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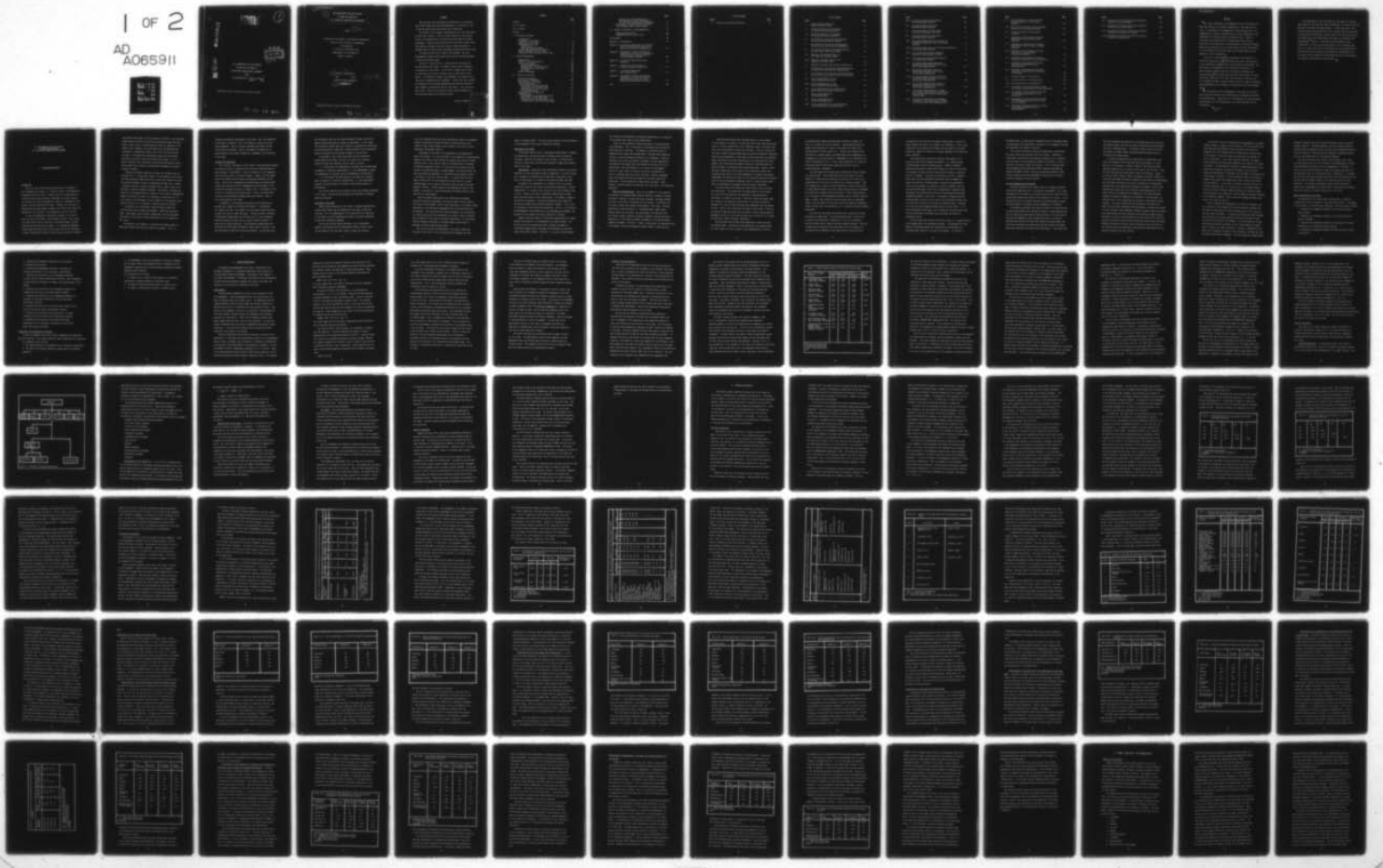

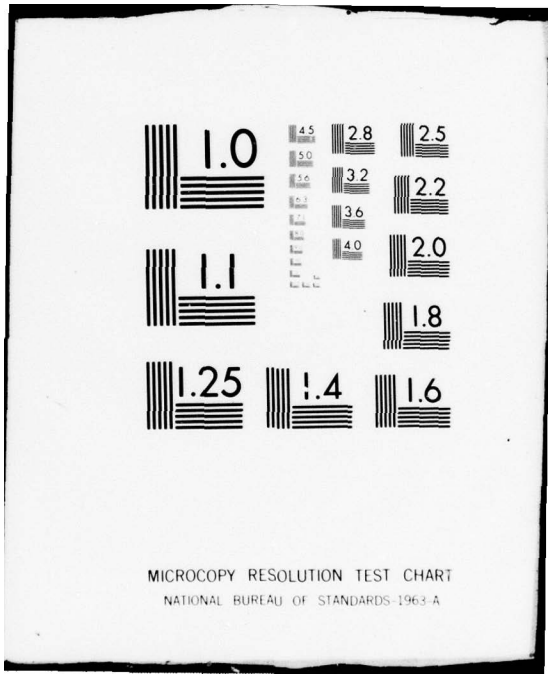
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THE INDEPENDENCE AND EFFECTIVENESS OF POWER AND INFLUENCE IN A FUNCTIONAL ORGANIZATION ENVIRONMENT

THESIS

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THE INDEPENDENCE AND EFFECTIVENESS OF POWER AND INFLUENCE IN A FUNCTIONAL ORGANIZATION ENVIRONMENT.

THESIS (Master's thesis,)

Presented to the Faculty of the School of Engineering
of the Air Force Institute of Technology
Air University
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science

by

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September 1978

139 p.

Approved for public release; distribution unlimited

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Preface

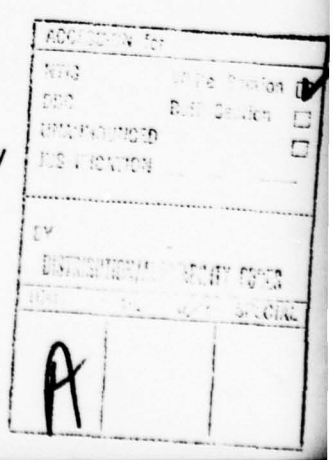
When one hears the terms power and influence he or she usually thinks about things that have bad connotations. The reason for this is that few people who possess power use it effectively.

My interest in this subject arose about one year ago, after being invited by Dr. Michael J. Stahl, my thesis advisor, to read several studies on the power styles of managers and their effects on worker performance. Seeing as how these and most of the other studies I had read addressed influence (the use of power) rather than power, it appeared that the study of power would make an appropriate thesis topic.

The thesis evolved into a study of two problems. One, the independence of power and influence bases, and two, the effectiveness of power and influence bases.

As much as I would like to, I cannot take all the credit for the work done on this thesis. A number of people were instrumental in helping me in this effort. First of all, I would like to thank Dr. Stahl who was not only an advisor, but an inspiration in this effort. His enthusiastic support and knowledge in the areas of this study were a tremendous asset throughout. I would also like to thank the personnel of the surveyed organization who took time from their busy schedules to provide the data for this thesis. Last, but by no means least, I would like to thank my lovely fiancee, Deborah, for her continuous support and typing assistance.

Alfred H. Whitley



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Abstract

This study investigates the independence and the effectiveness of power and influence in functional organizations. More specifically, first, it investigates the independence of different power bases, the independence of different influence bases, and the independence of the differentials of different power and influence bases. Second, it investigates the effectiveness of different power bases and the dimensions of the power bases, the effectiveness of different influence bases and the dimensions of the influence bases, and the effectiveness of the differentials of different power and influence bases and the dimensions of the differentials.

To do this, a questionnaire was provided to the personnel in a functional organization on Wright-Patterson AFB, Ohio, and an analysis of the questionnaire data from 274 of the personnel was performed. The questionnaire responses define four effectiveness variables, i.e. work involvement, job satisfaction, willingness to disagree, and responsiveness; and nine power bases and nine influence bases for their supervisors. The bases of the power and influence are the same, and are listed as legitimate, expert, referent, coercive, reward, performance rating, friendship, work challenge, and responsibilities of the manager bases.

The investigation of the independence of the power and influence bases shows that the power and influence bases are adequately described by seven dimensions. These consist of two dimensions for the power bases, two dimensions for the influence bases, and three dimensions for the differentials.

over

The investigation of the effectiveness of the power and influence bases shows that the power bases and the dimensions of the power bases are positively associated with effectiveness. It shows that some of the influence bases and the dimensions of the influence bases are positively associated with effectiveness, and that some of the influence bases and the dimensions of the influence bases are negatively associated with effectiveness. Finally, it shows that the effectiveness of the differentials is similar to the effectiveness of the influence bases. That is, it shows that some of the differentials and the dimensions of the differentials are positively associated with effectiveness, and that some of the differentials and the dimensions of the differentials are negatively associated with effectiveness.

THE INDEPENDENCE AND EFFECTIVENESS OF POWER AND INFLUENCE IN A FUNCTIONAL ORGANIZATION ENVIRONMENT

I. The Research Problem

Introduction

One of the most distinguishing characteristics of managers is their dependence upon others, e.g. superiors, peers, and subordinates, to perform various activities. Because the work in organizations is divided into specialized divisions, departments, and jobs, managers are indirectly or directly dependent on others for information, staff support, and other specialized services. However, over the years, as organizations grow more complex, managers are finding that coping with dependencies is a difficult, if not impossible, part of their job.

To cope with dependency relationships, managers, by virtue of their position, are provided a certain amount of power. But, trying to control others solely on the basis of positional power or formal authority does not work for two reasons: (1) managers are dependent on some people whom they have no formal power over and (2) few people in modern organizations passively accept and obey a person's directives

just because that person is the boss (Kotter, 1977:128). To be effective, managers need to maintain and use not only positional power but other types of power as well. Abraham Zaleznik (1970), an authority on the subject, said, "Whatever else organizations may be (problem solving instruments, sociotechnical systems, and so on), they are political structures. This means that organizations operate by distributing authority and setting a stage for the exercise of power. It is no wonder, therefore, that individuals who are highly motivated to secure and use power find a familiar and hospitable environment in business" (Zaleznik, 1970:47).

Perhaps the foremost authorities on power and influence (the use of power) are J. R. French and B. Raven. For the purpose of this study, the French and Raven (1959) definitions of power and influence are used. They defined influence in terms of psychological change (e.g. a change in someone's behavior, opinions, attitudes, goals, needs, values, etc.) and power in terms of potential influence. Specifically, influence was defined as the resultant force on a person, P, that causes a psychological change in P and has its source in a conscious or unconscious act of a social agent, O; and the power of O with respect to P was defined as the potential ability of O to influence P (French and Raven, 1959:261).

In addition to the definitions, French and Raven (1959) also identified five bases of power and influence. These were legitimate power, reward power, coercive power, expert power, and referent power. These and four other bases of power and influence are the subject of this study.

The purpose of this chapter is to discuss the various aspects of power and influence with which this study is concerned. First, it

discusses the problems investigated in the study. Next, the importance of the study is discussed. This is followed by a discussion of the study background. Then, the current knowledge and research related to the study are provided. Finally, the chapter concludes with an identification of the specific objectives, assumptions, and limitations of the study.

Statement of the Problem

In an article, "The Bases of Social Power," French and Raven examined the effects or types of conformity which the use of different bases of power produces in subordinates. They also proposed a set of hypotheses which have been tested in subsequent studies. However, too few studies address the problem areas of power and influence identified for this study. These are the independence and effectiveness of different bases of power and influence, and the independence and effectiveness of the differential between the power and influence bases. The purpose of this section is to describe these problem areas. First, it discusses what is meant by the differential between power and influence. Then, it states the problems of the study.

A hypothesis in the previously mentioned article addressed the problem area on power and influence differentials. The hypothesis was stated as follows, "any attempt to utilize power outside the range of power will tend to reduce that power" (French and Raven, 1959:268). A differential between power and influence exists in this hypothesis because the amount of power used by a person exceeds the amount of power that the person possesses. The differential between power and influence also exists when the amount of power used by a person is less than the amount of power that the person possesses. On the other hand,

the differential does not exist when the amount of power used and the amount of power possessed by a person are equivalent. In this study, the differential between power and influence is determined by subtracting the perceived amount of power that a person possesses from the perceived amount of influence that the persons attempts to use on others.

The problems of this study concern not only the differential between power and influence, but they also concern the individual measures of power and influence, and are stated as follows.

1. To investigate the independence of the power and influence bases of managers in functional organizations, i.e. the independence of power, the independence of influence, and the independence of differentials.

2. To investigate the effectiveness of the power and influence bases of managers in functional organizations, i.e. the effectiveness of power, the effectiveness of influence, and the effectiveness of differentials.

This section identifies the problems of power and influence addressed in this study. The next section discusses the importance of studying power and influence.

Importance of the Study

Before further discussion of this study, it appears appropriate to provide some insight into the importance of the study of power and influence. This is accomplished by first pointing out its importance to the theory of social psychology and second, the growing importance of power and influence to managers.

As far back as 1953, Dorwin Cartwright, in his presidential address to the Society for the Psychological Study of Social Issues, set the stage for this and other studies of power and influence.

It was his contention that any social psychological theory was incomplete without the construct of power and that "a concerted attack on the problem of power should produce a major advance in the field of social psychology" (Cartwright, 1959:13).

Cartwright was not alone in his evaluation of the importance of power and influence. For with the growth in the complexity of organizations, managers are finding it more difficult to achieve their ends with formal authority alone. Their need for power to influence others is becoming increasingly important to them. A 4 Jan 78 article in the Wall Street Journal on presidential power is a good example. The article points out that even though the presidency is considered the most powerful office in the world, it too has a need for power. It states that Mr. Carter came to office with a list of projects and a year later all of them remained undone, not for want of time but for want of power to do them (Royster, 1978:15). Further support of the importance of power to the manager is provided in a study by McClelland and Burnham (1976) on the qualities of a good manager.

Using the Thematic Apperception Test, McClelland and Burnham, measured the need for achievement, the need for power, and the need for affiliation of 500 managers from 25 large corporations in the United States. Additionally, they measured the management styles and effectiveness of the managers. The study found that effective managers are not motivated by a need to get along with subordinates, but rather a need to influence other's behavior for the good of the whole organization. In other words, effective managers want power to influence people on whom they are dependent to achieve organizational goals.

This section stresses the importance of the study of power and influence to the field of social psychology and to managers who need

power to influence others. The next section provides a brief description of the background of the study of power and influence.

Background of the Study

The previous sections infer a relationship between power, influence, and organization; and the existence of different bases of power and influence. These are the subject of this section. It discusses the concept of organization, and describes the bases of power and influence used in this study.

Organization. Organizing is the structuring of events or activities necessary for achieving specific goals or objectives. An array of these acts, intended for performance by an individual, constitutes a role. Thus, an organization is a system of roles (Katz and Kahn, 1967:199).

An example of an organization as a system of roles is the type organization used for this study, the functional organization. As most organizations, it is based on the division of work into different kinds of roles. However, the roles in functional organizations are more specialized than those of other organizations. For example, instead of two electrical engineers, a functional organization may require one electronics engineer and one electro-mechanical engineer. This is one of the benefits of the functional organization. That is, it facilitates the development of specialized skills and knowledge and ultimately, the production of more goods and services (Galbraith, 1971:530).

However, while the benefits of functional organizations are largely economic and technical, its disadvantages are primarily human. The division of work into specialized roles increases the number of relationships among workers, and makes the coordination of work more complex and difficult (Davis, 1977:199). As a result, the requirement

for reliable role performance in functional organizations is as great as, if not greater than, that of other organizations.

Even so, every organization needs some means of insuring reliable role performance. This is the purpose of the manager and the authority which goes with his position. The manager, as described earlier is someone who gets things done through others. But what about authority? The fact is that the manager and authority are inseparable. Authority conditions the actions and behavior of managers in every organization and represents the common cord tying together the various units of an organization. More specifically, it is the basis of the manager's official or legal right to influence the activity and behavior of others in getting things done (Terry, 1977:294). However, management theory has hypothesized that the manager can influence others with other means. He may accomplish the same things with power. Power connotes a broader concept than authority and is the topic of the following discussion.

Power and Influence Bases. Power can be thought of as the capacity or potential to influence another person's opinions, attitudes or actions. The types of capacity, or power upon which a manager's influence attempts are based is the topic of discussion for this section. It describes the nine bases of power and influence investigated in this study. The bases identified by French and Raven, i.e. legitimate power, expert power, referent power, coercive power, and reward power, are discussed first. Three bases of power, promotion, personal friendship, and work challenge, identified in a 1974 study by Thamhain and Gemmill, are discussed second (Thamhain and Gemmill, 1974:219). Finally, a power base, the responsibilities of the manager, which was developed by Melhart (1976) is discussed last.

French and Raven defined the legitimate power of a social agent, O, with respect to a person, P, as that power which stems from internalized values in P which dictate that O has a legitimate right to influence P and that P has an obligation to accept that influence. They also stated that the areas in which legitimate power may be exercised are generally specified along with the designation of that power, and that some bases of legitimate power, particularly culturally derived bases, are often especially broad. However, they stated that more common instances of legitimate power are where the range is specifically and narrowly prescribed. Finally, French and Raven claimed that the new state of the system which results from legitimate power usually has a high dependence on O though it may become independent, and that the new state will be relatively stable and consistent across varying environmental situations since P's values are more stable than his psychological environment (French and Raven, 1959:265-6).

The second power and influence base identified by French and Raven was expert power. They stated that the expert power of O with respect to P varies with the extent of the knowledge or perception which P attributes to O within a given area. They also claimed that expert power will produce a new cognitive structure which is initially relatively dependent on O, and is likely to become more independent with the passage of time. Finally, they stated that the range of expert power is not only restricted to cognitive systems but the expert is seen as having superior knowledge or ability in very specific areas, and his power will be limited to these areas (French and Raven, 1959:267-8).

The third power and influence base identified by French and Raven was referent power. According to these authorities, the referent power of O with respect to P has its basis in the identification of P with O.

By identification, French and Raven meant a feeling of oneness of P with O, or a desire for such an identity. They hypothesized that the greater the attraction of P toward O, the broader the range of the referent power of O with respect to P. Finally, they stated that the new state of a system produced by referent power may be dependent on or independent of O; but the degree of independence is not affected by the level of observability to O. In fact, they claimed that P is often not consciously aware of the referent power which O exerts over him (French and Raven, 1959:266-7).

The fourth power and influence base identified by French and Raven was coercive power. They claimed that the coercive power of O with respect to P stems from the expectation on the part of P that he will be punished by O if he fails to conform to O's influence attempt. They also claimed that in order to achieve conformity, O must not only place a strong negative valence in certain regions through threat of punishment, but O must also introduce restraining forces, or other strong valences, so as to prevent P from withdrawing completely from O's range of coercive power. Finally, they stated that coercive power leads to a dependent change in the new state of the system, and that the degree of dependence varies with the level of observability of P's conformity (French and Raven, 1959:263-4).

The fifth and final power and influence base identified by French and Raven was reward power. They defined reward power as the ability to reward, and stated that it depends on O's ability to administer positive valences and to remove or decrease negative valences. They also claimed that the strength of the reward power of O with respect to P increases with the magnitude of the rewards which P perceives that O

can mediate for him, and that the range of reward power is specific to those regions within which O can reward P for conforming. Finally, they stated that since O mediates the rewards, the new state of the system induced by a promise of reward will be highly dependent on O (French and Raven, 1959:263).

Three other bases of power and influence investigated in this study were identified by Thamhain and Gemmill, i.e. promotion power, friendship power, and work challenge power. Thamhain and Gemmill identified these bases of power and influence as a result of interviews with managers and some literature that mention the bases as important factors of influence. The bases are described as follows: promotion power stems from the subordinate's perception that the manager can affect his promotion, friendship power is based on the subordinate's belief that the manager can establish a personal friendship with him, and work challenge power stems from the subordinate's perception that the manager can assign him tasks which are professionally challenging (Thamhain and Gemmill, 1974:218-9). The personal friendship and work challenge powers are used in this study as just described; however, due to the military setting of this study, the promotion power is replaced by a similar but more appropriate base used by Leclaire (1977). It is called performance rating power, and is defined as that power which stems from the subordinate's perception that the manager can affect his performance rating.

The final power and influence base of this study, i.e. responsibilities of the manager power, was developed by Melhart. In developing this base, Melhart distinguished between the responsibility related power and legitimate power inherent in the job of the manager. In contrast to

legitimate power, he described the responsibilities of the manager power as being based on the subordinate's recognition of the manager's position and responsibilities (Melhart, 1976:36).

This section discusses the concept of organization and describes the type of power and influence used in this study. It defines an organization, particularly the functional organization, as a system of roles and shows its relationship with power and influence. Finally, it describes nine bases of power and influence. Five of the power bases were developed by French and Raven (1959), three were developed by Thamhain and Gemmill (1974), and one was developed by Melhart (1976). Previous studies and current knowledge of these power and influence bases are discussed in the next section.

Current Knowledge and Past Research

An earlier section of this chapter refers to a number of previous studies which addressed some of the problems investigated in this study. The purpose of this section is to present the results of these and other studies that provide some insight to the findings of this study. It will discuss the results of previous research on the effectiveness of power, the effectiveness of influence, and the independence of influence.

As previously mentioned, many research efforts on the effectiveness of power confused power with influence, and most of these addressed only the five power bases identified by French and Raven. One such study by Sheridan and Vredenburgh (1978) surveyed 216 nurses in a veteran's administration hospital and found that referent and expert powers were positively associated with effectiveness and that coercive and reward powers were negatively associated with effectiveness. Their study shows

that the strongest associations with effectiveness were due to coercive and referent powers, and that the weakest association with effectiveness was due to legitimate power. In two other studies, one by Lord (1977) and another by Student (1968), legitimate power was shown to have no association with effectiveness.

It might be expected that the associations of effectiveness with power and influence for the same base would be equivalent, i.e. both positive or both negative. However, studies of the French and Raven typology showed this not to be the case for two of the five bases. These were the legitimate and reward bases of power and influence. Studies by Leclaire (1977), Melhart (1976), and Thamhain and Gemmill (1974) also found that legitimate influence was negatively associated with effectiveness, and that reward influence was positively associated with effectiveness. Although these three studies were conducted for managers in matrix type organizations rather than in the functional type organization of this study, they not only addressed the influences of the French and Raven typology, but they also addressed the influences of the four power and influence bases of this study which are not part of the French and Raven typology. The studies showed that the influences of the latter four bases were positively associated with effectiveness, and that the influence of one of the bases, work challenge influence, was more strongly associated with effectiveness than some influences of the French and Raven typology. According to Leclaire, the influences of the nine bases of this study that were most positively associated with effectiveness were the work challenge, referent, and expert influences; and the influence of the nine bases of this study that was most negatively associated with effectiveness was the coercive influence (Leclaire, 1977:44).

The Leclaire study also investigated the independence of influence methods; however, a study by Stahl and Dunne (1977) was performed first. Stahl and Dunne interviewed 49 project personnel, and found four dimensions for nine influence bases, including seven influence bases of this study, for both the project and functional type managers of matrix organizations. Two of the influence dimensions, the reward/penalty dimension and the personal dimension, were common to both types of managers. The reward/penalty dimension included performance rating, future work assignment, and coercive influences; and the personal dimension included expert, friendship, work challenge, and responsibility of the manager influences. The third dimension found in the study was common to the project type manager only, and was called the friendly/informal dimension. It was based on friendship influence and the lack of formal authority which is a characteristic of the project manager. Finally, the fourth influence dimension found by the study was common to the functional type manager only, and was based on the formal authority of the functional manager. These results were somewhat different than those of the study by Leclaire.

Leclaire examined the independence of two sets of influences, one set consisted of the influences of the French and Raven typology, and the other set consisted of the nine influence bases of this study plus one other type of influence. In examining the French and Raven typology, Leclaire found two influence dimensions which were the same for both the project and functional type managers. The first dimension included legitimate and coercive influences, and the second dimension included expert, referent, and reward influences. Leclaire's examination of the other set of influences resulted in three dimensions, and these were also the same for both types of managers. The first dimension included expert,

referent, friendship, and work challenge influences, and was called the personal dimension. The second dimension, called the reward dimension, included reward, performance rating, and future work assignment influences. The third dimension, called the pressure dimension, included legitimate, coercive, and responsibility of the manager influences.

This section provides some insight to the findings of this study by discussing the results of past research on the effectiveness of power, the effectiveness of influence, and the independence of influence. It points out that the effectiveness of power and influence may differ for the same base as well as for different bases. Additionally, it indicates that the French and Raven typology may consist of two influence dimensions, and that the nine influence bases of this study may consist of three dimensions. The problems represented by these results and problems concerning the independence and effectiveness of the differential between power and influence are specific objectives of this study.

Specific Objectives of the Study

The objectives of this study concern the processes of power and influence that exist for managers in functional organizations. The purpose of this section is to identify these objectives. They are listed as follows.

1. Determine the independent dimensions of the French and Raven bases of power.
2. Determine the independent dimensions of the French and Raven bases of influence.
3. Determine the independent dimensions of the power and influence differentials of the French and Raven typology.
4. Determine the independent dimensions of the nine bases of power listed earlier.

5. Determine the independent dimensions of the nine bases of influence listed earlier.

6. Determine the independent dimensions of the power and influence differentials of the nine bases listed earlier.

7. Determine the association of the independent dimensions of power with four worker effectiveness variables: work involvement, job satisfaction, willingness to disagree, and responsiveness to the manager.

8. Determine the association of the independent dimensions of influence with the four worker effectiveness variables.

9. Determine the association of the independent dimensions of the power and influence differentials with the four worker effectiveness variables.

10. Determine the association of the nine bases of power listed earlier with the four worker effectiveness variables.

11. Determine the association of the nine bases of influence listed earlier with the four worker effectiveness variables.

12. Determine the association of the power and influence differentials of the nine bases listed earlier with the four worker effectiveness variables.

Assumptions and Limitations of the Study

In order to accomplish this study, certain assumptions and limitations had to be specified. This section identifies these assumptions and limitations.

The assumptions are as follows.

1. The sample population is representative of a functional organization.

2. The individuals surveyed represent a random sample of the sample population.

3. The respondents to the survey answered all questions truthfully and in terms of their own perceptions, unless a comparison of the demographic responses with the job attitude, and power and influence responses proves otherwise.

The limitations are as follows.

1. The sample size is limited to 500 personnel of a functional organization at Wright-Patterson Air Force Base, Ohio.
2. The number of power and influence bases is limited to nine.
3. The number of effectiveness variables is limited to four.

II. Research Methodology

To accomplish the objectives of this study, a questionnaire was provided to personnel in a functional organization and an analysis of the questionnaire data was performed. The purpose of this chapter is to discuss these methods. It provides a description of the questionnaire, discusses the survey pretest, discusses the scope of the survey, and identifies the data analytic techniques of the study.

Questionnaire

The questionnaire (Appendix A) solicits three categories of data from respondents. These are demographic data, job attitude data, and data on different power and influence styles. The demographic data are requested because of their possible impact on the other categories of data and their utility in validating the other categories of data. They consist of the responses to the first 11 questions of the questionnaire, and contain general information about the respondents and the people they work for (supervisors). Some of this information concerns their grade, highest education level, age, and work specialty. The data also contain information about how long the respondents have worked for their supervisors. If they have not worked at least two months with their supervisor, their answers are discarded.

The job attitude data are solicited by questions 12 thru 22 of the questionnaire. They define four effectiveness criteria for the respondents. These are work involvement, job satisfaction, willingness to disagree with the supervisor, and responsiveness to the supervisor's requests. The work involvement criterion is measured by questions 12, 14, 15, and 22. These are the same questions used by Leclaire (1977), and are based on a set of questions developed by Patchen (Patchen, 1965:26-29, 48-51). The response

categories for each of the questions range in score from one to five. The order and the scoring of the categories for two of the four questions are reversed to permit the detection of inconsistent marking. These response scores are used in the following equation to determine the work involvement score:

WKINV = Q12 + Q14 - Q15 - Q22 + 12

This score ranges from 4 to 20 with 4 indicating low work involvement and 20 indicating high work involvement.

The second criterion, job satisfaction, is also measured by four questions, i.e. 16, 17, 18, and 20. These are the same questions validated by McNichols, Stahl, and Manley (1978). They are a modified version of the questions developed by Hoppock (1935). The response categories for each of the questions range in score from one to seven, and the order and the scoring of the categories for two of the questions are reversed. These response scores are used in the following equation to determine the job satisfaction score:

JOBSAT = Q20 - Q16 + Q17 - Q18 + 16

This score ranges from 4 to 28, with 4 indicating low job satisfaction and 28 indicating high job satisfaction.

The third criterion, the willingness of a respondent to disagree with the supervisor, is used to determine the openness of upward communication, and is measured by questions 19 and 21. These are based on a similar set of questions developed by Patchen (Patchen, 1965:48). The response categories for questions 19 and 21 range in score from one to seven and from one to four, respectively. These response score are used in the following equation to determine the willingness to disagree score:

WLDIS = Q19 + Q21

This score ranges from 2 to 11, with 2 indicating low willingness to disagree and 11 indicating high willingness to disagree.

The final effectiveness criterion is the responsiveness of the respondent to the supervisor's requests, and is measured by question 13. The response score for the question ranges from 0 to 100 on a continuous scale, with 0 indicating low responsiveness and 100 indicating high responsiveness. This is the same question recently developed and validated by Leclaire (Leclaire, 1977:26).

In the pretest of the questionnaire that first contained the responsiveness question, Leclaire found that the responses were not highly skewed. As a result, he attempted to validate the question. In order to do this, he contacted 18 individuals, and asked them to answer the question. At the same time, he contacted several co-workers of each of the individuals, and asked them how they felt the individual they worked with should answer the question. Like the pretest results, the answers given by the individuals and their co-workers were also not highly skewed. Thus, to complete the validation of the question, a two part analysis of the answers was performed. First, an analysis of variance was performed to estimate the reliability of the average rating of the co-workers. The results of this analysis showed that the ratings of the co-workers were reliable and consistent. Finally, to check the validity of the self-reported responsiveness of the individual, a correlation analysis of the average rating of the co-workers with the ratings of the individuals they worked with was performed second. This resulted in a correlation coefficient of .90 which was significant at the .01 level.

The data on different power and influence styles is solicited by the remaining 18 statements of the questionnaire. The statements define the amount of power and influence of the nine bases of this study that respondents perceive in their supervisor, and they ask the respondents to indicate their degree of agreement with each of them. The response categories for the statements range in score from one to seven with one indicating strongly disagree and seven indicating strongly agree.

Because power and influence, as discussed in earlier sections, are easily confused, the statements are worded and presented in a way that distinguishes between the power and influence statements as well as those statements on different bases of this study. The wording of the statements is based on the French and Raven (1959) definitions of power and influence. The power statements reflect the ability or potential of a supervisor to use the nine bases of power, and the influence statements reflect the actual use of the nine bases of power by a supervisor. To further distinguish between the power and influence statements, they are presented in the questionnaire as pairs of statements. The last part of the questionnaire consists of nine pairs of statements with each pair addressing a different base, and one statement in each pair addressing power and the other addressing influence.

This section discusses the questionnaire used to gather the data for this study. The questionnaire solicits three categories of data, demographic data, job attitude data, and data on different power and influence styles. The statements which solicit the last category of data were the primary concern of the questionnaire pretest.

Pretest of the Questionnaire

Some parts of the questionnaire used in this study were used for the first time, particularly the statements on the different power bases. Thus, in order to determine the clarity and validity of these statements and other parts of the questionnaire, a pretest of the questionnaire was performed. This section discusses how the pretest was performed and the results of the pretest.

To perform the pretest, the questionnaires were distributed to 15 students in the Air Force Institute of Technology (AFIT), Wright-Patterson Air Force Base (WPAFB), Ohio. During the distribution of the questionnaires, the students were instructed to complete them on the basis of their last non-student assignment. They were also asked to identify vaguely worded questions and to indicate how long it took them to complete the questionnaire. None of the students who received the questionnaire knew the objectives of this study.

The data from the completed questionnaires were analyzed to determine the distributions of the data and to determine whether the last 18 statements of the questionnaire were appropriate measures of power and influence for the nine bases of this study. The distribution of the data were determined by computing the mean, variance, and skewness of the data. These were computed for each effectiveness criterion of the job attitude data and the data for each type of power and influence. To determine the clarity and validity of the power and influence statements, student's t and probability levels were computed for the difference in the mean responses of the power and influence data for each of the nine power bases using the paired samples t test subprogram (T-TEST) of the Statistical Package for the Social Sciences (SPSS) (Nie, Et Al, 1975:267). Also the responses to the statements were compared with the demographic data.

The results of the pretest were an average completion time of 12 minutes, several comments about the clarity of the questions which were subsequently corrected, and the results of the above analyses. Even though all the data were analyzed, neither the demographic nor job attitude questions required validation. The former questions consisted of factual information, and the latter questions were validated by other researchers. Thus, the analyses were especially useful in examining the power and influence statements. Table I gives the results of the analyses. It shows that the distributions of the power and influence data were similar, except for their means, and that significant differences, more than .86, existed in the power and influence data for five of the nine bases. The weakest difference, .067, existed for the referent based power and influence. Because of this weak difference, the respondents were interviewed to determine whether the wording of the statements caused the discrepancy, but none of the respondents indicated that they were confused by the wording.

To further validate the power and influence statements, eight sets of relationships involving the statements were examined to determine whether or not the relationships exist as expected or as current theory predicts they should exist. The first set of relationships concern the validity of the legitimate and coercive based power and influence statements. As stated earlier, few people in modern organizations accept someone's directives just because that someone has the legitimate right to direct them or punish them for nonconformance. Because of this, it was expected that if the statements on the power and influence for the legitimate and coercive bases were valid, the respondents should perceive high legitimate and coercive power in their supervisors, and low legitimate

Table I. Pretest Analysis Results of Power and Influence Data

Power and Influence Typology	Distribution Characteristics			Difference in Means
	Mean	Variance	Skewness	
a. Legitimate Power	6.33	1.52	-2.05	-2.20**
Legitimate Influence	4.13	4.41	-.417	
b. Expert Power	4.87	2.98	-.917	-.400
Expert Influence	4.47	3.55	-.568	
c. Referent Power	4.13	3.12	-.321	.067
Referent Influence	4.20	3.17	-.259	
d. Coercive Power	5.27	2.21	-.377	-2.07**
Coercive Influence	3.20	2.74	.723	
e. Reward Power	5.73	2.78	-1.85	-.867*
Reward Influence	4.87	2.84	-1.72	
f. Performance Rating Power	6.47	1.12	-1.97	-.267
Performance Rating Influence	6.20	1.17	-1.23	
g. Friendship Power	5.93	1.21	-.595	-1.07**
Friendship Influence	4.87	2.12	-1.17	
h. Work Challenge Power	6.00	.857	0	-1.33**
Work Challenge Influence	4.67	2.95	-.863	
i. Responsibilities of the Manager Power	5.20	3.46	-1.57	-.857
Responsibilities of the Manager Influence	4.40	4.40	-.615	

Difference=Influence-Power
*-P<.05 (two tailed test)
**-P<.01 (two tailed test)
n=15

and coercive influence in their supervisors. To exhibit these relationships, the difference between the mean responses to the power and influence statements for each of the nine bases of this study were computed. As expected for valid statements, Table I shows that the differences for the legitimate and coercive bases were the largest.

The second set of relationships concerned the validity of the statements on expert power and influence. Few people may deny that experience is the best teacher. Therefore, it was expected that if the statements on expert power and influence were valid measures of expertise, the responses to the statements should be positively associated with the amount of time a supervisor had been in his or her position relative to the amount of time the subordinate had been in his or her position. Thus, in order to measure these relationships, the responses to the power and influence statements on expertise were correlated with an experience factor which was the amount of time the supervisor had been in his or her position minus the amount of time the subordinate had been in his or her position. The correlations were performed using the Pearson correlation (PEARSON CORR) subprogram of SPSS. The results of the correlations were as expected. The correlations of the experience factor with the responses to the expert power statement and expert influence statement were .43 (P=.11) and .45 (P=.09), respectively.

The third set of relationships measured the validity of the statements on referent power and influence, and the statements on expert power and influence. This writer assumed that people want to excel and be considered expert at what they do. Therefore, this writer assumed people would most likely admire someone they considered to be expert in one field or another. As a result, it was expected that if the statements on referent and expert

based power and influence were valid, the responses to the statements would be positively associated with each other. These associations were measured by correlating the responses to the referent power and responses to the referent influence statements with the responses to the expert power and responses to the expert influence statements, respectively. The correlations were performed using the PEARSON CORR subprogram of SPSS. The resulting correlations were positive, as expected. There was a .52 (P=.05) correlation between the responses to the referent and expert power statements and a .54 (P=.04) correlation between the responses to the referent and expert influence statements.

The fourth set of relationships was used to examine the validity of the reward power and influence statements, and the coercive power and influence statements. French and Raven (1959) stated that reward power is based on the ability to administer positive valences or decrease negative valences for subordinates, and that coercive power is based on the ability to punish or administer negative valences. They also stated that the use of reward power increases the attraction of the subordinate for the supervisor, and that the use of coercive power causes the subordinate to withdraw to areas where he is not affected by the supervisor (French and Raven, 1959:262, 263). For these reasons, it was expected that if the statements on reward and coercive based power and influence were valid, the responses to the reward and coercive power statements would be positively associated, and the responses to the reward and coercive influence statements would be negatively associated. To measure these associations the responses to the power statements were correlated with each other, and the responses to the influence statements were correlated with each other. The correlations were performed using the PEARSON CORR

subprogram of SPSS. As expected the correlation between the responses to the power statements was positive, i.e. .46 (P=.08), and the correlation between the responses to the influence statements was negative, i.e. -.63(P=.01).

The fifth set of relationships measured the validity of the statements on performance rating power and influence. To do this, the responses to the power and influence statements were compared with the responses to the demographic question that asked respondents if their supervisor writes their performance evaluation. Because all of the respondents indicated that their supervisors did write their performance evaluations, it was expected that if the power and influence statements were valid, the mean response scores to the statements would be high. As expected, the mean response scores to the statements were high. Of a possible maximum score of seven, Table I shows that the mean score for the responses to the performance rating power and influence statements were 6.47 and 6.20, respectively.

The sixth set of relationships were used to examine the validity of the statements on work challenge power and influence, and the statements on reward power and influence. According to organizational theory, the ability of a supervisor to provide challenging work and rewards to subordinates is based on the formal authority of the supervisor's position. Additionally, in accordance with Herzberg's theory of motivation, the use of the work challenge and reward powers is classified as a motivational factor (Davis, 1977:53). For these reasons, it was expected that if the work challenge and reward based power and influence statements were valid, the responses to the statements would be positively associated with each other. In order to determine this, the responses to

the work challenge and reward power statements were correlated with each other, and the responses to the work challenge and reward influence statements were correlated with each other. The correlations were computed using the PEARSON CORR subprogram of SPSS, and were positive, as expected. However, the correlation of the responses to the power statements was too small to be of any significance, i.e. .14 (P=.62). The correlation of the responses to the influence statements was .80 (P=.00).

The seventh set of relationships measured the validity of the statements on friendship power and influence. This writer believed that one of the reasons people become friends is because they have similar incomes. Therefore, it was expected that if the friendship power and influence statements were valid, the responses to the statements would be negatively associated with the difference between the income of the respondent and the income of his or her supervisor. To determine these associations, the grade of the respondent was subtracted from the grade of the supervisor, and the difference in the grades was correlated with the responses to the statements on friendship power and influence. The correlations were performed using the PEARSON CORR subprogram of SPSS. The resulting correlations were negative, as expected. The correlations of the difference in grades with the responses to the friendship power statement was -.43 (P=.11). However, the correlation of the difference in grades with the responses to the friendship influence statement was too small to be of any significance, i.e. -.11 (P=.67).

Finally, the last set of relationships were used to examine the validity of the statements on responsibilities of the manager power and influence, and the statements on legitimate power and influence. Melhart identified responsibilities of the manager power as being based on the subordinate's recognition of the manager's position and responsibilities

(Melhart, 1976:36). Because of this, it was expected that if the statements on the responsibilities of the manager power and influence, and the statements on legitimate power and influence were valid, the responses to these statements would be positively associated with each other. To determine these associations, the correlation between the responses to the power statements of the two bases and the responses to the influence statements of the two bases were computed using the PEARSON CORR subprogram of SPSS. As expected, the correlations were positive; however, they were of marginal significance. The correlation between the responses to the power statements was .33 (P=.24) and the correlation between the influence statements was .37 (P=.19).

Each of the power and influence statements of the questionnaire seemed to capture some of the prior hypotheses of one or more of the above relationships. As a result of these validity checks and the other phases of the pretest, it was decided that the questionnaire was sufficiently clear and unambiguous to use in this study. The next section discusses the scope of the survey of this study.

Scope of the Survey

The survey of this study is based on a sample of personnel in a functional organization on WPAFB, Ohio. This section describes the surveyed organization, discusses how the sample size was determined, describes how the survey was administered, and describes the sample of this study.

Surveyed Organization. The organization used in this study is described by discussing its structure, the number of personnel assigned to it, and the type of work the personnel do. As shown in Figure 1, the

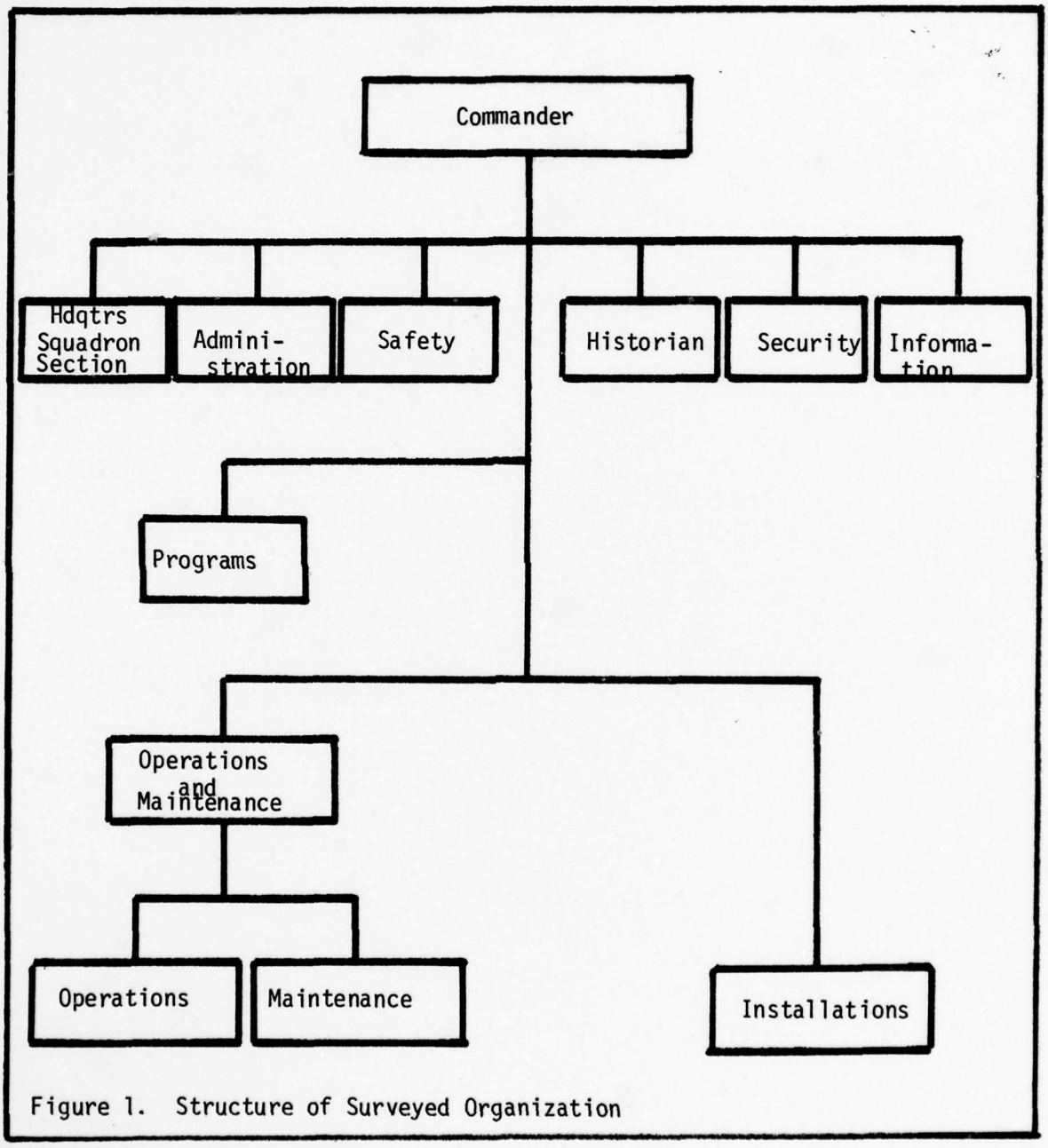

Figure 1. Structure of Surveyed Organization

organization consists of seven staff functions and three line functions. The staff functions contain approximately 4 persons each, and the line functions contain approximately 275 persons each. The number of personnel assigned to the organization as a whole is 855. This includes 218 civilians and 637 military personnel.

The surveyed organization provides communication services for Wright-Patterson Air Force Base, Ohio. These include telephone communications service, air traffic control service, and weather service. The type of work the personnel in the organization do includes the installation, maintenance, and operation of the following kinds of equipment:

Automatic Digital Network Switching Equipment

Air Traffic Control Equipment

Flight Facilities Equipment

Space Communications Equipment

Crytographic Equipment

Telecommunications Equipment

Cable and Wire

Antennas

Weather Equipment

Telephone Switching Equipment

Ground Radio Equipment

Telephones

Determination of the Sample Size. To this writer's knowledge there was no objective method for determining the expected response rate of the sampled organization and an acceptable sample size for this study. Thus, in the absence of such guidelines, discussions with Dr. Michael Stahl were the basis for determining these figures. On the basis of the discussions, the response rate of the sampled organization was approximated at 50%, and

the minimum acceptable sample size was determined as follows:

$$S = \frac{n\ (n + 1)}{2} = \frac{9\ (10)}{2} = 45$$

n = number of power or influence bases.

The decision to use this relationship was based on the notion that the sample size should be at least as large as the number of distinct elements in the matrix of correlations to be factored in the data analysis. Additionally, since larger sample sizes are more desirable, a sample size of 250 was the objective for this study. Therefore, approximately 500 questionnaires, i.e. 498, were distributed during the survey.

Administration of the Survey. The survey was administered in such a way that assured the respondents of anonymity. In addition to the questionnaire, this included the survey packaging, the distribution of the survey, and the collection and disposition of completed surveys.

The survey package consisted of a cover letter, privacy act statement, the questionnaire, and an envelope addressed to this writer's office. The cover letter, signed by the squadron section commander of the organization, and the privacy act statement attested to the authenticity of the survey, and stated that participation in the survey is voluntary (Appendix A). Additionally, the cover letter and privacy act statement informed the respondents about the randomness and anonymity of their selection, and assured them that they would remain anonymous.

Before distributing the survey, the names of 498 persons were selected at random from an alphabetical listing of all the personnel in the surveyed organization. The survey packages were distributed to the selected personnel via base distribution.

In order to collect the surveys, the cover letter contained instructions for respondents to seal the completed questionnaires in the self-addressed envelopes and return them, within one week, to this writer's office. After collecting the surveys, the acceptable questionnaires were numerically coded, and the coded responses were put on computer data cards. The accuracy of the carded data was then confirmed, and the questionnaires were destroyed.

The Sample. Of the 498 questionnaires distributed, 274 were returned and acceptable; 21 were returned and unacceptable because the respondents had not worked at least two months with their supervisor; 24 were returned but were not acceptable because several of the questions were left unanswered; 20 were returned but were rejected because they were improperly answered; 25 were returned completely unanswered because the selected persons were on leave, extended absence, or no longer employed by the organization; and 134 were not returned. This accounted for a 73.1% response rate which was considerably higher than the expected rate of 50%.

The 274 respondents that compose the sample includes 60 civilians and 214 military personnel. Two hundred and six of the military personnel are enlisted, and range in rank from airman basic to senior master sergeant. The remaining eight military personnel are officers and range in rank from second lieutenant to captain.

The average age, educational level, and time with a particular supervisor for the sample are relatively low. The average age is 30 years, and the ages range from 18 to 62 years. Only 18 of the respondents have a college degree, and 4 have no high school diploma. The average time that the respondents have worked for their supervisors is 16 months. No one has worked with his or her supervisor for less than 2 months, and only

20 respondents have worked with the same supervisor for 36 months or more.

Finally, 36.5% of the sample are supervisors, and 34.7% of the sample work in jobs which are best identified by a maintenance work specialty. Most of the respondents who are not in the maintenance work specialty, i.e. 28.9% and 15.9% are in operations and installations work specialties, respectively.

This section discusses the scope of the survey. It describes the structure and the type of work done in the surveyed organization; discusses how the size of the sample was determined; describes the packaging, distribution, and collection of the surveys; and describes the sample. The next section discusses the methods used in analyzing the survey data.

Analytic Techniques

Because the data of this study contain overlapping information, analytic techniques which simultaneously consider different types of data are used. The purpose of this section is to discuss the use of these techniques in investigating the problems of this study. First, it discusses principal component analysis. Following this, it discusses Pearson correlation analysis. Finally, it discusses least squares regression analysis.

The principal component analysis was used to examine the inter-dependence of the power and influence data. The analysis was performed on the CDC-6600 computer system at WPAFB, and used the SPSS subprogram for principal component analysis without iteration (FACTOR). During the analysis, initial factors with eigenvalues of at least one were extracted from the data, and rotated to their terminal solutions using varimax orthogonal rotation. Among other things, the output of the program lists the factors, the power and influence bases associated with each factor,

the variance of each of the variables of the power and influence data accounted for by the factors (communality), the factor-score coefficients, and the factor loadings (Nie, et al; 1975:475).

The second analytic technique used was Pearson correlation analysis. It is one of the most important analytic techniques of this study. Not only was it used to measure the associations of the power and influence data with the effectiveness data, but it is the basis of the other analytic techniques of this study. The analysis was performed on the CDC-6600 computer system at WPAFB, and used the PEARSON CORR subprogram of SPSS. The output of the subprogram includes a matrix of correlation coefficients, the two tailed significance level for each correlation coefficient, and the number of responses used in computing each coefficient (Nie, et al; 1975:280).

The final analytic technique used was least squares regression analysis. It was used to examine the effectiveness data as a function of various combinations of the power and influence data. The analysis was performed on the CDC-6600 computer system at WPAFB, and used the stepwise regression analysis subprogram (REGRESSION) of SPSS. The output of the subprogram consists of, among other things, the amount of variance in the effectiveness data explained by the combinations of the power and influence data and the significance level of the explained variance (Nie, et al; 1975:330).

This section discusses the techniques used to analyze the data for this study. These are principal component analysis, Pearson correlation analysis, and least squares regression analysis. The principal component analysis was used to determine the dimensionality of the power and influence data. The Pearson correlation analysis was used to determine the effectiveness of the power and influence data. Finally, the least

squares regression analysis was used to determine the relationship of combinations of the power and influence data to the effectiveness variables.

III. Analysis and Results

The previous chapters identify the objectives of this study and the analytic techniques used to accomplish the objectives. The purpose of this chapter is to discuss the results of using the analytic techniques. However, before discussing these results, discussions on the validity and the distribution of the survey responses are presented first. These are followed by a discussion on the dimensionality of the power and influence data. Next, the association of the power and influence data with the effectiveness variables is discussed. Finally, the chapter concludes with a discussion on the relationship of combinations of the power and influence data to effectiveness.

Validity of Responses

The validity of any research data is suspect, particularly if the data, like the data of this study, is of a psychological nature. Because of this, the validity of the responses to the effectiveness questions, and responses to the power and influence statements of this study was examined. This was done by hypothesizing the results of certain relationships involving these responses, on the basis of current knowledge and theory; measuring these relationships for the responses of this study; and comparing the results of the measured relationships with the hypothesized results. The validity of the responses to the power and influence statements was examined first, and the validity of the responses to the effectiveness questions was examined second.

There were eight sets of relationships used to examine the validity of the power and influence responses. These were the same rela-

tionships used in the survey pretest to validate the power and influence statements. As such, the reasoning or theory that are the basis of the expected results of the relationships are contained in the previous chapter, and are not discussed in this section. However, the results of the examinations are presented.

The first set of relationships were used to examine the validity of the responses to the legitimate and coercive based power and influence statements. This was done by computing the mean of the difference between the responses to the power and influence statements (power and influence differential) for the nine bases of this study (Table IX, pg.54). As expected of valid responses, the differences for the legitimate and coercive bases were largest.

The second set of relationships was used to measure the validity of the responses to the statements on expert power and influence. To do this, the responses to the power and influence statemnts on expertise were correlated with and experience factor which was the amount of time the supervisor had been in his or her position minus the amount of time the subordinate had been in his or her position. The correlations for this validity test and the remaining validity tests were computed usins the PEARSON CORR subprogram of SPSS. The correlations were positive, as expected for valid responses; however, they were of marginal significance. That is, the correlations are .07 (P=.13) and .08 (P= .10) for the responses to the power and influence statements, respectively.

The third set of relationships was used to examine the validity of the responses to the referent power and influence statements, and the responses to the expert power and influence statements. This was

done by correlating the responses to the referent power statement with the responses to the expert power statement, and by correlating the responses to the referent influence statement with the responses to the expert influence statement. As expected for valid responses, the correlations were positive, i.e. .57 ($P \leq .01$) and .57 ($P \leq .01$) for the responses to the power and influence statements, respectively.

The fourth set of relationships was used to test the validity of the responses to the reward power and influence statements, and the responses to the coercive power and influence statements. This was done by correlating the responses to the reward power statement with the responses to the coercive power statement, and by correlating the responses to reward influence statement with the responses to the coercive influence statement. The correlations were as expected for valid responses. The correlation for the responses to the power statements was positive, i.e. .28 ($P \leq .01$) and the correlation of the responses to the influence statements was negative, i.e. -.22 ($P \leq .01$).

The fifth set of relationships was uesd to measure the validity of the responses to the performance rating power and influence statements. To do this, the responses to the statements were correlated with the responses to the demographic question that asked respondents to indicate whethter or not their supervisor writes their performance evaluation. Yes and no responses to the demographic question are scored one and two, respectively. Thus, as expected for valid responses the correlations were negative. The correlation involving the responses to the power statement was -.12 ($P=.03$), and the correlation involving the responses to the influence statement was of marginal significance, i.e. -.07 ($P=.11$).

The sixth set of relationships was used to measure the validity of the responses to the work challenge power and influence statements, and the responses to the reward power and influence statements. This was done by computing the correlation of the responses to the work challenge power statement with the responses to the reward power statement, and by computing the correlation of the responses to the work challenge influence statement with the responses to the reward influence statement. As expected for valid responses, the correlations were both positive. The correlation for the responses to the power statements was .22 ($P<.01$), and the correlation for the responses to the influence statements was .46 ($P<.01$).

The seventh set of relationships was used to test the validity of the responses to the friendship power and influence statements. It was this writer's contention that the supervisors would be more likely to make friends with respondents who make as much money as them or are the same grade as them (see discussion on pg. 27). Thus, to test the validity of the responses to the friendship statements, the grade of the respondents was subtracted from the grade of their supervisors, and the difference in the grades was correlated with the responses to the friendship power and influence statements. The correlations were to small to be of any significance. The correlation of the difference in grades with the responses to the power statement was .07 ($P=.13$), and the correlation of the difference in grades with the responses to the influence statement was -.01 ($P=.42$).

Finally, the last set of relationships was used to examine the validity of the responses to the responsibilities of the manager power and influence statements, and the responses to the legitimate power

and influence statements. This was done by correlating the responses to the responsibilities of the manager power statement with the responses to the legitimate power statement, and correlating the responses to the responsibilities of the manager influence statement with the responses to the legitimate influence statement. As expected for valid responses, the correlations were both positive. The correlation of the responses to the power statements was .30 ($P \leq .01$), and the correlation of the responses to the influence statements was .49 ($P \leq .01$).

Following this, four other sets of relationships were used to examine the validity of the responses to the effectiveness questions. The first set of relationships was used to examine the validity of the responses to the work involvement questions, i.e. Q12, Q14, Q15, and Q22 (Appendix A). As mentioned in chapter II, these questions were developed by Patchen (1965). According to Patchen, the responses to Q12 and Q14 are positively associated with work involvement, and the responses to Q15 and Q22 are negatively associated with work involvement. For this reason, it was expected that if the responses to these questions were valid, the responses to Q12 and Q14 would be positively associated with each other, the responses to Q15 and Q22 would be positively associated with each other, and the responses to Q12 and Q14 would be negatively associated with the responses to Q15 and Q22. To determine these associations, the responses to Q12 were correlated with the responses to Q14, the responses to Q15 were correlated with the responses to Q22, and the responses to Q12 and Q14 were correlated with the responses to Q15 and Q22. As expected, the correlation of the responses to Q12 with the responses to Q14 was positive, the correlation of the responses to Q15 with the responses to Q22 was positive, and the

correlations of the responses to Q12 and Q14 with the responses to Q15 and Q22 were negative (Table II).

The second set of relationships was used to measure the validity of the responses to the job satisfaction questions, i.e. Q16, Q17, Q18, and Q20 (Appendix A). As mentioned in chapter II, these are a slightly modified version of the job satisfaction questions developed by Hoppock (1935). According to Hoppock, the responses to Q17 and

Table II. Correlation Matrix of the Responses to the Work Involvement Questions

	Q12	Q14	Q15	Q22
Q12	1.00**	____	___	___
Q14	.47**	1.00**	___	___
Q15	-.22**	-.27**	1.00**	___
Q22	-.24**	-.33**	.39**	1.00**

** - $P \leq .05$ (two tailed test)
Q - Question in questionnaire (Appendix A)
$272 \leq n \leq 273$

Q20 are positively associated with job satisfaction, and the responses to Q16 and Q18 are negatively associated with job satisfaction. For this reason, it was expected that if the responses were valid, the responses to Q17 and Q20 would be positively associated with each other, the responses to Q16 and Q18 would be positively associated with each other, and the responses to Q17 and Q20 would be negatively

associated with the responses to Q16 and Q18. These associations were determined by correlating the responses to Q17 with the responses to Q20, correlating the responses to Q16 with the responses to Q18, and correlating the responses to Q17 and Q20 with the responses to Q16 and Q18. As expected, the correlation of the responses to Q17 with the responses to Q20 was positive, the correlation of the responses to Q16 with the responses to Q18 was positive, and the correlations of the

Table III. Correlation Matrix of the Responses to the Job Satisfaction Questions

	Q16	Q17	Q18	Q20
Q16	1.00**	___	___	___
Q17	-.58**	1.00**	___	___
Q18	.63**	-.60**	1.00**	___
Q20	-.72**	.68**	-.71**	1.00**

** - $P < .05$ (two tailed test)
Q - Question in questionnaire (Appendix A)
$273 \leq n \leq 274$

responses to Q17 and Q20 with the responses to Q16 and Q18 were negative (Table III).

The third set of relationships was used to measure the validity of the responses to the questions on the willingness of the respondents to disagree with their supervisor, i.e. Q19 and Q21 (Appendix A). As mentioned in chapter II, these questions were developed by Patchen (1965).

According to Patchen, the responses to both questions are positively associated with willingness to disagree. For this reason, it was expected that if the responses to the questions were valid, they would be positively associated with each other. To determine this, the responses to Q19 were correlated with the responses to Q21. As expected, the correlation was positive, i.e. .25.

The final set of relationships was used to examine the validity of the responses to the responsiveness question and the responses to the work involvement questions. The responsiveness question asks respondents to indicate the amount of time they meet the requests of their supervisors with maximum effort. For this reason, it was expected that if the responses to the responsiveness question and the work involvement questions were valid, the response to the responsiveness question would be positively associated with work involvement. To measure this association, the responses to the work involvement questions were input to the work involvement equation in chapter II to compute the work involvement score, and the work involvement score was correlated with the responses to the responsiveness question. As expected, the correlation was positive, i.e. .29. The correlations among not only work involement and responsiveness, but all four of the effectiveness variables are cotained in Appendix D.

This section discusses the validity of the responses to the power and influence statements, and the validity of the responses to the effectiveness questions of this study. It shows that, except for the responses to the friendship power and influence statements, the responses to the power and influence statements, and the responses to the effectiveness questions appear to capture some of the prior hypo-

theses of one or more of the above theoretically based relationships. The inability of this writer to attest to the validity of the responses to the friendship statements is attributed to a lack of evidence in this area. As such, it is believed that the respondents to the survey of this study answered all questions truthfully and in terms of their own perceptions, which is one of the previous assumptions of this study. The next section discusses the distribution of the responses.

Distribution of Responses

The responses of this study are divided into three categories. These are the demographic responses, the job attitude responses, and the power and influence responses. The purpose of this section is to discuss the distribution of these responses. The distribution of the job attitude responses is discussed first, and the distribution of the power and influence responses is discussed second. The distribution of the demographic responses is discussed in chapter II, and is not presented in this section.

The job attitude responses concern four effectiveness variables of the respondents. These are work involvement, job satisfaction, willingness to disagree with the supervisor, and responsiveness to the supervisor's requests. They were used by Melhart (1976) and Leclaire (1977). Additionally, the work involvement, willingness to disagree, and responsiveness variables were used by Thamhain and Gemmill (1974). However, one of the factors that distinguishes this study from the above studies is the type of organization in which the studies were conducted. This study was conducted in a functional type organization; whereas, the other studies were conducted in matrix type organizations. Even so, the mean and standard deviation of the job attitude responses

of the other studies are provided in Table IV.

As shown in the table, the mean responses for the work involvement and willingness to disagree variables of this study are considerably lower than the mean responses for these same variables in the other studies. Possible causes of this are the difference in the surveys of the studies, the difference in the organizational setting of the studies, the difference in the type of respondents to the studies, and the difference in the power and influence perceived by the respondents of the studies.

The differences in the surveys are based on the administration of the survey, the wording of the survey instrument, and the response set of the survey instrument. The survey of this study was very similar to the survey of the Leclaire study; however, the surveys of the other two studies differ form the survey of this study on one or more of the above bases.

As for the difference in the organizational settings of the studies, this study was conducted in a functional organization, and the other studies were conducted in matrix organizations. The difference in the organizations is based on their characterizations. The functional organization is characterized by vertical authority relationships, and depends on a clear "chain of command" with each worker having only one supervisor. In contrast, the matrix organization is characterized by a combination of vertical, horizontal, and diagonal authority relationships, and depends on an unclear chain of command with subordinates having to work for two types of managers, i.e. the functional manager and the project manager (Davis, 1977:344).

Another factor that distinguishes this study from the other studies

Table IV. Distribution of Job Attitude Responses for this Study and Previous Studies

Effectiveness Variables	This Study		Leclaire[1]		Melhart[1]		T and G	
	Mean	S.D..	Mean	S.D.	Mean	S.D.	Mean	S.D.
Work Involvement	13.19	3.30	15.00	2.67	16.20	2.5	14.8	2.2
Job Satisfaction	18.47	4.40	19.72	3.30	20.39	2.9	___	___
Willingness to Disagree	7.10	2.51	7.68	2.24	9.22[a]	___	7.33[a]	___
Responsiveness	84.74	18.02	80.35	20.40	92.20[a]	___	85.00[a]	___

S.D. - Standard Deviation
T and G - Thamhain and Gemmill
1 - Calculated for the functional manager only
a - Converted from original response scale using conversion factor (ratio of range of response scores for this study to that of response scores for previous study)

is the type of respondents. The respondents to the Thamhain and Gemmill study were civilian, and the respondents to the Leclaire and Melhart studies were civilian and officer grade military personnel. In contrast, the respondents to this study are primarily enlisted military personnel (i.e. 75.2% enlisted, 21.9% civilian, and 2.9% officer).

This latter fact is most likely the reason for the disagreement between the results of this study which show a difference in the job attitude responses of the civilian and military respondents (Table V), and the results of the Leclaire study which show no difference in the job attitude responses of the civilian and military respondents (Leclaire, 1977:50). In other words, the disagreement is probably due to the difference in the grades of the military respondents of the studies, and thus, indicate that the job attitude or effectiveness of enlisted personnel not only differs from that of civilians, but also differs from that of officers.

The final factor which possibly caused the difference in the job attitude responses of this study and the other studies is the existence of a difference in the power and influence perceived by the respondents. The following discussion on the distribution of the power and influence responses may add support to this contention.

The power and influence responses of this study concern nine bases of power and influence. The nine influence bases of this study were used by Leclaire (1977), and six of the influence bases of this study were used by Melhart (1976). Additionally, five of the power bases of this study were used by Sheridan and Vredenburgh (1978). This latter study was conducted in a functional organization. The means and standard deviations of the power and influence responses of

this study and the other studies are provided in Table VI.

Several comparisons of the power and influence responses are possible. One is a comparison of the rankings of the power and influence responses of this study with the rankings of the power and influence responses of the other studies. Another is a comparison of the value of the mean influence responses of this study with the value of the mean influence responses of the Leclaire study (this comparison is not made with the other studies because of the difference in the surveys), and a third comparison is the ranking of the differential of the power and influence responses of this study.

The ranking of the influence bases for the studies are shown

Table V. Distribution of the Job Attitude Responses for the Civilian and Military Subpopulations

Effectiveness Variables	Civilian		Military		Difference in the Means[1]
	Mean	S.D.	Mean	S.D.	
Work Involvement	14.69	3.37	12.77	3.17	1.92**
Job Satisfaction	20.23	3.94	17.98	4.41	2.25**
Willingness to Disagree	6.05	2.34	7.40	2.49	-1.35**
Responsiveness	92.32	11.88	82.59	18.88	9.73**

S.D. - Standard Deviation
** - P<.01 (two tailed test)
1 - Difference=Civilian-Military
n(civilian)=60
n(military)=214

Table VI. Distribution of Power and Influence Responses for this Study and Previous Studies

Power and Influence Typology	This Study		Leclaire[1]		Melhart[1]		S and V	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Legitimate Power	6.14	1.27					3.71[a]	.97[a]
Legitimate Influence	4.48	1.85	$\overline{4.49}$	$\overline{1.79}$	$\overline{5.95}$[b]	—		
Expert Power	5.60	1.63				—	$\overline{4.00}$[a]	$\overline{1.19}$[a]
Expert Influence	5.05	1.84	$\overline{5.22}$	$\overline{1.63}$	$\overline{5.67}$[b]	—		
Referent Power	5.38	1.61				—	$\overline{2.85}$[a]	$\overline{1.15}$[a]
Referent Influence	5.02	1.65	$\overline{5.04}$	$\overline{1.63}$	—	—		
Coercive Power	5.17	1.79				—	$\overline{1.76}$[a]	$\overline{1.05}$[a]
Coercive Influence	3.04	1.90	$\overline{2.90}$	$\overline{1.70}$	$\overline{3.92}$[b]	—		
Reward Power	5.73	1.36				—	$\overline{2.68}$[a]	$\overline{1.05}$[a]
Reward Influence	4.71	1.88	$\overline{4.38}$	$\overline{1.67}$	—	—	—	—
Performance Rating Power	5.96	1.31	—	—	—	—	—	—
Performance Rating Influence	5.29	1.81	5.48	1.66	—	—	—	—
Friendship Power	5.34	1.47				—	—	—
Friendship Influence	4.84	1.74	$\overline{4.51}$	$\overline{1.62}$	$\overline{4.06}$[b]	—	—	—
Work Challenge Power	5.42	1.55	—	—	—	—	—	—
Work Challenge Influence	4.70	1.94	4.77	1.60	5.18[b]	—	—	—
Responsibilities of the Manager Power	6.17	1.32	—	—	—	—	—	—
Responsibilities of the Manager Influence	5.14	1.78	4.88	1.68	6.16[b]	—	—	—

S.D. - Standard Deviation
S and V - Sheridan and Vredenburgh
a - Ipsative measures (can only be compared among themselves)
b - Converted from original response scale using conversion factor (see Table IV)
1 - For the functional manager only

in Table VII. Except for the ranking of legitimate influence in the Melhart study, the rankings are consistent. Legitimate influence was the second least perceived influence base in this study and the Leclaire study, and the second most perceived influence in the Melhart study. This writer assumes that the difference in the legitimate influence responses is due to the difference in the administration of the surveys of the studies. The survey of this study and the Leclaire study were administered anonymously, via mail; and the survey of the Melhart study was administered on the basis of a face-to-face interview. Even so, all three studies show that of the nine influences, coercive influence was the least perceived. Friendship, reward, and work challenge influences were also not strongly perceived. The most perceived influence was performance rating influence. Responsibilities of the manager, expert, and referent influences were also highly ranked.

The rankings of the power bases are shown in Table VIII. Both this and the Sheridan and Vredenburgh study show that coercive power was the least perceived power base, and that legitimate power was a highly perceived power base. However, there was a difference in the ranking of the other power bases. The respondents to the Sheridan and Vredenburgh study perceived high amounts of expert and referent powers (individually derived powers) in their supervisors; whereas, the respondents to this study perceived high amounts of responsibilities of the manager and performance rating powers (organizationally derived powers) in their supervisors (Katz and Kahn, 1966:302). The difference in the ranking of these powers was probably due to the difference in the requirements of the supervisory positions in the organizations of the studies. That is, the supervisory positions (head nurses) in the organization of the

Table VII. Ranking of the Influence Bases of this Study and Previous Studies

Ranks	This Study	Leclaire[1]	Melhart[1]
1	Performance Rating (5.29)	Performance Rating (5.48)	Responsibilities of the Manager (88)
2	Responsibilities of the Manager (5.14)	Expert (5.22)	Legitimate (85)
3	Expert (5.05)	Referent (5.04)	Expert (81)
4	Referent (5.02)	Responsibilities of the Manager (4.88)	Work Challenge (74)
5	Friendship (4.84)	Work Challenge (4.77)	Friendship (58)
6	Reward (4.71)	Friendship (4.51)	Coercive (56)
7	Work Challenge (4.70)	Legitimate (4.49)	
8	Legitimate (4.48)	Reward (4.38)	
9	Coercive (3.04)	Coercive (2.90)	

1 - For the functional manager only
(#) - The mean response score

Table VIII. Ranking of the Power Bases for this Study and a Previous Study

Ranks	This Study	S and V
1	Responsibilities of the Manager (6.17)	Expert (4.00[a])
2	Legitimate (6.14)	Legitimate (3.71[a])
3	Performance Rating (5.96)	Referent (2.85[a])
4	Reward (5.73)	Reward (2.68[a])
5	Expert (5.60)	Coercive (1.76[a])
6	Work Challenge (5.42)	
7	Referent (5.34)	
8	Friendship (5.34)	
9	Coercive (5.17)	

S and V - Sheridan and Vredenburgh
(#) - The mean response score
a - Ipsative measures (can only be compared among themselves)

Sheridan and Vredenburgh study required more technical skills than human skills and therefore, the supervisors were perceived as having high expert and referent powers (Terry, 1977:9). In contrast, the supervisory positions of the organization of this study required less technical skills and more human skills, and therefore, the supervisors of this study were perceived as having high responsibilities of the manager and performance rating powers.

In comparing the influence responses of this study with the influence responses of the Leclaire study, little difference can be found (Table IV). The largest difference is .33. This is for the reward and friendship influences. The lower mean response of the Leclaire study for the reward influence is probably a result of the authority ambiguity which exists in matrix organizations. The personnel in matrix organizations spend a large majority of their time with project managers, and this makes it difficult for functional managers to judge the performance of project personnel and reward them. On the other hand, the difference in the responses on friendship influence is not as easy to assess as the difference in the responses on reward influence. Possible causes of this difference range from the characteristics of the organization to the personal characteristics of the supervisors.

A ranking of the differential of the mean responses for the power and influence bases of this study is shown in Table IX. The table shows that the respondents to this study perceived their supervisors to use less power than they possessed, and that the biggest differentials existed for the positional or organizationally derived powers, i.e. coercive, legitimate, responsibilities of the manager, and reward powers.

An additional comparison of the power and influence responses, not suggested at the beginning of this section is the comparison of the power and influence responses of the civilian and military respondents of this study. This includes measuring the difference in the distribution of their responses to the individual power and influences (Table X), and measuring the difference in the distribution of their power and influence differentials (Table XI).

Table X shows that the subgroups differ in their perceived amounts of three power bases, i.e. expert, coercive, and friendship powers, and three influence bases, i.e. coercive, performance rating, and friendship influences. In all of these bases, except the expert power base,

Table IX. Ranking of the Power and Influence Differentials

Ranks	Power and Influence Typology	Mean	S.D.
1	Coercive	-2.13**	2.26
2	Legitimate	-1.66**	2.22
3	Responsibilities of the Manager	-1.03**	1.91
4	Reward	-1.02	1.83
5	Work Challenge	-.72**	1.70
6	Performance Rating	-.67	1.51
7	Expert	-.55**	1.45
8	Friendship	-.50**	1.58
9	Referent	-.37**	1.18

Differential=Influence -Power
S.D. - Standard Deviation
** - $P < .01$ (two tailed test)
n=274

Table X. Distribution of the Power and Influence Responses for the Civilian and Military Subpopulations

Power and Influence Typology	Civilian		Military		Difference in the Means[1]
	Mean	S.D.	Mean	S.D.	
Legitimate Power	6.05	1.29	6.16	1.27	-.11
Legitimate Influence	4.38	2.02	4.51	1.81	-.13
Expert Power	5.98	1.40	5.49	1.67	.49*
Expert Influence	4.92	2.03	5.09	1.79	-.17
Referent Power	5.29	1.82	5.41	1.55	-.12
Referent Influence	5.02	1.75	5.02	1.63	0
Coercive Power	4.68	1.94	5.31	1.72	-.63*
Coercive Influence	2.70	1.86	3.14	1.90	-.44
Reward Power	5.64	1.30	5.75	1.38	-.11
Reward Influence	4.67	1.96	4.72	1.86	-.05
Performance Rating Power	5.82	1.36	5.75	1.38	.07
Performance Rating Influence	4.98	1.84	5.37	1.80	-.39
Friendship Power	4.80	1.64	5.50	1.38	-.70**
Friendship Influence	4.30	1.74	4.97	1.72	-.59*
Work Challenge Power	5.22	1.50	5.47	1.56	-.25
Work Challenge Influence	4.67	2.03	4.71	1.92	-.04
Responsibilities of the Manager Power	6.27	1.19	6.14	1.36	.13
Responsibilities of the Manager Influence	5.18	1.84	5.13	1.77	.05

S.D. - Standard Deviation
1 - Difference=Influence-Power
* - $P<.05$ (two tailed test)
** - $P<.01$ (two tailed test)
n(civilian)=60
n(military)=214

Table XI. Distribution of the Power and Influence Differentials for the Civilian and Military Subpopulations

Power and Influence Typology	Civilian		Military		Difference in the Means[1]
	Mean	S.D.	Mean	S.D.	
Legitimate	-1.67	2.26	-1.65	2.21	-.02
Expert	-1.07	1.93	-.40	1.25	-.67**
Referent	-.27	1.28	-.39	1.16	.12
Coercive	-1.98	2.24	-2.17	2.27	.19
Reward	-1.02	2.24	-1.02	1.71	0
Performance Rating	-.83	1.45	-.62	1.52	-.21
Friendship	-.42	1.78	-.52	1.52	.10
Work Challenge	-.55	1.61	-.77	1.72	.22
Responsibilities of the Manager	1.08	1.99	-1.01	1.89	-.07

Differential=Influence-Power
S.D. - Standard Deviation
1 - Difference=Civilian-Military
** - $P < .01$ (two tailed test)
n(civilian)=60
n(military)=214

the military respondents perceived more power and influence than the civilian respondents. The reason why the civilian respondents perceived more expert power than the military respondents is not apparent to this writer at this time. However, the reason they perceived less coercive power and less coercive influence than the military respondents is that the civilian respondents cannot be punished as easy as military respondents. If the civilians are threatened with punishment on the job, they are, in most instances, able to avoid punishment by changing jobs. In contrast, military respondents are not able to change jobs as easy as civilians. The reason civilian respondents perceived less performance rating influence than military respondents is that the promotion of civilians is not as strongly based on appraisals as the promotion of members of the military. Finally, the civilians probably perceived lower friendship power and influence because their supervisors were members of the military (at least 70% of the supervisors of the respondents of this study were military).

The difference in the differentials for the subgroups, as shown in Table XI, is significant for only one base of power and influence, i.e. expert power and influence. The magnitude of the differential for the civilian respondents is much greater than that of the military respondents. This result corresponds to the difference in the perceived amounts of expert power discussed earlier.

This section discusses the distribution of the responses of this study. It presents the distributional characteristics, i.e. means and standard deviations, of the responses to the job attitude questions, and the responses to the power and influence statements; and compares these characteristics with those of previous studies. The next section discusses the dimensionality of the power and influence

bases.

Dimensionality of the Power and Influence Bases

Much of the best writing on power and influence refers to many different bases of power and influence. As such, it appears that there are properties underlining these many bases which would allow them to be represented by a fewer number of bases. This is the essence of six of the objectives and one of the problems of this study, i.e. to determine and investigate the dimensions of power, the dimensions of influence, and the dimensions of power and influence differentials for the French and Raven typology, and the nine bases of power and influence of this study. The purpose of this section is to discuss the results of the analysis, i.e. principal component analysis, used to compute these dimensions. The dimensionality of the French and Raven power and influence bases is discussed first, and the dimensionality of the power and influence of the nine bases of this study is discussed second.

Dimensionality of the French and Raven Power and Influence Bases. The analysis yielded three sets of dimensions for the French and Raven typology, i.e. one set for the power bases, one set for the influence bases, and one set for the differentials of the power and influence bases. The first set of dimensions consists of two dimensions and explains 65.3% of the variance in the power bases. The eigenvalues and the percentage of variance explained by each dimension are contained in Appendix E. Each of the power bases loads substantially on at least one of the dimensions, and none of the power bases loads on more than one of the dimensions. The power bases are considered to substantially load a dimension if the magnitude of the correlation between the power base and the dimension is greater than or equal to 0.5. This criterion is also used in determining whether the factor

Table XII. Factor loading Matrix for the French and Raven Power Bases

Power Bases	Dimension 1	Dimension 2
Legitimate	.32	.<u>71</u>
Expert	.<u>88</u>	.08
Referent	.<u>86</u>	.16
Coercive	-.09	.<u>85</u>
Reward	.15	.<u>61</u>

Underlined loadings are substantial
n=272

loadings of the other sets of dimensions found in this analysis are substantial. The factor loadings after rotation are contained in Table XII.

The first dimension which consists of expert and referent powers is called individual power, i.e. power which is individually derived, and the second dimension which consists of legitimate, coercive, and reward powers is called organizational power, i.e. power which is organizationally derived. These dimensions are the same as the power groupings hypothesized by Ivancevich and Donnelly (1970:541).

The set of dimensions for the influence bases consists of two dimensions, and explains 71.3% of the variance in the influence bases. The eigenvalues and the percentage of variance explained by each di-

Table XIII. Factor Loading Matrix of the French and Raven Influence Bases

Influence Bases	Dimension 1	Dimension 2
Legitimate	.05	.88
Expert	.84	.02
Referent	.83	-.16
Coercive	-.23	.83
Reward	.79	-.10

Underlined loadings are substantial
n=272

mension are contained in Appendix E. Each of the influence bases loads substantially on only one of the dimensions. The correlations among the influence bases as well as the correlations among the power bases are contained in Appendix F. The factor loading matrix after rotation is contained in Table XIII.

These dimensions differ from those of the power bases, and indicate that the effects of having a power may differ from the effects of using that power. Even so, these dimensions are the same as those found by Leclaire (1977), and are labeled the same as the Leclaire dimensions (Leclaire, 1977:38). Thus, the first dimension which consists of expert, referent, and reward influences is called personal influence, and the second dimension which consists of legitimate and

Table XIV. Factor Loading Matrix for the French and Raven Power and Influence Differentials

Differentials	Dimension 1	Dimension 2	Dimension 3
Legitimate	.86	.02	-.05
Expert	.10	.82	-.28
Referent	.01	-.06	.91
Coercive	.83	-.08	.01
Reward	-.25	.67	.40

Differential=Influence-Power
Underlined loadings are substantial
n=272

coercive influence is called pressure influence.

The set of dimensions for the differentials of the power and influence bases consists of three dimensions, and explains 74.5% of the variance in the differentials. The eigenvalues and the amount of variance explained by each of the dimensions are contained in Appendix E. Each differential loads substantially on only one dimension; however, one of the dimensions is substantially loaded by only one differential, i.e. the differential for referent power and influence. The correlations among the differentials are contained in Appendix F. The factor loadings after rotation are shown in Table XIV.

The first dimension which consists of the legitimate and coercive

differentials is called the pessure differential, the second dimension which consists of the expert and reward differentials is called the individual/personal dimension, and the third dimension is called the referent differential. The existence of this latter dimension indicates that the effects of the referent power and influence are unlike the effects of the differential for the other power and influence bases.

Dimensionality of the Nine Power and Influence Bases. In addition to the above dimensions, the analysis also yielded three sets of dimensions for the nine power and influence bases of this study, i.e. one set for the power bases, one set for the influence bases, and one set for the differentials of the power and influence bases. The first set of dimensions consists of two dimensions, and explains 49.8% of the variance in the power bases. The eigenvalues and the percentage of variance explained by each of the dimensions are contained in Appendix E. Each of the power bases loads substantially on only one dimension, as shown in the factor loading matrix after rotation (Table XV).

The first dimension consists of organizationally derived power bases, i.e. legitimate, coercive, reward, and performance rating powers, and one other power base whose association with the organization is not readily apparent, i.e. friendship power. However, since the factor loading of the friendship power is less than that of the organizationally derived powers, the first dimension is called the organizational power. The second dimension which consists of expert, referent, work challenge, and responsibilities of the manager powers is called individual power.

The set of dimensions for the influence bases consists of two dimensions, and explains 58.7% of the variance in the influence bases. The eigenvalues and the percentage of variance explained by

Table XV. Factor Loading Matrix for the Nine Power Bases

Power Bases	Dimension 1	Dimension 2
Legitimate	.54	.33
Expert	.04	.83
Referent	.09	.79
Coercive	.71	-.06
Reward	.71	.13
Performance Rating	.71	.21
Friendship	.53	.30
Work Challenge	.29	.51
Responsibilities of the Manager	.22	.62

Underlined loadings are substantial
n=272

each dimension are contained in Appendix E. All but one of the influence bases, i.e. performance rating influence, load substantially on only one of the dimensions. The performance rating influence fails to load substantially on either of the dimensions. The factor loadings after rotation are shown in Table XVI.

The first dimension consists of expert, referent, reward, friendship, and work challenge influences, and is the same as a dimension found by Leclaire (1977). Thus, it is given the same label as that dimension, i.e. personal influence (Leclaire, 1977:40). The second

Table XVI. Factor Loading Matrix for the Nine Influence Bases

Influence Bases	Dimension 1	Dimension 2
Legitimate	-.07	.85
Expert	.80	.09
Referent	.81	-.08
Coercive	-.35	.70
Reward	.75	-.05
Performance Rating	.36	.45
Friendship	.76	.02
Work Challenge	.77	.15
Responsibilities of the Manager	.25	.71

Underlined loadings are substantial
n=273

dimension is the same as another dimension found by Leclaire. It consists of the legitimate, coercive, and the responsibilities of the manager influences, and is labeled the same as its counterpart in the Leclaire study, i.e. pressure influence (Leclaire, 1977:42). The Leclaire study found a third dimension which included the performance rating influence; however, this occurred because Leclaire examined one other influence base which was inappropriate for use in this study due to the organizational setting of this study.

Finally, the set of dimensions for the diferentials of the power

Table XVII. Factor Loading Matrix for the Differentials of the Nine Power and Influence Bases

Differentials	Dimension 1	Dimension 2	Dimension 3
Legitimate	-.07	.82	-.10
Expert	.38	.05	-.60
Referent	.17	-.02	.81
Coercive	-.17	.72	.05
Reward	.76	-.17	.16
Performance Rating	.43	.38	.08
Friendship	.73	-.06	-.05
Work Challenge	.65	-.05	-.03
Responsibilities of the Manager	.04	.75	-.04

Differential=Influence-Power
Underlined loadings are substantial
n=272

and influence bases consists of three dimensions, and explains 55.7% of the variance in the differentials of the power and influence bases. The eigenvalues and the percentage of variance explained by each of the dimensions are contained in Appendix E. All but one of the differentials, i.e. the differential for the performance rating power and influence, load substantially on only one of the dimensions. The differential for performance rating power and influence fails to load on either of the dimensions. The matrix of the factor loadings after rotation are contained in Table XVII.

The first dimension which consists of the reward, friendship, and work challenge differentials is called the reward differential. The second dimension which consists of the legitimate, coercive, and responsibilitities of manager differentials is called the pressure differential, and the third dimension which consists of the expert and referent differentials is called the individual differential.

This section discusses the dimensionality of power, the dimensionality of influence, and the dimensionality of power and influence differentials for two sets of power and influence bases, i.e. the French and Raven typology, and the nine bases of power and influence for this study. It identifies two dimensions of power, two dimensions of influence, and three dimensions of power and influence differentials for each set of the power and influence bases. Additionally, the dimensions of both sets of influence bases are the same as those found by Leclaire (1977). The next section discusses the effectiveness of the power and influence bases.

Effectiveness of the Power and Influence Bases

The previous sections demonstrate the necessity of distinguishing between different types of power and influence. This section examines their association with four effectiveness variables,i.e. work involvement, job satisfaction, willingness to disagree, and responsiveness, which is the essence of the remaining objectives and problem of this study. As mentioned earlier these are to determine and investigate the association of the power bases and the dimensions of the power bases with effectiveness; to determine and investigate the association of the influence bases and the dimensions of the influence bases with effectiveness; and to determine and investigate the association of the

differentials of the power and influence bases, and the dimensions of the differentials of the power and influence bases with effectiveness.

The purpose of this section is to discuss the results of the analysis, i.e. Pearson correlation analysis, used to compute these associations. The effectiveness of the dimensions of the power bases and the power bases is discussed first; the effectiveness of the dimensions of the influence bases and the influence bases is discussed second; and the effectiveness of the dimensions of the differentials of the power and influence bases, and the differentials of the power and influence bases is discussed third.

Effectiveness of the Dimensions of the Power Bases and the Power Bases. The analysis results include the correlation of the dimensions (factor scores) of the power bases with the effectiveness variables and the correlations of the power bases with the effectiveness variables. Table XVIII contains the correlations among dimensions of the power bases and the effectiveness variables. According to the table, the individual power dimensions are positively associated with responsiveness, and all four power dimensions are positively associated with work involvement and job satisfaction (the associations involving the individual power dimensions being stronger than those involving the organizational power dimensions). However, none of the dimensions are significantly associated with willingness to disagree.

The correlations among the power bases and effectiveness variables are contained in Table XIX. These correlations are somewhat different than those of the dimensions of the power bases. For instance, even though no dimensions of the power bases are significantly correlated

Table XVIII. Correlations Among Power Dimensions and Effectiveness Variables

Power Dimensions	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Individual (5)	.17**	.30**	.05	.30**
Individual (9)	.24**	.37**	.07	.27**
Organizational (5)	.11*	.11*	-.01	.05
Organizational (9)	.12*	.10*	.02	.04

(5) - Dimension of the French and Raven typology
(9) - Dimension of the nine bases of this study
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$267 \leq n \leq 271$

with willingness to disagree, the friendship and work challenge powers are positively correlated with it. Additionally, except for coercive power, each of the power bases is significantly correlated with at least one of the effectiveness variables, and all of the significant correlations are positve. Whereas this study shows no association between coercive power and effectiveness, Sheridan and Vredenburgh (1978) found coercive power to be negatively associated with performance. The difference in these results is probably due to the difference in the survey instruments or samples.

The above results seem to indicate that managers need different types of power to be effective. The effectiveness of the use of power is discussed next.

Table XIX. Correlations Among Power Bases and Effectiveness Variables

Power Bases	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Legitimate	.07	.15**	-.02	.15**
Expert	.14**	.28**	.01	.29**
Referent	.18**	.26**	.10	.22**
Coercive	.07	.05	.00	-.02
Reward	.19**	.16**	.02	.10*
Performance Rating	.13*	.18**	-.04	.10*
Friendship	.01	.02	.17**	.09
Work Challenge	.31**	.25**	.14**	.04
Responsibilities of the Manager	.24**	.38**	-.04	.12*

* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$269 \leq n \leq 273$

Effectiveness of the Dimensions of the Influence bases and the Influence Bases. The Pearson correlation analysis was also used to compute the correlations of the dimensions (factor scores) of the influence bases with the effectiveness variables and the correlations of the influence bases with the effectiveness variables. Table XX contains the correlations among the dimensions of the influence bases and the effectiveness variables. As the table shows, the personal influence dimensions are positively associated with all four of the effectiveness variables, and the pressure influence dimensions are negatively associated with work involvement and job satisfaction. These results are the same as those found by Leclaire (1977), except he found that the personal influence dimension of functional managers was significantly correlated with neither work involvement nor willingness to disagree.

The correlations among the individual influence bases and the effectiveness variables are contained in Table XXI. The influence bases which compose the personal influence dimensions, i.e. expert, referent, friendship, and work challenge influences, are positively associated with the effectiveness variables. In contrast, two of the influence bases of the pressure dimensions, i.e. legitimate and coercive influences, are negatively associated with work involvement, job satisfaction, and responsiveness; and one of the bases of a pressure dimension, i.e. responsibilities of the manager, is positively associated with willingness to disagree and responsiveness. The remaining influence base of this study, i.e. performance rating influence, is not significantly correlated with any of the effectiveness variables. Leclaire's (1977) results differed for this latter influence base and legitimate influence. Leclaire found performance rating

Table XX. Correlations Among Influence Dimensions and Effectiveness Variables

Influence Dimensions	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Personal (5)	.25**	.32**	.15**	.28**
Personal (9)	.30**	.36**	.18**	.31**
Pressure (5)	-.15**	-.18**	.06	-.09
Pressure (9)	-.07	-.13*	.07	-.03

(5) - Dimension of the French and Raven typology
(9) - Dimension of the nine bases of this study
* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$268 \leq n \leq 272$

Table XXI. Correlations Among Influence Bases and Effectiveness Variables

Influence Bases	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Legitimate	-.13*	-.16**	.06	-.05
Expert	.16**	.25**	.18**	.25**
Referent	.26**	.30**	.02	.27**
Coercive	-.15**	-.20**	-.00	-.15**
Reward	.25**	.29**	.14**	.18**
Performance Rating	.09	.09	.01	.03
Friendship	.09	.16**	.29**	.17**
Work Challenge	.40**	.37**	.13*	.30**
Responsibilities of the Manager	.07	.00	.10*	.13*

* - $P<.05$ (two tailed test)
** - $P<.01$ (two tailed test)
$269 \leq n \leq 273$

influence to be positively associated with responsiveness, and legitimate influence not to be significantly correlated with any of the effectiveness variables.

While the correlations involving power indicate that the possession of power increases the effectiveness of the manager, the above correlations indicate that the use of power, depending on the base of

the power, may decrease or increase the effectiveness of the manager. The effectiveness of the manager who uses less power than he or she possesses is discussed next.

Effectiveness of the Dimensions of the Power and Influence Differentials, and the Power and Influence Differentials. The final use of the Pearson correlation analysis was to compute the correlations of the dimensions (factor scores) of the differentials of the power and influence bases with the effectiveness variables, and the correlations of the differentials of the power and influence bases with the effectiveness variables. Table XXII contains the correlations among the dimensions of the power and influence differentials, and the effectiveness variables. It shows that the individual/personal, referent, and reward differentials are positively associated with effectiveness. That is, the individual/personal differential is positively associated with willingness to disagree, the referent differential is positively associated with job satisfaction, and the reward differential is positively associated with all four of the effectiveness variables. In contrast, the individual and pressure differentials are negatively associated with effectiveness. That is, the individual differential is negatively associated with willingness to disagree; and the pressure differentials are negatively associated with work involvement, job satisfaction, and responsiveness.

The correlations among the differentials and the effectiveness variables are contained in Table XXIII. The table shows that the legitimate and coercive differentials are negatively associated with effectiveness, i.e. work involvement, job satisfaction, and responsiveness. In contrast, it shows that the expert, referent, friendship, work challenge, and reward differentials are positively associated

with effectiveness. That is, the expert differential is positively associated with willingness to disagree; the referent differential is positively associated with work involvement; the friendship differential is positively associated with job satisfaction, willingness to disagree, and responsiveness; the work challenge differential is positively associated with work involvement, job satisfaction, and responsiveness; and the reward differential is positively associated with all four of the effectiveness variables. Of the remaining differentials, the responsibilities of the manager differential is positively associated with job satisfaction, and negatively associated

Table XXII. Correlations Among Dimensions of Power and Influence Differentials, and Effectiveness Variables

Differential Dimensions	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Individual/Personal (5)	.07	.08	.25**	.04
Referent (5)	.11*	.10*	-.08	.09
Pressure (5)	-.18**	-.25**	.05	-.14*
Pressure (9)	-.17**	-.29**	.08	-.10
Individual (9)	.04	.04	-.15**	-.00
Reward (9)	.15**	.18**	.16**	.18**

Differential=Influence-Power
(5) - Dimensions of the French and Raven typology
(9) - Dimensions of the nine bases of this study
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$267 \leq n \leq 271$

Table XXIII. Correlations Among Power and Influence Differentials and Effectiveness Variables

Differential Bases	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Legitimate	-.15**	-.22**	.06	-.13*
Expert	.04	-.00	.21**	-.01
Referent	.11*	.07	-.10	.07
Coercive	-.18**	-.21**	-.01	-.12*
Reward	.11*	.18**	.13*	.10*
Performance Rating	-.01	-.05	.05	-.05
Friendship	.10	.15**	.16**	.11*
Work Challenge	.17**	.20**	.02	.31**
Responsibilities of the Manager	-.10	-.26**	.12*	.03

Differential=Influence-Power
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$269 \leq n \leq 273$

with willingness to disagree; and the performance rating diferential is not significantly correlated with any of the effectiveness variables.

This section discusses the results of an analysis used to determine the effectiveness of the power and influence bases. The first part of this section concerns the effectiveness of the dimensions of the power bases and the power bases. The results indicate that mana-

gers can increase their effectiveness by increasing the amount of power they possess. The second part of this section discusses the effectiveness of the dimensions of the influence bases and the influence bases. While the results of the first part of this section indicate that the possession of power increases the effectiveness of the manager, the results of the second part of the section indicate that the use of power, depending on the base of that power, may decrease or increase the effectiveness of the manager. Finally, the third and last part of this section discusses the effectiveness of the dimensions of power and influence differentials, and the power and influence differentials. The results of this part of the analysis are similar to that of the analysis of the influence bases. In other words, managers may increase or decrease their effectiveness by using less power than they possess, depending on the base of the power.

The above results are a product of analyzing the total survey population which includes both civilian and military respondents. However, because of the difference in the job attitude, and power and influence responses of the two groups, the effectiveness of the power and influence responses for each group was computed (Appendix B), and tested for a difference. The difference in the correlations was tested using the r to z transformation (Snedecor and Cochran, 1967:185-6).

The results of the test show no significant difference for any of the correlations. This indicates that the effectiveness of the power and influence bases of the manager does not differ for civilian and military subordinates. The next section discusses the relationship of combinations of the power and influence bases to effectiveness.

Relationship of Combinations of the Power and Influence Bases to Effectiveness

Though not a specific objective of this study, to better understand power and influence, it is important to know how well they predict the effectiveness criteria of subordinates. To determine this, the amount of variance in the effectiveness variables which is explained by the power and influence bases was computed by using stepwise regression analysis. The purpose of this section is to discuss the results of this analysis. First it discusses the relationship of combinations of the dimensions of the power and influence bases to the effectiveness variables. Next, it discusses the relationship of combinations of the individual bases of power and influence to the effectiveness variables.

The predictive relationships of the power and influence dimensions relative to the effectiveness variables were computed for five combinations of the dimensions; i.e. the dimensions of power; the dimensions of influence; the dimensions of power and the dimensions of influence; the dimensions of the differentials; and the dimensions of power, the dimensions of influence, and the dimensions of the differentials. The coefficients of determination (R^2) for the combinations of the dimensions relative to the effectiveness variables are contained in Table XXIV. The table shows that job satisfaction is the effectiveness variable for which the most variance is explained. A list of the dimensions and their ΔR^2 relative to each effectiveness variable is contained in Appendix G. The key predictors of job satisfaction are the individual power dimension and the pressure differential dimension. Neither of these dimensions is a key predictor of work in-

volvement, willingness to disagree, and responsiveness. The key predictor of work involvement and responsiveness is the personal influence dimension, and the key predictors of willingness to disagree are the reward differential dimension and the individual differential dimension. The small R^2 values indicate that the dimensions are weak

Table XXIV. R^2 for Power and Influence Dimensions Relative to Effectiveness Variables

Dimension Combinations	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Power	.07**	.14**	.00	.06**
Influence	.10**	.15*	.02*	.10**
Power/Influence	.10**	.18*	.02*	.10**
Differential	.06*	.14**	.05*	.03*
Power/Influence/ Differential	.10**	.19**	.05*	.10**

* - P<.05 (two tailed test)
** - P<.01 (two tailed test)
n=219

predictors of effectiveness. The predictive ability of the power and influence bases is discussed next.

The predictive relationships of the power and influence bases relative to the effectiveness variables were computed for five combinations of the bases; i.e. power bases; the influence bases; the power bases and the influence bases; the differentials; and the power bases, the influence bases, and the differentials. Table XXV contains the R^2 for the combinations of the bases relative to the effectiveness variables. The table shows that the bases are more appropriate

as predictors of job satisfaction (R^2=.24) and work involvement (R^2=.21), than they are as predictors of responsiveness (R^2=.17) and willingness to disagree (R^2=.16). A list of the power and influence bases and their ΔR^2 relative to each effectiveness variable is contained in Appendix G. Except for one power base, the key predictors of job satisfaction and work involvement are the same. The key predictors of job satisfaction are responsibilities of the manager power, work challenge influence, and legitimate influence; and the key predictors of work involvement are work challenge influence and legitimate influence. As for the remaining effectiveness variables, the key predictors of responsiveness are the work challenge differential and expert power, and the key predictors of willingness to disagree are friendship influence and referent influence.

In comparing these results with those of the other studies, a number of differenences are found. Specifically, the results of the

Table XXV. R^2 of Power and Influence Bases Relative to Effectiveness Variables

Combinations of Bases	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Power	.14*	.18*	.00	.09*
Influence	.21**	.19*	.10**	.11*
Power/Influence	.21**	.24**	.10**	.17*
Differentials	.07*	.13**	.09*	.11*
Power/Influence/ Differentials	.21**	.24**	.16*	.17*

* - P<.05 (two tailed test)
** - P<.01 (two tailed test)
n=219

analysis of the influence bases relative to effectiveness differ from those of Leclaire (1977), and the results of the analysis of the power bases relative to effectiveness differ from those of Sheridan and Vredenburgh (1978). In contrast to this study, Leclaire found no predictive relationship for the influence bases of the functional manager relative to work involvement and willingness to disagree, and he found the key predictor of responsiveness to the functional manager to be referent influence versus work challenge influence. The former difference is too difficult to assess with the given information; however, the latter difference probably exists because Leclaire examined an additional influence base, i.e. future work influence, which is not a part of this study.

The difference between the results of this study and those of the Sheridan and Vredenburgh study is that Sheridan and Vredenburgh found coercive power to be a key predictor of performance; whereas, this study shows coercive power not to be a key predictor of any of the effectiveness variables. This difference follows directly from the discussion in the previous section on the difference in the effectiveness results of this study, and the Sheridan and Vredenburgh study. As such, the difference in these results is attributed to to the same cause identified for the difference in the effectiveness results, i.e. the difference in survey instruments or samples.

This section discusses how well the power and influence bases predict the effectiveness criteria of subordinates. The first half of this section shows that the dimensions of power and influence are of little significance as predictors of effectiveness. Even so, it also shows that the individual power dimension and the personal influence dimension are the best overall predictors of effectiveness;

and that the power and influence dimensions are better predictors job satisfaction than they are of work involvement, willingness to disagree, and responsiveness.

Finally, the second half of this section shows that the power and influence bases are better predictors of effectiveness than the dimensions of the power and influence bases. The R^2 relative to willingness to disagree for the power and influence bases is over three times as great as the same R^2 for the dimensions of the power and influence bases. It also shows that the responsibilities of the manager power and the work challenge influence are the best predictors of effectiveness.

Even though the above discussion concerns the predictive relationships of all nine of the power and influence bases of this study, these same relationships were also computed for the French and Raven typology. The R^2's for combinations of the dimensions of the French and Raven typology, and combinations of the bases of the French and Raven typology relative to the effectiveness variables are contained in Appendix C.

IV. Summary, Conclusions, and Recommendations

Summary and Conclusions

Power and influence are the primary concerns of this study. As defined by French and Raven (1959), influence is effecting another persons behavior, opinions, attitude, or actions; and power is potential influence (French and Raven, 1959:261). The purpose of this study is to investigate the independence and effectiveness of power and influence in functional organizations. To accomplish this, a questionnaire was provided to the personnel in a funtional organization on Wright-Patterson AFB, OH, and the responses to 274 of the personnel were analyzed.

The responses define four effectiveness variables for the respondents, and nine bases of power and nine bases of influence for the supervisors of the respondents. The effectiveness variables are work involvement, job satisfaction, willingness to disagree with the supervisor, and responsiveness to the supervisor's requests. The nine bases of power and the nine bases of influence are the same, and are listed as follows:

1. Legitimate
2. Expert
3. Referent
4. Coercive
5. Reward
6. Performance Rating
7. Friendship
8. Work Challenge
9. Responsibilities of the Manager

The first five bases were developed by French and Raven (1959), the sixth, seventh, and eigth bases were developed by Thamhain and Gemmill (1974), and the ninth base was developed by Melhart (1976).

The primary techniques used to analyze the responses were principal component analysis. Pearson correlation analysis, and least squares regression analysis. The first two analyses were used to address the specific problems of this study, i.e. principal component analysis was used to investigate the independence of the power and influence bases, and Pearson correlation analysis was used to investigate the effectiveness of the power and influence bases. The third analysis, i.e. least squares regression analysis, was used to investigate the relationship of combinations of the power and influence bases to effectiveness.

The independence of the power and influence bases was investigated by determining the dimensionality of the power bases, the dimensionality of the influence bases, and the dimensionality of the power and influence differentials (Differential=Influence-Power). These were determined for two sets of bases, i.e. the French and Raven typology, and the nine bases of power and influence listed earlier. The results of the investigation of the dimensionality of power show that there are two dimensions of power for each set of bases. The dimensions of power for both sets of bases are labeled the individual power dimension which primarily consists of individually derived powers, and the organizational power dimension which primarily consists of organizationally derived powers. More specifically, the individual power dimension of the French and Raven typology consists of expert and referent powers, and the individual power dimension of the nine bases consists of expert, referent, work challenge, and re-

sponsibilities of the manager powers. The organizational power dimension of the French and Raven typology consists legitimate, coercive, and reward powers; and the organizational power dimension of the nine bases consists of legitimate, coercive, reward, performance rating, and friendship powers.

The results of the investigation of the dimensionality of the influence bases show that there are two dimensions of influence for each set of influence bases. As with the power dimensions, the influence dimensions for both sets of bases are labeled the same, i.e. personal influence and pressure influence. The personal influence dimension of the French and Raven typology consists of expert, referent, and reward influences; and the personal influence dimension of nine bases consists of expert, referent, reward, friendship, and work challenge influences. The pressure influence dimension of the French and Raven typology consists of legitimate and coercive influences, and the pressure influence dimension of the nine bases consists of legitimate, coercive, and responsibilities of the manager influences.

The results of the final part of this investigation, i.e. the investigation of the dimensionality of the differentials of the power and influence bases, show that there are three dimensions of the differentials for each set of power and influence bases. Except for the pressure differential dimension, the dimensions of the differentials for both sets of bases are not labeled the same. The pressure differential dimension of the French and Raven typology consists of legitimate and coercive differentials, and the pressure differential dimension of the nine bases consists of legitimate, coercive, and responsibilities of the manager differentials. The other differential dimensions of the French and Raven typology are the individual/personal

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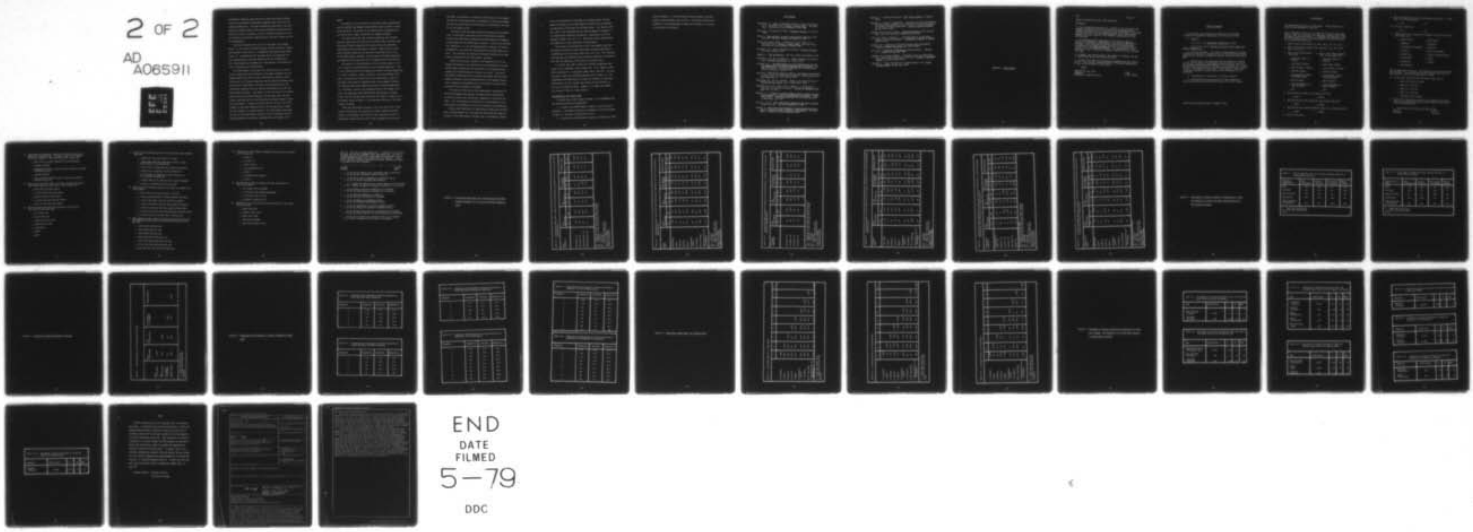

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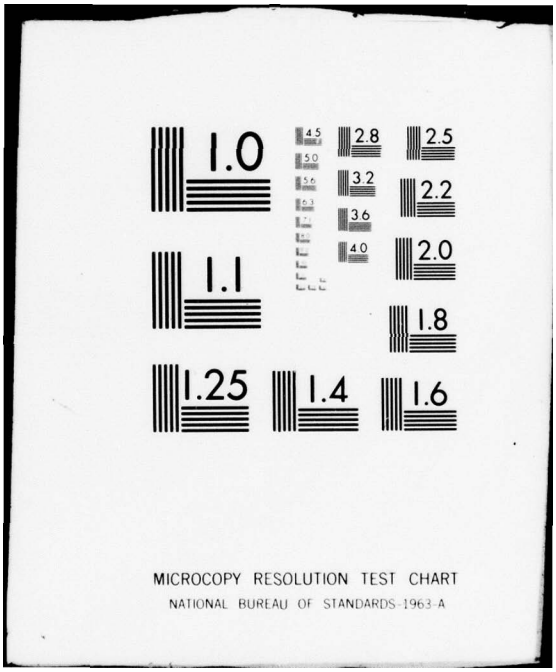
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differential dimension which consists of expert and reward differentials, and the referent differential dimension which consists of the referent differential. The other differential dimensions of the nine power and influence bases are the reward differential dimension which consists of reward, friendship, and work challenge differentials; and the individual differential dimension which consists of expert and refent differentials.

The results indicate that each set of the power and influence bases, i.e. the French and Raven typology, and the nine bases of power and influence listed earlier, is adequately described by seven dimensions, i.e. two dimensions for the power bases, two dimensions for the influence bases, and three dimensions for the differentials. This investigation was followed by an investigation of the effectiveness of the power and influence bases.

The effectiveness of the power and influence bases was investigated by determining the association of the power dimensions and the seperate power bases with the four effectiveness variables, the association of the influence dimensions and the seperate influence bases with the four effectiveness variables, and the association of the differential dimensions and the seperate differentials with the four effectiveness variables. The results in the first part of the investigation show that the power dimensions and the power bases are positively associated with all the effectiveness variables except willingness to disagree. A pattern of results similar to that of the effectiveness of the power dimensions exists for the power bases, except for two findings: (1) coercive power is not significantly associated with any of the effectiveness variables, and (2) friendship and work challenge powers are positively associated with willingness to dis-

agree.

The results in the first part of the effectiveness investigation seem to indicate that managers need different types of power in order to be effective. The results of the effectiveness investigation involving the use of power (influence) are somewhat different.

The results show that some influence dimensions and influence bases are positively associated with the effectiveness variables, and that some influence dimensions and influence bases are negatively associated with the effectiveness variables. Specifically, the personal influence dimensions are positively associated with all four of the effectiveness variables, and the pressure influence dimensions are negatively associated with work involvement and job satisfaction.

The results of the effectiveness of the influence bases are similar to those of the effectiveness of the influence dimensions. That is, the influence bases which compose the personal influence dimensions, i.e. expert, referent, reward, friendship, and work challenge influences, are positively associated with the effectiveness criteria or variables; and except for responsibilities of the manager influence, the influence bases which compose the pressure influence dimensions, i.e. legitimate, coercive, and responsibilities of the manager influences, are negatively associated with the effectiveness variables. Lastly, the one influence base which does not compose a dimension, i.e. performance rating influence, is not associated with any of the effectiveness variables.

While the effectiveness results in the first part of this investigation indicate that the possession of power increases the effectiveness of the manager, the results in the second part of this investigation indicate that the use of power, depending on the base of

the power, may decrease or increase the effectiveness of the manager. The results of the effectiveness investigation involving the manager who uses less power than he or she possesses (differential) are similar to the latter results.

The results show that some differential dimensions and differentials are positively associated with the effectiveness variables, and that some differential dimensions and differentials are negatively associated with the effectiveness variables. Three of the differential dimensions, i.e. the individual/personal, referent, and reward differentials, are positively associated with the effectiveness variables. The individual and pressure differential dimensions are negatively associated with the effectiveness variables.

Except for the expert, referent, and responsibilities of the manager differentials, the association of the differentials with the effectiveness variables and the association of the dimensions they compose with the effectiveness variables are similar. The expert and referent differentials are positively associated with the effectiveness variables; and the responsibilities of the manager diferential is negatively associated with job satisfaction, and positively associated with willingness to disagree.

The results of this part of the effectiveness investigation indicate that managers may increase or decrease their effectiveness by using less power than they possess, depending on the base of the power. This investigation was followed by an investigation of the relationship of combinations of power and influence to effectiveness.

Finally, the relationship of combinations of power and influence bases to effectiveness was investigated by determining the amount of variance in the effectiveness variables that is explained by combina-

tions of the dimensions of the power and influence bases, and the amount of variance in the effectiveness variables that is explained by combinations of the power and influence bases. The results of the first part of the investigation show that the amount of variance in the effectiveness variables explained by a combination of all the dimensions ranges from .05 to .19. These small values indicate that the dimensions are weak predictors of effectiveness.

The results of the second part of this investigation show that the amount of variance in the effectiveness variables explained by a combination of all the bases ranges from .16 to .24. This indicates that the power and influence bases are better predictors of effectiveness than the dimensions of the power and influence bases.

In closing, the study of power and influence encompasses many things, and is seemingly a never ending task. It is indeed, as Dahl (1957) described it, "a bottomless swamp" (Dahl, 1957:201). As such, the areas of power and influence addressed in this study, i.e. the independence and effectiveness of power and influence in functional organizations, are too limited, and involve too few variables to ever get us through the swamp. However, it is hoped that someday this study will help us to get around it.

Recommendations for Future Study

To further help us get around the swamp, it is recommended that the following studies be accomplished:

1. A study on the effectiveness of power in a matrix type organization. The objective would be to determine if the effectiveness of power is a function of organizational form.

2. A study on the effectiveness of power and influence on three

types of workers, i.e. officer grade military personnel, enlisted grade military personnel, and civilians. The objective would be to determine if the effectiveness of power and influence is a function of the status of the worker.

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Appendix A Questionnaire

CCQ 2 May 78

Survey on Supervisory Styles (USAF SCN 78-98)

Recipients

I. You are among 450 persons in all sections of the group that were randomly selected by an Air Force Institute of Technology (AFIT) student to participate in his research on the effectiveness of different supervisory styles. The following paragraphs discuss the attached package, your participation in the research's appreciation of your participation.

2. The attached package, developed for the research, contains a privacy act statement, a questionnaire, an an envelope addressed to AFIT/ENA. Please take the few minutes necessary to complete the questionnaire, and within one week return it, via base distribution, to AFIT in the self addressed envelope. The questionnaire is self explanatory, and to insure your anonymity, does not ask you to provide your name.

3. Secondly, your participation in this effort is voluntary, and may be accomplished during your normal duty hours.

4. Finally, the sucess of the research is dependent upon your partic-pation. Thus, the AFIT researcher extends his greatest appreciation to you for participating in this effort.

SIGNED

JOHN RITTER, Capt, USAF
Commander
Headquarters Squadron Section

1 Atch
Survey Package

PRIVACY STATEMENT

In accordance with paragraph 30, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority

(1) 5 U.S.C. 301, Departmental Regulations: and/or

(2) 10 U.S.C. 80-12, Secretary of the Air Force, Powers and Duties, Delegation by.

b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine uses. The survey data will be converted to information for use in research of management related problems. Results of the research based on the data provided, will be included in a written Master's thesis and may also be included in published articles, reports, or texts. Distribution of the results of the research, based on the survey data, whether in written form or orally presented, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects to participate in any or all of this survey.

USAF SCN 78-98 (Expiration date: September 1978)

QUESTIONNAIRE

This questionnaire consists of three parts. Please respond to all questions and statements in each part.

Part I (questions 1 thru 11). The questions in this part are demographic. Most of the questions are about you; however, some of them are about the person you work for. Throughout the remainder of this and the two other parts of this questionnaire, the person you work for is called your supervisor.

1. What is your current grade (e.g. WG-3, GS-5, E-4, O-3, etc.)? ___

2. What is the current grade of your supervisor (e.g. WG-2, GS-4, E-5, O-2, etc.)? ___

3. What is your highest education level?

___ some high school, no diploma

___ High School Diploma

___ some college, no degree

___ Bachelors Degree

___ some graduate college, no Masters Degree

___ Masters Degree

___ some postgraduate college, no degree

___ Ph.D.

4. What is the highest education level of your supervisor?

___ some high school, no diploma

___ High School Diploma

___ some college, no degree

___ Bachelors Degree

___ some graduate college, no Masters Degree

___ Masters Degree

___ some postgraduate college, no degree

___ Ph.D.

5. How long have you been in your present position?

___ years ___ months

6. How long have you been working for your present supervisor?

___ years ___ months

7. How long has your present supervisor been in his present position?

___ years ___ months

8. What is your age? ___

9. Does your supervisor write your performance evaluation, i.e. APR, OER, or civilian appraisal?

___ yes ___ no

10. Are you a supervisor?

___ yes ___ no

11. Choose one of the following work categories that best identifies your present job.

___ administration
___ budgeting
___ configuration management
___ contracts
___ engineering
___ installations
___ maintenance
___ manufacturing
___ modification
___ operations
___ personnel
___ plans and programs
___ quality assurance/control
___ safety
___ support

Part II (questions 12 thru 22). The questions in this part are about job attitudes. They are questions on your feelings about your job. Thus, there are no right or wrong answers to them.

12. On most days, how often does time seem to drag for you?

___ about half the day or more

___ about 1/3 of the day

___ about 1/4 of the day

___ about 1/8 of the day

___ time never seems to drag

13. Mark an "X" along the scale below in the location that best indicates the percentage of time you meet requests of your supervisor with maximum effort.

0% 10 20 30 40 50 60 70 80 90 100%
(None of the time) (All of the time)

14. Some people are completely involved in their job: they are absorbed in it night and day. For others, there job is simply one of many interests. How involved do feel in your job?

___ very little: my other interests are more absorbing

___ slightly involved

___ moderately involved: my job and other interests are equally absorbing to me

___ strongly involved

___ very strongly involved: my work is the most absorbing interest in my life

15. Would you say you work harder, less hard, or about the same as other people doing your type work in your organization?

___ much harder than most others

___ a little harder than most others

___ about the same as most others

___ a little less hard than most others

___ much less hard than most others

16. Which one of the following shows how much of the time you feel satisfied with your job?

___ all of the time

___ most of the time

___ a good deal of the time

___ about half the time

___ occasionally

___ seldom

___ never

17. Which on of the following best tells how you feel about changing your job?

___ I would quit this job at once if I could

___ I would take almost any other job in which I could earn as much as I am earning now

___ I would like to change both my job and my occupation

___ I would like to change my job for another one

___ I am not eager to change my job but I would do so if I could get a better job

___ I cannot think of any jobs for which I would exchange

___ I would not exchange my job for any other

18. Which one of the following shows how you think you compare with other people?

___ no one likes his job better than I like mine

___ I like my job much better than most people like theirs

___ I like my job better than most people like theirs

___ I like my job about as much as most people like theirs

___ I dislike my job more than most people dislike theirs

___ I dislike my job much more than most people dislike theirs

___ no one dislikes his job more than I dislike mine

19. Approximately how many times during the past year have you told your supervisor about some job related decision which you did not like?

___ never during the past year

___ once during the past year

___ twice during the past year

___ three times during the past year

___ about five times during the past year

___ six to ten times during the past year

___ more than ten times during the past year

20. Choose one of the following statements which best tells how well you like your job.

___ I hate it

___ I dislike it

___ I don't like it

___ I am indifferent to it

___ I like it

___ I am enthusiastic about it

___ I love it

21. How free do you feel to disagree with your supervisor on a face-to-face basis?

___ it's better not to disagree

___ I'd hesitate some before disagreeing

___ I'd hesitate only a little

___ I wouldn't hesitate at all

22. How often do you do extra work for your job which is not really required of you?

___ almost every day

___ several times a week

___ about once a week

___ once every few weeks

___ about once a month or less

Part III. This part is about supervision. It consists of nine items, and each item has two statements about your supervisor. The first statement one each item focuses on his behavior and actions, and the second statement focuses on his capabilities and potential. Using one of the seven intergers from the scale below, indicate your degree of agreement with each statement.

1.....2.....3.....4.....5.....6.....7
Strongly Disagree — Strongly Agree

a. ___ (1) He lets me know he has a legitimate right to direct me.
___ (2) He has the legitimate right to direct me.

b. ___ (1) He shares special knowledge and expertise with me.
___ (2) He has special knowledge and expertise.

c. ___ (1) I respect and admire him as a person because of what he does.
___ (2) I respect and admire him because of what he is as a person.

d. ___ (1) He applies pressure or penalizes me in some way.
___ (2) He can apply pressure or penalize me in some way.

e. ___ (1) He helps and rewards me in some way.
___ (2) He can help and reward me in some way.

f. ___ (1) He influences my performance rating.
___ (2) He can influence my performance rating.

g. ___ (1) He has established a personal friendship with me.
___ (2) He can establish a personal friendship with me.

h. ___ (1) He assigns things which are professionally challenging.
___ (2) He can assign things which are professionally challenging.

i. ___ (1) He lets me know he has responsibilities as the manager.
___ (2) He has responsibilities as the as the manager.

Appendix B Correlations Among Power and Influence Bases and Effectiveness Variables for Civilian and Military Subpopulations

Table B-I. Correlations Among Power Dimensions and Effectiveness Variables for Civilian and Military Subpopulations

Power Dimensions	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Individual (5)	-.09	.23**	.05	.34**	.11	.06	.31**	.29**
Individual (9)	-.07	.33**	.12	.42**	.20	.06	.33**	.25**
Organizational (5)	.06	.18**	.02	.17**	-.22*	.00	-.13	.11*
Organizational (9)	.12	.18**	.08	.15*	-.18	.02	-.16	.12*

(5) - Dimension of the French and Raven typology
(9) - Dimension of the nine bases of this study
Civ - Civilian
Mil - Military
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$56 \leq n(\text{civilian}) \leq 58$
$211 \leq n(\text{military}) \leq 213$

Table B-II. Correlations Among Power Bases and Effectiveness Variables for Civilian and Military Subpopulations

Power Bases	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Legitimate	-.04	.12*	.06	.18**	-.13	-.01	.05	.18**
Expert	-.17	.19**	-.06	.33**	.01	.04	.28*	.27**
Referent	.03	.26**	.12	.31**	.17	.07	.24*	.24**
Coercive	.07	.12*	-.04	.13*	-.10	.01	-.13	.05
Reward	.08	.24**	.08	.20**	-.21	.06	-.05	.14*
Performance Rating	.07	.18**	.15	.21**	-.18	-.03	-.06	.15*
Friendship	.04	.07	.05	.08	.13	.13*	.01	.17**
Work Challenge	.25*	.37**	.16	.29**	.32**	.08	.18	.03
Responsibilities of the Manager	-.15	.34**	.23*	.41**	.01	-.04	.14	.11*

Civ - Civilian
Mil - Military
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$58 \leq n(\text{civilian}) \leq 60$
$211 \leq n(\text{military}) \leq 213$

Table B-III. Correlations Among Influence Dimensions and Effectiveness Variables for Civilian and Military Subpopulations

Influence Dimensions	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Personal (5)	.15	.30**	.26*	.35**	.29*	.11	.26*	.30**
Personal (9)	.25*	-.35**	.30*	.39**	.37**	.13*	.25*	.34**
Pressure (5)	-.14	-.13*	-.17	-.17**	.05	.04	-.24*	-.05
Pressure (9)	-.01	-.06	-.08	-.12	.13	.04	-.25*	.03

(5) - Dimension of the French and Raven typology
(9) - Dimension of the nine bases of this study
Civ - Civilian
Mil - Military
* - $P \leq .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$57 \leq n(\text{civilian}) \leq 59$
$211 \leq n(\text{military}) \leq 213$

Table B-IV. Correlations Among Influence Bases and Effectiveness Variables for Civilian and Military Subpopulations

Influence Bases	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Legitimate	-.10	-.13*	-.11	-.18**	.07	.05	-.08	-.04
Expert	.07	.21**	.12	.30**	.35**	.12*	.10	.31**
Referent	.12	.31**	.22*	.33**	.18	-.02	.41**	.26**
Coercive	-.17	-.13*	-.22*	-.17**	-.11	-.01	-.35**	-.10
Reward	.18	.29**	.32**	.30**	.05	.17**	-.14	.19**
Performance Rating	.20	.09	.13	.11	.10	-.04	-.16	.09
Friendship	.04	.16*	.11	.21**	.36**	.24**	.02	.25**
Work Challenge	.39**	.42**	.25*	.41**	.36**	.07	.25*	.33**
Responsibilities of the Manager	.09	.07	.06	-.01	.22*	.07	-.12	.17**

Civ - Civilian
Mil - Military
* - $P \leq .05$ (two tailed test)
** - $P \leq .01$ (two tailed test)
$58 \leq n(\text{civilian}) \leq 60$
$211 \leq n(\text{military}) \leq 213$

Table B-V. Correlations Among Dimensions of Power and Influence Differentials, and Effectiveness Variables for Civilian and Military Subpopulations

Differential Dimensions	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Individual/Personal (5)	.20	.08	.24*	.07	.37*	.17**	-.02	.10
Referent (5)	.08	.10	.14	.07	-.03	-.07	.26*	.03
Pressure (5)	.11	-.22**	.14	-.29**	.17	.02	-.16	-.14*
Pressure (9)	.02	-.23**	-.14	.33**	.13	.04	-.23*	-.08
Individual (9)	-.04	.04	.01	.02	-.18	-.12*	.19	-.07
Reward (9)	.23*	.14*	.22*	.19**	.34**	.11	.07	.22**

Differential=Influence-Power
(5) - Dimension of the French and Raven typology
(9) - Dimension of the nine bases of this study
Civ - Civilian
Mil - Military
* - $P<.05$ (two tailed test)
** - $P<.01$ (two tailed test)
$56 \leq n(\text{civilian}) \leq 58$
$211 \leq n(\text{military}) \leq 213$

Table B-VI. Correlations Among Power and Influence Differentials and Effectiveness Variables for Civilian and Military Subpopulations

Differential Bases	Work Involvement		Job Satisfaction		Willingness to Disagree		Responsiveness	
	Civ	Mil	Civ	Mil	Civ	Mil	Civ	Mil
Legitimate	-.07	-.18**	-.13	-.25**	-.14	.04	-.10	-.14*
Expert	.20	.04	.17	-.01	.36**	.11	-.10	.07
Referent	.13	.10	.12	.05	.01	-.12*	.22*	.03
Coercive	-.20	-.21**	-.14	-.24**	-.01	.00	-.18	-.12*
Reward	.11	.12*	.23*	.17**	.14	.14*	.14	.10
Performance Rating	.19	-.04	.03	-.05	.29*	-.03	-.16	-.02
Friendship	.01	.11	.07	.17**	.22*	.16*	.01	.13*
Work Challenge	.26*	.13*	.16	.19**	.16	.00	.15	.33**
Responsibilities of the Manager	.18	-.18**	-.08	-.31**	.20	.10	-.20	.08

Differential=Influence-Power
Civ - Civilian
Mil - Military
* - $P<.05$ (two tailed test)
** - $P<.01$ (two tailed test)
$58 \leq n(\text{civilian}) \leq 60$
$211 \leq n(\text{military}) \leq 213$

Appendix C Percentage of Variance Explained by Combinations of Bases and Dimensions of French and Raven Typology Relative to Effectiveness Variables

Table C-I. R^2 for Dimensions of French and Raven Typology Relative to Effectiveness Variables

Dimension Combinations	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Power	.03**	.09**	.00	.10**
Influence	.10**	.15**	.00	.07**
Power/Influence	.10**	.15**	.00	.10**
Differential	.04**	.07**	.08**	.02*
Power/Influence/ Differential	.10**	.15**	.08**	.10**

* - P<.05 (two tailed test)
** - P<.01 (two tailed test)
n=219

Table C-II. R^2 for Bases of French and Raven Typology Relative to Effectiveness Variables

Combinations of Bases	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Power	.04**	.08**	.00	.09**
Influence	.10**	.15*	.06*	.11
Power/Influence	.10*	.15*	.08*	.12*
Differential	.04**	.09**	.07*	.02*
Power/Influence/ Differential	.10*	.15*	.07*	.12*

* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
n=219

Appendix D Correlations Among Effectiveness Variables

Table D-I. Correlation Matrix of Effectiveness Variables

	Work Involvement	Job Satisfaction	Willingness to Disagree	Responsiveness
Work Involvement	1.00**	-	-	-
Job Satisfaction	.62**	1.00**	-	-
Willingness to Disagree	.04	-.10	1.00**	-
Responsiveness	.29**	.30**	-.12*	1.00**

* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$267 \leq n \leq 271$

Appendix E Eigenvalues and Percentage of Variance Explained by Dimensions

Table E-I. Eigenvalues and Percentage of Variance Explained by French and Raven Power Dimensions

Dimension	Eigenvalue	% Variance	Cumulative %
1	2.08	41.7	41.7
2	1.18	23.6	65.3
3	.80	15.9	81.2
4	.51	10.2	91.4
5	.43	8.6	100

Table E-II. Eigenvalues and Percentage of Variance Explained by French and Raven Influence Dimensions

Dimension	Eigenvalue	% Variance	Cumulative %
1	2.23	44.7	44.7
2	1.33	26.6	71.3
3	.52	10.5	81.8
4	.50	10.0	91.8
5	.41	8.2	100

Table E-III. Eigenvalues and Percentage of Variance Explained by French and Raven Differential Dimensions

Dimension	Eigenvalue	% Variance	Cumulative %
1	1.59	31.7	31.7
2	1.14	22.7	54.4
3	1.00	20.1	74.5
4	.75	15.0	89.5
5	.52	10.5	1.00

Table E-IV. Eigenvalues and Percentage of Variance Explained by Dimensions of Nine Power Bases

Dimension	Eigenvalue	% Variance	Cumulative %
1	3.18	35.4	35.4
2	1.30	14.4	49.8
3	.94	10.4	60.3
4	.83	9.2	69.5
5	.75	8.4	77.9
6	.61	6.8	84.7
7	.54	6.0	90.7
8	.44	4.9	95.6
9	.40	4.4	100

Table E-V. Eigenvalues and Percentage of Variance Explained by Dimensions of Nine Influence Bases

Dimension	Eigenvalue	% Variance	Cumulative %
1	3.34	37.1	37.1
2	1.94	21.6	58.7
3	.84	9.3	68.0
4	.59	6.6	74.6
5	.55	6.1	80.7
6	.51	5.7	86.4
7	.43	4.8	91.2
8	.42	4.7	95.9
9	.37	4.1	100

Table E-VI. Eigenvalues and Percentage of Variance Explained by Dimensions of Differentials of Nine Bases

Dimension	Eigenvalue	% Variance	Cumulative %
1	2.11	23.4	23.4
2	1.81	20.1	43.5
3	1.10	12.2	55.7
4	.90	10.0	65.8
5	.79	8.7	74.5
6	.71	7.9	82.4
7	.60	6.6	89.0
8	.53	5.9	94.9
9	.46	5.1	100

Appendix F Correlations Among Power and Influence Bases

Table F-I. Correlation Matrix of Power Bases

	1	2	3	4	5	6	7	8	9
1 Legitimate	1.00**	-	-	-	-	-	-	-	-
2 Expert	.28**	1.00**	-	-	-	-	-	-	-
3 Referent	.33**	.58**	1.00**	-	-	-	-	-	-
4 Coercive	.43**	.06	.12*	1.00**	-	-	-	-	-
5 Reward	.24**	.19**	.18**	.28**	1.00**	-	-	-	-
6 Performance Rating	.34**	.23**	.18**	.26**	.50**	1.00**	-	-	-
7 Friendship	.26**	.21**	.30**	.22**	.35**	.33**	1.00**	-	-
8 Work Challenge	.20**	.32**	.23**	.16**	.22**	.27**	.27**	1.00**	-
9 Responsibilities of the Manager	.30**	.35**	.32**	.11	.23**	.28**	.18**	.35**	1.00**

* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$273 \leq n \leq 274$

Table F-II. Correlation Matrix of Influence Bases

	1	2	3	4	5	6	7	8	9
1 Legitimate	1.00**	-	-	-	-	-	-	-	-
2 Expert	-.00	1.00**	-	-	-	-	-	-	-
3 Referent	-.10	.57**	1.00**	-	-	-	-	-	-
4 Coercive	.47**	-.16**	-.28**	1.00**	-	-	-	-	-
5 Reward	-.07	.48**	.52**	-.22**	1.00**	-	-	-	-
6 Performance Rating	.23**	.21**	.21**	.14*	.26**	1.00**	-	-	-
7 Friendship	.00	.53**	.51**	-.22**	.49**	.24**	1.00**	-	-
8 Work Challenge	.05	.58**	.54**	-.14*	.46**	.26**	.48**	1.00**	-
9 Responsibilities of the Manager	.49**	.25**	.14*	.22**	.10	.21**	.16*	.27**	1.00**

* - P<.05 (two tailed test)
** - P<.01 (two tailed test)
n=274

Table F-III. Correlation Matrix of Differentials

	1	2	3	4	5	6	7	8	9
1 Legitimate	1.00**	-	-	-	-	-	-	-	-
2 Expert	.05	1.00**	-	-	-	-	-	-	-
3 Referent	-.05	-.12	1.00**	-	-	-	-	-	-
4 Coercive	.47**	-.04	-.05	1.00**	-	-	-	-	-
5 Reward	-.18**	.14*	.10	-.16**	1.00**	-	-	-	-
6 Performance Rating	.12*	.11	-.02	.13*	.22**	1.00**	-	-	-
7 Friendship	-.07	.19**	.02	-.10	.42**	.11	1.00**	-	-
8 Work Challenge	-.02	.26**	-.04	-.16**	.33**	.10	.35**	1.00**	-
9 Responsibilities of the Manager	.47**	.03	-.03	.30**	-.11	.15*	-.01	.03	1.00**

* - $P < .05$ (two tailed test)
** - $P < .01$ (two tailed test)
$273 \leq n \leq 274$

Appendix G Percentage of Variance Explained by Combinations of Power and Influence, and Dimensions of the Nine Bases Relative to Effectiveness Variables

Table G-I. Percentage of Variance Explained by Power and Influence Bases Relative to Work Involvement

Base	Significance	B	R^2	ΔR^2
Work Challenge Influence	< .0001	.73	.18	.18
Legitimate Influence	.007	-.29	.21	.03

Table G-II. Percentage of Variance Explained by Power and Influence Bases Relative to Job Satisfaction

Base	Significance	B	R^2	ΔR^2
Responsibilities of the Manager Power	< .0001	1.04	.17	.17
Work Challenge Influence	.001	.57	.21	.04
Legitimate Influence	.003	-.44	.24	.03

Table G-III. Percentage of Variance Explained by Power and Influence Bases Relative to Willingness to Disagree

Base	Significance	B	R^2	ΔR^2
Friendship Influence	< .0001	.37	.07	.07
Referent Influence	.006	-.40	.10	.03
Reward Differential	.020	.24	.12	.02
Expert Differential	.038	.24	.14	.02
Work Challenge Power	.037	.23	.16	.02

Table G-IV. Percentage of Variance Explained by Power and Influence Bases Relative to Responsiveness

Base	Significance	B	R^2	ΔR^2
Work Challenge Differential	< .0001	2.40	.09	.09
Expert Power	< .0001	2.78	.15	.06
Coercive Influence	.042	-1.23	.17	.02

Table G-V. Percentage of Variance Explained by Dimensions Relative to Work Involvement

Dimension	Significance	B	R^2	ΔR^2
Personal Influence	<.0001	1.08	.10	.10

Table G-VI. Percentage of Variance Explained by Dimensions Relative to Job Satisfaction

Dimension	Significance	B	R^2	ΔR^2
Individual Influence	<.0001	1.53	.14	.14
Pressure Influence	<.0001	-1.09	.19	.06

Table G-VII. Percentage of Variance Explained by Dimensions Relative to Willingness to Disagree

Dimension	Significance	B	R^2	ΔR^2
Individual Differential	.009	.43	.03	.03
Reward Differential	.021	-.37	.05	.02

Table G-VIII. Percentage of Variance Explained by Dimensions Relative to Responsiveness

Dimension	Significance	B	R^2	ΔR^2
Personal Influence	<.0001	5.83	.10	.10

Vita

Alfred H. Whitley was born on 16 October 1951 in Plainfield, New Jersey. He graduated form Plainfield High School in 1969, and attended Newark College of Engineering (New Jersey Institute of Technology) from which he received a Bachelor of Science Degree in Electrical Engineering in May 1973. Upon graduation, he received a commission in the USAF through the ROTC program, and reported to Keesler AFB, Mississippi, where he attended the communications electronics technical training school. In January 1974, he successfully completed the technical training courses, and was assigned to the Tactical Communications Area Headquarters at Langley AFB, Virginia, as a Systems Engineering Officer. He held this position until entering the AFIT School of Engineering, WPAFB, Ohio, in June 1977.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER GSM/SM/78S-27	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE INDEPENDENCE AND EFFECTIVENESS OF POWER AND INFLUENCE IN A FUNCTIONAL ORGANIZATION ENVIRONMENT		5. TYPE OF REPORT & PERIOD COVERED MS Thesis 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Alfred H. Whitley Capt USAF		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Air Force Institute of Technology (AFIT-EN) Wright-Patterson AFB, OH 45433		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Air Force Institute of Technology (AFIT-EN) Wright-Patterson AFB, OH 45433		12. REPORT DATE September 1978 13. NUMBER OF PAGES 126
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

OCT 10 1978

Approved for public release; IAW AFR 190-17

JOSEPH P. HIPPS, Major, USAF
Director of Information

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Power and Influence
Independence of Power and Influence
Effectiveness of Power and Influence
Independence and Effectiveness of Power and Influence

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This study investigates the independence and effectiveness of power and influence in functional organizations. More specifically, first, it investigates the independence of different power bases, the independence of different influence bases, and the independence of the differentials of dif-
power and influence bases. Second, it investigates the effectiveness of different power bases and the dimensions of the power bases, the effectiveness of different influence bases and the dimensions of the influence bases, and the effectiveness of the differentials of different power and influence bases and

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the dimensions of the differentials.

To do this, a questionnaire was provided to the personnel in a functional organization on Wright-Patterson AFB, OH, and an analysis of the questionnaire data was performed. The questionnaire responses define four effectiveness variables, i.e. work involvement, job satisfaction, willingness to disagree, and responsiveness; and nine power bases and nine influence bases for their supervisors. The bases of the power and influence are the same, and are listed as legitimate, expert, referent, coercive, reward, performance rating, friendship, work challenge, and responsibilities of the manager bases.

The investigation of the independence of the power and influence bases shows that the power and influence bases are adequately described by seven dimensions. These consists of two dimensions for the power bases, two dimensions for the influence bases, and three dimensions for the differentials.

The investigation of the effectiveness of the power and influence bases shows that the power bases and the dimensions of the power bases are positively associated with effectiveness. It shows that some of the influence bases and the dimensions of the influence bases are positively associated with effectiveness, and that some of the influence bases and the dimensions of the influence bases are negatively associated with effectiveness. Finally, it shows that the effectiveness of the differentials is similar to the effectiveness of the influence bases. That is, it shows that some of the differentials and the dimensions of the differentials are positively associated with effectiveness, and that some of the differentials and the dimensions of the differentials are negatively associated with effectiveness.