require moving beyond the defined Standard Metropolitan Statistical Area. It would, however, produce enough individual responses within each function center and leadership grouping and allow a more reliable statistical analysis.

The productivity data collected during this study is a concern to this researcher. Hospitals in general are not well known for accuracy in reporting financial, statistical, and productivity data. Even though the most commonly known and most widely accepted guide for uniform reporting was used in this study, the researcher is concerned about the quality of the data collected from the hospitals and used for the productivity measures. All of the hospital chief executive officers who allowed the researcher to do this study willingly committed themselves to provide the best data available in order to conduct this research. Despite that commitment, the researcher feels the productivity data collected were less than optimal; however, it is the best data that are available at this point in time.
The researcher believes that there are implications of this study for those involved in the education and training of health care executives and middle managers, as well as front line supervisors. The education of these managers might include an exposure to the results of this study in order that they may be informed that different management styles are appropriate under certain organizational circumstances. In addition, exposure to the process of positively reinforcing successive approximations may be useful in their day-to-day management of resources for their respective health care organizations.

This research represents another building block in improving hospital performance; and at the same time, it indicates and stresses a need for further research. In some small way, this researcher hopes that it will help health care institutions become more efficient as they carry the burden of meeting their ever increasing societal expectations.
Appendix A

Data Gathering Sheet
<table>
<thead>
<tr>
<th>DATA GATHERING SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAID HOURS PER</td>
</tr>
<tr>
<td>ADJUSTED</td>
</tr>
<tr>
<td>DISCHARGE</td>
</tr>
<tr>
<td>MED SURG</td>
</tr>
<tr>
<td>RESPIRATORY</td>
</tr>
<tr>
<td>SURGERY</td>
</tr>
<tr>
<td>RECOVERY</td>
</tr>
<tr>
<td>LABORATORY</td>
</tr>
<tr>
<td>RADIOLOGY</td>
</tr>
<tr>
<td>PHARMACY</td>
</tr>
<tr>
<td>DIETARY</td>
</tr>
<tr>
<td>PLANT OPERS</td>
</tr>
<tr>
<td>HOUSEKEEPING</td>
</tr>
<tr>
<td>ULTRASOUND</td>
</tr>
<tr>
<td>IV THERAPY</td>
</tr>
<tr>
<td>PULM FUNCTION</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DISCHARGES</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>OPERATING REV</td>
</tr>
<tr>
<td>INPATIENT REV</td>
</tr>
<tr>
<td>OUTPATIENT REV</td>
</tr>
<tr>
<td>INTEREST REV</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix B

Letter to Chief Executive Officer
of Selected Hospitals
Dear Chief Executive Officer,

I am writing to ask you for your assistance in my doctoral dissertation to determine what affect leadership style has on labor productivity of various hospital departments. I have randomly selected ten (10) function centers in ten (10) community general hospitals in the Detroit Standard Metropolitan Statistical Area for examination. I would kindly ask for your assistance in distributing the packets of information accompanying this letter to the respective department managers for completion. I have enclosed a copy of the packet your managers will receive for your information. As you can see, the time involved in filling out the questionnaire is minimal; therefore, I believe the interruption to your particular managers should be insignificant. I would appreciate it if you could assist me in this project. If you have any specific questions or concerns or are reluctant to assist in this project, would you kindly give me a call at your earliest convenience at 751-1539.

Thank you in advance for your cooperation. I will send you a summary of my findings.

Your cooperation is greatly appreciated.

Sincerely,

[Signature]

Anthony R. Tersigni
11258 Olive
Warren, Michigan 48093
Appendix C

Approval Letter From Human Subjects
Institutional Review Board
Date: January 8, 1990
To: Anthony R. Tersigni
From: Mary Anne Bunda, Chair

This letter will serve as confirmation that your research protocol, "The Affect of Leadership Styles on Hospital Labor Productivity", has been approved under the exempt category of review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application. You must seek reapproval for any changes in this design.

The Board wishes you success in the pursuit of your research goals.

cc: K. Dickie, Educational Leadership

HSIRB Project Number 89-12-03
End Date of Approval January 8, 1991
BIBLIOGRAPHY


Lawrence, P. R., & Lorsch, J. W. (1967). Organization and environment. Boston: Harvard University, Graduate School of Business Administration, Division of Research.


Smith, H. L. (1955). Two lines of authority are one too many. Modern Hospital, 84(3), 59-64.


