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**Public managers' training and development: An extension of  
Mintzberg's theory of managerial work**

**Valencia, Sergio F., M.P.A.**

**Kentucky State University, 1989**





**PUBLIC MANAGERS' TRAINING AND DEVELOPMENT:  
An Extension of Mintzberg's Theory of Managerial Work**

**by**

**Sergio F. Valencia**

**Submitted to the Faculty of the School of Public Affairs  
Kentucky State University in partial fulfillment  
of the requirements for the degree  
of Master of Public Administration**

**PUBLIC MANAGERS' TRAINING AND DEVELOPMENT:  
An Extension of Mintzberg's Theory of Managerial Work**

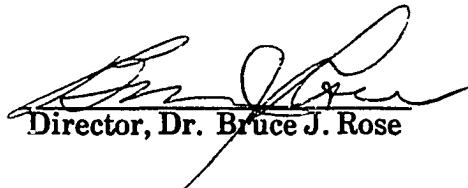
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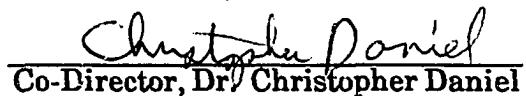
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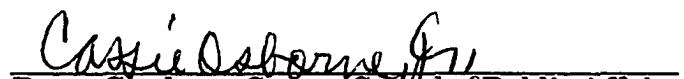
**A Thesis Approved on**

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## ABSTRACT

This study proposes a generic public managers' training and development approach. By using Henry Mintzberg's theory of managerial work, a tool for evaluating and designing instruction programs is developed.

A National Science Foundation (NSF) sponsored public manager's survey, involving analysis of survey data from more than 1,400 Kentucky state employees, is used to test the three working hypothesis of the study. Through these hypothesis the study suggests that based in Mintzberg's theory, a comprehensive managerial instructional scheme can be developed; that this model can accommodate individual variables; and that it can be used to evaluate and design managerial training and development programs.

This proposition is elaborated through the first four chapters of the study. In the last chapter, a practical use for the new instructional strategy is presented. In this application, the Governmental Services Center (GSC) program entitled Kentucky Career Managers program is evaluated and the main conclusions are presented.

Finally, the thesis shows that Mintzberg's theory can be extended to the managerial training and development field, and that this extension provides a simple and useful tool for the design and evaluation of managerial training and development programs.

## **ACKNOWLEDGMENTS**

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## TABLE OF CONTENTS

<b>TOPIC</b>	<b>PAGE</b>
<b>ABSTRACT</b> .....	i
<b>ACKNOWLEDGEMENT</b> .....	ii
<b>CHAPTER I INTRODUCTION</b> .....	1
The Managerial Resource .....	1
Working Hypothesis .....	2
Managerial Training and Development Scheme .....	4
<b>CHAPTER II FORMULATING MANAGEMENT DEVELOPMENT GOALS</b>	
Public Management Development Guidelines .....	6
Short Term Goals .....	8
Long Term Goals .....	10
Statement of Goals .....	12
<b>CHAPTER III IDENTIFICATION OF MANAGERIAL LEVELS</b>	
Variables in Managerial Work .....	14
Survey .....	15
Statistical Analysis .....	17
Managerial Levels .....	22
Conclusions .....	24
<b>CHAPTER IV DETERMINING TRAINING AND DEVELOPMENT NEEDS</b>	
Determining Needs .....	26
Statistical Analysis .....	29
Managerial Roles .....	31
Managerial Roles and Training and Development Dimensions .....	34
Managerial Roles Survey .....	36
Variations of Needs According to Levels .....	39
Conclusions .....	44
<b>CHAPTER V MANAGEMENT TRAINING AND DEVELOPMENT SCHEME</b>	
Management Training and Development Scheme .....	47
Kentucky Career Manager Plan .....	50
Evaluation of and Existing Curriculum .....	53
Conclusions .....	58
<b>CHAPTER VI CONCLUDING REMARKS</b> .....	60

<b>TOPIC</b>	<b>PAGE</b>
<b>REFERENCES .....</b>	<b>62</b>
<b>APPENDIX ONE .....</b>	<b>64</b>
<b>APPENDIX TWO .....</b>	<b>73</b>
<b>APPENDIX THREE .....</b>	<b>90</b>
<b>APPENDIX FOUR .....</b>	<b>105</b>
<b>APPENDIX FIVE .....</b>	<b>124</b>

## **CHAPTER I**

### **INTRODUCTION**

#### **The Managerial Resource**

Partly as a result of massive changes in the rate of production of goods and services, human resources at all levels of society are becoming of strategic importance in today's public administration. While needed in the past largely for the production of consumer products or routine services, the focus of human resources has changed to "smart" products and complex, knowledge-intensive services (McGregor, 1988).

Changes are also evident in the relationship between people and productivity. In the past, when concerns were directed to the manufacture of things, people could be considered an operational resource used only in the manufacture of the end product. Nowadays since individuals and their knowledge have become critical production inputs, they constitute a strategic resource.

With the shift from the manufacture of goods toward the provision of services, productivity is increasingly based on human knowledge, skills, and abilities. Since the goals of public agencies are enmeshed with the products generated by their employees, a fusion of person, position, and product takes place in those situations where the "product" is knowledge-based, and where production depends upon a "smart" production process (McGregor, 1988). This occurs in public organizations such as schools, social work agencies, hospitals, research departments, and the armed forces.

As a result, the management of human resources has become a major challenge. Since people are the "critical input" in the production process, personnel specialists must be capable of administering the knowledge, skills and abilities (KSAs) of their employees in order to cope with the changing requirements of jobs designed to fulfill the mission of their respective agencies. Thus, managers are valuable because the quality of job performance depends on KSA's and managerial resources are of strategic importance, since they greatly affect knowledge-intensive jobs.

As a result of an emerging recognition of the significance of managerial resources in contemporary society, attention is being focused on the necessity of comprehensively addressing managers' training and development. In order to produce effective managers in the public sector, training must be guided by a sound theoretical structure.

### Working Hypothesis

The working hypothesis of this thesis is that a comprehensive training and development scheme can be developed for public managerial work. Based on the remarkable similarities of managerial work in all types of organizations, we think that a body of comprehensive guidelines for managerial training and development can be obtained.

In order to understand managerial work itself, Henry Mintzberg's theory about the nature of such work can be utilized. This author indicates that "the incumbent manager must perform a set of managerial roles and the requirements of these roles lead to certain common work characteristics" (Mintzberg, 1973). There are clear differences when we compare specific

**managerial positions, but these particular differences are not in the basic roles or characteristics of the job.**

**According to Mintzberg, the job of a particular manager at a particular point in time is influenced by: environmental, job, person, and situational variables. These influences he suggests, affect the basic role requirements and job characteristics.**

**Based on the idea of the existence of basic managerial roles that lead to certain common work characteristics, we can state a working hypothesis to guide the design of a comprehensive manager's development scheme. The application of this scheme to particular cases must consider the individual variables that will influence the basic managerial role requirements and job characteristics.**

**Hypothesis No. 1: A comprehensive managerial training and development scheme can be planned based on Mintzberg's managerial roles.**

**Hypothesis No. 2: The comprehensive training and development scheme can be modified to accommodate variables such as: environment, job, person and situation.**

**Hypothesis No. 3: A comprehensive managerial training and development scheme can be utilized to evaluate and design training and development curricula.**

## **Managerial Training and Development Scheme**

Many public executives assume in managerial positions with education and experience which is limited to a specialized domain. Having arrived at their positions through a technical career path, or by political appointment, they often lack skills in management work. To assist them in performing their responsibilities appropriately, training and development becomes essential.

To design a comprehensive management development structure, the following steps will be undertaken (Galosy, 1983):

**1.-Formulate Goals:** The foundation of sound development programs must be solid goals statements a mission and values' statements to guide design efforts.

**2.-Identify Managerial Levels:** According to Hypothesis No. 2, we assume that managerial needs are different according to different levels in a hierarchy, and by using a survey of Kentucky State managers, we will identify different levels.

**3.-Determine Needs:** According to Hypothesis No. 1, through the use of a training needs survey and Henry Mintzberg's roles of managerial work (Mintzberg, 1973), we will attempt to identify management development needs and to check their variations in each one of the levels previously defined.

**4.-Evaluate an Existing Curricula:** According to Hypothesis No. 3, at this step we will bring the needs together into a meaningful theoretical training scheme and compare their main guidelines with

**those currently used by the Kentucky State Governmental Services Center training organization.**

**Because of the purpose of this project, the formulation of goals will be based on a review of the management literature using recently published papers by the American Society for Public Administration (ASPA) as the main source. It is expected that the specified goals will in turn reinforce the values, strategic objectives and philosophy of public managerial work.**

**Part of a survey sponsored by the National Science Foundation which was administered by Kentucky State University to a random sample of Kentucky's state managers will be used to identify managerial levels.**

**It is assumed that incumbents of managerial positions are able to identify germane training needs. In order to determine those which are most relevant by managerial level, within the scheme of managerial roles, Mintzberg's framework will be applied to the results of statistical analysis of responses to the survey.**

**Training needs will be organized in comprehensive and coherent systems, which will then be compared to a training program currently offered by the Governmental Service Center (GSC) for state employees.**

**In summary, this thesis will address both theoretical and practical aspects of management.**

## **CHAPTER II**

### **FORMULATING MANAGEMENT DEVELOPMENT GOALS**

In the introduction to this thesis, the strategic importance of the managerial resource to public administration was emphasized. The manager's value is linked to his or her KSAs, and therefore the general importance of managerial development to public service was stressed.

In this context managerial development is construed as, "the processes and methods through which individuals acquire or enhance the knowledge, skills and characteristics needed for effective performance of managerial responsibilities in a given organizational setting." (Flanders 1989)

It is also understood as the "formulation of solid goals and statements to guide the managerial development design efforts", to be the expression of instructional goals in three different levels. The first is within the training process in the form of main guidelines to be followed in all training programs. The second is the formulation of short term goals oriented to enhance the effectiveness of public administrators. The third is a statement of goals to be achieved in the long run, in the sense of perceiving the managerial job as an additional or second profession and not only as being in charge.

#### **Public Management Development Guidelines**

In searching for sound goals to lead managerial development programs, it is important to focus first on general training guidelines. These guidelines must be suited to the type of population that is expected to be found in the managerial domain. It can be stated that in public administration, managers

primarily will be adults with full time jobs and recognized experience as technical experts.

Flanders (1989) presents five guidelines for managerial development. These criteria take into account the type of population expected which are based on theory and research in adult education, career orientations, motivation, self-knowledge and self-assessment. She infers these guidelines from research on the nature of management responsibilities, knowledge, skills and characteristics. She stresses that management responsibilities and skills, at all levels, can usually be described in the same terms; but they differ in importance and in specifics according to hierarchical level. Flanders' guidelines are as follows:

1.-Recognize that the individual must be open to new information and willing to engage in self-development before effective learning can occur. She points out that the learning process must be voluntary.

2.-Use on-the-job activities as the primary vehicle for management development. The link between the real working world and training is always beneficial.

3.-Select learning methods appropriate for specific learning objectives, but, as much as possible, use practical, job-related training that actively involves the participants in the learning process. The author recognizes the intrinsic value of the hands-on method and advocates special training methods for special subjects.

**4.-Pay particular attention to key career transitions entry into management and movement from one level to another. Flanders again stresses the variations among levels of management.**

**5.-Use an approach that involves assessment of multifaceted individual strengths and needs as a means of accomplishing several goals. The author state some goals as: making clear the difference between specialist or individual performance and management roles and responsibilities, linking individual and organizational goals, and supporting those programs that are needed most.**

### **Short Term Goals**

The main short term goal that must be pursued in managerial development programs is to enhance the effectiveness of public administrators. That means "doing the right job, doing the job well, overcoming impediments, and living within certain constraints" (Perry, 1989).

The last chapter of the "Handbook of Public Administration," published by the American Society of Public Administration (ASPA), James L. Perry, author, presents seven factors that influence public administrators' effectiveness. These factors are: technical skills, human skills, conceptual skills, responsiveness to democratic institutions, focus on results, networking ability, and balance.

By technical skills the author means proficiency in specific kinds of activities, specially those involving methods, procedures or techniques. He state that technical skills are an effectiveness prerequisite for public administrators; for example, financial and budget analyst, labor negotiators,

systems analysts and others. Finally he says that "although technical skills are an effectiveness prerequisite in virtually every administrative position, their relative importance usually declines as a public administrator ascends an organization's hierarchy." (Perry 1989)

In the area of human skills the author stresses that the effective public administrator must have the appropriate human skills to be able to integrate people in all types of cooperative activities. The former is based on the idea that the essence of administration can be characterized as cooperative human action. As several authors in the field have stated before, the human skills are oriented toward a leadership style that provides the "glue" that will bond people together to achieve a common goal.

Conceptual skills are the capacity to think about a situation and view the "big picture." An efficient public administrator must have the capability of realizing the truly important points; he or she must filter the large amounts of data that often hide important information, thus focusing on the key issues of a situation. He or she must develop a long range or strategic vision.

By responsiveness to democratic institutions, the author states that public administrators must not only comply with the law but also facilitate all aspects of the democratic process by promoting an informed citizenry and respecting the ultimate choices of citizens and their representatives. He stresses that the political aspect of the administrator's job must be a primary concern to achieve efficiency.

Focus on results means that public administrators must be aware of the effect of their actions; and despite the ambiguities of their jobs and environment, they must evaluate the programs and projects that they perform.

They must be interested in the moral and practical consequences of these actions.

Networking ability refers to the capacity of public administrators to work within diffuse and complex networks. In the human component of these networks, for example, he or she must be able to develop cooperative links with peers, subordinates, politicians, competitors and constituents.

Balance, the last of these factors, means the ability to identify trade-offs and to recognize the need for coordinating most public decisions and actions. Perry (1989) emphasizes the fine line between broad purpose and daily routine and he says strategy must be balanced against the importance of day-to-day operations.

### Long Term Goals

In this section will be stated the long term goal of obtaining a professional public manager. One of the principal problems for public executives and for almost all managers, is the fact that management is not perceived as a profession but as "being the boss" (Keller, Green and Wamsley 1989)

These authors state that the biggest problem for public administration is the lack of properly conceptualized professionalism that is normatively grounded. They recognize that at all levels of government there is a growing occupational and professional diversity. As they see it, the problem is " how to socialize or suplementally socialize them to an additional, transcurrent and hopefully a transforming professionalism, as they move out of their

occupational specialities and original professions of choice and into the ranks of public managers."(Keller, Green and Wamsley 1989)

They also point out that "the disease of management in the U. S. A." is that a managerial career is not seen as a calling distinct from other professions or occupations; it is perceived as merely "being in charge." Thus, people trained in specialized fields are taken from their jobs and made managers with little or no preparation.

Keller, Green and Wamsley recognize that there may be a remedy for the managerial disease but not by trying to reverse the nation's cultural proclivity for science and technicism. They state that instead the solution involves recognizing the fundamental nature and complexity of governance as a special endeavor. Only then can the solution conceptualize public administration as an additional profession.

Having stated the problem and the way to a solution, the authors also state key points of this public administration profession. They stress that: "it must present itself as a profession devoted to maintaining those constitutional processes which result in viable policies, and providing the critical impetus in those processes that leads to the public interest being defined as broadly as possible."

They also suggest that this profession must call for some special knowledge and expertise to manage and administer in a political and governmental context. They define this context as "one where power is polycentric and responsibility is diffuse." As a warning they state that when there is a need to focus on knowledge and expertise, it is necessary to avoid the trap of scientism and technicism. The key to avoiding these traps, is found by

the authors, "in giving new emphasis to the calling of this profession and norms of stewardship, agency leadership and constitutional prudence."

As presented in Keller's et al. paper the importance of a professional public manager in public administration has been stated. From this process can be drawn important strategic long term goals for public management development programs, including, for example, the importance of appropriate interaction with a complex environment and the building of a comprehensive knowledge base. In the following section, goal statements are outlined that provide an underlying philosophy, mission and values to guide training and development design efforts.

### Statement of Goals

Goals inherent in training programs can be identified as follows: A management development program must place great effort in being self-motivating, in using elements that link theory and practice in a clear cut way, in obtaining a high level of involvement and practice of the trainees, and have an assessment element to reveal the strengths and weaknesses of the trainees. Also the program must differ in content according to the different managerial levels that are targeted.

Short term goals or immediate goals can be identified as follows: A management development program must pursue enhancement, according to the particular hierarchical level involving seven public administrator's effectiveness factors; technical skills, human skills, conceptual skills, responsiveness to democratic institutions, focus on results, networking ability, and balance. It is important to recall that these factors vary in importance according to the manager's hierarchical level.

**As long term goals or strategic goals, it is possible to state the following:**  
**A management development program, must recognize the importance of a professional public manager and must focus its long term objectives according to the values stated for this type of additional profession. It must provide expertise to manage and administer in a political and governmental context and encourage the values of stewardship, agency leadership and constitutional prudence.**

**Finally it can be said that other important goals are related to a general manager's development program. It is believed that these goals were covered in the previous statements but not all of those that exist in an environment as complex as public administration. For the purpose and focus of this thesis the goals presented above are sufficient to guide training, development and design efforts.**

## **CHAPTER III**

### **IDENTIFICATION OF MANAGERIAL LEVELS**

Once the goals that are going to guide the design efforts, have been determined, it is appropriate to search for different managerial levels with the purpose of addressing their specific development needs. As is stated in Hypothesis No. 2, it is assumed that managerial needs differ according to different levels in the hierarchy. Through the determination of goals these needs are made explicit.

#### **Variables in Managerial Work**

At this time it is necessary to establish the reasons that, managerial levels are so important in a study of this type. According to Mintzberg's contingency theory of managerial work, "the work of a particular manager at a particular point in time is determined by the influence that four "nested" sets of variables have on the basic role requirements and work characteristics" (Mintzberg, 1973).

He mentions first environmental variables, such as the characteristics of the milieu and the organization. Second the author focuses on the work variations caused by the job itself, such as the level of the job and the particular function supervised. Third he mentions the person variables, such as the effects of personality and style characteristics of the incumbent in the job. Finally, he points out that there are variations within a particular individual's job caused by the situation, such as temporal features of the particular job.

What this study is concerned with are those variables that can be considered as affecting in a widespread fashion public managerial job. Person and situation variables are obviously not part of this category. These variables should be considered in a particular way at a given situation.

Environmental and job variables, because of their common characteristics, can be considered to affect in a generic way public managerial jobs. In the case of environmental variables, is important to remember that we are looking at public sector organizations. Here a complex environment is found, but one that is relatively homogeneous to all public organizations. Public managers will face similar environmental challenges, independently of the particular agency of which they are a part.

Job variables, as defined by Mintzberg, include the level of job and the function supervised, and these must then be considered. As a result, job level should be considered when describing positions in the public sector. Finally, in the case of the function supervised is also a logical variable that should be addressed.

In summary, person, situational, and function supervised variables must be addressed in particular ways. Environmental variables in the public service can be considered as homogeneous, but level variables appear as important in a generic way, and, as possible, to be modeled in a sound way.

### Survey

The survey data used in this study was collected by a National Science Foundation supported research project, (NSF Grant No. RII 87040-15) awarded to the School of Public Affairs, Kentucky State University. All the

**opinions, findings, conclusions or recommendations in this thesis are exclusively those of the author, and do not necessarily reflect the views of the National Science Foundation or Kentucky State University.**

**A sample of 3,000 public managers in the executive branch of Kentucky state government was mailed a six page self-administered questionnaire in three waves. A response rate of about 49% generated 1,469 usable questionnaires. (See Appendix 1)**

**The main goal of this survey was to learn about the work of public managers and their professional growth needs. Also it asked the subjects for their views about training programs offered by the Governmental Services Center, the state's training agency, at Kentucky State University. The overall objective of the survey was to meet managerial training needs more effectively. The first mailing was completed during December 1988 and the third one was completed during June 1989.**

**The respondents, all state administrators, included 69% males, 3.7% non-whites, and 70% college degree recipients. Also as a way of obtaining an idea of the importance they assign to professional development, about 40% of the respondents were members of professional organizations, read professional journals and participated in conferences. A much smaller percentage was involved in continuing professional education activities: such as 30% in agency -sponsored training, 20% in workshops in the state's training agency, and 5% in pursuing college degree courses (Mohapatra, et. al., 1989).**

**Questions No. 22 and 23 of the survey's questionnaire were used as variables to categorize managers in different levels. Question 22 asks for: "Number of employees you directly supervised; only those employees**

immediately beneath you on the organizational chart." Question 23 asks: "How large are the organizational structure(s) you are held responsible for? (Consider both employees directly supervised and indirectly supervised through subordinate managers.)

The assumption made was that a combination of these two questions will define the parameters of managerial positions in the organizational structure. Using these questions the following step was performed to obtain the managerial levels that reflect the positions in the structure of Kentucky State managers.

#### Statistical Analysis

Question 22, "number of employees you directly supervise" was divided in five sets, less than 3, from 3 to 5, from 6 to 9, from 10 to 14, and more than 15. The main assumption in using this question, was that it gave the managerial direct span of control, in relation to the number of employees directly supervised. Table No. 1 shows the frequency distribution obtained from the survey respondents.

TABLE 1 NUMBER OF EMPLOYEES DIRECTLY SUPERVISED

SETS	FREQUENCY	PERCENTAGE
Less Than 3	278	20.5%
3 to 5	359	26.5%
6 to 9	344	25.4%
0 to 14	244	18.1%
More Than 15	129	9.5%
TOTAL	1354	100.0%

Valid Cases=1354   Missing Cases=115   Total=1469

In question 23, "how large are the organizational structure(s) you are held responsible for?" It was divided into five groups also, from 1 to 10 employees, 11 to 50, 51 to 200, 201 to 500, and over 500 employees. No one

responded to group number 5, over 500 employees. This question gave the managerial hierarchical positions, in direct relation to the total number of employees supervised. Table No. 2 shows the frequency distribution obtained.

TABLE 2 TOTAL NUMBER OF EMPLOYEES SUPERVISED

SETS	FREQUENCY	PERCENTAGE
1 TO 10 EMPLOYEES	577	42.8%
11 TO 50 EMPLOYEES	527	39.3%
51 TO 200 EMPLOYEES	170	12.6%
201 TO 500 EMPLOYEES	72	5.3%
TOTAL	1346	100.0%

Valid Cases = 1346   Missing Cases = 123   Total = 1469.

With reference to the two selected questions, the next step was to use them as the reference variables needed to identify homogeneous groups or clusters. The notion is to obtain a representation of the managerial levels of the respondents.

The statistical technique used was cluster analysis which is also known by the names of segmentation analysis and taxonomy analysis. This is a set of statistical techniques used for accomplishing the task of partitioning a set of objects into homogeneous subsets based on the inter-object similarities (Kachigan, 1986). (See Appendix 2)

To run the cluster analysis procedure, a random sample of a 10% of the respondents was used. A sub-sample was used because of three reasons: limitations in the capacity of the computer equipment, the size of the file that this technique can handle, and to have a sound way to identify the components of each cluster.

In order to maintain the general distribution of the respondents in each level of the hierarchy and so as not to introduce additional sample bias during

the cluster procedure, a random sample was searched for that gave a frequency distribution as similar as possible to those obtained from the total number of respondents. The bar charts that appear on the next two pages provide a picture of the similarities in the distributions.

The random sub-samples were obtained using the microcomputer software of the "Statistical Package for the Social Sciences" (SPSS PC). The procedure used was to draw random samples of each 10% of the respondents, until it was found a sample with frequency distributions, in both variables, as close as possible to the frequencies of the total of the respondents. Other than non response-bias, the sub-sample is no more biased than the total study sample.

Once an appropriate sub-sample was chosen, the cluster analysis procedure of SPSS PC was used to produce the appropriate statistics. The procedure used was a hierarchical cluster, where clusters can be formed sequentially in a hierarchical or "nested" fashion in which smaller clusters occur within larger ones. In this procedure, step one of the analysis is when all the elements are together in one cluster, and according to their similarities they are combining to produce in each succeeding step a different cluster.

The clustering method used was a complete linkage or furthest neighbor and the distance measure used to cluster the cases was the Chebychev distance metric. This measurement procedure means that the distance between two cases is the maximum absolute difference in values for any variable. A vertical icicle (vicicle) plot was produced that identified the individual components of each cluster.

### **Number of Employees Directly Supervised Total of Respondents**

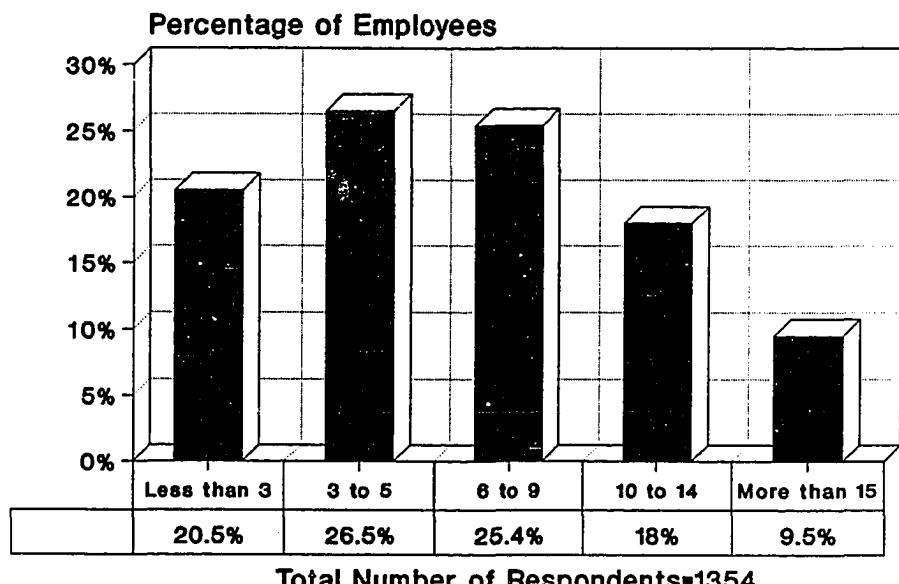


Chart No. 1

### **Number of Employees Directly Supervised Sample of 10% of Respondents**

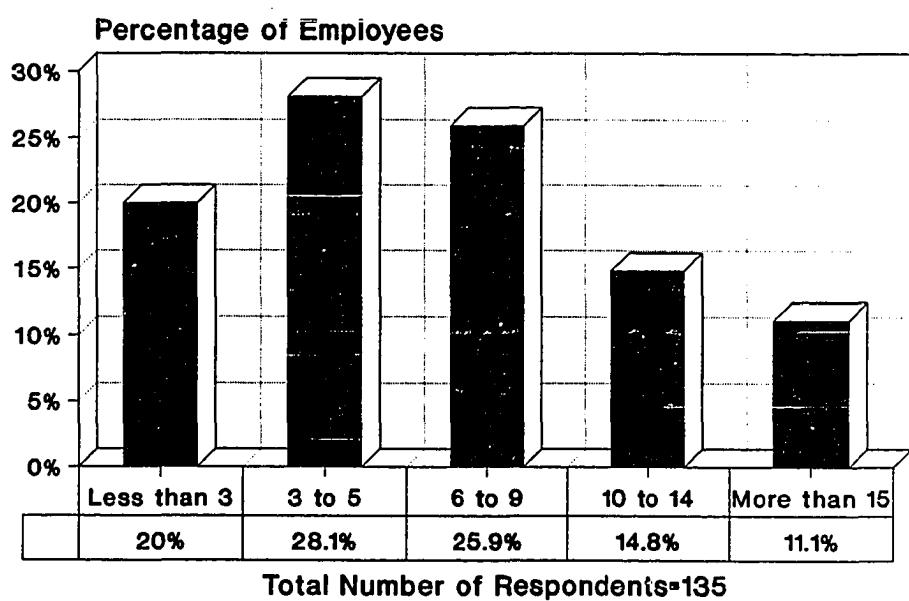
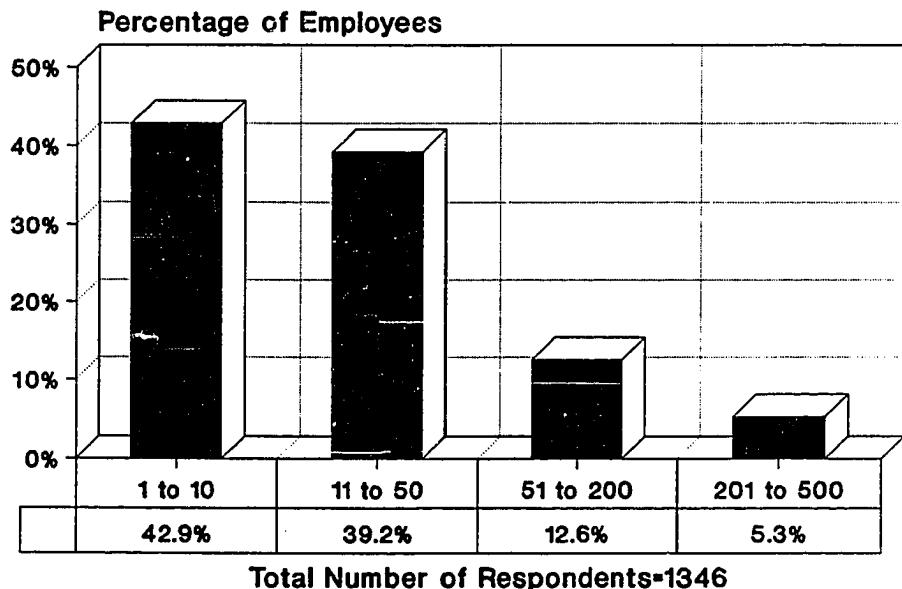


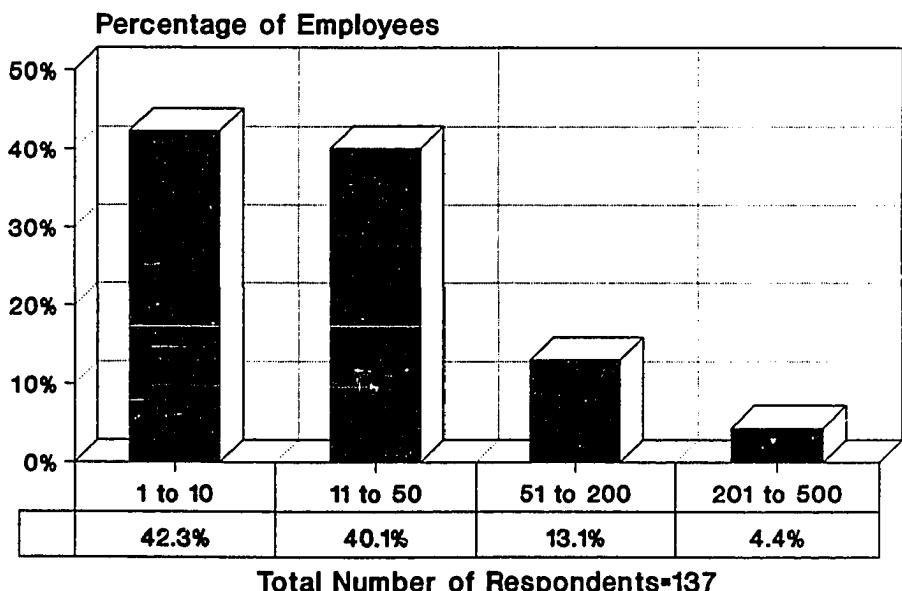
Chart No. 2

**Total Number of Employees Supervised  
Total of Respondents**



**Chart No. 3**

**Total Number of Employees Supervised  
Sample of 10% of Respondents**



**Chart No. 4**

Finally, an agglomeration schedule was used to determine the number of clusters to be selected. Six clusters were found to be needed to represent the data in an appropriate way. An agglomeration schedule gives the value of the distance between the two most dissimilar points of the clusters. By examining these values, an idea can be obtained of how unlike the clusters being combined are and consequently, decide how many clusters are needed to represent the data. (Norusis, 1985)

### Managerial Levels

As was suggested previously, the cluster procedure produced six groups that seemed to best represent the data. Analyzing the elements that form part of those six groups, by checking how each one of the variables cluster, using the vicicle plot, clusters that represent the managerial groups were chosen.

Respondents in the survey cluster into three levels that can be called high, medium, and low, according to the total number of employees supervised. Within these levels they also cluster into, what can be called, two organizational shapes, wide and narrow, according to the number of employees directly supervised. Where the direct span of control was wide, the shape is called flat, and where it was narrow it is called pyramidal.

The reason for these names comes from organizational literature. Here it can be seen that the combination of employees directly supervised with total number of employees supervised, gives shape to the organizational charts, (i.e., flat or pyramidal).

What can be inferred from these clusters then, is that Kentucky state managers are generally grouped into three main vertical levels. In each level

managers are found with a wide span of control and others with a narrow span of control.

These hierarchical levels can be called executives, middle managers, and supervisors. These names help to better understand the managers' hierarchical differences. Also they establish empirically-based levels to shape development programs.

It is important to notice also, the organizational shapes drawn from the survey. It is known from organizational literature, that span of control should vary with the nature of the tasks being performed, thus there is no one proper span of control (Hellriegel, et. al., 1989). Knowing that the span of control does make a difference in the nature of the task, these different shapes, flat and pyramidal, will allow the examination if in terms of training needs, the size of the direct span of control makes also a difference.

Chart 5  
ORGANIZATIONAL SHAPE

		FLAT	PYRAMIDAL
H I E R A R C H I C A L  L E V E L S	HIGH LEVEL (EXECUTIVES)	MORE THAN 15 EMPL. DIRECTLY SUPERVISED	3 TO 5 EMPLOYEES DIRECTLY SUPERVIS.
		MORE THAN 200 EMP. TOTAL SUPERVISED	MORE THAN 200 EMP. TOTAL SUPERVISED
	MIDDLE LEVEL (MIDDLE MANAGERS)	MORE THAN 15 EMPL. DIRECTLY SUPERVIS.	10 TO 14 EMPLOYEES DIRECTLY SUPERVIS.
L E V E L S	LOW LEVEL (SUPERVISORS)	11 TO 200 EMPLOYEE. TOTAL SUPERVISED	11 TO 200 EMPLOYEE. TOTAL SUPERVISED
		10 TO 14 EMPLOYEE. DIRECTLY SUPERVIS.	6 TO 9 EMPLOYEES DIRECTLY SUPERVIS.
		1 TO 10 EMPLOYEES TOTAL SUPERVISED	1 TO 10 EMPLOYEES TOTAL SUPERVISED

Chart 5 presents a graphic representation of the managerial groups produced by the cluster procedure. As can be seen in the executive

hierarchical level, there is a clear difference in the size of the direct span of control, in each one of the corresponding cells. At the middle manager level there is also a difference in the direct span of control, but it is not as clear as in the higher level. At the supervisory level, a situation similar to that of the middle level is shown.

It is interesting to notice also that in the lower level positions the number of employees directly supervised is almost similar to the total number of employees supervised. This phenomenon supports the idea of the existence of supervisory positions at this level. Finally it is likely that what the cluster analysis has yielded represents a prevalent model of organizational design that can be applied in general to public service organizations. It is not a representation of a particular organization but of managerial levels in a public structure.

### Conclusions

What was obtained from the survey is not a specific functional structure of a given organization. Because of the general focus of this thesis, what was desired was a representation of managerial positions within the structure of public organizations.

The application of questions about the total number of employees supervised and the number of employees directly supervised is functional to the purpose of determining the structural environment of managerial work. In this special case, because of the use of this public manager's survey, what seems to have been obtained is an overall Kentucky State managers' organizational structure.

Based on the statistical properties of this survey, (i.e., randomness of the sub-sample, fairly large number of respondents at all levels, and all public managers), it is believed that all inferences will possess strong validity. Therefore, this survey gives a relatively valid representativeness of a public service setting in the executive branch of Kentucky state government.

Consequently, it can be inferred at this step of the thesis, that the managerial public structure that was drawn from the survey, has the appropriate statistical validity to be used as a fair representation of public managers' job variables and can be used to obtain the main training and development differences due to managerial hierarchical levels and span of control.

In the following steps of this thesis an attempt will be made to determine managerial training needs and apply these needs to the different levels and shapes that were identified above. An accounting will be made of the influence that these variables have on the basic role requirements and work characteristics of public managers.

## CHAPTER IV

### **DETERMINING TRAINING AND DEVELOPMENT NEEDS**

It was stated in the introductory part of this thesis that many public administrators arrive in managerial positions with education and experience which is limited to a specialized field. They often lack managerial skills and therefore, training and development is essential.

This need for managerial skills is an example of an analytic development need. Analytic training and development needs are discovered by intuition, insight, expert consideration, and even enlightenment. They lead to new levels of performance because they are not tied by definition to previously set standards (Brinkerhoff, 1986).

A training need can be described as "existing any time an actual condition differs from a desired condition in the human aspect of the organization. More specifically, when a change in present human knowledge, skills, or attitudes can bring about the desired performance" (Morrison, 1976).

Morrison also notes that a developmental need, as differentiated from a training need, deals with the total growth and effectiveness of the individual. He states that developmental activities are pointed toward the future and emphasize activities or responsibilities of a higher order than those held at present.

#### Determining Needs

When a "Training Needs Assessment" is conducted, the key points are to determine the nature of the job, identify the knowledge, skills and abilities needed to perform the tasks, and compare them with the actual performance.

**This process leads to the determination of training needs and permits development of programs to correct performance.**

According to Leslie Rae (1986), "If we are going to identify what is wrong with a job or a person performing a job, before we can rectify the situation, we must be fully aware of the extent and the nature of the job." He says that this assessment leads to the general training specification which details the existence and extent of the training need.

This is the traditional approach utilized to determine specific training and development needs. The nature of the job determines what is needed to obtain good performance. This chapter presents a model based upon job roles to guide managerial training and development efforts. In other words, it extends the utilization of Mintzberg's theory of managerial work to the training and development field. The challenge is to demonstrate that the same roles used to describe managerial work are appropriate also for determining training and development needs.

Parts of the Kentucky public managers' survey described earlier in this thesis will be used to determine managerial training and development needs. From the six page self-administered questionnaire, questions number one, two and eight, are related to training and development needs:

- a) Question 1 asks: "To what extent do you feel knowledge of the following fields is necessary and important in your present job?" The fields stipulated are "Statistics and Research Methods, Policy/Program Analysis, Personnel Management, Management Information Systems, Budgetary Operations, Public Relations, and

**Administrative Law." The scale used was "Great Extent, Some Extent, Little Extent and No Extent."**

- b) Question 2 says: "The following lists some management topics that relate to workshops offered now or planned at GSC. Please indicate if you feel training in these areas would contribute to your growth as public manager." The following topics are presented: "Understanding Conflict, Problem Solving and Decision Making, Discipline, Equal Employment Opportunity, Financial Management and Planning, Computers, Managing Work Relationships, Managing Under the Merit System, Motivation, Performance Management, and Strategic Planning." The same scale as in question 1 is used.
- c) Question 8 says: "The following lists some skills topics that relate to workshops offered now or planned at GSC. Please indicate the extent you feel training in these areas would contribute to your growth as a public manager." The skills topics presented are: "Assertiveness, Effective Teams, Business English, Stress Management, Presentation Skills, Professional Image, Writing Effective Reports and Proposals, Reading Smarter, Train-the-Trainer, and Writing Better Letters and Memos." The same scale as in the former questions is used.

These three questions are searching for managerial training and development needs. There are questions related to general managerial fields, also to specific managerial topics, and finally to skills topics.

**It is important to recall that this survey was administered to a random sample of Kentucky state managers obtaining a high rate of response at all the levels of Kentucky's bureaucracy. Each of the questions was answered by many managers and questions 1, 2, and 8 represent training and development needs of Kentucky's public managers.**

### **Statistical Analysis**

The statistical analysis will identify factors and dimensions essential to training and development. Thus the survey responses will be used to obtain factors or abstract underlying dimensions of public service managerial training and development needs. The survey's three questions use 28 variables to determine managerial needs. Factor analysis was used to reduce the data and facilitate its interpretation. This is a statistic used to identify a relatively small number of factors that can represent relationships among sets of interrelated variables (Norusis, 1985). Factor analysis can be also thought of "as the procedure that removes the duplicated information from among a set of variables or, we may think of it loosely as a grouping of similar variables" (Kachigan, 1986).

In this thesis 27 of the 28 variables stated in the three questions were factor analyzed. Question 8i, "Train-the-Trainer," was dropped because it was found not to be related to the other items.

The factor analysis was produced using the "Statistical Package for the Social Sciences" microcomputer software (SPSS PC). The range of respondents was from 1383 to 1428 people on each variable. The Kaiser-Meyer-Olkin

measure of sampling adequacy was 0.90886, which is considered "marvelous" (Kaiser, 1974, cited in Norusis 1985).

The extraction method used was maximum likelihood and three factors were obtained. The decision to obtain three factors was drawn from the eigen values plot, where it was shown that the scree curve leveled after the first three factors. These three factors, according to the extraction method, accounted for 38% of the total variance, and the rotation method used was varimax (See appendix 3).

All the variables with factor loadings over 0.4 were selected. The three factors had the following number of variables: Factor 1 accumulated 12 variables, Factor 2 had 6 variables, and Factor 3 appeared with 6 variables, as well. Table 3 displays the factors and variables.

Table 3.- MANAGERIAL TRAINING AND DEVELOPMENT FACTORS.

<u>Factor 1</u>	<u>Factor 2</u>
Managing Work Relation Workshop	Writing Better Memos/Letters
Motivation Workshop	Writing Effective Reports/Proposals
Understanding Conflict Workshop	Business English Skill
Performance Management Workshop	Reading Smarter Skills
Discipline Workshop	Professional Image
Problem Solving and Decision Making Workshop	Presentation Skills
Managing under the Merit System	
EEO Workshop	
Effective Teams Skills	
Stress Management Skills	
Assertiveness Skills	
Personnel Management Field	
<u>Factor 3</u>	
Financial Management and Planning	
Budgetary Operations Field	
Policy/Program Analysis Field	
Management Information Systems	
Strategic Planning Workshop	
Statistics and Research Methods	

Table 3 shows the three main underlying dimensions of public managerial training and development, as were drawn from the Kentucky state managers' survey. A review of Mintzberg's theory of managerial work, and an analysis of how these managerial roles match with the recently generated managerial training and development dimensions will be presented in the following sections.

### Managerial Roles

In his book The Nature of Managerial Work, Mintzberg presents a theory of what managers do. Here he uses the concept of roles to describe the different areas of managerial work. He also cautions that "the view of managerial roles presented is one among many that are possible. The delineation of roles is essentially a categorizing process, a somewhat arbitrary partitioning of the manager's activities into affinity groups" (1973).

It is important to note at this point that Mintzberg's study was replicated ten years later and those researchers said, "Our replication of Mintzberg's decade-old study confirms the soundness of his results" (Kurke and Aldrich, 1983). Therefore, this is a theory of managerial work, although developed more than ten years ago, maintains its use as a sound describer of manager's practices.

Mintzberg says that managerial activities may be divided into three groups. First, those that are concerned primarily with interpersonal relationships; second, those that deal primarily with the transfer of information; and third, those that essentially involve decision making.

Each of these groups is divided into roles; there are three interpersonal roles, three informational roles, and four decisional roles. These ten roles are performed, according to Mintzberg, by all managers. Table 4 shows a list of these roles.

Table 4.- MANAGERIAL ROLES

<u>INTERPERSONAL</u>	<u>INFORMATIONAL</u>	<u>DECISIONAL</u>
Figurehead	Monitor	Entrepreneur
Leader	Disseminator	Disturbance Handler
Liaison	Spokesman	Resource Allocator Negotiator

A role is an organized set of behaviors belonging to an identifiable office or position. To fulfill that position, the incumbent manager must perform a set of managerial roles and the requirements of these roles lead to certain common work characteristics. The descriptions in quotations below are closely paraphrased from Mintzberg (1973).

In the interpersonal set of roles the manager must perform the following activities:

"As figurehead or symbolic head of the organization he or she is obliged to perform several routine duties of a legal or symbolic nature. He or she as leader is also responsible for the motivation and activation of subordinates. He or she is responsible for staffing, training and associated duties. Finally, in the role of liaison, he or she must maintain a self-developed network of outside contacts and informers who provide favors and information."

In the informational set of roles the manager must perform the following activities:

"As monitor he or she must seek and receive a wide variety of special information to develop a thorough understanding of the organization and its environment. The manager emerges as the nerve center of internal and external information of the organization. In his or her role of

**disseminator**, the manager must transmit the information received from outsiders or from other subordinates to members of the organization. Some information is factual, some involves interpretation, and some integrates diverse value positions of organizational influencers. At last as spokesman he or she must transmit the information to outsiders on organization's plans, policies, actions results, etc."

**In the decisional set of roles** the manager must perform the following activities:

"In the entrepreneur role, the manager searches the organization and its environment for opportunities and initiates "improvement projects" to bring about change. He or she supervises the design of certain projects as well. As disturbance handler the manager is responsible for corrective action when the organization faces important, unexpected disturbances. Performing the resource allocator role, he or she is the responsible for allocating organizational resources of all kinds, in effect making or approving all significant decisions. Finally, as negotiator he or she is also responsible for representing the organization in major negotiations."

It is important to point out that a manager must perform some roles more vigorously than others, depending on personal background and style, hierarchical level, type and size of the organization, and career path. These ten roles can be considered and described in an individual way, but they cannot be isolated, according to Mintzberg. They form a gestalt--an integrated whole. A manager must perform all ten roles to do an effective job.

Mintzberg linked these set of roles one after the other, to indicate the nature of an integrated whole in managerial work. He points out that the manager's position provides the starting point; that his or her formal authority leads to a special position of status in the organization. From formal authority and status come the three interpersonal roles. He notes that, the interpersonal roles place the manager in a unique capacity to get information. Finally he states that "the manager's unique access to information and his or her special status and authority place them at the central point in the system by which significant decisions are made" (1973).

## **Managerial Roles and Training and Development Dimensions**

From the statistical analysis three dimensions of training and development were obtained. From an analysis of the variables that conform to these dimensions, it is possible to realize their connection with Mintzberg's theory and managerial work.

**Factor 1 was formed mainly by the following 12 variables:**

<b><u>VARIABLES</u></b>	<b><u>FACTOR LOADING</u></b>
Managing Work Relation Workshop	0.695
Motivation Workshop	0.677
Understanding Conflict Workshop	0.672
Performance Management Workshop	0.659
Discipline Workshop	0.616
Problem Solving and Decision Making Workshop	0.615
Managing under the Merit System	0.557
EEO Workshop	0.466
Effective Teams Skills	0.463
Stress Management Skills	0.453
Assertiveness Skills	0.441
Personnel Management Field	0.408

**Mintzberg's theory says about interpersonal roles:**

"As symbolic head of the organization they are obliged to perform duties of legal or symbolic nature. They are also responsible for the motivation and activation of subordinates. They are responsible for staffing, training and associated duties. And they must maintain a self-developed network of outside contacts and informers who provide favors and information."

Checking the training and development variables, it is possible to read variables as: Managing Work Relation, Understanding Conflict, Motivation, and others that highlight the interpersonal nature of this factor/dimension. It is possible to conclude then that factor 1 is concerned primarily with interpersonal relationships, and can be called an "Interpersonal Training and Development Dimension."

**Factor 2 was formed mainly by the following 6 variables:**

<u>VARIABLES</u>	<u>FACTOR LOADING</u>
Writing Better Memos/Letters	0.812
Writing Effective Reports/Proposals	0.777
Business English Skill	0.695
Reading Smarter Skills	0.680
Professional Image	0.548
Presentation Skills	0.525

**Concerning informational roles Mintzberg says:**

"The manager must seek and receive a wide variety of information to develop a thorough understanding of his or her organization and its environment. They emerge as the nerve center of internal and external information of the organization. He or she must transmit the information received from outsiders or from other subordinates to members of the organization. At last he or she must transmit the information to outsiders on the organization's plans, policies, actions results, etc."

By checking variables as writing better memos/letters, reading smarter, and others, is possible to conclude that factor 2 deals primarily with the transfer of information. Factor 2 can then be called an "Informational Training and Development Dimension."

**Factor 3 finally was formed mainly by the following six variables:**

<u>VARIABLES</u>	<u>FACTOR LOADING</u>
Financial Management and Planning	0.642
Budgetary Operations Field	0.639
Policy/Program Analysis Field	0.518
Management Information Systems	0.517
Strategic Planning Workshop	0.465
Statistics and Research Methods	0.441

**Concerning decisional roles Mintzberg says:**

"The manager searches the organization and its environment for opportunities and initiates "improvement projects" to bring about change. He or she supervises the design of certain projects as well. They are also responsible for corrective action when the organization faces important, unexpected disturbances. It is responsible for allocating

organizational resources of all kinds, in effect making or approving all significant decisions. Finally he or she is also responsible for representing the organization in major negotiations."

Looking at financial management and planning, strategic planning, and others it is possible to conclude that factor 3 essentially involves decision-making variables. Factor 3 can be called then a "Decisional Training and Development Dimension."

Mintzberg's theory of managerial roles, matches these perceived factors/dimensions of managerial training and development needs. The nature of managerial work is expressed by three sets of roles, each one corresponding to training and development dimensions identified by Kentucky public managers. These findings supports the notion that, Mintzberg's sets of roles provide a sound basis for planning for managerial training and development. They can be used as a comprehensive scheme that will consider all managerial training and development needs based on the quality of these roles of being an integrated whole.

Finally, to support the labelling of these training and development factors/dimensions, 23 managers were surveyed. Each was asked to analyze the variables that appear in the factors and label them according to the category of interpersonal, informational or decisional. In the next section, the results of this survey are presented and discussed.

#### Managerial Roles Survey

This small survey was administered to 23 managers who are presently members of the Master of Public Administration program at Kentucky State University. They were presented with the variables used to obtain the factors, and asked to relate them, according to Mintzberg's theory, with interpersonal,

informational, and decisional managerial roles. There was also a "None of Them" category. Mintzberg's definition of each set of roles was given to the respondents. They selected only one role set for each variable. Table 5 shows the results of the survey.

**Table 5.- RESULTS OF ROLE GROUP MATCHING**

<b>FACTOR 1 INTERPERSONAL</b>	<b>FACTOR LOADING</b>	<b>MATCHING PERCENTAGE</b>
MANAGING WORK RELATION WORKSHOP	0.695	87.0%
MOTIVATION WORKSHOP	0.677	87.0%
UNDERSTANDING CONFLICT WORKSHOP	0.672	82.6%
PERFORMANCE MANAGEMENT WORKSHOP	0.659	65.2%
DISCIPLINE WORKSHOP	0.616	73.9%
PROBLEM SOLVING AND DECISION MAKING	0.615	21.7% *
MANAGING UNDER THE MERIT SYSTEM	0.557	47.8% *
EEO WORKSHOP	0.466	34.8% *
EFFECTIVE TEAMS SKILLS	0.463	69.6%
STRESS MANAGEMENT SKILLS	0.453	69.6%
ASSERTIVENESS SKILLS	0.441	56.5%
PERSONNEL MANAGEMENT FIELD	0.408	73.9%
<b>FACTOR 2 INFORMATIONAL</b>		
WRITING BETTER MEMOS/LETTERS	0.812	56.5%
WRITING EFFECTIVE REPORTS/PROPOSALS	0.777	56.5%
BUSINESS ENGLISH SKILLS	0.695	69.6%
READING SMARTER SKILLS	0.680	52.2%
PROFESSIONAL IMAGE	0.548	17.4% *
PRESENTATION SKILLS	0.525	39.1% *
<b>FACTOR 3 DECISIONAL</b>		
FINANCIAL MANAGEMENT AND PLANNING	0.642	60.9%
BUDGETARY OPERATIONS FIELD	0.639	78.3%
POLICY/PROGRAM ANALYSIS FIELD	0.518	52.2%
MANAGEMENT INFORMATION SYSTEM	0.517	04.3% **
STRATEGIC PLANNING WORKSHOP	0.465	65.2%
STATISTICS & RESEARCH METHODS	0.441	17.4% *

\* Matching below 50%.

\*\* Matching below 10%.

Table 5 shows that most of the respondents to the survey support the labelling previously stated. There are, however, some differences that are interesting to highlight.

From factor 1 there are three variables that have a matching below 50% with the interpersonal set of roles. Problem solving and decision making was considered by the respondents mainly in the decisional group of roles but others considered this variable also in the informational roles. Managing under the merit system also had less than 50% matching but the majority related this variable to the interpersonal set of roles. Finally, EEO workshops also had less than 50% matching, but in this case also we can find that the respondents considered this variable in all the categories. In summary, these three variables were considered by the respondents in all the different groupings.

In the case of factor 2, two of the six variables matched less than 50% with the informational set of roles. Professional image was considered mainly an interpersonal characteristic, in fact, the factor analysis also considered this variable as interpersonal as well, but with a lower loading of 0.33507. Presentation skills was considered by the respondents in all the categories.

In factor 3, two of the six variables matched less than 50% in the decisional group of roles. Statistics and Research methods was mainly considered an informational characteristic by the respondents, as was MIS.

It is interesting to realize that respondents to this survey considered MIS and Statistics as principally useful for obtaining information and not as a tool for decision making. Recalling Mintzberg's definitions, it can be read in the informational roles that the manager "seeks and transmits information," and in the decisional roles that he or she must "search the organization and its environment" among other activities.

In summary of the 24 variables that conform to the dimensions, only seven of them do not match over 50% of the time in the role groups, according to this survey. Important differences can be considered mainly in cases as MIS and Statistics and Research Methods. It is obvious that these variables are also means of supporting decisions, and therefore part of the decisional set of roles. Problem solving and decision making was also considered mainly a decisional variable, a response differing from the factor analysis but supporting Mintzberg's definition.

Finally, looking at the overall rate of matching, the labelling of the factors/dimensions obtained through the factor analysis procedure, is satisfactorily supported by the mini-survey of 23 managers.

#### Variations of Needs According to Levels

This study has used Mintzberg's theory of managerial work to present realms representing managers' general training and development needs. The Kentucky State Manager's Training Needs Survey and the factor analysis technique have been used to support hypothesis one, that "a comprehensive managerial training and development scheme can be planned, based on Mintzberg's managerial roles. Chapter three of this study presented an overall model of Kentucky state managers' organizational structure. This model represents the public service setting in the executive branch of Kentucky state government. Consequently, using the training and development scheme with its factors/dimensions recently stated, and the managerial levels obtained in chapter two, it is now time to relate training and development differences to hierarchical level and span of control. The goal is to support hypothesis 2 of this thesis. "The comprehensive training and development scheme must be

modified to accommodate variables such as environment, job, person, and situation."

As explained in chapter three, hypothesis two can only be partially proven. Therefore, the null hypothesis will be:

**Training and development needs will not be affected by hierarchical levels or organizational shape.**

If this null hypothesis is rejected, then the comprehensive training and development scheme should be modified accordingly.

To test this null hypothesis a multivariate analysis of variance (MANOVA) was performed, using an  $\alpha$  significance level equal to or less than 0.05. The hierarchical level and the organizational shape will be used as independent variables, or main effects. The three training and development factors/dimensions served as the dependent variables.

A  $3 \times 2$  factorial design will be used, with three variables per cell. Chart 6 on the next page shows the schematic diagram of the design.

The multivariate analysis of variance (MANOVA) indicates whether there are significant differences in the training and development dimensions due to hierarchical level or span of control. Using an F test and a factorial design, all possible relationships among cells are tested. Also, utilizing a stepdown procedure the relationships between the training and development dimensions are tested within each cell. MANOVA statistical procedure determines if the differences between the sample means can be attributed to chance or whether there are reasons to believe that true differences exist between the cells.

**Chart 6 MULTIVARIATE ANALYSIS OF VARIANCE FACTORIAL DESIGN  
ORGANIZATIONAL SHAPE**

		FLAT	PYRAMIDAL
H I E R A R C H I C A L  L E V E L S	HIGH LEVEL (EXECUTIVES)	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional
	MIDDLE LEVEL (MIDDLE MANAGERS)	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional
	LOW LEVEL (SUPERVISORS)	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional	TRAINING & DEVEL. DIMENSIONS Interpersonal Informational Decisional

The MANOVA was produced by the SPSS computer program, and will use the total number of respondents to the survey. All items factor loadings were used to produced the three factor scores (i.e., interpersonal, informational, and decisional).

Since the design is a three-by-two factorial, there are three effects to be tested: the organizational shape and hierarchical level main effects and the shape by level interaction. In other words the main effect produced in the training and development dimensions by the combination of shapes and level, and the interactions within the cells.

Tables number 6 and 7 shows the results obtained with this design.

**TABLE 6.- MULTIVARIATE TEST OF SIGNIFICANCE**

TEST NAME	VALUE	APPROX. F.	HYPOTH DF	SIGN. OF F.
Pillais	0.0139	2.571	6.0	0.017
Hotellings	0.0142	2.582	6.0	0.017
Wilks	0.9860	2.576	6.0	0.017

**TABLE 7.- RESULTS OF THE MANOVA FACTORIAL DESIGN (SHAPE BY LEVEL)**

VARIABLE	HYPOTH.	UNIVARIATE	SIGN.	STEPDOWN	STEP DOWN		
			MS.	F.	OF F.	F.	SIGN.
Interpersonal		3.206	3.825	0.022	3.825		0.022*
Informational		1.154	1.340	0.262	1.765		0.172
Decisional		1.625	2.278	0.103	2.140		0.118

\* Significant at  $\alpha \leq .05$

In table 6 the observed significance level of  $\alpha = 0.017$ , indicates that the null hypothesis can be rejected, the multivariate results indicates the presence of a level and/or shape main effect and/or an interaction difference in the training and development dimensions. According to table 7 it is possible to realize that this effect is produced in the interpersonal dimension which shows a significance level of  $\alpha = 0.022$ . The stepdown test did not show any significant effect within the dimensions. Since there are some results statistically significant, it is important to examine the univariate results to determine which variables contribute to the overall differences.

It is also important to recognize that this statistical computer program tests higher-order effects before lower-order effects and, since it is difficult to interpret lower-order effects in the presence of higher order interactions, testing for level and shape main effects can be misleading (Norusis, 1985). Also due to the type of design, some cells have a very small number of respondents and because of this and the elimination of some respondents due to missing data, it was realized that two conditions existed that likely significantly increased sample bias, and may have caused any interaction test to exceed the statistical test robustness (Winer, 1962). Some of the interaction cell sizes were extremely small. Because of these reasons is important to

examine the data in a different design, where level and shape can be analyzed independently.

This new design permits a better utilization of the sample, because fewer number of respondents are rejected because of missing data, so in the examination of the data it is possible to obtain a better measure of the contributions to the overall differences. Tables 8 and 9 shows the effect produced by organizational shape as measured by the training and development dimensions.

TABLE 8.- MULTIVARIATE TEST OF SIGNIFICANCE

TEST NAME	VALUE	EXACT F.	HYPOTH. DF	SIGN. OF F.
Pillais	0.0116	4.544	3.0	0.004
Hotellings	0.0117	4.544	3.0	0.004
Wilks	0.9883	4.544	3.0	0.004

TABLE 9.- RESULTS OF THE MANOVA FACTORIAL DESIGN (SHAPE EFFECT)

VARIABLE	HYPOTH. MS.	UNIVARIATE F.	SIGN. OFF.	STEPDOWN	STEP DOWN
				F.	SIGN.
Interpersonal	9.797	11.684	0.001	11.684	0.001*
Informational	1.034	1.204	0.273	1.948	0.163
Decisional	0.006	0.009	0.923	0.004	0.949

\* Significant at  $\alpha \leq .05$

The univariate F indicates that organizational shape, may produce a difference in the importance that managers hold for interpersonal training. Again the stepdown procedure did not indicate any relationship among the other criteria (i.e., informational, and decisional). The following tables show the univariate effects produced by hierarchical level.

**TABLE 10.- MULTIVARIATE TEST OF SIGNIFICANCE**

TEST NAME	VALUE	EXACT F.	HYPOTH. DF	SIGN. OFF.
Pillai's	0.0356	6.919	6.0	0.000
Hotellings	0.3697	7.024	6.0	0.000
Wilks	0.9643	6.972	6.0	0.000

**TABLE 11- RESULTS OF UNIVARIATE TEST (EFFECT HIERARCHICAL LEVEL)**

VARIABLE	HYPOTH.	UNIVARIATE	SIGN.	STEPDOWN	STEP DOWN
	MS.	F.	OFF F.	F.	SIGN.
Interpersonal	2.294	2.692	0.068	2.692	0.068
Informational	0.422	0.493	0.611	0.424	0.654
Decisional	13.563	18.755	0.000	17.896	0.000*

\* Significant at  $\alpha \leq .05$

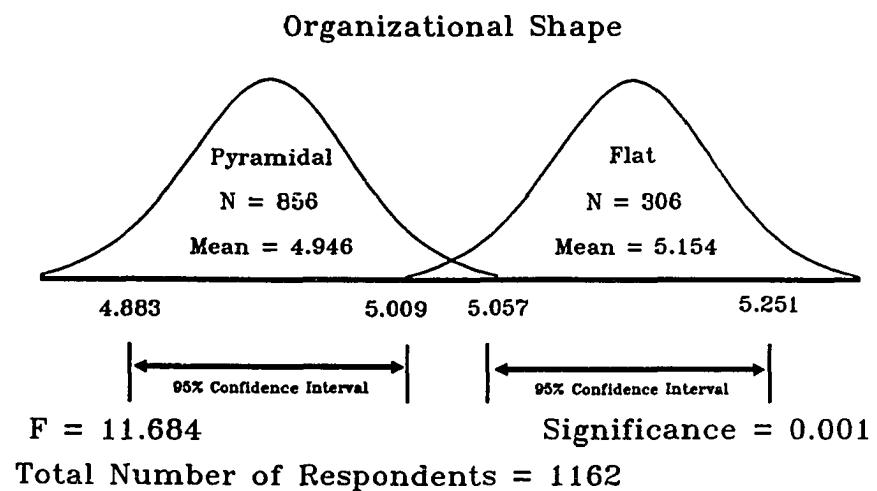
The univariate results produced by hierarchical level shows a statistically significant effect in the decisional dimension. Again, the stepdown procedure does not indicate any effect within the dependent variables.

Finally, charts 6 and 7 show two schemes of the F distributions that correspond to the relationships found. Analyzing the values of the means, it can be seen that the interpersonal dimension is growing according to the increasing span of managerial control. In the case of the decisional dimension, it can be seen that this grows also according to the increasing of the managerial hierarchical level.

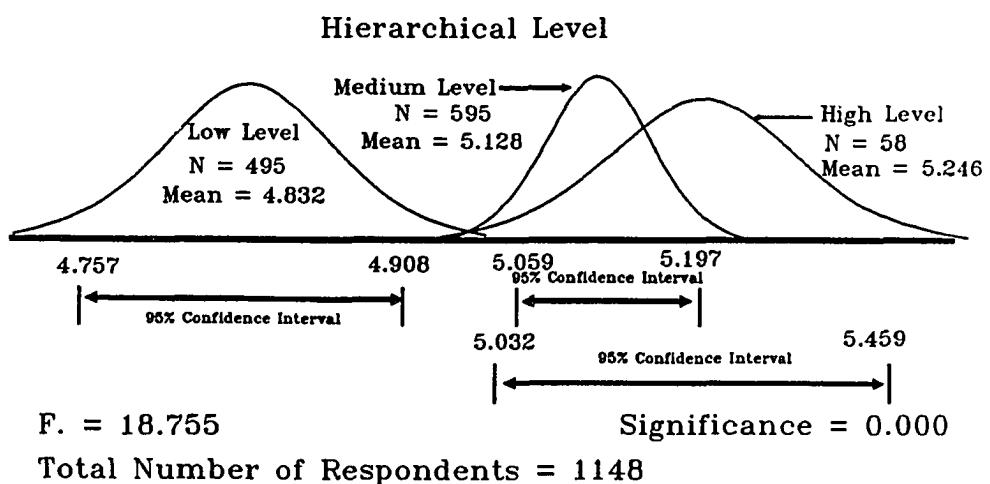
### Conclusions

This chapter was concerned with training needs. Based on Mintzberg's theory of managerial work, a comprehensive training and development scheme was developed. It is possible to extend this managerial work theory to

## Chart 7 Manova F. Distribution Interpersonal Dimension



## Chart 8 Manova F. Distribution Decisional Dimension



the training and development field, since the same group of roles used to describe managerial work can also be used to describe training and development dimensions. Thus, training and development needs can be identified through the use of a general framework.

Another important finding was the fact that these dimensions are related with managerial levels and organizational shapes. What Mintzberg calls job variables do make a difference also in specific training needs. The interpersonal dimension seems to be affected by the manager's span of control and the decisional dimension is thought to be affected by the manager's hierarchical level.

## **CHAPTER V**

### **MANAGEMENT TRAINING AND DEVELOPMENT SCHEME**

In the first chapters of this study managerial goals, levels and training and development needs were discussed. In this chapter Mintzberg's theory will be used to present a comprehensive training and development scheme, one which can guide either formulation or evaluation of programs. First, the comprehensive scheme is going to be presented, then the "Kentucky Career Manager Plan," which is currently administered by GSC, as the official management training and certification plan for the Commonwealth of Kentucky is presented, and finally both schemes will be compared.

It is expected at this stage of the study to support hypothesis 3 that says:

"A comprehensive managerial training and development scheme can be utilized to evaluate and design training and development curricula."

#### **Management Training and Development Scheme**

Many public executives arrive in managerial positions with various backgrounds of education and experience and often they lack training and/or education related to managerial work. It is important then to elaborate a training and development model capable of meeting these managers' needs. The aim is to develop a model for planning, guiding and evaluating managerial training and development.

The goals of this model, as detailed in chapter one, can be summarized as:

**I.- Inherent to the training and development program:**

- a) A significant effort must be made to make the program self-motivating to obtain a volunteer trainee.
- b) The program must use elements that link theory and the practice.
- c) It must obtain a high level of involvement of the trainees.
- d) It must have an assessment element to discover the strength and weaknesses of the trainees.
- e) It must adjust its content according to the different managerial positions that is targeting.

**II.- Immediate Goals:**

The program must pursue the enhancement of the following seven public administrator's effectiveness factors:

- a) Technical Skills.
- b) Human Skills.
- c) Conceptual Skills.
- d) Responsiveness to Democratic Institutions.
- e) Focus on Results.
- f) Networking Ability.
- g) Balance.

**III.-Long Term Goals:**

- a) The program must focus on the values of a professional public manager, as an additional profession.
- b) It must provide expertise to manage and administer in a political and governmental environment.
- c) It must encourage the values of stewardship, agency leadership and constitutional prudence.

The areas that this program must teach have already been supported in chapter three of this study. They are based upon Mintzberg's theory of managerial work and are an extension of this theory to the training and development field. The program must develop a curriculum to teach the following competencies, as they are stated in Mintzberg's theory. Accordingly we have:

**I.- Interpersonal Competencies:**

- a) Figurehead.
- b) Leader.
- c) Liaison.

## **II.- Informational Competencies:**

- a) Monitor.
- b) Disseminator.
- c) Spokesman.

## **III.-Decisional Competencies:**

- a) Entrepreneur.
- b) Disturbance Handler.
- c) Resource Allocator.
- d) Negotiator.

According to the properties of this theory, it is important to develop a program where all ten competencies are addressed. In this manner a comprehensive managerial training and development curriculum can be stated, giving appropriate attention to each dimension of managerial work.

Also, it is important to recognize variations in trainees' interest stemming from organizational factors. For example, interest in the interpersonal dimensions varies with the organizational shape within which managers perform. As managers' direct span of control grows so does their interest in development of interpersonal competencies. By the same token, it is also important to consider variations in trainees' interest in the decisional dimension reflecting the incumbent's position in the organizational hierarchy. The higher a trainee's position in the hierarchy, the greater his or her interests in training and development seem to become.

The interest of the trainees in the informational dimension seems to remain constant across hierarchical levels or organizational shapes. That is, the trainees' attitude toward the development of informational competencies remains statistically the same. Finally, according to Mintzberg's theory, a comprehensive training program must address the particular differences

necessary to meet the incumbents needs according to environmental, job, person, and situational variables within the general framework.

### Kentucky Career Manager Plan

As previously stated in this study, the state of Kentucky assigned to the Governmental Service Center at Kentucky State University (GSC), responsibility for training and development of all state employees. This center, as one of the elements of its mission, must "Conduct or cause to be conducted, ongoing management training programs for all program managers and supervisors within the executive branch of the state government." (KRS. No. 164.357)

Accordingly GSC, by using training workshops, consultation services, and computer and technical services, has developed managerial training to fulfill Kentucky's public managers' needs. As a special benchmark in this task, the "Kentucky Career Manager Plan" has been developed as "The official management training and certification plan for the Commonwealth of Kentucky. The plan is available throughout the state to supervisors, managers, and employees aspiring to management positions." (GSC 1988-89 Catalog)

The plan is a comprehensive scheme for training public employees to cope with managerial positions. As is stated in GSC's catalog, the broad objectives of the plan are:

- a) To provide state managers with an opportunity to pursue a recognized plan of professional development.
- b) To encourage high educational and professional standards in the field of public management.
- c) To provide Kentucky State Government with a continuity and flexibility of thought.

- d) To make available a plan of study which can be applied constructively in the workplace.
- e) To provide forum for supervisors and managers throughout state government to discuss current opportunities, problems and issues.

The plan is tailored to the incumbent's needs and interests; individuals can complete the program at their own pace, although a continued interest must be maintained. It is intended to be a continuing development plan to be followed by the trainee, with support and guidance from center personnel. The formal requirements include 204 hours of obligatory workshops and 100 hours of elective workshops, structured readings, and practical training.

The required study plan distributes its 204 hours among 15 different workshops. These present a core of general management knowledge; more specifically the "Management Awareness Workshop" and the "Organizational Leadership Workshop," each of which consists of 32 classroom hours form the foundation of the program. The following table indicates the remaining workshops of this obligatory plan and their individual extension:

**TABLE 12.- REQUIRED WORKSHOPS**

<b>WORKSHOPS</b>	<b>CLASSROOM HOURS</b>
Understanding Conflict.	7
Creative Problem Solving and Decision Making.	14
Discipline and Disciplinary Action	14
Equal Employment Opportunity and You.	7
Financial Management and Budgeting.	14
Introduction to Computers.	14
Improving Interpersonal Communication.	14
Managing Relationships at Work.	14
Managing Under the Merit System.	7
Motivation.	7
Organizational Diagnosis and Development.	14
Performance Evaluation.	7
Strategic Planning and Goal Setting.	7

Source GSC 1988-89 Catalog.

As a means of incorporating the acquired knowledge of the trainee to their workplace, the Management Awareness, Organizational Leadership, Organizational Diagnosis and Development, and the Strategic Planning and Goal Setting workshops require the elaboration of application projects. These projects can be selected from a collection of proposals developed by the Center, or, subject to approval, can be proposed by the trainee. An advisor is assigned to each trainee to help him/her adapt the course to his or her particular needs, providing help and guidance during the entire project. Also certain workshops require a final examination and study and review services are available through the Center.

This plan recognizes the managers' individual needs and therefore a growing number of workshops and readings are offered as elective options. The candidate must complete at least 70 classroom hours of elective workshops, up to 10 equivalent hours of structured readings and up to 20 equivalent hours of agency in-house or external training. These options must add up to at least 100 elective hours. Table 13 presents a list of the current elective workshops and their individual duration in classroom hours:

The structured reading option offers 28 management literature titles and gives the option of electing another title or collection of articles, subject to prior approval from the candidate's advisor. A book report is required for the evaluation of the readings, and for every 100 pages read one hour of elective course credit is granted.

The training option consists of effective training not provided by GSC which the candidate can present to the Center for consideration. To be considered as equivalent to elective credit, the training must be job or

managerial related. GSC specialists study the type of training on an individual basis before granting elective credits.

**TABLE 13.- ELECTIVE WORKSHOPS**

WORKSHOPS	CLASSROOM HOURS
Building Assertiveness Skills.	14
Building Effective Teams.	7
Business English Review.	7
Coping With Stress.	7
Customer Service.	7
Developing Effective Presentation Skills.	14
Enhacing Your Professional Image.	7
Getting Things Done: How to Manage Your Time.	7
GSC Computer Workshops.*	Up to 28
How to Write Effective Reports and Proposals.	14
Leadership Seminar.	7
Management a Woman's Perspective.	7
New Manager's Workshop.	32
Project Management.	14
Techniques for Reading Smarter.	14
Train-the-Trainer.	21
Writing Better Letters and Memos.	14

\*GSC offers around 14 different micro and mainframe computer workshops.  
Source GSC 1988-89 Catalog.

This whole program aims to prepare public employees for professional managerial work. It promotes general training and development, providing interested employees appropriate managerial tools for performing their duties. The guidance and support offered by the Center is constant and great effort is expended to make the activities work related. In the next section a comparison between this program and the theoretical scheme developed earlier in this study will be presented.

#### Evaluation of an Existing Curriculum

First let us compare the GSC program with the general objectives stated for the theoretical scheme. From the objectives inherent in the ongoing of the

program, it can be said that the five goals are achieved. The trainees are volunteers, it links theory and practice through application projects, a high level of involvement of the trainee is required, a personal advisor assesses the candidate through all the projects, and the elective options permit adaptation to the candidate's personal needs.

Immediate goals are also achieved through a series of offered workshops through which the manager can enhance his or her technical skills, human skills, and conceptual skills. Responsiveness to democratic institutions is enhanced as ethics and managerial roles are reviewed in the "Management Awareness Workshop." Focus on results, networking ability, and balance are enhanced through particular workshops available in the required and elective parts of the plan. (see appendix 5)

Finally, it can also be stated that the long term goals are achieved by this program. The program itself is focused as a professionalization of managerial work and it encourages high standards in the field of public management. The broad objectives of the plan and its workshops clearly address management in a political environment, and the values of leadership, prudence and stewardship.

Reviewing now, as the second step, compliance of the presented curriculum with the dimensions of the theoretical scheme, it is important to check the interpersonal, informational and decisional competencies that are developed in the program. Fortunately, many workshops offered by GSC as part of the GSC program were also listed in the NSF survey used in chapter four.

Consequently, it can be stated in general terms that the three training and development dimensions are an integral part of this program. To support this statement a new factor analysis was conducted, using only questions two and eight of the survey. (See appendix 4) These are the questions that include the required and elective workshops. The results of this analysis confirmed the existence of the three training and development dimensions in the training plan and are shown in table 14 on the next page. The next step was to check if the existing workshops matched the ten managerial roles in Mintzberg's theory as a means of determining the appropriateness of this particular program.

Using the workshops listed on the survey that in fact are part of the GSC programs, according to their initial factor loadings, a second factor analysis was performed for each of the initial factors. This was done with the exception of the third factor (ie., decisional) because of the small number of variables. The procedure was executed to determine whether sub-factors could be identified for the major factors. The results indicated that the considered workshops can be sub-factored according to the roles shown in table 14 on the next page.

Having analyzed, through factor analysis, the workshop titles that appeared in the survey, it is necessary to check if the remaining workshops, that are part of the program and not of the survey, match Mintzberg's roles.

According to what is stated in the GSC 1988-89 catalog, table 15 and 16 suggests the roles where these workshops' fit.

**TABLE 14.- MANAGERIAL ROLES: MAIN FACTORS AND SUBFACTORS**

<b><u>FACTOR 1 INTERPERSONAL</u></b>	<b><u>SUBFACTORS</u></b>
Managing Work Relationship	<b><u>FIGUREHEAD</u></b>
Understanding Conflict	Understanding Conflict
Motivation	Problem Solving and Decision Making
Performance Management	Discipline
Problem Solving and Decision Making	Managing Work Relationship
Discipline	Equal Employment Opportunity
Managing Under the Merit System	<b><u>LEADER</u></b>
Stress Management	Performance Management
Effective Teams	Motivation
Assertiveness	Managing Work Relationship
Equal Employment Opportunity	Managing Under the Merit System
	<b><u>LIAISON</u></b>
	Assertiveness
	Effective Teams
<b><u>FACTOR 2 INFORMATIONAL</u></b>	
Writing Better Letters and Memos	<b><u>DISSEMINATOR</u></b>
Writing Effective Reports/Proposals	Writing Better Letters and Memos
Business English	Writing Effective Reports/Proposals
Reading Smarter	Business English
Professional Image	Reading Smarter
Presentation Skills	<b><u>SPOKESMAN</u></b>
	Professional Image
	Presentation Skills
<b><u>FACTOR 3 DECISIONAL</u></b>	
Financial Management and Planning	
Strategic Planning	

\* Only workshops were used for this factor analysis.

\*\* Train-the-Trainer was not used because it was not managerial related.

\*\*\*Computers Workshops obtained a low loading in the factor analysis.

**TABLE 15 ROLE INCLUSION ACCORDING TO CATALOG CONTENT (REQUIRED)**

<u>WORKSHOP</u>	<u>ROLE</u>
Management Awareness Workshop	Interpersonal*
Organizational Leadership Workshop	Leader
Improving Interpersonal Communication	Informational*
Organizational Diagnosis and Development	**
Financial Management and Planning	Resource Allocator
Strategic Planning	Resource Allocator/ Entrepreneur

\* The workshop is so broad that it contains all the roles of the set.

\*\*The workshop is under development, no contents appear in the catalog.

In the case of the elective workshops that do not appear in the survey, the following table shows the roles assigned according to the content described in the catalog.

**TABLE 16 ROLE INCLUSION ACCORDING TO CATALOG CONTENT (ELECTIVE)**

<u>WORKSHOP</u>	<u>ROLE</u>
Customer Service	Figurehead
Getting Things Done: How to Manage Your Time	Not Related
Leadership Seminar	Leader
Management a Woman's Perspective	Interpersonal*
New Manager's Workshop	Interpersonal*
Project Management	Resource Allocator

\*The workshop is so broad that it contains all the roles of the set.

Finally, in the structured readings, given by the Center to the candidates, it can be stated that they generally pertain to the interpersonal dimension. In the following section the final evaluation of the "Kentucky Career Manager Plan" according to the theoretical scheme will be presented.

## **Conclusions**

The evaluation of an existing plan and the theoretical scheme was made in two steps. First, the plan's objectives and workshops were analyzed and compared with those objectives stated for the theoretical scheme. Second, the plan's curriculum was compared with the training and development dimensions and the roles obtained from Mintzberg's theory. The following results were found:

- I.- At the goal setting level the existing plan achieves effectively all of the objectives stated in the general theoretical scheme.
- II.- In the curriculum analysis most of Mintzberg's roles are contained in corresponding GSC workshops.
- III.- It is important to recognize that the program is composed mainly of workshops related to interpersonal roles. This is especially true of the required workshops.
- IV.- The Negotiator role does not appear in any workshop of the plan. In fact it is not included in the curriculum. The Disturbance Handler role, though not directly named, can be considered addressed in the Creative Problem and Decision Making Workshop. The Monitor role, also not named, is considered addressed in Improving Interpersonal Communications workshop.
- V.- The readings suggested are related only to the interpersonal dimension.

Finally, it can be suggested that:

- a) The Negotiator role should be included in the curriculum.
- b) The suggested readings' list should include titles dealing with all three of the training and development dimensions, not only the interpersonal dimension.
- c) It would be useful to balance the curriculum, especially the required workshops, adding informational and decisional topics, as well as adding some decisional topics to the elective options.

A much more detailed analysis could be developed, but for this study the actual depth supports hypothesis three and demonstrates the usefulness of the model. It has been shown that Mintzberg's theory can be extended to the managerial training and development field and that this extension provides a simple and useful tool for the design and evaluation of training and development programs.

## **CHAPTER VI**

### **CONCLUDING REMARKS**

Based on public executives' apparent need for managerial training and development, this study proposed that the issue be addressed in a generic way. One approach, as presented here, is to extend Mintzberg's theory of managerial work to the training and development field, using it as a tool for developing and evaluating instruction programs.

This proposition was developed through the various chapters of this study. Three working hypothesis were stated and a public manager's survey was used to test them. A model of a public managers' organizational structure was determined, and a practical use for the new training and development scheme was also presented.

Mintzberg's theory was chosen because it has stood the test of time. It is a sound theory of managerial work supported by later research and theorizing (Ammons and Newell, 1989, Kurke and Aldrich, 1983, McCall and Segrist, 1980). Together with its simplicity, the theory offers a comprehensive view of managerial work.

As stated in chapter three, a Kentucky public managers' survey was used to support this study. This survey secondary data helped verify the existence of Mintzberg's roles in the training and development field, and the public managers' organizational model. Even though Mintzberg's three main dimensions were clearly identified, not all managerial roles were unmistakably present. This apparently occurred because of peculiarities in the survey used. Clearly additional research is needed.

Three main findings are worth to be mentioned. First, supported by the NSF survey, a managers' organizational structure model was determined, this model shows three hierarchical levels and two different organizational shapes, that were useful to find particular managerial training needs. Second, and most important, Mintzberg's theory's extension to the training and development field is supported by the survey, and appears as a simple and useful tool for evaluation and design of training programs. Third, public managers' interest for training in interpersonal and decisional topics, is related to the incumbent's position in the hierarchy. The interest in training of interpersonal topics grows according to the growing of their direct span of control. For decisional topics the thesis shows that managers' interest for training in this field, grows according to the upper the manager is positioned in the hierarchical level.

As a mean of testing these findings, an evaluation of an existing GSC training program was conducted. The evaluation of this training program showed only one possible application of this extension of Mintzberg's model. It is believed, due to its simplicity and comprehensiveness, that the model also can be used to guide the design of training and development programs.

Since this study reflects the environment of one state government, it would be desirable for other studies to extend it to other states, and to the private sector.

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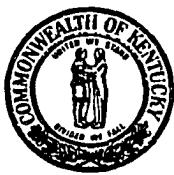
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## **APPENDIX ONE**

**LETTERS AND QUESTIONNAIRE SENT**

**KENTUCKY'S MANAGERS**



**Governmental Services Center  
at Kentucky State University  
Frankfort, Kentucky 40601**

**What are the training needs of Public Administrators?**

Dear Public Manager

**I invite you to participate in an important research project.**

The Governmental Services Center at Kentucky State University is conducting a survey research project sponsored by the National Science Foundation. The project seeks to increase knowledge in public administration. The purpose of this survey is to learn about the work of public managers, their professional growth needs, and their views about the training programs offered by the Governmental Services Center. Our objective is to meet training needs more effectively.

Your name has been randomly chosen from the list of public managers in service with the executive branch of Kentucky state government for participation in this survey. Your individual responses to this questionnaire will be confidential. The questionnaires have been serially numbered for mailing purposes only, so that we may check off those that are returned to us. I emphasize that your participation in this survey is voluntary. Should you encounter questions that you do not want to answer, please skip them and go on to the others.

This is a significant project. It will generate knowledge for use in planning our many activities to meet the needs of public managers. Should you have any questions about this research project, please do not hesitate to write me or call at 502/564-8170.

Finally, the data collected for this survey will be analyzed and reported by the School of Public Affairs' Center for Public Policy Research at Kentucky State University. Please complete the questionnaire and use the enclosed envelope to return it to the center within two weeks. The results will be reported in aggregate, individual responses will not be identified. If you want a copy of the survey results, please write to me separately. I look forward to receiving your completed questionnaire.

**Thanks for your participation.**

Sincerely,

**Gene W. Childress  
Executive Director**



**Governmental Services Center**  
*at Kentucky State University*  
**Frankfort, Kentucky 40601**

**Final Request for Participation in Our Training Improvement Survey**

Dear Public Manager

The attached questionnaire was mailed to you as part of a random sample of state employee managers in December 1988. The Mailing was in connection with a National Science Foundation sponsored survey. A reminder was sent to all who had not responded on April 15, 1989. To date we have received many completed questionnaires, but your completed questionnaire is yet to arrive.

We are doing a final mailing to those individuals who have not yet participated in this survey. It will take only a few minutes of your valuable time to complete this questionnaire. The information you provide through this survey will be invaluable for us in maintaining and improving our training programs for state employees.

A summary of the survey findings will be available to all interested persons. I urge you to complete and return this questionnaire to us in the enclosed pre-paid envelope within the next two weeks.

If you already completed this questionnaire, please disregard this letter. If you have any questions, please call John Bugbee at (502) 564-8170. I look forward to hearing from you.

Sincerely,

Gene W. Childress  
Executive Director

# PUBLIC MANAGER QUESTIONNAIRE

**All responses are strictly confidential. Your participation in this survey is voluntary. If you come to any question which you do not want to answer, please skip it and go on to the next question.**

**What you say in this questionnaire is confidential. There is no need to sign your name.**

2. The following lists some management topics that relate to workshops offered now or planned at GSC. Please indicate if you feel training in these areas would contribute to your growth as a public manager. (*Please circle the appropriate number*)

	Very Extent	Some Extent	Little Extent	No Extent
a. Understanding Conflict	1	2	3	4
b. Problem Solving and Decision Making	1	2	3	4
c. Discipline	1	2	3	4
d. Equal Employment Opportunity	1	2	3	4
e. Financial Management and Planning	1	2	3	4
f. Computers	1	2	3	4
g. Managing Work Relationships	1	2	3	4
h. Managing under the Merit System	1	2	3	4
i. Motivation	1	2	3	4
j. Performance Management	1	2	3	4
k. Strategic Planning	1	2	3	4

## SECTION I: Management Knowledge and Skills

1. To what extent do you feel knowledge of the following fields is necessary and important in your present job? (*Please circle the appropriate number*)

	Very Extent	Some Extent	Little Extent	No Extent
a. Statistics and Research Methods	1	2	3	4
b. Policy/Program Analysis	1	2	3	4
c. Personnel Management	1	2	3	4
d. Management Information Systems	1	2	3	4
e. Budgetary Operations	1	2	3	4
f. Public Relations	1	2	3	4
g. Administrative Law	1	2	3	4

3. As a state public administrator, how important do you believe it is to keep in touch with the following? (*Please circle the appropriate number*)

	Very Important	Somewhat Important	Not Important
a. Election voting patterns	2	3	4
b. Legislative candidates and their views	2	3	4
c. Economic issues	2	3	4
d. Positions of interests groups on policy issues	2	3	4
e. Specific policy issues e.g., educational, economic development, environmental	2	3	4
f. Federal government grant programs	2	3	4

PUBLIC MANAGER QUESTIONNAIRE

4. Currently Management training programs for Public Managers typically include a number of specific objectives. Listed below are some of these objectives. In your opinion, please indicate how relevant those objectives are to the work of public managers. (Please circle the appropriate number)

- a. To enhance appreciation of self and others
- b. To examine the use of managerial time
- c. To increase insight into managerial behavior and its effect on others
- d. To identify the need for employee, manager and organization development
- e. To increase understanding of leadership styles
- f. To examine communication concepts relative to leadership effectiveness
- g. To understand the value of group decision making/consensus
- h. To understand the need for objectives
- i. To discuss ethical standards related to management practices
- j. To analyze factors that contribute to a climate for self motivation
- k. To develop approaches to integrating career and life strategies
- l. Other Objectives (specify)  

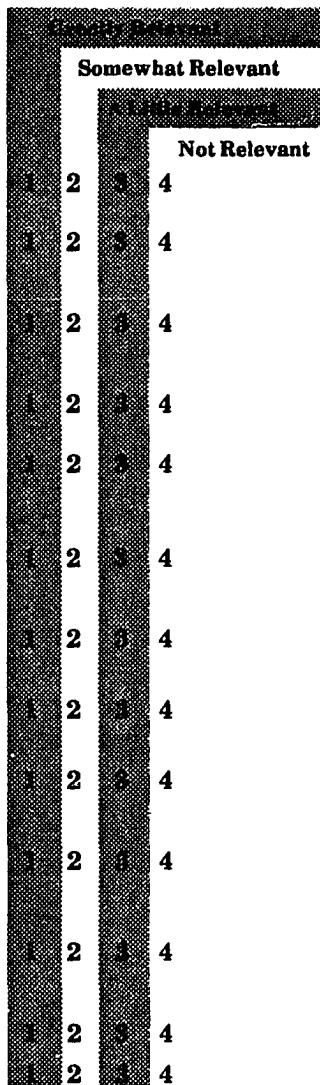

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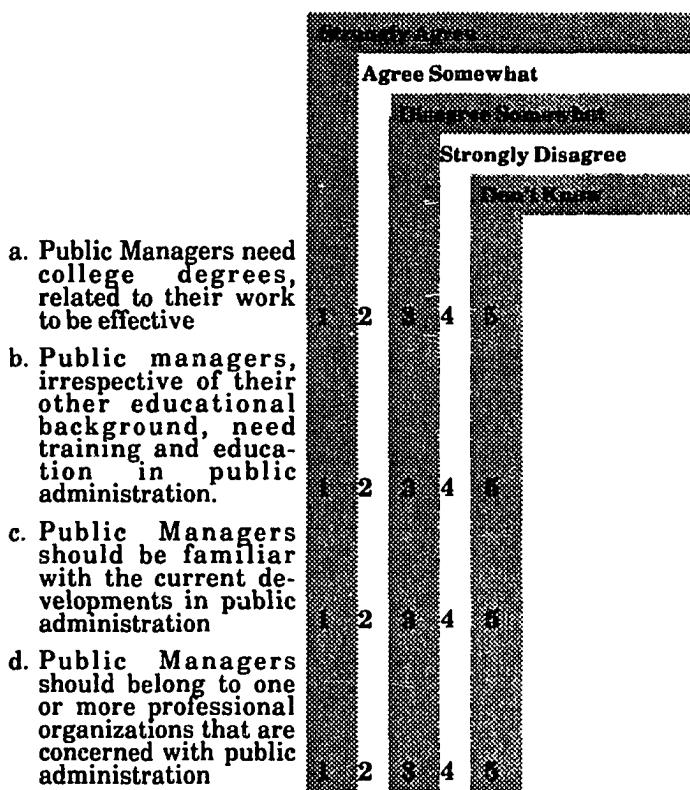
5. Does your supervisor generally encourage training/education for employees? (Please circle the appropriate response)

Often      Sometimes      Never

6. Are people you work with enthusiastic about training/education? (Please circle the appropriate response)

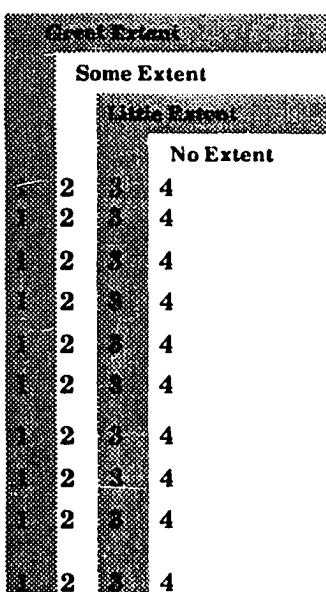
Most of Them      Some of Them      A Few

7. Here are some statements that have been made about public managers as professionals. Please indicate the extent to which you agree or disagree with each of these statements (Please circle the appropriate number).



8. The following lists some skills topics that relate to workshops offered now or planned at GSC. Please indicate the extent you feel training in these areas would contribute to your growth as a public manager. (Please circle the appropriate number)

- a. Assertiveness
- b. Effective Teams
- c. Business English
- d. Stress Management
- e. Presentation Skills
- f. Professional Image
- g. Writing Effective Reports and Proposals
- h. Reading Smarter
- i. Train-the-Trainer
- j. Writing Better Letters and Memos



PUBLIC MANAGER QUESTIONNAIRE

SECTION II Management Awareness Workshop Experience

If you have not completed the *Management Awareness Workshop Training Program* at the Governmental Services Center, Skip to Section III on page 4.

9. Did your supervisor encourage you to take this training?  YES  NO

10. In which year did you complete this training program? \_\_\_\_\_

11. To what extent do you believe *your participation* in the Management Awareness program at GSC addressed each of the following objectives. (Please circle the appropriate number)

Objective	Some Extent			Little Extent			No Extent		
	1	2	3	1	2	3	1	2	3
a. To enhance appreciation of self and others	1	2	3	1	2	3	1	2	3
b. To examine the use of managerial time	1	2	3	1	2	3	1	2	3
c. To increase insight into managerial behavior and its effect on others	1	2	3	1	2	3	1	2	3
d. To identify the need for employee, manager and organization development	1	2	3	1	2	3	1	2	3
e. To increase understanding of leadership styles	1	2	3	1	2	3	1	2	3
f. To examine communication concepts relative to leadership effectiveness	1	2	3	1	2	3	1	2	3
g. To understand the value of group decision making/consensus	1	2	3	1	2	3	1	2	3
h. To understand the need for objectives	1	2	3	1	2	3	1	2	3
i. To discuss ethical standards related to management practices	1	2	3	1	2	3	1	2	3
j. To analyze factors that contribute to a climate for self motivation	1	2	3	1	2	3	1	2	3
k. To develop approaches to integrating career and life strategies	1	2	3	1	2	3	1	2	3
l. Other Objectives (specify)	1	2	3	1	2	3	1	2	3

12. Please indicate how often you have utilized what you learned during this training program? please check one

Very Often

Moderately Often

Not Often

Never

13. As a supervisor, what are you now doing or not doing since your participation in the program?

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Use back if needed

14. Please indicate how useful have been the reading and reference material that you received during the workshop? please check one

Very Useful

Moderately Useful

A Little Useful

Not Useful

15. How valuable do you feel the program has been in increasing your effectiveness? please check one

Very Valuable

Moderately Valuable

A Little Valuable

Not Valuable

16. From a management point of view, what additional materials methods or approaches would you introduce to the management awareness workshop?

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Use back if needed

**Section III: Professional Activities**

**17. Do you belong to professional associations/societies that are related to your job?**

*If so, please check below:*

International Personnel Management Association (IPMA) \_\_\_\_\_

American Society of Public Administration (ASPA) \_\_\_\_\_

American Psychological Association (APA) \_\_\_\_\_

National Association of Social Workers (NASW) \_\_\_\_\_

American Society of Training Directors (ASTD) \_\_\_\_\_

Other Please list below

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None

**18. Do you regularly read/subscribe to job related, professional journals/publications?**

*If so, please check below:*

Public Administration Times \_\_\_\_\_

Public Personnel Management \_\_\_\_\_

Training and Development Journal \_\_\_\_\_

Social Work \_\_\_\_\_

Other Please list below

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None

**19. In the past two years have you participated in professionally-related seminars/conferences?**

*If so, please list below:*

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Use back if needed

**20. In the past year have you undertaken any of these discretionary education/training activities? If so please check.**

- Attended GSC workshops \_\_\_\_\_
- Enrolled in a degree program \_\_\_\_\_
- Enrolled in college/university courses as a non-degree student \_\_\_\_\_
- Attended agency-sponsored optional training \_\_\_\_\_
- Enrolled in the KCM program \_\_\_\_\_
- None of the above \_\_\_\_\_
- Attended agency-sponsored external training (If so, please list below): \_\_\_\_\_

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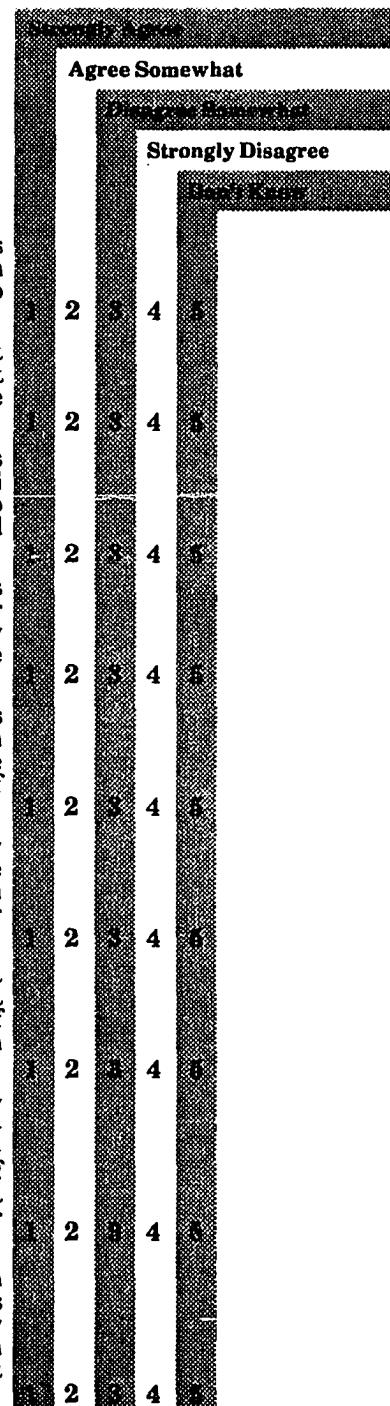
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Use back if needed

**Section IV Views on Public Service**

21. Here are some statements that have been made about the workings of government agencies in the U.S. Please indicate the extent to which you agree or disagree with each of these (Please circle the appropriate number).



**Section V Demographics**

Information in this section will be used to categorize managers in a variety of ways so that similarities and differences in job content or context can be analyzed. (Please circle the appropriate letter, or enter the requested information for each item)

22. Number of employees you directly supervise; only those employees immediately beneath you on the organizational chart. Do not include employees you indirectly supervise.

- a. Less than 3
- b. 3 - 5
- c. 6 - 9
- d. 10 - 14
- e. More than 15
- f. Other (specify) \_\_\_\_\_

23. How large are the organizational structure(s) you are held responsible for? (Consider both employees directly supervised and indirectly supervised through subordinate managers.) Circle only one

- a. 1 - 10 employees
- b. 11 - 50 employees
- c. 51 - 200 employees
- d. 201 - 500 employees
- e. Over 500 employees

24. Which of the following describes best the work unit(s) you are held responsible for? Circle only one

- a. Data/paper oriented
- b. People/service oriented
- c. Machine/production oriented

25. Which of the following categories best describes the jobs you are held responsible for? Circle only one

- a. Administrative, professional, technical
- b. Clerical, office machine, administrative support
- c. Supervisory, managerial
- d. Service, maintenance, agricultural, construction
- e. Law enforcement, investigative, protective

PUBLIC MANAGER QUESTIONNAIRE

26. What is the highest level of your education?

Check those appropriate level

- High School or less
  - Some College
  - BA or BS
  - MA or MS
  - MPA
  - MBA
  - Other Masters \_\_\_\_\_
  - PhD
  - Other Doctorate \_\_\_\_\_
  - Engineering
  - JD or LLB
  - MD
  - DDS or DMD
  - Other Professional Degree \_\_\_\_\_
- Please indicate any other earned degree:  
\_\_\_\_\_  
\_\_\_\_\_

If you have not changed positions during your employment with state government skip to Item 37.

34. Was this change a promotion? \_\_\_\_\_ / Yes No

35. Did you change agencies? \_\_\_\_\_ / Yes No

36. Did your Supervisory functions change?  
\_\_\_\_\_ / Yes No

37. What is your present salary grade level?  
\_\_\_\_\_

**Section VI Suggestions For Training Improvements**

38. Would you like to say anything else about how the training program offered by the Governmental Services Center could be restructured to help the professional growth of public managers in Kentucky?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

27. What specific college level degree, and/or course work or training have you had in Public Administration?

- MPA \_\_\_\_\_
- Other Degree (specify) \_\_\_\_\_
- Courses (specify) \_\_\_\_\_
- None

28. Date of Birth \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Month Day Year

29. Gender \_\_\_\_\_ /  
Male Female

30. Ethnic Origin Check one

- White (Not of Hispanic Origin)
- Black (Not of Hispanic Origin)
- Hispanic
- Native American
- Asian or Pacific Islander
- Other (Please specify) \_\_\_\_\_

Use back if needed

31. Number of years with State Government \_\_\_\_\_

32. Date of last promotion in State Government?

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Month Day Year

33. Date of last position change in State Government?

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Month Day Year

The Governmental Services Center wishes to thank you again for taking enough of your time to complete this questionnaire. The information obtained from this study will enable us to continue providing training of the highest quality.

## **APPENDIX TWO**

### **STATISTICAL CALCULATIONS OF CLUSTER ANALYSIS**

Case# ID V22 V23

1	0396	1	3
2	0469	4	2
3	5001	5	2
4	0759	3	3
5	1269	5	2
6	2440	5	4
7	0418	2	9
8	2805	1	1
9	0857	2	2
10	0194	1	1
11	1037	4	2
12	0867	2	1
13	1955	5	2
14	2178	4	1
15	1874	1	1
16	2230	1	1
17	0899	4	2
18	1789	2	2
19	2414	4	3
20	2201	3	2
21	2889	2	4
22	1949	3	2
23	0125	2	3
24	0283	3	3
25	0690	3	1
26	0034	2	3
27	0635	4	3
28	0446	2	2
29	0137	2	2
30	1535	1	2
31	2431	4	2
32	1957	1	1
33	1895	5	9
34	0005	2	4
35	1642	1	2
36	2292	2	1
37	2359	4	3
38	1705	5	2
39	1697	1	1
40	1035	4	2
41	1827	2	1
42	0290	1	1
43	0074	2	1
44	1389	1	1
45	0075	4	2
46	0277	2	1
47	0177	4	3
48	0224	2	1
49	2861	5	3
50	0331	2	2
51	1022	3	2
52	0251	1	1
53	0157	3	2
54	0480	2	2
55	1159	2	2
56	0172	3	1
57	1043	3	1

Case# ID V22 V23

58 0249	3	3
59 0766	3	1
60 2548	3	1
61 2600	3	1
62 0895	3	3
63 0682	1	1
64 1062	4	2
65 0000	2	2
66 1964	2	1
67 1780	2	2
68 1633	2	2
69 2921	3	1
70 1845	1	1
71 0459	9	9
72 2136	3	1
73 0687	3	9
74 2212	4	2
75 0994	4	2
76 2706	3	2
77 0416	3	3
78 9999	2	9
79 2295	5	2
80 0613	4	2
81 2541	9	2
82 1979	1	1
83 2238	5	3
84 1703	2	1
85 2482	2	1
86 1423	2	4
87 0253	2	1
88 0850	9	9
89 0289	2	1
90 2873	3	1
91 0720	3	3
92 0273	1	1
93 2330	3	2
94 0883	2	2
95 1195	1	1
96 0330	2	1
97 0866	3	1
98 2673	9	2
99 2819	9	2
100 1341	5	1
101 0138	3	2
102 1903	9	2
103 2345	3	2
104 1877	2	1
105 2750	1	1
106 2118	2	1
107 0338	9	4
108 2882	3	9
109 1014	3	1
110 0819	4	2
111 0039	9	2
112 2656	3	1
113 2516	3	3
114 1851	1	1

Page 4

SPSS/PC Release 1.10

12/1/89

Case# ID V22 V23

115	2084	2	2
116	2627	3	2
117	0179	2	2
118	1072	4	2
119	0498	1	1
120	0378	2	1
121	0425	5	2
122	2878	3	1
123	2746	1	1
124	2127	5	4
125	2073	4	9
126	1044	3	1
127	2719	8	9
128	0526	1	1
129	1308	5	2
130	2530	3	1
131	0024	1	3
132	2177	4	2
133	1029	8	9
134	0878	1	1
135	1453	8	2
136	2517	3	1
137	2702	5	2
138	2769	1	1
139	2006	1	1
140	2013	8	1
141	0788	3	1
142	2762	1	1
143	0240	2	3
144	0460	2	2
145	2841	2	2
146	0958	4	2
147	2690	5	2

Number of cases read = 147 Number of cases listed = 147

## Agglomeration Schedule using Complete Linkage

Stage	Clusters			Coefficient	Stage Cluster 1st Appears			Next Stage
	Cluster 1	Cluster 2	Combined		Cluster 1	Cluster 2		
1	120	129	0.0		0	0	0	10
2	117	128	0.0		0	0	0	13
3	126	127	0.0		0	0	0	4
4	8	126	0.0		0	3	3	28
5	25	125	0.0		0	0	0	102
6	122	124	0.0		0	0	0	8
7	119	123	0.0		0	0	0	11
8	7	122	0.0		0	6	6	12
9	118	121	0.0		0	0	0	12
10	3	120	0.0		0	1	1	22
11	24	119	0.0		0	7	7	18
12	7	118	0.0		8	9	9	20
13	2	117	0.0		0	2	2	32
14	1	116	0.0		0	0	0	117
15	112	115	0.0		0	0	0	18
16	108	114	0.0		0	0	0	22
17	110	113	0.0		0	0	0	20
18	24	112	0.0		11	15	15	31
19	6	111	0.0		0	0	0	127
20	7	110	0.0		12	17	17	29
21	99	109	0.0		0	0	0	31
22	3	108	0.0		10	16	16	92
23	96	107	0.0		0	0	0	34
24	101	106	0.0		0	0	0	29
25	98	105	0.0		0	0	0	32
26	102	104	0.0		0	0	0	28
27	93	103	0.0		0	0	0	37
28	8	102	0.0		4	26	26	63
29	7	101	0.0		20	24	24	41
30	84	100	0.0		0	0	0	45
31	24	99	0.0		18	21	21	39
32	2	98	0.0		13	25	25	58
33	90	97	0.0		0	0	0	39
34	11	96	0.0		0	23	23	40
35	88	95	0.0		0	0	0	41
36	89	94	0.0		0	0	0	40
37	19	93	0.0		0	27	27	43
38	86	92	0.0		0	0	0	43
39	24	90	0.0		31	33	33	60
40	11	69	0.0		34	36	36	48
41	7	88	0.0		29	35	35	53
42	66	87	0.0		0	0	0	63
43	19	86	0.0		37	38	38	78
44	76	85	0.0		0	0	0	53
45	4	84	0.0		0	30	30	69
46	69	83	0.0		0	0	0	60
47	81	82	0.0		0	0	0	48
48	11	81	0.0		40	47	47	51
49	32	80	0.0		0	0	0	96
50	78	79	0.0		0	0	0	51
51	11	78	0.0		48	50	50	82
52	47	77	0.0		0	0	0	114
53	7	76	0.0		41	44	44	68

Stage	Clusters		Coefficient	Stage Cluster 1st Appears			Next
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	Stage	
54	71	75	0.0	0	0	58	
55	36	74	0.0	0	0	92	
56	60	73	0.0	0	0	69	
57	51	72	0.0	0	0	78	
58	2	71	0.0	32	54	67	
59	62	70	0.0	0	0	67	
60	24	69	0.0	39	46	70	
61	61	68	0.0	0	0	68	
62	59	67	0.0	0	0	70	
63	8	66	0.0	28	42	66	
64	63	65	0.0	0	0	66	
65	46	64	0.0	0	0	82	
66	8	63	0.0	63	64	77	
67	2	62	0.0	58	59	90	
68	7	61	0.0	53	61	86	
69	4	60	0.0	45	56	103	
70	24	59	0.0	60	62	72	
71	57	58	0.0	0	0	72	
72	24	57	0.0	70	71	75	
73	23	56	0.0	0	0	103	
74	54	55	0.0	0	0	75	
75	24	54	0.0	72	74	116	
76	52	53	0.0	0	0	77	
77	8	52	0.0	66	76	99	
78	19	51	0.0	43	57	104	
79	42	50	0.0	0	0	86	
80	21	49	0.0	0	0	104	
81	28	48	0.0	0	0	99	
82	11	46	0.0	51	65	87	
83	35	45	0.0	0	0	93	
84	41	44	0.0	0	0	87	
85	38	43	0.0	0	0	90	
86	7	42	0.0	68	79	91	
87	11	41	0.0	82	84	94	
88	37	40	0.0	0	0	91	
89	34	39	0.0	0	0	94	
90	2	38	0.0	67	85	106	
91	7	37	0.0	86	88	107	
92	3	36	0.0	22	55	112	
93	18	35	0.0	0	83	101	
94	11	34	0.0	87	89	116	
95	29	33	0.0	0	0	115	
96	20	32	0.0	0	49	119	
97	15	31	0.0	0	0	107	
98	16	30	0.0	0	0	106	
99	8	28	0.0	77	81	105	
100	17	27	0.0	0	0	105	
101	18	26	0.0	93	0	114	
102	22	25	0.0	0	5	117	
103	4	23	0.0	69	73	122	
104	19	21	0.0	78	80	118	
105	8	17	0.0	99	100	115	
106	2	16	0.0	90	98	110	
107	7	15	0.0	91	97	111	

	Clusters	Combined		Stage	Cluster 1	1st Appears	Next
Stage	Cluster 1	Cluster 2	Coefficient	Cluster 1	Cluster 2	Stage	
108	9	14	0.0	0	0	111	
109	5	12	0.0	0	0	112	
110	2	10	0.0	106	0	118	
111	7	9	0.0	107	108	121	
112	3	5	0.0	92	109	120	
113	13	91	.776398	0	0	125	
114	18	47	.776398	101	52	120	
115	8	29	.776398	105	95	121	
116	11	24	.776398	94	75	123	
117	1	22	.776398	14	102	119	
118	2	19	.776398	110	104	122	
119	1	20	.990099	117	96	126	
120	3	18	.990099	112	114	124	
121	7	8	.990099	111	115	123	
122	2	4	.990099	118	103	124	
123	7	11	1.552795	121	116	126	
124	2	3	1.552795	122	120	125	
125	2	13	1.980198	124	113	127	
126	1	7	2.970297	119	123	128	
127	2	6	2.970297	125	19	128	
128	1	2	3.105580	126	127	0	

## Vertical Icicle Plot using Complete Linkage

(Down) Number of Clusters (Across) Case Label and number

2	2	1	2	2	2	0	0	2	2	1	1	2	1	1	0	2	2	5	0	0	0	0	2		
1	4	3	1	2	8	6	1	3	4	9	2	2	7	3	4	6	7	0	2	2	4	8	5		
2	4	4	7	3	6	3	7	5	1	5	6	9	0	0	2	9	0	0	4	8	1	9	1		
7	0	1	8	8	1	5	7	9	4	5	9	5	5	8	5	0	2	1	9	3	6	5	6		
1															1	1	1	1					1		
1															7	3	1	0	2	2	5	2	7	6	0
1	6	1	3	7	7	6	5	5	8	2	5	4	6	4	8	9	0	3	6	3	3	0	0		
2	+XXXXXX	XX																							
3	+XXXX	XX																							
4	+XXXX	XX																							
5	+XXXX	XXXX XXX																							
6	+XXXX	XXXX XXX																							
7	+XXXX	XXXX XXX																							
8	+XXXX	XXXX XXX																							
9	+XXXX	XXXX XXX																							

(Down) Number of Clusters (Across) Case Label and number

0	0	1	1	2	0	0	2	2	2	2	1	2	0	0	1	2	1	0	0	1	0	0	2
7	7	0	9	7	1	1	3	6	3	2	0	4	8	0	0	2	0	6	9	0	9	9	1
2	5	2	4	0	5	3	3	2	4	0	3	3	9	7	3	1	6	1	9	7	1	5	7
0	9	2	9	6	7	8	0	7	5	1	7	1	9	5	5	2	2	3	4	2	9	8	7

## (Down) Number of Clusters (Across) Case Label and number

0	1	0	2	0	2	2	2	2	1	0	2	2	2	1	0	2	0	1	2	0	0	1	0
4	0	1	5	7	0	6	8	1	0	9	8	6	5	0	7	5	6	8	2	2	0	9	2
6	4	7	4	6	2	0	7	3	1	6	7	5	3	4	8	1	9	2	9	7	7	6	2
9	3	2	8	6	1	0	3	6	4	6	8	6	0	4	8	7	0	7	2	7	4	4	4
															1	1	1	1	1				
	5	5	5	5	6	5	8	6	9	9	0	9	1	1	2	1	2	3	3	4	4	6	4
2	5	4	8	7	7	9	3	9	7	0	9	9	5	2	3	9	4	9	4	4	1	4	6
2	+X	XX																					
3	+X	XX																					
4	+X	XX																					
5	+X	XX																					
6	+X	XX																					
7	+X	XX																					
8	+X	XX																					
9	+X	XX																					

(Down) Number of Clusters (Across) Case Label and number

2	1	0	0	1	0	0	2	0	1	1	0	1	0	0	1	0	1	0	0	1	0	2	2
4	7	2	2	9	3	3	1	8	6	5	4	7	3	1	1	4	7	0	8	6	1	0	8
8	0	8	5	7	3	7	1	6	4	3	4	8	3	3	5	8	8	0	8	3	7	8	4
2	3	9	3	7	0	8	8	7	2	5	6	9	1	7	8	0	0	0	3	3	9	4	1
1												1    1    1											
7	7	8	8	9	8	0	9	1	3	2	2	1	4	2	5	5	6	6	8	6	0	0	2
9	8	2	1	4	9	7	6	1	3	9	7	7	8	8	3	2	5	3	7	6	4	2	7
2	+XX																						
3	+XX																						
4	+XX																						
5	+XX																						
6	+XX																						
7	+XXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX																					
8	+XXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX																					
9	+XXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX																					

(Down) Number of Clusters (Across) Case Label and number

0	0	1	0	1	2	0	1	0	1	1	0	0	1	2	1	0	1	0	2	2	0	2	2
4	8	8	1	9	2	2	6	2	3	8	6	2	9	7	1	4	8	5	7	7	8	7	0
6	5	7	9	5	3	9	9	5	8	4	9	7	7	5	9	9	5	2	4	6	7	6	0
0	7	4	4	7	0	0	7	1	9	5	2	3	9	0	5	8	1	6	6	9	8	2	6
1																	1	1	1	1	1	1	1
2		1		3	1	4	3	5	4	6	6	8	7	9	8	0	0	1	1	2	1	2	2
6	8	4	9	1	5	0	7	0	2	8	1	5	6	5	8	6	1	3	0	1	8	4	2
2	+XXXXXX	XXXXXXXXXXXXXX																					
3	+XXXXXX	XXXXXXXXXXXXXX																					
4	+XXXXXX	XXXXXXXXXXXXXX																					
5	+XXXXXX	XXXXXXXXXXXXXX																					
6	+XXXXXX	XXXXXXXXXXXXXX																					
7	+XXXXXX	XXXXXXXXXXXXXX																					
8	+XXXXXX	XXXXXXXXXXXXXX																					
9	+XXXXX	XXXXXXXXXXXXXX																					

(Down) Number of Clusters (Across) Case Label and number

2	1	0	2	0	0	0	0	0
8	4	0	8	2	0	1	0	3
0	2	0	8	4	3	2	2	9
5	3	5	9	0	4	5	4	6

		1		1				
8	3	2	2	2	2	1		
7	0	2	0	5	5	2	6	1
2	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
3	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
4	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
5	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
6	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
7	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
8	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						
9	+X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						

Page 17 SPSS/PC Release 1.10 12/1/89  
V22 NUMBER OF EMPLOYEES DIRECTLY SUPERVISED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
LESS THAN 3	1	27	18.4	20.0	20.0
3 TO 5	2	38	25.9	28.1	48.1
6 TO 9	3	35	23.8	25.9	74.1
10 TO 14	4	20	13.6	14.8	88.9
MORE THAN 15	5	15	10.2	11.1	100.0
	9	12	8.2	MISSING	
				-----	-----
	TOTAL	147	100.0	100.0	

LESS THAN 3 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 27  
3 TO 5 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 38  
6 TO 9 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 35  
10 TO 14 XXXXXXXXXXXXXXXXXXXXXXXXX 20  
MORE THAN 15 XXXXXXXXXXXXXXXXX 15

Mean	2.689	Std Err	.108	Median	3.000
Mode	2.000	Std Dev	1.261	Variance	1.589
Kurtosis	-.857	S E Kurt	1.986	Skewness	.336
S E Skew	.209	Range	4.000	Minimum	1.000
Maximum	5.000	Sum	363.000		

Valid Cases 135 Missing Cases 12

## V23 TOTAL NUMBER OF EMPLOYEES SUPERVISED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 TO 10 EMPLOYEES	1	58	39.5	42.3	42.3
11 TO 50 EMPLOYEES	2	55	37.4	40.1	82.5
51 TO 200 EMPLOYEES	3	18	12.2	13.1	95.6
201 TO 500 EMPLOYEES	4	6	4.1	4.4	100.0
	9	10	6.8	MISSING	
		-----	-----	-----	-----
	TOTAL	147	100.0	100.0	

1 TO 10 EMPLOYEES XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 58

11 TO 50 EMPLOYEES XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 55

51 TO 200 EMPLOYEES XXXXXXXXXXXXXXXX 18

201 TO 500 EMPLOYEES XXXXXX 6

Mean	1.796	Std Err	.071	Median	2.000
Mode	1.000	Std Dev	.833	Variance	.693
Kurtosis	.177	S E Kurt	1.986	Skewness	.866
S E Skew	.207	Range	3.000	Minimum	1.000
Maximum	4.000	Sum	246.000		

Valid Cases 137 Missing Cases 10

Page 20 SPSS/PC Release 1.10 12/1/89  
V22 NUMBER OF EMPLOYEES DIRECTLY SUPERVISED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
LESS THAN 3	1	278	18.9	20.5	20.5
3 TO 5	2	359	24.4	26.5	47.0
6 TO 9	3	344	23.4	25.4	72.5
10 TO 14	4	244	16.6	18.0	90.5
MORE THAN 15	5	129	8.8	9.5	100.0
	9	115	7.8	MISSING	
				-----	-----
	TOTAL	1469	100.0	100.0	

LESS THAN 3 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 278  
3 TO 5 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 359  
6 TO 9 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 344  
10 TO 14 XXXXXXXXXXXXXXXXXXXXXXXXX 244  
MORE THAN 15 XXXXXXXXXXXXXXXXX 129

Mean	2.695	Std Err	.034	Median	3.000
Mode	2.000	Std Dev	1.247	Variance	1.556
Kurtosis	-.942	S E Kurt	1.899	Skewness	.251
S E Skew	.086	Range	4.000	Minimum	1.000
Maximum	5.000	Sum	3649.000		

Valid Cases 1354 Missing Cases 115

Page 21 SPSS/PC Release 1.10  
V23 TOTAL NUMBER OF EMPLOYEES SUPERVISED

12/1/89

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 TO 10 EMPLOYEES	1	577	39.3	42.9	42.9
11 TO 50 EMPLOYEES	2	527	35.9	39.2	82.0
51 TO 200 EMPLOYEES	3	170	11.6	12.6	94.7
201 TO 500 EMPLOYEES	4	72	4.9	5.3	100.0
	9	123	8.4	MISSING	
		-----	-----	-----	-----
	TOTAL	1469	100.0	100.0	

1 TO 10 EMPLOYEES XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 577

11 TO 50 EMPLOYEES XXXXXXXXXXXXXXXXXXXXXXXXX 527

51 TO 200 EMPLOYEES XXXXXXXXXX 170

201 TO 500 EMPLOYEES XXXXXX 72

Mean	1.805	Std Err	.023	Median	2.000
Mode	1.000	Std Dev	.855	Variance	.731
Kurtosis	.152	S E Kurt	1.999	Skewness	.900
S E Skew	.067	Range	3.000	Minimum	1.000
Maximum	4.000	Sum	2429.000		

Valid Cases 1346 Missing Cases 123

## **APPENDIX THREE**

**STATISTICAL CALCULATIONS OF FACTOR ANALYSIS  
UTILIZED TO DETERMINE THE TRAINING AND DEVELOPMENT  
DIMENSIONS**

Page 2

SPSS/PC Release 1.10

12/1/89

----- FACTOR ANALYSIS -----

Analysis Number 1 Pairwise deletion of cases with missing values

	Mean	Std Dev	Cases	Label
V1A	2.63326	.84451	1407	STATISTICS & RESEARCH METHODS
V1B	3.09136	.83850	1401	POLICY/PROGRAM ANALYSIS
V1C	3.55882	.68729	1428	PERSONNEL MANAGEMENT
V1D	3.05114	.81140	1408	MIS
V1E	2.93909	.92250	1412	BUDGETARY OPERATIONS
V1F	3.47860	.70392	1425	PUBLIC RELATIONS
V1G	2.85018	.92055	1415	ADMINISTRATIVE LAW
V2A	3.22530	.76069	1407	UNDERSTANDING CONFLICT WORKSHOP
V2B	3.47491	.70903	1415	PROBLEM SOLVING WORKSHOP
V2C	3.10646	.83684	1409	DISCIPLINE WORKSHOP
V2D	2.60243	.91712	1401	EEO WORKSHOP
V2E	2.72591	.92996	1401	FINANCIAL MANAGEMENT WORKSHOP
V2F	3.07413	.90422	1403	COMPUTER WORKSHOP
V2G	3.31818	.74716	1408	WORK RELATION WORKSHOP
V2H	3.14428	.89638	1407	MERIT SYSTEM WORKSHOP
V2I	3.42191	.74894	1415	MOTIVATION WORKSHOP
V2J	3.24858	.77847	1404	PERFORMANCE WORKSHOP
V2K	2.99857	.87291	1400	PLANNING WORKSHOP
V8A	3.06210	.80071	1401	ASSERTIVENESS
V8B	3.05640	.80771	1383	TEAM SKILL
V8C	2.70429	.93061	1400	ENGLISH SKILL
V8D	3.20214	.82024	1405	STRESS MANAGEMENT SKILL
V8E	3.25053	.76971	1405	PRESENTATION SKILL
V8F	3.11997	.83462	1392	PROFESSIONAL IMAGE
V8G	3.27117	.83789	1405	EFFECTIVE WRITING
V8H	3.10244	.88165	1396	READING
V8J	3.10280	.90812	1381	BETTER MEMOES

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .90886

Bartlett Test of Sphericity = 12754.693, Significance = .00000

There are 48 ( 6.8%) off-diagonal elements of AIC Matrix > 0.09

## Anti-Image Covariance Matrix:

	V1A	V1B	V1C	V1D	V1E
V1A	.74851				
V1B	-.22835	.70410			
V1C	.06209	-.09513	.71644		
V1D	-.07610	-.08498	-.07180	.73265	
V1E	-.02790	-.05971	-.11081	-.07960	.62365
V1F	-.00297	-.02800	-.13223	-.01330	-.03772
V1G	-.09082	-.08000	-.00560	-.01077	-.04772
V2A	-.01686	.01849	-.01883	.00043	.05319
V2B	.01582	-.03473	.02731	.00531	.03202
V2C	.03536	.03378	-.08000	.00568	.00415
V2D	-.00533	-.01890	-.00416	-.00481	-.02918
V2E	-.00342	-.01941	.05676	-.02778	-.25294
V2F	-.06934	-.02970	.01780	-.16835	.05079
V2G	.00024	.01062	-.09260	-.01689	.02022
V2H	.01996	-.01169	-.02535	-.04175	-.00681
V2I	.00230	.01410	-.05672	.01295	.01598
V2J	.01372	.00044	-.03303	-.03388	.01442
V2K	-.07854	-.03130	.02447	-.04844	-.02669
V8A	-.02911	.01890	.01361	.02140	.02620
V8B	.01301	-.04882	.01566	-.01751	.01608
V8C	-.03547	-.00083	.00072	.02979	.02426
V8D	.00753	-.00056	-.02391	.03754	.00018
V8E	-.02542	-.00510	.02633	-.00072	-.02550
V8F	.02025	.03008	.00996	-.01506	-.00973
V8G	.00586	-.02605	.00039	.01811	-.00978
V8H	.02540	-.00587	-.00761	-.00310	-.00936
V8J	-.00540	.02062	.01508	-.00770	-.01023
	V1F	V1G	V2A	V2B	V2C
V1F	.84348				
V1G	-.13709	.83550			
V2A	-.03608	-.05857	.51453		
V2B	-.01704	.03321	-.17118	.53271	
V2C	.04038	-.03087	-.09230	-.07012	.57838
V2D	-.02666	-.05164	-.04898	.01594	-.13205
V2E	.02040	.00831	-.00538	-.05383	-.01182
V2F	-.00975	.04693	.04962	.00654	-.01697
V2G	-.03343	.00829	-.08715	-.05291	-.02137
V2H	.02896	-.02804	.00321	.00293	-.08523
V2I	-.03144	.01149	-.00125	-.06212	-.04108
V2J	.01049	-.00140	-.01272	.00288	.00069
V2K	-.00896	.00173	-.00964	-.05606	.00475
V8A	-.01977	.04884	-.05571	-.02258	-.03138
V8B	.01352	.01862	-.02342	-.00938	.00297
V8C	-.00648	-.01662	-.00674	.04139	-.00785
V8D	-.01784	-.03201	-.04763	-.04400	-.01598
V8E	-.01978	.01854	.00403	-.04933	.01578
V8F	-.01105	-.01522	-.00414	.01095	-.02112
V8G	.03611	-.02723	.00211	-.02939	.01137
V8H	.00224	-.02255	.00848	-.00648	-.01078
V8J	-.02206	.01031	.00858	-.01295	.00446

	V2D	V2E	V2F	V2G	V2H
V2D	.60666				
V2E	-.11021	.54561			
V2F	-.00807	-.09766	.79492		
V2G	-.02041	.00157	-.05759	.52089	
V2H	-.09005	.00926	-.02281	-.10600	.62828
V2I	.01679	.02383	-.01227	-.05913	-.03547
V2J	-.03867	-.00831	.03676	-.04292	-.07823
V2K	.00437	-.11835	-.02944	-.03297	.00925
V8A	-.00682	.00539	.00551	.02337	-.01535
V8B	-.05075	-.02010	-.00133	-.05304	.01019
V8C	-.04141	-.00096	-.08672	.02759	.00587
V8D	.01097	.03008	.01260	-.04698	-.04496
V8E	.02105	.03092	-.00722	-.00370	-.00732
V8F	-.01393	-.01218	.02166	-.01706	.03707
V8G	.00354	-.02741	-.00650	.01222	.03163
V8H	-.00551	-.00742	-.02360	.00361	-.00309
V8J	-.00652	.00232	.01367	-.01579	-.04897
	V2I	V2J	V2K	V8A	V8B
V2I	.48894				
V2J	-.19420	.46898			
V2K	.00892	-.13970	.59753		
V8A	-.03208	-.01375	.00403	.64289	
V8B	-.04554	-.01370	-.03623	-.16859	.68974
V8C	.01824	-.01236	-.00023	-.03934	-.01731
V8D	-.00728	-.00523	.02789	-.08766	-.03143
V8E	-.01036	.01116	-.04222	.02579	-.06301
V8F	-.02003	-.03045	-.00050	-.08573	-.01157
V8G	-.02701	.00416	-.01589	.00076	.01017
V8H	-.00406	.00047	-.03437	-.03021	-.02253
V8J	-.00437	.01548	.01988	-.03067	.03605
	V8C	V8D	V8E	V8F	V8G
V8C	.51921				
V8D	-.06388	.67007			
V8E	-.02925	-.05232	.60370		
V8F	-.05055	-.07622	-.18558	.55488	
V8G	-.05631	-.00235	-.06412	-.01702	.42648
V8H	-.07323	-.01459	-.03750	-.04362	-.08627
V8J	-.12375	.00599	-.01369	-.03561	-.17982
	V8H	V8J			
V8H	.52866				
V8J	-.09691	.38886			

## Anti-Image Correlation Matrix:

	V1A	V1B	V1C	V1D	V1E	V1F	V1G
V1A	.77881						
V1B	-.31454	.83127					
V1C	.08478	-.13394	.87221				
V1D	-.10276	-.11833	-.09883	.88578			
V1E	-.04084	-.09010	-.16578	-.11775	.76081		
V1F	-.00374	-.03373	-.17010	-.01692	-.05201	.88602	
V1G	-.11484	-.10431	-.00724	-.01376	-.06611	-.16331	.87131
V2A	-.02717	.03072	-.03068	.00069	.09390	-.05476	-.08933
V2B	.02506	-.05671	.04420	.00849	.05556	-.02542	.04978
V2C	.05374	.05293	-.12428	.00873	.00691	.05781	-.04441
V2D	-.00792	-.02882	-.00632	-.00722	-.04743	-.03727	-.07254
V2E	-.00535	-.03131	.09078	-.04394	-.43362	.03007	.01231
V2F	-.08988	-.03970	.02358	-.22060	.07213	-.01191	.05759
V2G	.00038	.01753	-.15158	-.02735	.03547	-.05044	.01256
V2H	.02910	-.01757	-.03779	-.06153	-.01088	.04116	-.03870
V2I	.00380	.02403	-.09583	.02164	.02893	-.04895	.01798
V2J	.02315	.00077	-.05699	-.05780	.02667	.01668	-.00224
V2K	-.11744	-.04826	.03740	-.07321	-.04372	-.01263	.00245
V8A	-.04197	.02809	.02005	.03119	.04138	-.02685	.06664
V8B	.01811	-.07020	.02228	-.02463	.02452	.01772	.02452
V8C	-.05690	-.00137	.00119	.04830	.04264	-.00979	-.02523
V8D	.01063	-.00081	-.03451	.05357	.00029	-.02373	-.04278
V8E	-.03782	-.00783	.04003	-.00108	-.04156	-.02772	.02610
V8F	.03142	.04813	.01579	-.02362	-.01655	-.01614	-.02236
V8G	.01037	-.04754	.00071	.03240	-.01897	.06020	-.04561
V8H	.04038	-.00962	-.01237	-.00498	-.01631	.00336	-.03393
V8J	-.01001	.03940	.02857	-.01442	-.02077	-.03851	.01810
	V2A	V2B	V2C	V2D	V2E	V2F	V2G
V2A	.91810						
V2B	-.32697	.92394					
V2C	-.16919	-.12633	.93525				
V2D	-.08767	.02804	-.22293	.93662			
V2E	-.01015	-.09985	-.02105	-.19156	.82641		
V2F	.07758	.01005	-.02503	-.01162	-.14829	.83385	
V2G	-.16834	-.10044	-.03893	-.03630	.00294	-.08950	.94468
V2H	.00564	.00506	-.14138	-.14585	.01582	-.03227	-.18529
V2I	-.00249	-.12171	-.07725	.03082	.04613	-.01969	-.11716
V2J	-.02589	.00577	.00132	-.07438	-.01642	.06020	-.08684
V2K	-.01738	-.09937	.00807	.00725	-.20727	-.04272	-.05910
V8A	-.09685	-.03859	-.05147	-.01092	.00910	.00770	.04039
V8B	-.03932	-.01547	.00470	-.07845	-.03276	-.00179	-.08849
V8C	-.01305	.07870	-.01433	-.07379	-.00181	-.13499	.05304
V8D	-.08112	-.07364	-.02586	.01720	.04976	.01726	-.07951
V8E	.00724	-.08700	.02671	.03479	.05387	-.01043	-.00660
V8F	-.00774	.02014	-.03729	-.02401	-.02213	.03261	-.03174
V8G	.00451	-.06166	.02289	.00696	-.05682	-.01116	.02592
V8H	.01626	-.01222	-.01949	-.00973	-.01382	-.03641	.00687
V8J	.01917	-.02844	.00940	-.01342	.00504	.02459	-.03508

Page 6

SPSS/PC Release 1.10  
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FACTOR ANALYSIS -----

12/1/89

V2H V2I V2J V2K V8A V8B V8C

V2H	.93697						
V2I	-.06399	.91785					
V2J	-.14412	-.40555	.90330				
V2K	.01510	.01651	-.26389	.92329			
V8A	-.02416	-.05722	-.02504	.00650	.93313		
V8B	.01548	-.07841	-.02409	-.05643	-.25318	.93617	
V8C	.01027	.03620	-.02505	-.00041	-.06810	-.02892	.92299
V8D	-.06930	-.01273	-.00933	.04407	-.13357	-.04623	-.10829
V8E	-.01189	-.01906	.02087	-.07030	.04140	-.09765	-.05224
V8F	.06278	-.03846	-.05970	-.00087	-.11004	-.01871	-.09418
V8G	.06110	-.05914	.00931	-.03148	.00145	.01875	-.11967
V8H	-.00537	-.00799	.00094	-.06116	-.05181	-.03731	-.13978
V8J	-.09907	-.01003	.03626	.04125	-.06133	.06962	-.27542

V8D V8E V8F V8G V8H V8J

V8D	.95409					
V8E	-.08226	.92067				
V8F	-.12500	-.32064	.93215			
V8G	-.00439	-.12637	-.03499	.89389		
V8H	-.02452	-.06637	-.08054	-.18168	.95124	
V8J	.01174	-.02826	-.07666	-.44156	-.21373	.87706

Measures of sampling adequacy (MSA) are printed on the diagonal.

Page 7

SPSS/PC Release 1.10

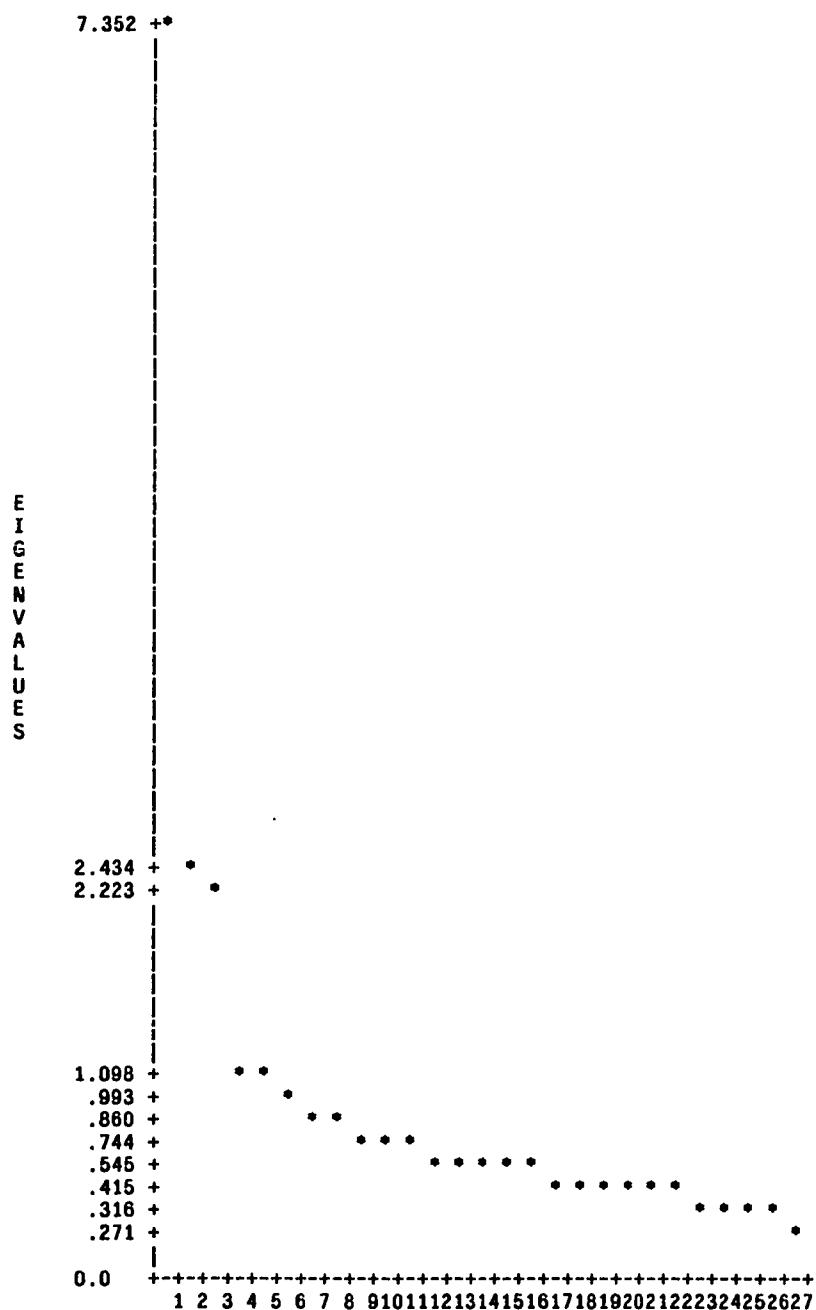
12/1/89

## ----- FACTOR ANALYSIS -----

Extraction 1 for Analysis 1, Maximum Likelihood (ML)

## Initial Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V1A	.25149	1	7.35217	27.2	27.2
V1B	.28590	2	2.43404	9.0	36.2
V1C	.28356	3	2.22349	8.2	44.5
V1D	.26735	4	1.20982	4.5	49.0
V1E	.37835	5	1.09798	4.1	53.0
V1F	.15652	6	.99338	3.7	56.7
V1G	.16450	7	.84071	3.5	60.2
V2A	.48547	8	.85995	3.2	63.4
V2B	.46729	9	.81187	3.0	66.4
V2C	.42162	10	.75956	2.8	69.2
V2D	.39334	11	.74365	2.8	72.0
V2E	.45439	12	.65525	2.4	74.4
V2F	.20508	13	.63085	2.3	76.7
V2G	.47911	14	.61566	2.3	79.0
V2H	.37172	15	.59487	2.2	81.2
V2I	.51106	16	.54479	2.0	83.2
V2J	.53102	17	.53284	2.0	85.2
V2K	.40247	18	.51017	1.9	87.1
V8A	.35711	19	.47590	1.8	88.8
V8B	.31026	20	.45127	1.7	90.5
V8C	.48079	21	.43464	1.6	92.1
V8D	.32093	22	.41524	1.5	93.7
V8E	.39630	23	.39375	1.5	95.1
V8F	.44512	24	.37019	1.4	96.5
V8G	.57352	25	.36188	1.3	97.8
V8H	.47134	26	.31560	1.2	99.0
V8J	.61114	27	.27057	1.0	100.0



Page 9

SPSS/PC Release 1.10

12/1/89

- - - - F A C T O R A N A L Y S I S - - - -

ML Extracted 3 factors. 5 Iterations required.

Chi-square Statistic: 1723.4616, Significance: .0000

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
V8J	.66155	-.50333	
V8G	.64428	-.47918	
V8H	.63465		
V2I	.60933		
V8F	.60792		
V2J	.60376		
V2G	.60179		
V2B	.59956		
V8C	.59381	-.40789	
V2A	.57294		
V8E	.55121		
V2C	.54795		
V2D	.54542		
V8A	.52999		
V8D	.52289		
V2K	.52029		
V2H	.51884		
V8B	.48768		
V1C			
V1F			
V1G			
V1E			.59005
V2E	.41136		.52389
V1B			.44775
V1D			.42076
V1A			.40662
V2F			

Page 10

SPSS/PC Release 1.10  
----- FACTOR ANALYSIS -----

12/1/89

Final Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V1A	.19837	1	6.70905	24.8	24.8
V1B	.27653	2	1.86505	6.9	31.8
V1C	.21459	3	1.68857	6.2	38.0
V1D	.29438				
V1E	.41113				
V1F	.09801				
V1G	.10551				
V2A	.47925				
V2B	.44009				
V2C	.41140				
V2D	.36611				
V2E	.45853				
V2F	.15825				
V2G	.52004				
V2H	.35610				
V2I	.50066				
V2J	.49362				
V2K	.39086				
V8A	.33077				
V8B	.27003				
V8C	.51899				
V8D	.33134				
V8E	.35141				
V8F	.41699				
V8G	.64716				
V8H	.52949				
V8J	.69109				

## Reproduced Correlation Matrix:

	V1A	V1B	V1C	V1D	V1E
V1A	.19837*	.19059	-.06494	.03733	-.07449
V1B	.22983	.27653*	.06577	.03492	-.03822
V1C	.09294	.14702	.21459*	.04738	.07918
V1D	.22681	.28173	.17943	.29438*	-.02600
V1E	.28518	.33222	.13651	.32933	.41113*
V1F	.07895	.11273	.13979	.12999	.11297
V1G	.12320	.15426	.11983	.16250	.17554
V2A	.01776	.07452	.27765	.12130	.02249
V2B	.05285	.10768	.26869	.14761	.07093
V2C	.04888	.10671	.27076	.14960	.06788
V2D	.15850	.22047	.26192	.25024	.22503
V2E	.29068	.35008	.20472	.35728	.41672
V2F	.16833	.19898	.11067	.20009	.23934
V2G	.06782	.13714	.31356	.18698	.09634
V2H	.07920	.13779	.26234	.17664	.11218
V2I	.03542	.09422	.28683	.14015	.04696
V2J	.08264	.16242	.31043	.20890	.13168
V2K	.21252	.27717	.25570	.30095	.30346
V8A	.00355	.02763	.16625	.04898	-.00574
V8B	.05855	.10138	.20966	.13003	.07930
V8C	.09217	.08985	.07254	.07582	.11048
V8D	-.00399	.02056	.16813	.04343	-.01608
V8E	.07228	.08433	.11656	.08525	.08779
V8F	.05651	.07196	.14031	.07831	.06445
V8G	.11769	.11351	.06972	.09423	.14454
V8H	.10918	.11536	.10381	.10604	.13576
V8J	.09576	.08786	.06482	.06883	.11170
	V1F	V1G	V2A	V2B	V2C
V1A	.01101	.08245	.03568	.00682	-.04652
V1B	.04031	.07807	.00821	.02299	-.04170
V1C	.14077	.03468	-.02278	-.06536	.03966
V1D	.00319	-.02140	-.01486	-.01942	-.01885
V1E	.02635	.00954	-.02118	-.01641	.01629
V1F	.09801*	.14726	.02627	-.01021	-.04385
V1G	.09192	.10551*	.06104	-.03306	.02725
V2A	.18498	.12740	.47925*	.12696	.05100
V2B	.18701	.14383	.45352	.44009*	.02326
V2C	.18231	.13844	.44106	.42253	.41140*
V2D	.18057	.18128	.35209	.36107	.34772
V2E	.16184	.21116	.16047	.19515	.18525
V2F	.09286	.12391	.08769	.11743	.10709
V2G	.20887	.15894	.49158	.47042	.46125
V2H	.17846	.14437	.40040	.38899	.37938
V2I	.19450	.14095	.48877	.46738	.45236
V2J	.21004	.16917	.47111	.45664	.44646
V2K	.18833	.20022	.29814	.31946	.30742
V8A	.12910	.09528	.35555	.35170	.32258
V8B	.14960	.12196	.34821	.34315	.32702
V8C	.10189	.12300	.21331	.25828	.20281
V8D	.12850	.09158	.36055	.35398	.32610

	F A C T O R   A N A L Y S I S				
	V1F	V1G	V2A	V2B	V2C
V8E	.11547	.11777	.26024	.28643	.24465
V8F	.13042	.12220	.31626	.33678	.29317
V8G	.10820	.13931	.20913	.26430	.20224
V8H	.12175	.14096	.24847	.29235	.23812
V8J	.10565	.13106	.22548	.27802	.21315
	V2D	V2E	V2F	V2G	V2H
V1A	-.03605	-.07768	.04659	-.00205	-.03036
V1B	-.03229	-.08370	-.00111	-.00516	-.01075
V1C	-.01956	-.08865	-.03723	.05427	.02301
V1D	-.03934	-.05640	.12215	.01880	.02759
V1E	.01380	.11528	-.09967	-.01489	-.00051
V1F	-.00737	-.06135	-.02381	.01842	-.04148
V1G	.04223	-.05965	-.07734	-.01436	.01358
V2A	.02687	.02091	-.03776	.01219	-.04962
V2B	-.03928	.05491	-.01024	-.00025	-.05922
V2C	.11826	.02782	.00641	-.02413	.05315
V2D	.36611*	.07000	-.01131	-.02016	.06827
V2E	.32054	.45863*	.01695	-.02028	-.02537
V2F	.18724	.26637	.15825*	.04966	.02396
V2G	.39644	.22519	.12754	.52004*	.05045
V2H	.34099	.21822	.12535	.42830	.35610*
V2I	.37235	.17872	.10559	.50419	.41334
V2J	.40051	.25580	.14608	.50464	.41917
V2K	.36744	.38425	.22338	.35583	.31444
V8A	.25948	.10082	.07406	.34735	.28746
V8B	.29107	.17611	.10715	.36396	.30376
V8C	.23163	.19590	.15055	.20387	.19006
V8D	.25714	.09106	.06747	.35147	.28953
V8E	.24632	.17722	.12873	.25739	.22690
V8F	.27453	.16918	.12467	.30987	.26767
V8G	.24912	.23257	.17653	.20137	.19291
V8H	.26837	.22921	.16803	.24568	.22533
V8J	.24529	.20562	.16306	.21041	.19834
	V2I	V2J	V2K	V8A	V8B
V1A	-.00318	-.01606	.03836	.04792	.01956
V1B	-.00383	-.01926	-.01481	.01077	.04217
V1C	.03528	.00063	-.08287	-.04189	-.05424
V1D	.00166	.01221	-.00472	-.00625	.00616
V1E	-.00376	-.01807	-.03259	-.00306	-.01599
V1F	.00633	-.03424	-.03842	-.00027	-.03027
V1G	-.02963	-.02951	-.04875	-.04177	-.04149
V2A	-.06952	-.06904	-.00850	.01892	-.00974
V2B	-.01143	-.05353	.04126	-.00477	-.01269
V2C	-.03368	-.05545	-.05034	-.00393	-.04131
V2D	-.05579	-.01887	-.05056	.00404	.01355
V2E	-.02885	-.01313	.05219	.01701	.01721
V2F	.00409	-.03017	.00541	.00635	.01287
V2G	.00177	-.00955	-.00673	-.05164	-.00612
V2H	.00286	.03357	-.04699	-.02691	-.04814

## - - - - F A C T O R A N A L Y S I S - - - -

	V2I	V2J	V2K	V8A	V8B
V2I	.50066*	.14727	.00805	-.01237	.00123
V2J	.48592	.49362*	.10291	-.01830	-.01148
V2K	.32192	.36928	.39086*	-.00087	.02911
V8A	.36843	.33455	.21371	.33077*	.15499
V8B	.36120	.35613	.26386	.27689	.27003*
V8C	.24100	.21444	.22423	.31483	.22464
V8D	.37244	.33724	.20881	.33075	.27746
V8E	.28215	.26053	.22968	.30252	.23869
V8F	.33796	.30843	.24642	.34726	.27600
V8G	.24107	.21657	.24852	.33122	.23401
V8H	.27743	.25634	.26182	.33208	.25129
V8J	.25669	.22251	.23604	.35367	.24356
	V8C	V8D	V8E	V8F	V8G
V1A	.03515	.02622	.03245	-.00936	-.01417
V1B	.00759	.03154	.01650	-.02263	.01203
V1C	.00448	.01636	-.03381	-.01552	.01115
V1D	-.00713	-.01521	.01021	.01401	-.01270
V1E	-.03073	.02784	.01765	.03148	-.00078
V1F	.01035	.02963	.01404	.01404	-.02315
V1G	.01755	.04337	-.01955	.00467	.00741
V2A	-.00023	.01731	-.01536	-.02036	.00635
V2B	-.04967	.00480	.03112	-.02708	.02933
V2C	.01284	-.01290	-.04472	-.01233	-.00382
V2D	.03998	-.01755	-.05064	-.00783	-.01479
V2E	-.01324	-.01421	-.02282	.01106	.00567
V2F	.06863	-.00785	-.00357	-.02325	-.01713
V2G	-.01410	.00469	-.00609	-.01270	.00394
V2H	.00765	.00396	-.03550	-.05210	-.01495
V2I	-.02043	-.03872	-.00212	-.00191	.02773
V2J	.00397	-.03881	-.01168	.01159	.00895
V2K	-.01199	-.03447	.04261	.00723	.00745
V8A	.02553	.06062	-.01911	.03859	-.03351
V8B	.01290	.02644	.05739	.02627	-.02555
V8C	.51899*	.03716	-.01616	.00702	-.02886
V8D	.30384	.33134*	.04822	.06169	-.02916
V8E	.41427	.29584	.35141*	.16162	-.00268
V8F	.43717	.34172	.38008	.41699*	-.03457
V8G	.57816	.31790	.45520	.47601	.64716*
V8H	.52184	.32134	.42469	.45000	.58022
V8J	.59811	.34083	.47254	.49762	.66692
	V8H	V8J			
V1A	-.02931	-.01070			
V1B	-.00389	-.01337			
V1C	.01444	.01803			
V1D	.00426	.01201			
V1E	-.00048	.00410			
V1F	-.00260	.01525			
V1G	.00674	-.00397			
V2A	-.01240	-.00273			

----- F A C T O R A N A L Y S I S -----

V8H V8J

V2B	-.00746	-.00085
V2C	.00654	.00901
V2D	-.00291	.00830
V2E	-.00451	-.00992
V2F	.00817	-.01289
V2G	-.00238	.02346
V2H	.00182	.04847
V2I	-.00011	.00648
V2J	.00206	-.00216
V2K	.01575	-.02574
V8A	.00310	-.01745
V8B	.00935	-.04842
V8C	.00378	.01325
V8D	-.00939	-.03316
V8E	-.00534	-.04746
V8F	-.00088	-.03617
V8G	-.00037	.03755
V8H	.52949*	.00176
V8J	.50847	.69109*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 52 (14.0%) residuals (above diagonal) that are > 0.05

Page 15

SPSS/PC Release 1.10

12/1/89

- - - - F A C T O R A N A L Y S I S - - -

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.  
Varimax converged in 5 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
V2G	.69523		
V2I	.67710		
V2A	.67231		
V2J	.65937		
V2C	.61644		
V2B	.61563		
V2H	.55754		
V2D	.46687		
V8B	.46307		
V8D	.45316		
V8A	.44131		
V1C	.40847		
V1F			
V8J		.81220	
V8G		.77777	
V8C		.69512	
V8H		.68078	
V8F		.54841	
V8E		.52524	
V2E			.64298
V1E			.63946
V1B			.51865
V1D			.51732
V2K			.46547
V1A			.44186
V2F			
V1G			

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.67994	.65535	.32895
FACTOR 2	.63469	-.75065	.18358
FACTOR 3	-.36723	-.08396	.92633

## **APPENDIX FOUR**

**STATISTICAL CALCULATIONS OF FACTOR ANALYSIS  
UTILIZED TO DETERMINE MINTZBERG'S ROLES IN  
GSC PROGRAM**

Page 2 SPSS/PC Release 1.10 12/1/89  
 - - - - - F A C T O R A N A L Y S I S - - - - -  
 Analysis Number 1 Pairwise deletion of cases with missing values

	Mean	Std Dev	Cases	Label
V2A	3.22530	.76069	1407	UNDERSTANDING CONFLICT WORKSHOP
V2B	3.47491	.70903	1415	PROBLEM SOLVING WORKSHOP
V2C	3.10846	.83684	1409	DISCIPLINE WORKSHOP
V2D	2.60243	.91712	1401	EEO WORKSHOP
V2E	2.72591	.92996	1401	FINANCIAL MANAGEMENT WORKSHOP
V2F	3.07413	.90422	1403	COMPUTER WORKSHOP
V2G	3.31818	.74716	1408	WORK RELATION WORKSHOP
V2H	3.14428	.89638	1407	MERIT SYSTEM WORKSHOP
V2I	3.42191	.74894	1415	MOTIVATION WORKSHOP
V2J	3.24858	.77847	1404	PERFORMANCE WORKSHOP
V2K	2.99857	.87291	1400	PLANNING WORKSHOP
V8A	3.06210	.80071	1401	ASSERTIVENESS
V8B	3.05640	.80771	1383	TEAM SKILL
V8C	2.70429	.93061	1400	ENGLISH SKILL
V8D	3.20214	.82024	1405	STRESS MANAGEMENT SKILL
V8E	3.25053	.76971	1405	PRESENTATION SKILL
V8F	3.11997	.83462	1392	PROFESSIONAL IMAGE
V8G	3.27117	.83789	1405	EFFECTIVE WRITING
V8H	3.10244	.88165	1396	READING
V8J	3.10280	.80812	1391	BETTER MEMOES

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .91617  
 Bartlett Test of Sphericity = 10478.649, Significance = .00000  
 There are 36 ( 9.5% ) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	V2A	V2B	V2C	V2D	V2E
V2A	.52614				
V2B	-.17639	.53876			
V2C	-.09867	-.06777	.59346		
V2D	-.05435	.02037	-.13685	.61694	
V2E	.02100	-.05197	-.00646	-.16463	.69092
V2F	.05372	.00453	-.00567	-.01153	-.13604
V2G	-.09699	-.05219	-.03198	-.02456	.01173
V2H	.00351	.00601	-.09288	-.09616	.00129
V2I	-.00481	-.06275	-.04883	.01706	.04301
V2J	-.01400	.00398	-.00381	-.04085	-.00624
V2K	-.00946	-.05684	.01672	-.00438	-.18924
V8A	-.05758	-.02699	-.02871	-.00042	.02666
V8B	-.02180	-.01323	.00687	-.05110	-.02332
V8C	-.01139	.04145	-.00581	-.04299	.01239
V8D	-.05306	-.04327	-.02014	.00796	.04225
V8E	.00643	-.05025	.02229	.01958	.02318
V8F	-.00494	.01257	-.02381	-.01419	-.01789
V8G	.00321	-.02915	.01101	.00163	-.04186
V8H	.00828	-.00523	-.01394	-.00795	-.01472
V8J	.00912	-.01294	.00637	-.00631	-.00107

Page 3 SPSS/PC Release 1.10 12/1/89  
 - - - - - F A C T O R A N A L Y S I S - - - - -

	V2F	V2G	V2H	V2I	V2J
V2F	.85957				
V2G	-.06923	.53769			
V2H	-.03334	-.11454	.63484		
V2I	-.00906	-.07201	-.03628	.49607	
V2J	.03261	-.05045	-.08368	-.20088	.47275
V2K	-.06370	-.03440	.00624	.01425	-.14651
V8A	.00710	.02670	-.00952	-.03367	-.01176
V8B	-.01125	-.05308	.00905	-.04409	-.01467
V8C	-.09268	.02983	.00868	.01851	-.01064
V8D	.02588	-.05228	-.04525	-.01070	-.00474
V8E	-.01276	-.00116	-.00597	-.00856	.01332
V8F	.02707	-.01737	.03736	-.02051	-.03112
V8G	-.00276	.01550	.03054	-.02537	.00483
V8H	-.02211	.00230	-.00532	-.00465	-.00046
V8J	.01419	-.01559	-.04824	-.00435	.01646

	V2K	V8A	V8B	V8C	V8D
V2K	.62237				
V8A	.00759	.65068			
V8B	-.04161	-.17151	.69474		
V8C	-.00182	-.04248	-.01703	.52363	
V8D	.03302	-.08785	-.02940	-.06665	.67480
V8E	-.05127	.02548	-.06420	-.02994	-.05170
V8F	.00327	-.06613	-.00945	-.04953	-.07733
V8G	-.01789	.00376	.00909	-.05798	-.00339
V8H	-.03429	-.02748	-.02240	-.07284	-.01615
V8J	.02054	-.03255	.03783	-.12477	.00676

	V8E	V8F	V8G	V8H	V8J
V8E	.60733				
V8F	-.18706	.55798			
V8G	-.06463	-.01588	.43020		
V8H	-.03681	-.04496	-.08828	.53040	
V8J	-.01508	-.03730	-.18028	-.09716	.39053

## Anti-Image Correlation Matrix:

	V2A	V2B	V2C	V2D	V2E	V2F	V2G
V2A	.91530						
V2B	-.33130	.92510					
V2C	-.17657	-.11984	.93722				
V2D	-.09539	.03532	-.22616	.91707			
V2E	.03484	-.08519	-.01009	-.25216	.82968		
V2F	.07989	.00666	-.00794	-.04264	.01924	-.10184	.94039
V2G	-.16236	-.09698	-.05661	-.04264	.01924	-.04513	-.19605
V2H	.00607	.01028	-.15133	-.15365	.00195	-.04513	-.19605
V2I	-.00941	-.12138	-.08999	.03084	.07347	-.01388	-.13943
V2J	-.02807	.00788	-.00720	-.07564	-.01091	.05115	-.10006
V2K	-.01653	-.09816	.02751	-.00706	-.28859	-.08709	-.05947
V8A	-.09841	-.04559	-.04620	-.00066	.03976	.00950	.04514
V8B	-.03605	-.02162	.01070	-.07805	-.03366	-.01456	-.08685
V8C	-.02170	.07804	-.01041	-.07564	.02060	-.13814	.05622
V8D	-.08905	-.07176	-.03182	.01233	.06187	.03398	-.08679
V8E	.01137	-.08785	.03713	.03189	.03578	-.01766	-.00202
V8F	-.00912	.02293	-.04138	-.02418	-.02881	.03909	-.03172
V8G	.00675	-.06054	.02178	.00317	-.07678	-.00454	.03222
V8H	.01567	-.00979	-.02484	-.01390	-.02432	-.03275	.00431
V8J	.02012	-.02822	.01322	-.01286	-.00206	.02449	-.03403
	V2H	V2I	V2J	V2K	V8A	V8B	V8C
V2H	.92965						
V2I	-.06464	.91059					
V2J	-.15257	-.41482	.89267				
V2K	.00992	.02565	-.27010	.89409			
V8A	-.01481	-.05926	-.02120	.01193	.93530		
V8B	.01362	-.07511	-.02560	-.08328	-.25509	.93620	
V8C	.01505	.03631	-.02139	-.00319	-.07277	-.02824	.92233
V8D	-.06914	-.01849	-.00840	.05096	-.13257	-.04294	-.11213
V8E	-.00962	-.01560	.02485	-.08339	.04054	-.09883	-.05309
V8F	.06277	-.03899	-.06060	.00555	-.10975	-.01518	-.09164
V8G	.05843	-.05492	.01071	-.03458	.00710	.01663	-.12218
V8H	-.00918	-.00906	-.00093	-.05968	-.04678	-.03690	-.13821
V8J	-.09669	-.00987	.03832	.04167	-.06456	.07263	-.27592
	V8D	V8E	V8F	V8G	V8H	V8J	
V8D	.95240						
V8E	-.08076	.91984					
V8F	-.12602	-.32133	.93120				
V8G	-.00628	-.12643	-.03241	.89275			
V8H	-.02699	-.06485	-.08264	-.18481	.95030		
V8J	.01318	-.03097	-.08007	-.43982	-.21347	.87551	

Measures of sampling adequacy (MSA) are printed on the diagonal.

Page 5

SPSS/PC Release 1.10

12/1/89

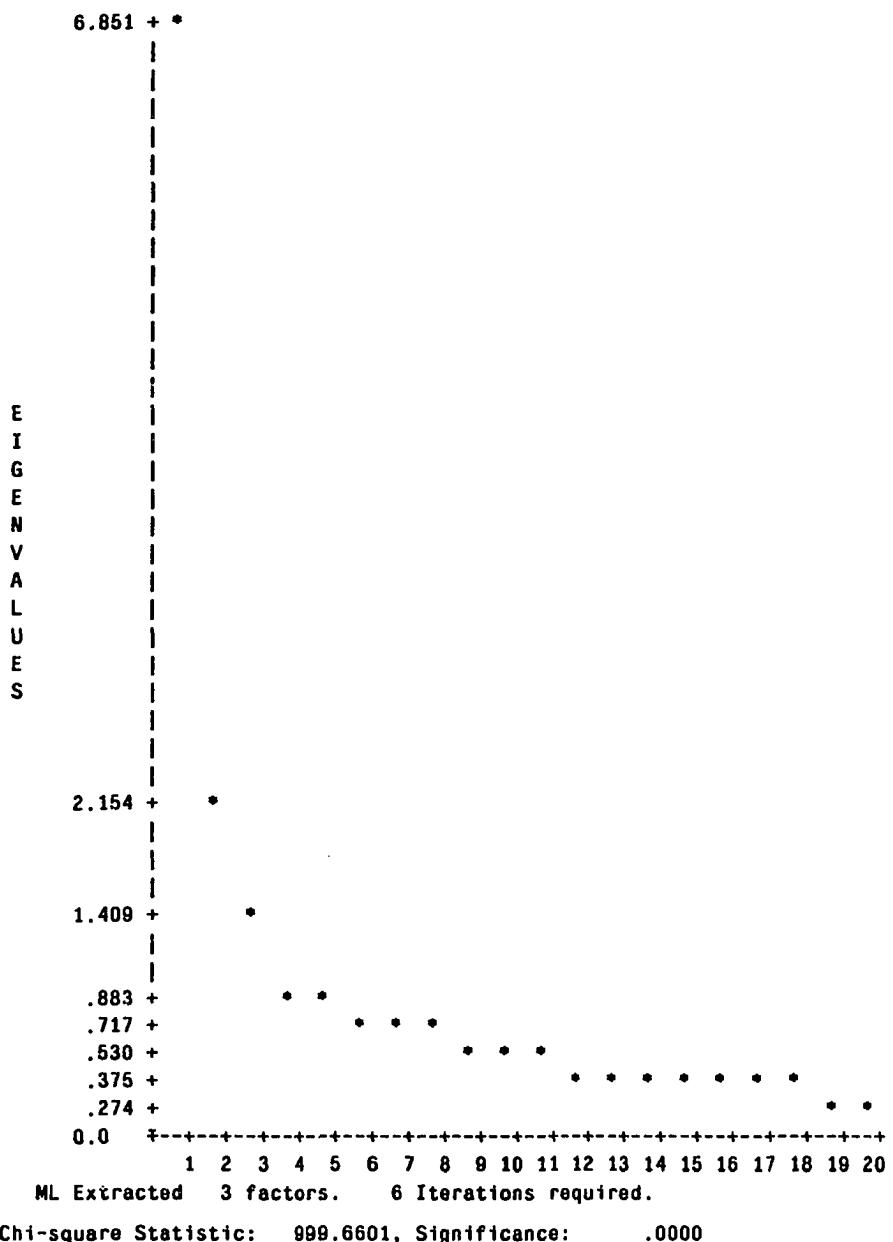
## - - - - F A C T O R A N A L Y S I S - - - -

Extraction 1 for Analysis 1, Maximum Likelihood (ML)

## Initial Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V2A	.47386	1	6.85100	34.3	34.3
V2B	.46124	2	2.15449	10.8	45.0
V2C	.40654	3	1.40892	7.0	52.1
V2D	.38306	4	.94436	4.7	56.8
V2E	.30908	5	.88278	4.4	61.2
V2F	.14043	6	.84865	4.2	65.5
V2G	.46231	7	.77978	3.9	69.3
V2H	.36516	8	.71739	3.6	72.9
V2I	.50393	9	.61807	3.1	76.0
V2J	.52725	10	.58359	2.9	78.9
V2K	.37763	11	.52987	2.6	81.6
V8A	.34932	12	.51023	2.6	84.1
V8B	.30526	13	.48868	2.4	86.6
V8C	.47637	14	.46952	2.3	88.9
V8D	.32520	15	.43916	2.2	91.1
V8E	.39267	16	.41670	2.1	93.2
V8F	.44202	17	.38979	1.9	95.2
V8G	.56980	18	.37470	1.9	97.0
V8H	.46960	19	.31834	1.6	98.6
V8J	.60947	20	.27398	1.4	100.0

## ----- FACTOR ANALYSIS -----



## Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
V8J	.67932	-.48192	
V8G	.65904	-.46157	
V8H	.64547		
V8F	.62008		
V8C	.60749		
V2I	.60597		
V2B	.60160		
V2J	.59384		
V2G	.58876		
V2A	.57172		
V8E	.56050		
V8A	.54372		
V2C	.54341		
V8D	.53215		
V2D	.53004		
V2H	.50772		
V2K	.50186		
V8B	.48775		
V2E		.60528	
V2F			

## Final Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V2A	.47929	1	6.24890	31.2	31.2
V2B	.44734	2	1.72842	8.6	39.9
V2C	.40697	3	.81298	4.1	44.0
V2D	.37938				
V2E	.52371				
V2F	.15347				
V2G	.50664				
V2H	.34977				
V2I	.49422				
V2J	.49581				
V2K	.41556				
V8A	.33606				
V8B	.27689				
V8C	.51853				
V8D	.35531				
V8E	.35540				
V8F	.42203				
V8G	.64902				
V8H	.53062				
V8J	.69429				

## Reproduced Correlation Matrix:

	V2A	V2B	V2C	V2D	V2E
V2A	.47929*	.12458	.05601	.02763	.01524
V2B	.45590	.44734*	.02157	-.04882	.03192
V2C	.43605	.42422	.40697*	.11155	.00190
V2D	.35132	.37061	.35442	.37938*	.03642
V2E	.15613	.21814	.21117	.35412	.52371*
V2F	.08865	.12544	.11614	.19278	.27812
V2G	.48741	.47083	.45358	.38980	.22457
V2H	.39879	.39200	.37638	.33848	.22153
V2I	.48546	.46752	.44503	.36960	.18401
V2J	.47000	.46311	.44643	.40723	.27843
V2K	.30365	.33691	.32370	.38731	.42376
V8A	.35987	.35424	.32125	.25843	.09689
V8B	.35491	.35111	.33058	.29190	.17514
V8C	.21119	.25605	.20270	.23069	.19448
V8D	.36683	.35396	.32073	.23976	.05225
V8E	.26731	.28966	.24693	.23680	.15063
V8F	.31990	.33780	.29256	.26804	.15310
V8G	.20582	.26235	.20351	.25150	.23849
V8H	.24526	.29085	.23821	.26941	.23387
V8J	.22042	.27298	.21080	.24388	.20561
	V2F	V2G	V2H	V2I	V2J
V2A	-.03872	.01636	-.04801	-.06622	-.06793
V2B	-.01825	-.00066	-.06224	-.01156	-.06000
V2C	-.00265	-.01646	.05615	-.02635	-.05543
V2D	-.01684	-.01351	.07078	-.05304	-.02559
V2E	.00520	-.01965	-.02867	-.03414	-.03575
V2F	.15347*	.05559	.02832	.00377	-.03397
V2G	.12162	.50664*	.05985	.01007	-.00207
V2H	.12099	.41890	.34977*	.00772	.03681
V2I	.10591	.49549	.40848	.49422*	.15163
V2J	.14987	.49716	.41593	.48155	.49581*
V2K	.22770	.35382	.31554	.32547	.38369
V8A	.07508	.35230	.29189	.37180	.33699
V8B	.10314	.36576	.30569	.36542	.36046
V8C	.15257	.20562	.19123	.24144	.21457
V8D	.05164	.35285	.28860	.37629	.33139
V8E	.11650	.26176	.22845	.28890	.26062
V8F	.11898	.31294	.26928	.34158	.30805
V8G	.18172	.20313	.19450	.24114	.21814
V8H	.17149	.24550	.22549	.27650	.25674
V8J	.16753	.21108	.19881	.26515	.22087
	V2K	V8A	V8B	V8C	V8D
V2A	-.01402	.01460	-.01643	.00188	.01103
V2B	.02381	-.00731	-.02065	-.04744	.00482
V2C	-.06662	-.00260	-.04487	.01295	-.00752
V2D	-.07043	.00508	.01272	.04093	-.00017
V2E	.01268	.02094	.01818	-.01182	.02460

Page 9 SPSS/PC Release 1.10 12/1/89  
 ----- FACTOR ANALYSIS -----

	V2K	V8A	V8B	V8C	V8D
V2F	.00109	.00534	.01688	.06660	.00798
V2G	-.00472	-.05659	-.00792	-.01586	.00330
V2H	-.04808	-.03133	-.05007	.00648	.00490
V2I	.00450	-.01575	-.00298	-.02087	-.04257
V2J	.08849	-.02074	-.01582	.00383	-.03296
V2K	.41556*	-.00221	.02689	-.01046	-.01290
V8A	.21506	.33806*	.14728	.02759	.04806
V8B	.26808	.28460	.27689*	.01454	.02005
V8C	.22269	.31277	.22300	.51853*	.03762
V8D	.18725	.34331	.28385	.30338	.35531*
V8E	.21483	.31133	.24201	.41314	.30891
V8F	.23809	.35307	.27963	.43639	.35287
V8G	.25105	.32714	.23126	.57834	.31312
V8H	.26359	.32940	.24933	.52206	.31770
V8J	.23460	.34966	.24050	.59919	.33959
	V8E	V8F	V8G	V8H	V8J
V2A	-.02243	-.02400	.00965	-.00920	.00233
V2B	.02790	-.02820	.03127	-.00596	.00419
V2C	-.04701	-.01173	-.00508	.00645	.01136
V2D	-.04112	-.00134	-.01716	-.00396	.00972
V2E	.00376	.02715	-.00025	-.00916	-.00890
V2F	.00865	-.01756	-.02232	.00471	-.01735
V2G	-.01045	-.01577	.00218	-.00219	.02279
V2H	-.03705	-.05371	-.01654	.00165	.04800
V2I	-.00887	-.00553	.02766	.00082	.00801
V2J	-.01175	.01196	.00738	.00167	-.00053
V2K	.05747	.01556	.00493	.01398	-.02430
V8A	-.02793	.03378	-.02943	.00577	-.01344
V8B	.05406	.02264	-.02281	.01130	-.04535
V8C	-.01503	.00780	-.02904	.00356	.01218
V8D	.03514	.05053	-.02438	-.00574	-.03192
V8E	.35540*	.15812	.00071	-.00310	-.04716
V8F	.38558	.42203*	-.03211	.00076	-.03556
V8G	.45181	.47356	.64902*	-.00195	.03530
V8H	.42245	.44837	.58180	.53062*	-.00002
V8J	.47224	.49701	.66917	.60025	.69429*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 26 (13.0%) residuals (above diagonal) that are > 0.05

Page 10 SPSS/PC Release 1.10 12/1/89  
- - - FACTOR ANALYSIS - - -  
Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.  
Varimax converged in 6 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
V2G	.68046		
V2A	.67199		
V2I	.66921		
V2J	.84516		
V2B	.61468		
V2C	.60162		
V2H	.54571		
V8D	.47358		
V8B	.47021		
V8A	.45545		
V2D	.44582		
V8J		.80992	
V8G		.77191	
V8C		.69043	
V8H		.67503	
V8F		.54513	
V8E		.52418	
V2E			.70313
V2K			.51159
V2F			

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.66597	.67335	.32107
FACTOR 2	.68177	-.72408	.10441
FACTOR 3	-.30279	-.14936	.94128

## ----- FACTOR ANALYSIS -----

Analysis Number 1 Pairwise deletion of cases with missing values

	Mean	Std Dev	Cases	Label
V2A	3.22530	.76068	1407	UNDERSTANDING CONFLICT WORKSHOP
V2B	3.47491	.70903	1415	PROBLEM SOLVING WORKSHOP
V2C	3.10646	.83684	1409	DISCIPLINE WORKSHOP
V2D	2.60243	.91712	1401	EO WORKSHOP
V2G	3.31818	.74716	1408	WORK RELATION WORKSHOP
V2H	3.14428	.89638	1407	MERIT SYSTEM WORKSHOP
V2I	3.42181	.74894	1415	MOTIVATION WORKSHOP
V2J	3.24858	.77847	1404	PERFORMANCE WORKSHOP
V8A	3.06210	.80071	1401	ASSERTIVENESS
V8B	3.05640	.80771	1383	TEAM SKILL
V8D	3.20214	.82024	1405	STRESS MANAGEMENT SKILL

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .90748

Bartlett Test of Sphericity = 5160.8018, Significance = .00000

There are 20 (18.2%) off-diagonal elements of AIC Matrix &gt; 0.09

Anti-Image Covariance Matrix:

	V2A	V2B	V2C	V2D	V2G
V2A	.53230				
V2B	-.18206	.57003			
V2C	-.10038	-.06666	.59625		
V2D	-.04877	-.00276	-.15436	.68451	
V2G	-.09533	-.06233	-.03258	-.03073	.54810
V2H	.00740	.00578	-.09372	-.11037	-.12179
V2I	-.00460	-.06804	-.04948	.02979	-.07436
V2J	-.01714	-.01693	-.00179	-.06951	-.06502
V8A	-.05938	-.03277	-.03375	-.01470	.03050
V8B	-.01988	-.02958	.00834	-.07352	-.06042
V8D	-.05908	-.05161	-.02426	.00579	-.05243
	V2H	V2I	V2J	V8A	V8B
V2H	.64492				
V2I	-.03660	.50451			
V2J	-.08644	-.21744	.51866		
V8A	-.01184	-.04707	-.01419	.69206	
V8B	.01391	-.04408	-.03569	-.18858	.71608
V8D	-.04480	-.02708	-.00129	-.14837	-.04474
	V8D				
V8D	.73885				

## Anti-Image Correlation Matrix:

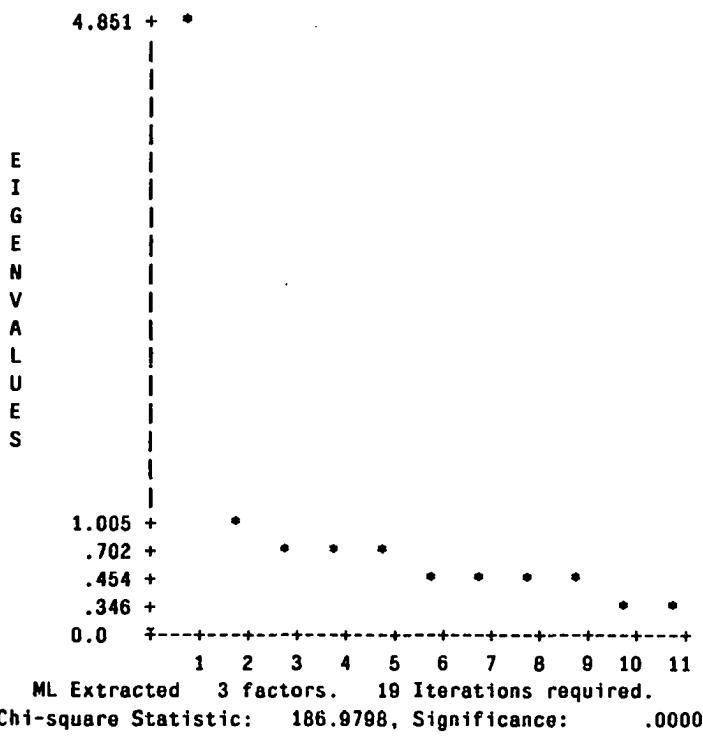
	V2A	V2B	V2C	V2D	V2G	V2H	V2I
V2A	.90194						
V2B	-.33052	.91234					
V2C	-.17817	-.11433	.92072				
V2D	-.08080	-.00439	-.24162	.90984			
V2G	-.17650	-.11151	-.05699	-.05017	.92853		
V2H	.01263	.00953	-.15114	-.16611	-.20485	.91930	
V2I	-.00888	-.12688	-.09022	.05069	-.14141	-.06416	.88339
V2J	-.03262	-.03114	-.00322	-.11667	-.12195	-.14946	-.42507
V8A	-.09784	-.05218	-.05255	-.02136	.04952	-.01772	-.07965
V8B	-.03220	-.04630	.01277	-.10501	-.08644	.02046	-.07334
V8D	-.09421	-.07953	-.03656	.00815	-.08239	-.06490	-.04436
	V2J	V8A	V8B	V8D			
V2J	.88235						
V8A	-.02369	.89176					
V8B	-.05856	-.26789	.91177				
V8D	-.00208	-.20748	-.06150	.93426			

Measures of sampling adequacy (MSA) are printed on the diagonal.  
 Extraction 1 for Analysis 1, Maximum Likelihood (ML)

## Initial Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V2A	.46770	1	4.85069	44.1	44.1
V2B	.42997	2	1.00480	9.1	53.2
V2C	.40375	3	.82878	7.5	60.8
V2D	.31548	4	.78919	7.2	67.9
V2G	.45190	5	.70176	6.4	74.3
V2H	.35508	6	.58484	5.3	79.6
V2I	.49549	7	.54675	5.0	84.6
V2J	.48134	8	.48976	4.5	89.1
V8A	.30794	9	.45356	4.1	93.2
V8B	.28392	10	.40353	3.7	96.9
V8D	.26115	11	.34633	3.1	100.0

## ----- FACTOR ANALYSIS -----



## Factor Matrix:

FACTOR 1    FACTOR 2    FACTOR 3

V2I	.71774	
V2J	.71560	
V2A	.69391	
V2G	.69118	
V2B	.66162	
V2C	.63297	
V2H	.58305	
V8A	.58203	.53819
V2D	.53641	
V8B	.52892	
V8D	.51563	

## Final Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V2A	.59397	1	4.33695	39.4	39.4
V2B	.49486	2	.53265	4.8	44.3
V2C	.44507	3	.39391	3.6	47.9
V2D	.30311				
V2G	.50836				
V2H	.36625				
V2I	.59013				
V2J	.66844				
V8A	.66786				
V8B	.32622				
V8D	.29930				

## Reproduced Correlation Matrix:

	V2A	V2B	V2C	V2D	V2G
V2A	.59397*	.04148	-.01318	-.02460	.00162
V2B	.52900	.49486*	-.02131	-.05688	-.00018
V2C	.50524	.46710	.44506*	.10192	-.02575
V2D	.40355	.37869	.36405	.30311*	-.01392
V2G	.50216	.47634	.46288	.39021	.50837*
V2H	.39746	.38370	.37696	.32387	.42754
V2I	.41909	.42140	.41848	.37440	.50287
V2J	.38783	.40044	.40615	.37201	.50840
V8A	.37507	.35401	.30886	.25796	.30487
V8B	.34778	.33239	.30788	.26143	.32817
V8D	.38102	.35448	.32729	.26927	.33371
	V2H	V2I	V2J	V8A	V8B
V2A	-.04668	.00015	.01424	-.00060	-.00930
V2B	-.05394	.03456	.00266	-.00707	-.00193
V2C	.05557	.00020	-.01515	.00979	-.02217
V2D	.08639	-.05784	.00963	.00555	.04319
V2G	.05120	.00308	-.01432	-.00916	.02968
V2H	.36624*	-.02876	-.00776	.01056	-.02059
V2I	.44596	.59013*	.01159	-.00260	-.00165
V2J	.46050	.62160	.66844*	.00029	-.00543
V8A	.24999	.35865	.31596	.66787*	.00130
V8B	.27621	.36409	.35008	.43058	.32618*
V8D	.37197	.33013	.30824	.39012	.30389
	V8D				
V2A	-.00316				
V2B	.00430				
V2C	-.01409				
V2D	-.02968				
V2G	.02244				
V2H	.02153				
V2I	.00359				

----- FACTOR ANALYSIS -----

## V8D

V2J	-.00981
V8A	.00125
V8B	.00002
V8D	.29929*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 7 (12.0%) residuals (above diagonal) that are > 0.05  
Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.  
Varimax converged in 7 iterations.

## Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
V2A	.68801		
V2B	.59860		
V2C	.56095		
V2G	.51771	.45532	
V2D	.42387		
V2J		.75035	
V2I		.65452	
V2H		.44526	
V8A			.78229
V8B			.44263
V8D			

## Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.62863	.61144	.48059
FACTOR 2	-.04694	-.58700	.80822
FACTOR 3	.77629	-.53063	-.34031

Page 18

SPSS/PC Release 1.10

12/1/89

- - - - - FACTOR ANALYSIS - - - - -

Analysis Number 1 Pairwise deletion of cases with missing values

	Mean	Std Dev	Cases	Label
V8C	2.70429	.93061	1400	ENGLISH SKILL
V8E	3.25053	.76971	1405	PRESENTATION SKILL
V8F	3.11997	.83462	1392	PROFESSIONAL IMAGE
V8G	3.27117	.83789	1405	EFFECTIVE WRITING
V8H	3.10244	.88185	1396	READING
V8J	3.10280	.60612	1391	SETTER MEMOES

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .86511

Bartlett Test of Sphericity = 3511.6028, Significance = 0.0

There are 12 (40.0%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	V8C	V8E	V8F	V8G	V8H
V8C	.55552				
V8E	-.03657	.63723			
V8F	-.07583	-.23177	.61129		
V8G	-.06063	-.07523	-.02106	.44063	
V8H	-.09063	-.05260	-.07100	-.09754	.54554
V8J	-.13345	-.01271	-.04471	-.18605	-.10251

	V8J
V8J	.40066

Anti-Image Correlation Matrix:

	V8C	V8E	V8F	V8G	V8H	V8J
V8C	.90151					
V8E	-.06147	.85602				
V8F	-.13013	-.37135	.85956			
V8G	-.12254	-.14197	-.04057	.84916		
V8H	-.16463	-.08921	-.12295	-.19894	.80738	
V8J	-.28287	-.02516	-.09035	-.44280	-.21926	.82985

Measures of sampling adequacy (MSA) are printed on the diagonal.

Page 19

SPSS/PC Release 1.10

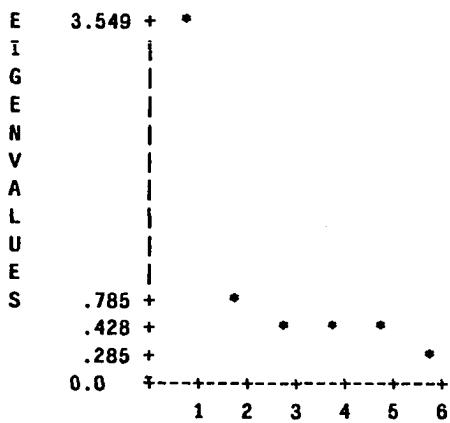
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## ----- FACTOR ANALYSIS -----

Extraction 1 for Analysis 1, Maximum Likelihood (ML)

## Initial Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V8C	.44448	1	3.54875	59.1	59.1
V8E	.36277	2	.78515	13.1	72.2
V8F	.38871	3	.49108	8.2	80.4
V8G	.55937	4	.46252	7.7	88.1
V8H	.45446	5	.42778	7.1	95.3
V8J	.59934	6	.28472	4.7	100.0



ML Extracted 2 factors. 6 Iterations required.  
 Chi-square Statistic: 14.8423, Significance: .0050

## Factor Matrix:

## FACTOR 1      FACTOR 2

V8J	.84831
V8G	.79661
V8H	.71598
V8C	.70670
V8F	.63731
V8E	.41438
	.60106

## Final Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
V8C	.50068	1	3.13371	52.2	52.2
V8E	.50629	2	.37604	6.3	58.5
V8F	.57788				
V8G	.65000				
V8H	.51286				
V8J	.76203				

## Reproduced Correlation Matrix:

	V8C	V8E	V8F	V8G	V8H
V8C	.50068*	-.01318	.00847	-.01806	.01909
V8E	.41128	.50629*	.00084	.02099	-.00520
V8F	.43572	.54086	.57788*	-.01479	-.00086
V8G	.56736	.43153	.45624	.65000*	.00760
V8H	.50653	.42454	.44998	.57225	.51286*
V8J	.60679	.43146	.45530	.70133	.61051

## V8J

V8C	.00457
V8E	-.00638
V8F	.00615
V8G	.00313
V8H	-.01029
V8J	.76203*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 0 ( 0.0%) residuals (above diagonal) that are > 0.05  
 Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.  
 Varimax converged in 3 iterations.

## Rotated Factor Matrix:

	FACTOR 1	FACTOR 2
V8J	.82358	
V8G	.73568	
V8C	.61194	
V8H	.60874	
V8F		.69467
V8E		.64676

Page 21

SPSS/PC Release 1.10

12/1/89

- - - - F A C T O R A N A L Y S I S - - - -

Factor Transformation Matrix:

FACTOR 1      FACTOR 2

FACTOR 1	.83862	.54472
FACTOR 2	-.54472	.83862

## **APPENDIX FIVE**

### **MANAGEMENT AWARENESS WORKSHOP**

#### **SCHEDULE**

### Daily Schedule

#### Monday

**Objective:** To enhance the participants' appreciation of the need to better understand themselves and others.

<b>TIME</b>	<b>SUBJECT</b>
8:45 - 9:00	Registration & Coffee
9:00 - 10:00	Introductions & Program Orientation
10:00 - 10:45	Effective People Management
10:45 - 11:00	Break
11:00 - 12:00	Establishing Group identity: "Who are We" Exercise
12:00 - 1:00	LUNCH
1:00 - 2:30	Conflict Management: Performax Personal Profile System
2:30 - 2:45	Break
2:45 - 4:30	Performax Personal Profile System Continued
4:30	Adjourn

#### Preparation for Tuesday

Complete:

1. Development Quiz for Managers
2. A Test for Professional Competence

Read:

1. "The Management Process in 3-D," R. Alec MacKenzie, Harvard Business Review, November-December 1969.
2. "Management Time: Who's Got the Monkey?," Harvard Business Review, November-December 1974.
3. "Managing Your Boss," John J. Gabbaro & John P. Kotter, Harvard Business Review, January-February 1980.

Review:

1. "The case of the Stifled Career"

### Daily Schedule

#### Tuesday

**Objective:** To critically examine managerial time use and to identify improvement areas.

<b>TIME</b>	<b>SUBJECT</b>
8:30 - 10:00	Work and Roles of the Manager
10:00 - 10:15	Break
10:15 - 12:00	Work and Roles of the Manager Continued
12:00 - 1:00	LUNCH
1:00 - 2:15	Manager Behavior Inventory
2:15 - 2:30	Break
2:30 - 4:30	Managing Career Development
4:30	Adjourn

#### Preparation for Wednesday

Complete:

1. Managerial Style Profile -- Self Perception

Read:

1. "How to Choose a Leadership Pattern," Robert Tannenbaum & Warren Schmidt, Harvard Business Review, May-June 1973.

Review:

1. The Ill-informed Walrus"

### Daily Schedule

#### Wednesday

- Objectives:** (A) To increase participants' understanding of Situational Leadership Theory and to provide feedback about their own leadership styles.  
(B) To examine communication concepts and their relationship to leadership effectiveness.

TIME	SUBJECT
8:30 - 10:00	Situational Leadership Theory
10:00 - 10:15	Break
10:15 - 12:00	Situational Leadership Theory Continued
12:00 - 1:00	LUNCH
1:00 - 2:30	Communication
2:30 - 2:45	Break
2:45 - 4:30	Ethics in Management: Crisis in Communication Continued
4:30	Adjourn

#### Preparation for Thursday

Complete:

1. Form for Crisis in Conscience at Quasar exercise (attached to article).

Read:

1. "What Results Should Expect? A User's Guide to MBO," Peter F. Drucker, Public Administration Review, January-February 1976.
2. "Management by Objectives: Some Principles for Making it Work," Edward C. Schlech, Management Review.
3. "Crisis in Conscience at Quasar," John J. Fendrock, Harvard Business Review, March-April 1968.

### Daily Schedule

#### Thursday

- Objectives:** (A) To understand the value of group decision making and to practice making decisions individually and by consensus.  
(B) To discuss the need for objectives and performance appraisal systems as they relate to managerial control.  
(C) To discuss management ethical standards of conduct.

TIME	SUBJECT
8:30 - 11:00	Management Process: The Decision Dilemma
11:00 - 11:15	Break
11:15 - 12:00	Managerial Planning and Control: The Role of Objectives and Performance Review
12:00 - 1:00	LUNCH
1:00 - 2:15	Managerial Planning and Control: The Role of Objectives and Performance Review
	Continued
2:15 - 2:30	Break
2:30 - 4:30	Ethics in Management: Crisis in Conscience at Quasar
4:30	Adjourn

#### Preparation for Friday

Complete:

1. Life Values or Goals

Read:

1. "Pygmalion in Management," J. Sterling Livingston, Harvard Business Review, July-August, 1969.
2. "One More Time: How Do You Motivate employees?," Frederick Herzberg, Harvard Business Review, January-February, 1968

**Daily Schedule**

**Friday**

**Objectives:** (A) To analyze the factors that contribute to a favorable climate for employee self-motivation.

(B) To develop approaches to integrating career and life strategies.

**TIME**

**SUBJECT**

8:30 - 10:15	Motivation
10:15 - 10:30	Break
10:30 - 12:00	Developing Career and Life Strategies
12:00 - 1:30	MANAGEMENT ROUNDTABLE LUNCHEON
1:00 - 2:15	Managerial Planning and Control: The Role of Objectives and Performance Review Continued
1:30 - 2:00	WRAP-UP AND EVALUATION
2:30 - 4:30	Ethics in Management: Crisis in Adjourn
2:00	