1977

Power Base Effectiveness Perceptions: an Empirical Study.

Arthur Daniel Sharplin
Louisiana State University and Agricultural & Mechanical College

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A Dissertation

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in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Management

by

Arthur Daniel Sharplin
B.B.A., Memphis State University, 1970
M.B.A., Louisiana State University, 1973
December, 1977
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ABSTRACT

Power defined as "the ability to influence" is receiving increasing attention from management scholars. There is still little research, however, on power in business organizations. This study is concerned with power relationships at the lowest and most populous organizational level in ordinary business organizations.

The organizations studied are two industrial concerns, an administrative and clerical group in a major chain store, and a general contracting and steel fabricating firm. The primary purpose of the study is to obtain an indication of the relative effectiveness of various forms of influence in producing subordinate compliance with supervisor preferences. The forms of influence are distinguished in terms of the five power bases developed by French and Raven in 1959. These power bases are as follows: reward power, coercive power, legitimate power, referent power, and expert power.

By means of a self-administered questionnaire subordinates were asked to provide certain personal and situational information and to rank statements designed to correlate with the French and Raven power bases. Ranking was in terms of the subordinate-perceived effectiveness of each of the bases of supervisor power.

Data from 171 respondents resulted in the following statistically significant rank order of perceived effectiveness: expert power, legitimate power, referent power, reward power, coercive power.
This result was tested for generality and was found to be fairly consistent across various demographic compositions and regardless of the identity of the firm involved. This result is consonant with those of several other studies reported herein.

There were two secondary conclusions. First, supervisors in the population from which the sample was taken appeared to place most emphasis on expert power and least emphasis on coercive power in influencing their subordinates. Second, of twenty-five possible relationships between personal variables and the perceived effectiveness of individual power bases, only three turned out to be significant.
CHAPTER I

INTRODUCTION

The term "power" evokes negative thoughts in the minds of many. To desire power is to be "power mad" or "power hungry," Machiavellian or autocratic. To hold power is to risk corruption.

Interest in the concept of power as a critical element in management has been increasing in recent years, though. Undoubtedly, this trend has been enhanced by definitions of power which do not emphasize the negative connotations. In recent literature, power is generally defined as, "the ability to influence." In a managerial context, this means the ability of one person (e.g., the manager) or social unit (e.g., Department A) to influence another (e.g., a worker or Department B). Thus defined, power is value free and subject to open and even favorable discussion.

David McClelland, well-known for his work on the achievement motive, said "Since managers are primarily concerned with influencing

others, it seems obvious that they should be characterized by a high need for power . . . ."\(^2\) In a similar vein, Clayton Reeser, writing in a recent management text, stated, "The will for power—a potent drive in many people—is essential for those who aspire to success as managers."\(^3\)

Furthermore, two recent presidents of the American Academy of Management, Lyman W. Porter and Herbert G. Hicks, called for increased study of power in their presidential addresses to the Academy. Dr. Hicks, President of the Academy during 1976, devoted more than half of his speech to power.\(^4\)

Several prominent writers have noted the failure of management scholars to consider power in organizations and have encouraged correcting this deficiency. For example, Robert Tannenbaum, in identifying "meta-issues" for organizational behavior teachers, suggested power and said, "I (like many others) did not give sufficient attention in the early years to power and its use."\(^5\) Moreover, when their 1958 paper "How to Choose a Leadership Pattern" was declared an "HBR Classic," Tannenbaum and Schmidt rewrote the paper substituting


\(^4\)Conversation with Herbert G. Hicks, Louisiana State University Baton Rouge, Louisiana, September 18, 1975.

"Manager power and influence" versus "Nonmanager power and influence" for "Boss-centered leadership" versus "Subordinate-centered leadership" on their "Continuum of Leadership Behavior." In the organization development field, Warren Bennis, noting the inadequacy of the truth-love duality used in most organization development efforts, suggested adding a power-conflict dimension.

Partly in response to this increasing concern, power is attaining some prominence as a research topic. This dissertation reviews thirteen studies relating to the effectiveness of various forms of power (See Table 1 for a summary of these studies).

There does appear to be a paucity of research on power, however, in business organizations. Eight of the thirteen studies discussed herein were conducted in educational institutions and two others were concerned with governmental groups. Only three took their samples from business. None of the studies located looked at power relationships between ordinary rank and file employees and their supervisors.

This study is unique in that it studies power relationships at the lowest, and most populous, organizational level in ordinary business organizations.

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Purpose of this Study

The primary purpose of this study is to determine the relative effectiveness of various bases of supervisory power in producing worker compliance with supervisor preferences. Three secondary purposes are (1) to determine the extent to which supervisors are perceived as emphasizing the power bases deemed to be most effective by their subordinates, (2) to determine the relationship between subordinate-perceived supervisor power level and the degree of emphasis supervisors are perceived as placing upon the coercive and legitimate bases of power\(^8\) and (3) to determine if certain situational and personal variables are systematically related to subordinate perceptions of power base effectiveness. The Typology of power bases developed by French and Raven in 1959\(^9\) is used as a conceptual framework for the analysis.

French and Raven identified five types of power in terms of its bases in the perceptions of power subjects:

- **Reward power** is power based upon perceptions by the person subject to power that the power-holder can punish him; i.e., that he can administer positive valences or remove or decrease negative valences for him.

---

\(^8\)Coercive power, as defined by French and Raven, is based upon the ability of a supervisor to mediate punishments and legitimate power is based upon the supervisor's legitimate right to direct others.

Coercive power is power resulting from perceptions by the person subject to power that the power-holder can punish him; i.e., that he can administer negative valences or remove or decrease positive valences.

Legitimate power is power based upon some internalized norm or value held by the person subject to power which signifies that the power-holder has a right to influence him.

Referent power is based upon the power-subject's attraction to or feeling of oneness and identification with the power-holder or upon a desire for such a feeling.

Expert power is power resulting from the subject's perception that the power-holder has some special knowledge or expertness.10

Hypotheses

The research is developed in terms of four hypotheses:

H₁: The French and Raven power bases can be ranked in terms of subordinate perceptions of their effectiveness in producing subordinate compliance with supervisor preferences.

H₂: Supervisors are perceived by their subordinates as placing most emphasis on those power bases which are perceived by subordinates as being most effective in producing subordinate compliance with supervisor preferences.

H₃: Subordinate-perceived supervisor power level varies inversely with the degree of emphasis supervisors are perceived as placing on legitimate and coercive power.

10Ibid., p. 156.
H₄: Certain situational and personal variables such as the identity of the organization under study, the age, background, and educational level of the respondent, and the duration and intensity of the supervisory relationship are systematically related to the subordinate-perceived rank order of effectiveness of supervisor power bases.

Scope

The central focus of the study is the relative effectiveness of the French and Raven power bases in the influencing of rank and file employees by their supervisors.

Power is dealt with as a management concept, specifically defined as "the ability to influence." Its bases are identified in the perceptions of subordinates. The emphasis is not upon power as any kind of personal attribute. Physical force is excluded because it is not a usual means of influencing employees to do work.

Data were obtained from 171 workers in four firms. The data are of four types:

1. Personal information such as age, education, and tenure.
2. Rank orderings of the French and Raven power bases in terms of their effectiveness in giving the respective supervisors control over the subjects' behavior.
3. Rank orderings of the French and Raven power bases in terms of the degree of emphasis the respective supervisors place on them.
4. Subordinate perceptions of the power levels of supervisors.

The data were analyzed in view of the four hypotheses of this study to determine (1) What, if any, rank order of perceived effectiveness can be assigned to the French and Raven power bases. (2) What, if any, rank order of perceived emphasis by supervisors can be assigned to the power bases and how this order compares to the rank order of perceived effectiveness. (3) Whether subordinate-perceived power levels of supervisors vary inversely with their perceived degrees of emphasis on legitimate and coercive power. And, (4) whether the rank order of perceived effectiveness of the power bases vary systematically with the type of firm and certain other variables such as age, educational level, and tenure or if this rank order is reasonably consistent.

Limitations

As noted above, this study attempts to assess the effectiveness of various bases of supervisor power. Like most social research, it relies on a research instrument which asks individuals what their perceptions are regarding the topic under study. The answers obtained can differ from those desired for two reasons: (1) some workers may not express their true perceptions; (2) some workers may not know the real reasons for their behavior.

While an effort has been made to obtain subjects from diverse organizations, the generality of results may be somewhat limited.
Power perceptions may have a strong cultural dependency. Therefore, persons outside the Central South might have different responses than those of this study.

A third limitation has to do with the behavior model being used. The five power bases identified by French and Raven are neither all-inclusive nor totally distinct from one another. French and Raven acknowledge that there are probably other, less important power bases.\(^1\) It appears, too, that certain of the five bases may at times be confounded with others, at least insofar as questionnaire results are concerned. For example, if a worker feels that his supervisor has a legitimate right to reward or punish him, it may be difficult for the worker to discern whether his compliance is due to legitimate power or reward and coercive power. A pre-test of the research instrument mitigates this limitation somewhat.

**Significance of the Problem**

The function of management consists largely of influencing persons to do things. Power has been defined as the ability to influence. Thus, it follows that power residing in the manager is a prerequisite to the managing of any human organization.

If the manager must hold power to manage, it is useful for him to have some idea as to which bases of power are most effective. This question is still unsettled and has been central to the opposing

\(^{11}\)French and Raven, p. 155.
concepts of management which have held sway from time to time. Machiavelli's *The Prince*\(^\text{12}\) (1513) touted the importance of coercive power and that book's impact is still felt today. Later, the "economic man" of classical economics was thought to respond principally to reward power, specifically money.\(^\text{13}\) The "social man" of the 1930's and later supposedly responded to friendly treatment and a liking for his boss.\(^\text{14}\) Thus, one who accepts this view would expect referent power to be most effective. Max Weber's writings, which attained prominence in the 1950's, identified legitimate power as most effective. Weber said, "As a rule, both rulers and ruled uphold the internalized power structure as 'legitimate' by right, and usually the shattering of this belief in legitimacy has far-reaching ramifications."\(^\text{15}\)

Douglas McGregor's "Theory X" manager exercised coercive and legitimate power. His "Theory Y" manager found referent, reward, and expert power more effective.\(^\text{16}\)


\(^{14}\)Ibid., p. 329.


Each of these theories, from Machiavellianism to modern behaviorism, implies a differing rank order of effectiveness for the bases of power. Modern contingency theorists suggest that this lack of consistency over time and among varying organizations may be partially explained by situational factors.\textsuperscript{17}

The manager cannot wait to manage, however, until all of the situational factors are identified and their impact assessed. He must decide which bases of power to stress in directing his subordinates. Will the promise of a reward work better? Or is it more effective to rely on threats? Should the manager be "one of the gang," or is it better to emphasize his separateness and his legitimate authority? These are not questions for which final answers can be obtained. But empirical work on the bases of power in various types of organizations offers the best hope for finding tentative and approximate answers—the kind to which the professional manager is accustomed.

\textbf{Organization of the Study}

Chapter I has been devoted to introductory material. The purpose of the study has been stated, the empirical hypotheses have been listed, and important definitions set forth. A section on

\textsuperscript{17}For one of many recent discussions of contingency management, see Don Hellriegel and John W. Slocum, Jr., Management: A Contingency Approach (Reading, Massachusetts: Addison-Wesley Publishing Company 1974).
scope, another on limitations, and a final section emphasizing the significance of this study have also been included in Chapter I.

Chapter II first reviews the background and conceptual literature. Then thirteen dissertations and five empirical studies from the periodical literature are discussed.

Chapter III establishes the conceptual framework for this study. This includes a discussion of power in its relationship to the management process, a clarification of the concept of amount of power, and a careful exposition of the French and Raven model, the primary conceptual basis for this study.

Chapter IV describes the research methodology which was followed. Chapter V reports the findings and conclusions of the study and makes suggestions for additional research.

The Bibliography is annotated for the convenience of interested scholars.
CHAPTER II

REVIEW OF RELATED LITERATURE

There is a wealth of background and conceptual literature related to power, but a relative dearth of empirical studies. The first section of this chapter will discuss the conceptual literature and the second will examine the empirical studies.

Background and Conceptual Literature

Power has been the subject of much commentary over the years. Certainly the questions of who should control whom, how, and to what ends have always been important. The ancient writer of Genesis records that man was given "dominion over the fishes of the sea, and the fowl of the air, and over the cattle, and over all the earth."¹ In Exodus, Moses describes Pharaoh's plan to secure coercive power over the children of Israel.² The Pharaoh Amenemhet (of the Twelfth Dynasty) gave this advice to his son,

Hearken to that which I say to thee, that thou mayest be king of the earth, that thou mayest be ruler of the lands . . . . Harden thyself against all subordinates. The

¹Genesis, 1:26.
²Exodus, 1:8-12.
people give heed to him who terrorizes them . . . . Fill not thy heart with a brother, know not a firend, nor make for thyself intimates.³

More recently (1513), Machiavelli gave similar advice to those who aspire to be or to remain "princes."⁴ Still later, Thomas Hobbes argued for a strong central government to exercise power over the populace.⁵

Other names often associated with power are de Jouvenal, Lasswell, and Kaplan, Adolf Berle, and Bertrand Russell. Most of these writers were concerned with power in the political sphere.

Though couched in terms of "authority" rather than of power, Max Weber's work of the 1920's and before gave the concept of "legitimate power" its present clarity. He saw legitimate power as springing from three sources: Charisma, tradition, and legality.⁶

In 1938, Chester I. Barnard asserted that sources of authority reside in the perceptions of subordinates.⁷ This has come to be

⁴Machiavelli, The Prince.
⁶See, for example, Weber, Essays in Sociology, pp. 4-14.
⁷Chester I. Barnard, The Functions of the Executive (Cambridge: Harvard University Press, 1938). It should be noted that Barnard's "authority" is very similar to the modern concept of "power."
known as Barnard's "Acceptance Theory of Authority." While modern expectancy theories of management are more descriptive than prescriptive, it is clear that they accept Barnard's premise that organizational control of human behavior must rely upon the perceptions of those who are controlled.8

The next year, Goldhamer and Shils expanded upon Weber's concept of authority. They defined and used the term power and wrote of three typologies: (1) With regard to the manner of exercise, they said power may be force, domination, or manipulation. (2) With regard to its reliance on accepted rules, they classified power as legitimate or coercive. (3) Finally, with regard to its impact, power was seen as instrumental or noninstrumental in obtaining individual goals.9

Only since 1950 has the concept of power received any concentrated attention from social scientists. Though hobbled by such negative generalizations as "power tends to corrupt, and absolute power corrupts absolutely"10 and the pervasive approbation David


McClelland discusses in "The Two Faces of Power" and John Gardner addresses in The Anti-Leadership Vaccine, power has recently attained some status as a socio-political concept and, to a lesser extent, as a management concept.

The trend toward scholarly consideration of power started in 1950 with Lasswell and Kaplan's abstract and formal treatment in Power and Society and Robert Bierstedt's classic paper, "An Analysis of Social Power." Among other contributions, Lasswell and Kaplan developed the concepts of "domain," "weight," and "scope" of power. Bierstedt helped to clarify the meaning of power and developed a typology of power sources or bases.

In 1956, John R. P. French, Jr., wrote "A Formal Theory of Social Power" which was followed a year later by Robert Dahl's

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15 The Bierstedt typology--numbers of people, social organization, and resources--found Ibid., p. 737, never attained prominence.

similar attempt at formalizing the concept of power. French used a special case of the theory of directed lines, digraph analysis, to portray intragroup attraction and to derive certain postulates concerning opinion modification. This work apparently had little impact but it presaged the classic effort by French and Raven in 1959 (to be discussed later). Dahl presented his popular definition of power, writing, "A has power over B to the extent that he can get B to do something that B would not otherwise do." He also stressed that power inheres to a relationship, not to a person, and he suggested that resource control forms the basis of all power.

As already suggested, the paper which has contributed more than any other to making the concept of power operational as a sociological and management concept was written by John R. P. French, Jr. and Bertram Raven in 1959. French and Raven saw power as potential influence and sought to understand its foundations within the life-space of the person subject to power. The five bases of power

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18 Ibid., pp. 203-4.
19 Ibid.
20 French and Raven, "The Bases of Social Power."
21 Ibid., p. 152.
22 Ibid., p. 150.
which French and Raven determined to be "especially common and impor-
tant" are the following (0 refers to the power-holder and P to the
person subject to power):

(1) reward power, based on P's perception that 0 has the
ability to mediate rewards for him; (2) coercive power,
based on P's perception that 0 has the ability to mediate
punishments for him; (3) legitimate power, based on the
perception by P that 0 has a legitimate right to prescribe
behavior for him; (4) referent power, based on P's identi-
fication with 0; (5) expert power, based on the perception
that 0 has some special knowledge or expertness.23

As noted earlier, this typology forms the conceptual basis for the
present study.

In 1962, Richard M. Emerson, alleging that, "Our integrated
knowledge of power does not significantly surpass the conceptions left
by Max Weber,"24 attempted to resolve some of the ambiguities regard-
ing power concepts.25 His primary contribution to the conceptual
scheme of the present research was development of the notion of
dependency as the basis of power: "In short, power resides implicitly
in the other's dependency."26 Writing of two actors, A and B, Emerson
expressed the power-dependence relation with equations (Pab is read,

23 Ibid., p. 155-6.

24 Richard M. Emerson, "Power-Dependence Relations," American

25 Ibid., pp. 31-41.

26 Ibid., p. 32.
"the power of actor A over actor B," and Dba is read, "the dependence of actor B upon actor A."): 27

\[
P_{ab} = D_{ba} \\
P_{ba} = D_{ab}
\]

Emerson noted the French and Raven taxonomy and suggested that his more generalized treatment was inclusive of the bases of power listed by them. 28 Although the dependency relation may be used as a point of departure and is thus valuable to the present effort, Emerson assumed a degree of rationality which will not be assumed in this paper. This research will recognize that man is not always a rational, self-serving being responding only when his interests are served by that response, but that he sometimes does things for irrational or even selfless reasons. Contrary to Emerson's opinion, while reward and coercive power are usually based upon a dependence relation, legitimate, expert, and perhaps referent power may or may not be. This is more a difference in perspective than a basic disagreement with Emerson, however. A good case can be made for the position that all human behavior is self-serving at some level of abstraction. 29

27 Ibid., p. 33.
28 Ibid., footnote 9.
In a 1963 paper, Peter Bachrach and Morton S. Baratz, of Bryn Mawr College, took a novel approach to the concept of power. They distinguished power from force, influence, and authority and even stated that, "While authority is closely related to power, it is not a form thereof; it is, in fact, antithetical to it." The distinctions appear weak, as does the analytical framework developed. In fact, Bachrach and Baratz say, "We concede that our framework is less workable than that of Lasswell and Kaplan, Dahl, and others of that school."32

The important contribution of Bachrach and Baratz to the present study is in revealing the impact of power on the area they call "non-decision-making." Moved from the sociological context to a managerial context, this is the use of power to prevent explicit management decisions from having to be made. A "mobilization of bias" is maintained in every organization to decrease the number of decisions which have to be made and to avoid certain uncomfortable decisions. The perceived "stature" of a leader, which may be conceptualized as a part of legitimate power or referent power, is a part of this


31 Ibid., p. 638.

32 Ibid., p. 641.

33 Ibid., p. 641-2.
"mobilization of bias." For example, a leader who is "one of the gang" would often and easily be approached by subordinates requesting time off, raises, or other considerations; whereas, an aloof leader would have few decisions to make on such matters. The ability to maintain this "mobilization of bias"—through perceptions of expertness, coercion, legitimacy, and referentness—may be an important basis of manager power.

In their 1966 book The Social Psychology of Organizations, Katz and Kahn discuss the role of authority based upon Weberian legitimacy in directing organizational behavior. They state but reject the hypothesis that "the hierarchical system is at its best in terms of survival and efficiency . . . . When individual tasks are minimal in creative requirements, so that compliance with legitimate authority is enough, and identification with organizational goals is not required . . . ." They find that compliance with legitimate authority is not enough. They identify a more important basis of organizational success, the ability of a leader to obtain better performance than that required by legitimate authority. They conceptualize this ability as an "influential increment" based upon referent and expert power. In their words, "... we consider the essence of organizational leadership to be the influential increment over and above mechanical compliance with the routine directives of the

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Katz and Kahn define leadership as "any act of influence on a matter of organizational relevance." If Katz and Kahn are right, referent and expert power are more important than legitimacy, rewards, and coercion in leader performance.

Katz and Kahn's book provides two other ideas important to the present research. First, they observe that legitimate, reward, and coercive power can be assigned by the organization, while referent and expert power cannot. Second, they discuss the substitutability of certain power bases for others. For example, a leader may choose to influence behavior through referentness instead of through rewards. If the organization and the individual manager can choose to some extent the bases of power which will be given prominence, then any research which addresses the efficacy of the different power bases should be useful indeed. On the other hand, this choice activity, whether intentional or not, may result in differing emphasis upon each base of power among organizations and thereby limit the generality of research conclusions. Reward power, for example, may appear to be most effective in a given organization not because rewards are inherently better than other means of influence, but because rewards receive the greatest emphasis in that organization.

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36 Ibid., p. 304.
37 Ibid., p. 334.
38 Ibid., pp. 302-3.
Amitai Etzioni's *The Active Society*, which treated power extensively, appeared in 1968. Of particular importance to the present study is Etzioni's theory of "compliance structures." He posits three bases of power—control of "utilitarian" assets such as economic possessions; control of "coercive" assets such as weapons and police manpower; and manipulation of symbols such as appeals to values or sentiments, called "normative power"—and three respective modes of response—middle to low alienation, high alienation, and commitment. Each type of power is only considered "congruent" with its respective mode of response and only congruent compliance structures are thought to be stable. Etzioni cites extensive theoretical and empirical support for his thesis. The implications for the present study are that normative power (based upon French and Raven legitimacy and expertness) is likely to produce commitment; utilitarian power (based primarily on rewards) is likely to cause middle to low alienation; and coercive power or force is likely to result in high alienation. Alienation is certainly a force opposing the exercise of power and power bases which produce alienation must both overcome this resistance and produce benefits adequate to justify the accompanying dissatisfaction.

Relevant Empirical Studies

Related Studies From the Periodical Literature

A review of the periodical literature reveals five recent studies which address the relative importance of various bases of influence or power.

Hunt and Nevin used the French and Raven typology but grouped the reward, expert, legitimate, and referent power bases into the class called "non-coercive sources." The experimental sample was taken from a franchisor-franchisee distribution channel. Multiple regression analysis of questionnaire responses revealed that coercive sources of power accounted for 34.4 percent of the variation in franchisee-perceived franchisor power. When non-coercive sources were included, the percent of variability explained increased only to 42 percent. Hunt and Nevin concluded that franchisors primarily employ coercive sources of power in controlling franchisees.40

Like Hunt and Nevin, Ivancevich used the French and Raven framework in his study and modified it somewhat. Following Katz and Kahn,41 Ivancevich combined referent and expert power into a variable


called "incremental influence." Statistical results were obtained for referent and expert power separately, however, and summed to determine incremental influence. A total of 228 insurance agents in 34 agencies completed questionnaires. They were asked to rate the agency managers' power from each source on a 1.0 (lowest) to 5.0 (highest) scale. Results ranked the power bases in order of importance as follows: legitimate (average rating on 1.0 to 5.0 scale, 3.72), expert (3.38), referent (2.98), reward (2.91), coercive (2.17). This result is quite different from that of Hunt and Nevin, who found coercive power to have more impact than all the others combined. Perhaps the answer to this seeming paradox is to be found in Schlenker and Tedeschi's comment:

It must be concluded that the possession of unilateral coercive power reduces the susceptibility of the wielder to the influence of the personal characteristics, moral appeals or the personal relationship of the target and that to have coercive power is tantamount to using it. Henry Adams [writing in The Education of Henry Adams (New York: Modern Library, 1931), p. 108] was not far wrong when he asserted that a friend in power is a friend lost.

Perhaps the franchisors Hunt and Nevin surveyed have coercive power and Ivancevich's agency managers do not. Certainly different work

\begin{itemize}
\end{itemize}
environments offer differing degrees of manager access to the various bases of power.

Salancik and Pfeffer studied the bases of power used by departments of a major university. No power base typology was used. Power was shown to arise from bringing in or providing scarce resources. Explained variation was from 57 to 90 percent depending on the measure of power used. The measures of power used were subjective estimates of subunit power by department heads and membership on important university committees. Coercive sources (threatening to take away resources) were not considered. The conceptual problems encountered by Salancik and Pfeffer indicate that the question of subunit power should be considered apart from that of interpersonal power, the subject of this study. Hickson, et al., and Hinings, et al., have also arrived at this conclusion and have done extensive work in the area of subunit power.

Schlenker and Tedeschi looked at the tendency of power wielders to use coercive or reward power under varying conditions of interpersonal attraction for the person subject to the power. A Prisoner's

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Dilemma Game format was used to test the power behavior of sixty male undergraduates. Each subject exercised coercive and reward power over a bogus person who he thought was in another cell. Attitude similarity (a surrogate for interpersonal attractiveness) was established by allowing the subject to see an attitude survey allegedly completed by the bogus person, but actually prepared with knowledge of the subject's own responses to a similar survey. The researchers wanted to determine the relationship between interpersonal attractiveness of the person subject to power and the frequency with which the power holder would exercise reward or coercive power. While Schlenker and Tedeschi did not make this observation, a strong relationship would have tended to discredit the French and Raven model as a research typology. Interpersonal attractiveness, as operationalized by Schlenker and Tedeschi, is very similar to French and Raven's referent power base. If the frequency of exercise of reward and coercive power were strongly dependent upon the amount of referent power existing, this would introduce covariance among what are, ideally at least, independent variables. As it turned out, Schlenker and Tedeschi found a very weak relationship.47

Another Schlenker and Tedeschi finding is more important to this study. They found that, with regard to the relative efficacy of

reward and coercive power, subjects tended to think coercive power was more useful in controlling behavior.\textsuperscript{48}

Thamhain and Gemmill report analysis of a survey of 22 project managers and 66 project personnel in a large electronics firm. Questionnaires and interviews were used to collect information on the types of influence attempted by project managers and the impact upon project performance, reported compliance, and several other variables. The average ranking by project personnel of eight influence methods (where 1 indicated the most important reason for compliance and 8 the least important) were as follows:

1. Project manager's formal authority \hspace{1cm} 3.0
2. Challenging nature of work assigned by project manager \hspace{1cm} 3.2
3. Project manager's expertness \hspace{1cm} 3.3
4. Project manager's ability to influence future work assignments \hspace{1cm} 4.6
5. Project manager's ability to influence salary \hspace{1cm} 4.6
6. Project manager's ability to influence promotion \hspace{1cm} 4.8
7. Feelings of personal friendship for the project manager \hspace{1cm} 6.2

\textsuperscript{48}Schlenker and Tedeschi, p. 436.
8. Project manager's ability to apply pressure or
to penalize

The first reason for compliance shown above is a subpart of
what French and Raven call "legitimacy." They say, "Conceptually
we may think of legitimacy as a valence in a region (in one's
Lewinian lifespace) which is induced by some internalized norm or
value." The role relation defined by formal authority is clearly
an important aspect of legitimacy but legitimate power may result
from cultural values or any other internalized norms or values.

The second, fourth, fifth, and sixth items above imply rewards
which the project manager can control and thus may reasonably be sub­
sumed under "reward power." Item three approximates "expert power."
Seven relates to "referent power" and eight to "coercive power."

In terms of the French and Raven bases of power, the following
rank order of perceived effectiveness appears to be dictated by the
above information: reward power, legitimate power, expert power,
referent power, coercive power.

49Hans T. Thamhain and Gary R. Gemmil, "Influence Styles of
Project Managers: Some Project Performance Correlates," Academy of

50 French and Raven, p. 159.

51 Ibid., p. 158.

52 There is some question as to whether reward power or legiti­
mate power should occupy first place. However, since reward items
obtain four out of the first six positions in the Thamhain and Gemmill
typology and considering the small difference in average ranking be­
tween the first (authority) and second (work challenge) positions, the
Related Dissertations

Thirteen recent dissertations were found to be related to the present study.

Abdel-Azim's dissertation had as its conceptual framework the Etzioni model\textsuperscript{53} which posits three kinds of power (coercive, remunerative, and normative) and three kinds of lower-participant responses (alienative, calculative, and moral). The experimental sample was a group of doctoral candidates and the faculty members with whom they interacted. While the study was primarily directed at analyzing the relationships between type of power exercised and type of response generated, it is valuable to the present effort because of two ancillary results: (1) Faculty saw their power as less remunerative and more normative than the doctoral candidates saw it. (2) Candidates saw their involvement as more alienative and calculative than faculty described it.\textsuperscript{54} These perceptual differences are similar to those found by Stefferud (discussed later).


\textsuperscript{54}Ahmed Naguib Abdel-Azim, "The Effect of the Power Applied by Centers of Authority in the University on the Involvement of Doctoral Candidates" (Ph.D. dissertation, University of Illinois at Urbana-Champaign, 1972).
Adams studied the relative importance of various bases of power and their impact on professional output and satisfaction among professors at a major university. Statistical analysis of 238 completed questionnaires indicated that deans and chairmen primarily relied on expert and legitimate power, enjoyed only moderate referent power, and emphasized reward and coercive power least of all. This study provides a tentative hierarchy of power bases, at least in a university setting.  

Paul Busch, reports a laboratory experiment involving 148 junior business administration students. The students were subjected to a videotaped life insurance sales presentation by a salesman whose expertness and referent power base had been variously established as high or low for different groups of students. Busch interprets referent power to be dependent only upon perceived attitude similarity, a somewhat tenuous position. Nonetheless, his results provide some indication that both perceived expertness and attitude similarity, quite apart from message content, have a substantial impact on the influence process.

55 David Robert Adams, "Organizational Control Structures and Bases of Power in University Departments and Their Faculty Job Satisfaction and Professional Output Correlates" (Ph.D. dissertation, University of Kentucky, 1975).


Gargir's research sample came from seventeen industrial companies. His study was based upon an exchange model wherein power is assumed to spring from exchange of resources. Analysis is limited to the power of staff over line departments. Statistical treatment of interview and questionnaire data resulted in two conclusions relevant to the present study: (1) Manipulation of resource control (giving or taking away staff's capacity to reward) is likely to be effective in controlling staff power and (2) Formal authority (a sub-part of legitimacy) is important to staff power, but does not guarantee it.  

The dissertation by Bernard Grzyb reports a study similar to that by Busch, discussed above. Three test groups of teachers listened to a taped persuasive message attributed to three communicators of differing credibility, social power, and similarity to individual subjects. The messages espoused views opposing the original views of the subjects. Comparison of a pre-administered and a post-administered semantic differential attitude scale revealed that communicator credibility had more impact than social power in producing attitude change. Other results were not statistically significant. Source credibility is similar to what French and Raven call the expert power base. The Grzyb study would lead one to expect


substantial importance to be placed on expertness as a basis of power, at least where verbal persuasion is the influence means.

Halpert studied the relationships between the bases of power activity and the modes of response (voluntary cooperation, involuntary cooperation, legitimate conflict, circumvention, withdrawal, and nonlegitimate conflict) among seven agencies dealing with the problem youth in a large city. As would be intuitively expected, coercive power tended to engender each mode of response except voluntary cooperation. Legal power (part of what French and Raven call legitimate power) was positively related to involuntary cooperation and withdrawal. While this study will not attempt to isolate individual modes of response, it seems likely that means of influence which produce the more resistive modes of response (e.g., circumvention, non-legitimate conflict) will be weakened thereby.

The Hicks investigation attempted to relate the attitude similarity of Chicago high school students with various influencing agents (parents, peers, and teachers) to the power bases used by those agents. Results were inconclusive.

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Marshall based his research on a rank ordering of five statements corresponding to the French and Raven power bases of principals and a self-actualization and need-fulfillment questionnaire completed by each of 653 teachers in 35 schools. Teacher self-actualization and need-fulfillment were found to be positively related to the principal's use of expert and referent power.62

Millet's research was concerned with the relative impact of three power bases (coercion-reward, referent, and legitimate-expert) on the success of teaching in influence attempts in the teacher-pupil dyad. She found referent power to be most successful over all demographic compositions of dyads. The race and economic class of dyad members determined the relative effectiveness of the other two power bases.63

Like the Busch and Grzyb dissertations, Mizell's paper reports a laboratory test of varying source characteristics on the effectiveness of a prerecorded influence attempt. Responses from 800 subjects revealed that, of the bases tested, legitimacy had the greatest impact and that threat (or coercion) actually retarded conformance.64


Natemeyer used correlational and subgrouped moderator analysis to examine the relationships between leader behavior (initiating structure and consideration), leader power bases, and subordinate performance and satisfaction. His data consisted of questionnaire responses from 213 employees in a governmental research and development organization. Three findings are important to the present investigation: (1) Self-reported performance of subordinates correlated negatively with the coercive power base of leaders. (2) Expert and referent power were positively related to several measures of subordinate satisfaction, while legitimate, reward, and coercive power correlated negatively with satisfaction. (3) Leader legitimate power positively moderated the relationship between leader behavior and subordinate performance and satisfaction. Other power bases were not significant in this regard.65

Stefferud's study analyzed the perceptions of staff members and students at the University of Arkansas concerning the bases of their mutual influence. The French and Raven typology of reward, coercive, legitimate, referent, and expert power66 was used as a conceptual framework. A sample of students and faculty were asked to rate on a five-point scale the strength of the influence perceived to exist from


66 French and Raven, "The Bases of Social Power."
each of four sources impinging on faculty and four sources impinging on students. Questionnaire items were designed to differentiate among the various bases of influence (i.e., reward, coercive, etc.). It was found that major perceptual differences existed. Faculty believed they were influenced by students in referent, legitimate, and expert ways and that they influenced students in referent and expert ways. On the other hand, students felt faculty influence was highly coercive, and felt that faculty was little influenced by the legitimacy and expertness of the students.  

Walker's research sought resource correlates of responsiveness of a locally-elected New York City school board to various groups which attempt influence. The influencer resources which correlated with responsiveness were status in the school district, weight of existing coalitions, reputation for reward capacity, and reputation for being informed about school matters. Reputation for negative sanction capacity bore no relationship to responsiveness. This last finding, coupled with similar results by Adams, Halpert, Mizell, and Natemeyer (all reported above), strongly suggests that coercive power has little impact on performance. Although this hypothesis is not explicitly tested in the present study, an indication of its validity is forthcoming.

67 John Anthony Stefferud, "Perceptions of Power and Authority at the University of Arkansas" (Ph.D. dissertation, University of Arkansas, 1975).

Table I summarizes the power base effectiveness implications of the studies reviewed in this chapter.
Table 1. Summary of Power Base Studies

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Power holder</th>
<th>Sample</th>
<th>Rank order obtained or implied by results*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdel-Azim</td>
<td>Faculty</td>
<td>Doctoral Candidates</td>
<td>(coercive, reward), legitimate</td>
</tr>
<tr>
<td>Adams</td>
<td>Deans and Chairmen</td>
<td>Professors</td>
<td>(expert, legitimate), referent, (reward, coercive)</td>
</tr>
<tr>
<td>Grzyb</td>
<td>Persuasive Talker</td>
<td>Teachers</td>
<td>expert, (legitimate, reward, coercive)</td>
</tr>
<tr>
<td>Halpert</td>
<td>Social Welfare Agencies</td>
<td>Social Welfare Agencies</td>
<td>reward, legitimate, coercive</td>
</tr>
<tr>
<td>Hunt and Nevin</td>
<td>Franchisors</td>
<td>Franchisees</td>
<td>coercive, (reward, expert, legitimate, referent)</td>
</tr>
<tr>
<td>Ivancevich</td>
<td>Agency Managers</td>
<td>Insurance Agents</td>
<td>legitimate, expert, referent, reward, coercive</td>
</tr>
<tr>
<td>Marshall</td>
<td>Principals</td>
<td>Teachers</td>
<td>expert, legitimate, referent, reward, coercive</td>
</tr>
<tr>
<td>Millet</td>
<td>Teacher</td>
<td>Pupils</td>
<td>referent, (coercive, reward, legitimate, expert)</td>
</tr>
<tr>
<td>Mizell</td>
<td>Persuasive talker</td>
<td>Students</td>
<td>legitimate, coercive</td>
</tr>
<tr>
<td>Natemeyer</td>
<td>R &amp; D Managers</td>
<td>R &amp; D employees</td>
<td>legitimate, (expert, referent, reward, coercive)</td>
</tr>
<tr>
<td>Researcher</td>
<td>Power holder</td>
<td>Sample</td>
<td>Rank order obtained or implied by results*</td>
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</tr>
<tr>
<td>Stefferud</td>
<td>Faculty</td>
<td>Students</td>
<td>coercive, (referent, legitimate, expert, reward)</td>
</tr>
<tr>
<td>do</td>
<td>Faculty</td>
<td>Faculty</td>
<td>(referent, legitimate, expert), (reward, coercive)</td>
</tr>
<tr>
<td>Thamhain and Gemmill</td>
<td>Project managers</td>
<td>Project Personnel</td>
<td>reward, legitimate, expert referent, coercive</td>
</tr>
<tr>
<td>Walker</td>
<td>Interest groups</td>
<td>School board</td>
<td>(reward, expert), coercive</td>
</tr>
</tbody>
</table>

*Order within parentheses has no significance.
CHAPTER III

THE CONCEPTUAL FRAMEWORK

This chapter is divided into three parts. The first section discusses the relationship of power to management. The second is concerned with the concept of "amount of power." The French and Raven power base model upon which the present study is based is described in the final section.

Power and Management

Management has been variously described in terms of the functions it performs, the structure of the organization in which it operates, the traits the manager should possess, and individual concepts such as authority. Whatever approach one uses, however, management always involves influencing people.

Figure 1 is a simplified illustration of the management process. The manager exercises control (or influence, or coordination)

Figure 1: Management of Resources

Figure 1a: Management of People
over financial, physical, and human resources in order to accomplish organizational goals. Although the typical manager directly controls certain physical and financial resources, most of his control is indirect, through his power over people. Therefore, little of importance is lost if management is limited to the relationship between managers and other people. Koontz and O'Donnell popularized this idea by defining management as "getting things done through others." If this approach is taken, Figure 1 can be reduced to Figure 1a.

The relationship between the manager or supervisor and the persons within his area of responsibility is a complex one. However, the essence of that relationship is the exercise of power. Power may be exercised directly by command or indirectly through a system of need gratification. For example, under some modified Management by Objectives programs, ways are sought to arrange individual objectives so that their satisfaction will result in achievement of organizational goals. The design of this system of organizational goal achievement through individual need satisfaction and its communication to subordinates is no less an exercise of power than is a direct order.

An important premise of this paper is that it is only through the exercise of power that the manager or supervisor performs his

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preeminent function, that of influencing people. This is definitively true. Consider the Syllogism: The manager's preeminent function is "getting things done through others." Power is the ability to influence others. Therefore, it is through the exercise of power that the manager performs his preeminent function.

As will be seen in the final section of this chapter, power is not seen as an attribute possessed by the manager per se. It is assigned to the manager, but it is conferred by subordinates.

Amount of Power

Power, as defined herein, is not precisely quantifiable if for no other reason than that it deals with perceptions. It is not appropriate to speak of so many units of interpersonal power. The concept is too complex for this. Reviewing the attributes of domain, weight, and scope of power will illustrate this complexity. The domain of power consists of the persons over whom it can be exercised; the weight of power is the degree of impact upon their behavior; the scope of power is the group of behavioral decisions which can be affected. As Lasswell and Kaplan have pointed out, all three are involved in the idea of "amount" of power.\(^4\)


\(^5\) Ibid.
Still, it is usual to identify ordinal relationships among power-holders--"this manager is more or less powerful than that one"--or broad indications of degree of powerfulness--"Franklin Roosevelt was a very powerful administrator."

To the extent that "amount of power" is important to this research, the latter approach is used. Subjects were asked to report whether their supervisors were "far below average," "below average," "about average," "above average," or "far above average" in powerfulness.

The Bases of Power

Any attempt to classify the bases of power--or almost any other social phenomena for that matter--will be somewhat artificial. The human mind is almost infinitely complex and possesses the characteristic of free will so that it can and does change constantly, not always in response to identifiable stimuli. Yet, to make the topic manageable, particularly from a research standpoint, some categorization is necessary.

Perhaps the most comprehensive, and certainly the best known typology of power bases is that developed by John R. P. French and Bertram Raven in 1959.6 This taxonomy has been adopted in the present research.

6 French and Raven, op. cit.
In the remainder of this chapter, the simplified management model developed earlier will be modified to illustrate the power process, and the French and Raven power bases will be discussed individually.

Figure 1a illustrates the management process as a one-way relationship between the manager and his subordinates. The manager decides what needs to be done and influences people to do it. It has long been recognized, however, that influencing people requires that they be willing—everything considered—to be influenced. (Situations of sheer force are excluded from this discussion.) Chester I. Barnard's "Acceptance Theory of Authority" was based upon this premise. The "human relations movement" resulted largely from an increased concern for the social sentiments and perceptions of subordinates. Figure 2 is an illustration of management as an interactive process between the manager and his subordinates. Subordinates assign power to the manager, and, because of this, the manager is able to influence them. (An analogy with the physical sciences is useful in distinguishing between power and influence in Figure 2: Power may be viewed as potential influence and influence as kinetic power.)

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7 Barnard, The Functions of the Executive.
8 Wren, p. 295.
9 French and Raven, p. 152.
Figure 2: Management as an Interactive Process
Figure 3 illustrates the power process in management in somewhat greater detail. Power is conferred upon managers because subordinates have certain beliefs or perceptions concerning those managers. It is this group of beliefs which were categorized by French and Raven and called "The Bases of Power."

French and Raven were primarily concerned with power in the sociological sphere. In the remainder of this chapter, the five French and Raven power bases will be discussed as management concepts. Understood in the light of the foregoing comments, this typology forms the framework for inquiry of this study.

In this discussion, the power holder or manager will be designated $O$, and the power subject or subordinate will be designated $P$.11

Reward Power

Reward power is based upon the perception by $P$ and $O$ can mediate rewards for him. Rewards include anything with $P$ considers a benefit—a pay raise, a compliment, an advancement, or the avoidance of an expected punishment or misfortune. In order for rewards to be effective, $P$ must perceive a connection between his compliance with $O$'s desires and the attainment of the reward.

\[^{10}\text{Ibid.}, \text{p. 150.}\]
\[^{11}\text{Ibid.}\]
\[^{12}\text{Ibid.}, \text{p. 155-6.}\]
Communication of INFORMATION to the subordinate from the environment and the manager

certain subordinate PERCEPTIONS concerning the manager

assignment of POWER to the manager by subordinates

exercise of INFLUENCE upon subordinates by the manager

progress toward ORGANIZATIONAL GOAL ACCOMPLISHMENT

Figure 3: The Power Process in Management
Coercive Power

Coercive power results from P's perception that O has the ability to mediate punishments for him.\textsuperscript{13} Punishments available to the manager commonly include firing, demoting, or chastising subordinates. Taking away an expected reward is also a punishment in the present sense. In Lewinian terms, reward and coercive power result from the control by O of positive and negative valences in certain regions of P's life space.

It is the expectation of the rewards or punishments which causes P to assign power to O. Once administered, rewards and punishments have no power significance except to the extent that they change the probability that P assigns to future rewards and punishments and to the extent that they affect the referent power base. An example of the latter case is frequent and fair administration of rewards by a manager, which causes his subordinates to develop a genuine liking for him and a desire, apart from the rewards involved, to comply with his wishes.

Legitimate Power

Undoubtedly, the most important and easily recognized aspect of legitimate power is the right of influence which attaches to one's official position. P might do what O desires simply because "he's

\textsuperscript{13}Ibid., p. 156-7.
the boss." Legitimate power, though, is based upon any internalized norm or value in P's life space which causes P to feel that O has the right to influence him.\textsuperscript{14} Thus if P subscribes to the common social norm that age is a criterion of authority, and O is older than P, this causes P to assign legitimate power to O. Similarly, men tend to be ascribed greater power than women.

**Expert Power**

P's perception that O has some special knowledge or expertness constitutes the expert power base.\textsuperscript{15}

French and Raven distinguish expert power from behavior motivation based upon the content of a communication. They say that

\[ \ldots \text{so-called facts may be accepted as self-evident because they fit into P's cognitive structure; if this impersonal acceptance of the truth of the fact is independent of the more or less enduring relationship between O and P, then P's acceptance of the fact is not an actualization of expert power.} \textsuperscript{16} \]

Expert power, then, is based upon the presumption by P that O has special knowledge in a given area, not upon the explicit verification of that knowledge in a given instance. For example, world famous oil-well-capping expert Paul (Red) Adair, of Houston, Texas, would probably be in almost absolute control of workers around any

\textsuperscript{14}Ibid., p. 159.
\textsuperscript{15}Ibid., p. 156.
\textsuperscript{16}Ibid., pp. 163-4.
out-of-control oil well at which he was present. Adair probably would not have to explain to workmen why a procedure he suggests was better than an alternative one. Workers who knew of his record of success would presume that it was.

Referent Power

Referent power is perhaps the most difficult of the French and Raven power bases to operationalize. It is based upon a "feeling of oneness of P with 0, or a desire for such an identity." French and Raven say that the referent power base might be verbalized by P as follows: "I am like 0, and therefore I shall behave or believe as 0 does." This seems to limit referent power to P's behavior patterns which are based upon 0's example. French and Raven distinguish referent power from reward and coercive power in this way:

The basic criterion for distinguishing referent power from both coercive and reward power is the mediation of the punishment and the reward by 0: to the extent that 0 mediates the sanctions (i.e., has means control over P) we are dealing with coercive and reward power; but to the extent that P avoids discomfort or gains satisfaction by conformity based upon identification regardless of 0's responses we are dealing with referent power.  

17 Ibid., p. 161.

18 Ibid., p. 162.
CHAPTER IV

RESEARCH METHODOLOGY

The first two sections of this chapter present a description of the sample and a discussion of the techniques of data collection. The final section details the analytical procedure which was followed.

The Sample

As previously noted, subjects for this study came from among non-supervisory employees in four work organizations:

(1) J. C. Penney Company's Monroe, Louisiana, retail store--all accounting and administrative workers.
(2) Great Lakes Chemical Company's El Dorado, Arkansas, bromine plant--all technicians and operators.
(3) Plymouth Tube Corporation's West Monroe, Louisiana, stainless steel tubing plant--all technicians and operators.
(4) Sharpco, Inc., Monroe, Louisiana--all welders and construction workers.

These four firms were selected because they were considered to be typical commercial and industrial companies and because the researcher had access to senior managers in each of them.
J. C. Penney Company is a major department store chain. The Monroe, Louisiana store had annual sales of about $10,000,000 for 1976 and employs 230 persons. The accounting and administrative workers in this store work in offices on the second floor and are isolated from the sales floor. Although questions concerning race and sex were eliminated from the research instrument at the request of one of the cooperating companies, a casual walk-through of the offices involved revealed that subjects in this group were mostly female and white. The typical employee works a standard forty-hour week. The work area is neat and clean but relatively crowded. This was, on the average, the oldest group studied. Eleven of the twenty-seven respondents, or about 40 percent, were over 44 years of age.  

The El Dorado plant of Great Lakes Chemical Company manufactures bromine using process production techniques. The plant employs about 225 persons, of whom about 160 are nonsupervisory operators and technicians. Usable responses from this group totaled 111. Almost all are Caucasian and male. Production in 1976 represented about $50,000,000 in sales. Most employees work shift work.  

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1 Information concerning sales and employees in the Monroe store was obtained through several personal interviews with Mrs. Alice Audrisch, Personnel Director, and Mr. Bill Osbon, Merchandising Manager.  

2 Information about Great Lakes Chemical Company was provided by Mr. Ted Early, Personnel Manager, and Mr. Wesley Walker, Maintenance Manager at the El Dorado Plant.
Plymouth Tube Corporation's West Monroe plant manufactures stainless steel tubing. In the manufacturing process, stainless steel strip is rolled into a tubular shape, welded along the longitudinal seam, drawn over mandrels to the appropriate diameter and wall thickness, and cut to length. The process is continuous and standardized, but diameter, wall thickness, and grade of stainless steel vary from batch to batch. The plant employs about 40 persons, about 30 of whom are operators and technicians. All operators are somewhat dispersed. Operators work shift work. This was relatively the youngest group to be studied. Nine of the fourteen respondents from Plymouth Tube, or about 65 percent, were under twenty-six years of age.\(^3\)

Sharpco, Inc. is a steel fabricator and general contracting concern. Annual sales total about $1.5 million and the company employs from 30 to 50 persons. Twenty completed and returned the questionnaire. At the time of the survey, there were two black employees and two female employees. All others were male and Caucasian. Working hours are irregular, averaging forty-eight hours per week. Production is normally on a unit basis. The fabrication division manufactures steel items to customer order, and the construction division does plant maintenance and construction work on a job order basis.\(^4\)

\(^3\)Personnel and technical information was obtained from Mr. Gary Lloyd, Plant Manager, and through numerous personal visits to the plant.

\(^4\)The researcher is a principal of Sharpco, Inc.
Data Collection

Data collection was by means of a self-administered questionnaire. The questionnaire is described immediately below, followed by discussion of its pretest and distribution.

The Research Instrument

The questionnaire, Appendix A, consists of four parts. Part I asks for certain personal data which may prove to be systematically related to power perceptions.

Part II asks the respondent to rank order five statements in terms of the degree to which each statement describes the reason for the respondent's compliance with his supervisor's wishes. The statements are designed to express the French and Raven power bases in relatively "soft" language. These statements were developed by Bachman for use in a business setting and modified slightly by Marshall for his study of power perceptions in a school system. The Marshall statements are used here.

Part III is a slight modification of the Bachman instrument. Bachman's language is retained to the degree feasible, but here,


6 Marshall, "Elementary Principals Primary Bases of Power and the Relationships with the Teachers' Need-Fulfillment and Self-Actualization," p. 84.
subjects rank phrases to indicate their supervisor's emphasis on each power base.

In Part IV, respondents are asked to evaluate their supervisor's ability to influence his subordinates. This is conceptualized in the present study as power or power level.

The Pretest

A pretest of the questionnaire indicated that the phrases in Parts II and III are perceived by typical subjects as embodying the central ideas which comprise the French and Raven power bases. Further, each of the four subjects involved in the pretest clearly understood the meaning of Part IV.

The pretest was conducted as follows:

(1) The El Dorado, Arkansas, Personnel Director for Great Lakes Chemical Company and the Administrative Vice-President for Southern Hardware and Supply Company were each asked to provide two volunteers who were not supervisors.7

(2) The volunteers were given the questionnaire and asked to complete it. They were briefly advised that this was an initial test of a questionnaire to be used in a broader Ph.D. study.

(3) All four subjects completed the instrument in less than ten minutes.

7 These volunteers were not included in the experimental sample.
(4) A private interview, lasting an average of about ten minutes, was conducted with each respondent. Semi-directive techniques were used. Each subject was first asked to go back over his questionnaire and tell what his thoughts were as he completed it. Two, whose initial monolog seemed uninformative, were asked to tell why they numbered the items ranked first and fifth the way they did. Finally, the planned manner of distribution was described and interviewees were asked if they would have completed the questionnaire if it had been delivered in the proposed way. All answered in the affirmative.

**Distribution and Collection**

The questionnaires were delivered to the respective personnel managers for distribution to the subjects in mid-December, 1976. Completed questionnaires continued to be returned until about February 10, 1977.

A total of 171 usable responses were received, representing a response rate of about 65 percent. This is based upon an estimated maximum possible sample of 262. To minimize the imposition on the time of the personnel managers, they were not asked to keep account of the questionnaires actually delivered to prospective subjects. Thus, precise figures for response rate are not available.
Statistical Procedure

The data from the questionnaire were coded and recorded as shown in Data Card Format, Appendix A. As will be discussed later, some of the codes from Parts I, III, and IV of the questionnaire had to be collapsed together to avoid empty or nearly empty cells in chi-square matrices.

The "Statistical Analysis System" (SAS) designed by A. J. Barr and J. H. Goodnight at North Carolina State University was used to analyze the data.® SAS printed the necessary matrices and computed the chi-square values where they were required. SAS does not include a program for the Friedman Two-Way Analysis of Variance, the central statistical procedure for this study. However, SAS was used to compute the sums of the ranks from Parts IV and V of the questionnaire. It was then a relatively simple matter to complete the Friedman procedure by hand.

$H_1$: Rank Order of Effectiveness

The first question to be addressed, and the central question of this research was, "What do subordinates consider to be the relative

---


effectiveness of the five French and Raven Power bases?" It was hypothesized that the bases of power could be ranked in terms of subordinate perceptions of their effectiveness ($H_1$). To test this hypothesis using the Friedman test, the data from Part II of the questionnaire were arrayed as shown below.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$r_{1,1}$</td>
<td>$r_{1,2}$</td>
<td>.</td>
<td>.</td>
<td>$r_{1,j}$</td>
</tr>
<tr>
<td>2</td>
<td>$r_{2,1}$</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>3</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>4</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>$r_{i,1}$</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>$r_{i,j}$</td>
</tr>
</tbody>
</table>

Totals $R_1$ $R_2$ $R_3$ $R_4$ $R_{j=5}$

A statistical null hypothesis corresponding to $H_1$ is stated as follows:

$H_{0,1}$: There is no difference in the values of $R_1 - R_5$ (the rank order of effectiveness rank sums) for the population from which the sample was taken.

If this hypothesis is rejected, of course, $H_1$ can be accepted.
The Friedman statistic, $X^2_r$, is given by the following:

$$\frac{12}{Nk(k+1)} \sum_{j=1}^{k} R_j^2 - 3N(k+1),$$

where

- $N$ = the number of subjects,
- $k$ = the number of questions to be ranked, and
- $R_j$ = the total of all the individual ranks assigned to the $j$th question.\(^\text{10}\)

This statistic is distributed approximately as chi-square with $k-1$ degrees of freedom when the numbers of rows and columns are not too small. Exact values are available for these latter cases.\(^\text{11}\) As noted earlier, the rank sums, $R_1 - R_5$, were computed by the SAS programs. The Friedman statistic was then manually calculated and tested for significance.

The overall rank order was significant at the 0.01 level. The initial test, though, did not show that differences between quantitatively adjacent rank sums were significant. To determine this, the data for each pair of questions with quantitatively adjacent rank sums were revised as follows. For each respondent and for each pair of


questions, the question ranked lower by the respondent was assigned the rank 1, and the question ranked higher was given the rank 2. New rank sums were then computed and differences within pairs were tested for significance using the Friedman procedure.¹²

A final series of tests were performed on the data from Part II of the questionnaire to indicate the degree to which results might be generalized. The participant firms are diverse as to technology, size of employee group, age and sex of employees, and certainly in many other areas. If the identity of the firm, among these four, is not a significant factor relating to power base effectiveness perceptions, then it is more likely that the results of this study will apply broadly to commercial and industrial workers. To search for significant differences by firm, five matrices of the form shown below were developed (one matrix for each power base).

¹²Technically, this procedure is correct only if subjects can be assumed to be consistent in their choices. There is probably only a slight chance of error, however, because it seems likely that if question 1, for example, were ranked ahead of question 4 by a particular subject ranking five questions then question 1 would be ranked ahead of question 4 if only those two questions were considered.
Rank order assigned to Power base

<table>
<thead>
<tr>
<th>Firm</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$x_{1,1}$</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>$x_{1,5}$</td>
</tr>
<tr>
<td>B</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>C</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>D</td>
<td>$x_{4,1}$</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>$x_{4,5}$</td>
</tr>
</tbody>
</table>

$x = \text{no. of respondents}$

The SAS program was used to perform chi-square analysis on each matrix. The SAS output provided individual cell contributions to the matrix chi-square values.

$H_2$: Rank Order of Emphasis by Supervisors

The second research question concerns the degree of emphasis supervisors are perceived as placing on each power base. $H_2$ states that supervisors emphasize those power bases which are perceived as being most effective and deemphasize those which are perceived as being least effective.

The statistical null hypothesis here is the same as $H_{0,1}$ discussed above, except that it now relates to results from Part III of the questionnaire:

$H_{0,2}$: There is no difference in the values of $R_1 - R_5$ (the rank order of emphasis rank sums) for the population from which the sample was taken.
The Friedman Two-way Analysis of Variance performed on the data from Part III of the questionnaire revealed that the perceived rank order of emphasis may indeed be the same as the perceived rank order of effectiveness.

Analysis was again performed on quantitatively adjacent rank sums.

\[ H_3: \text{Power Level and Emphasis on Legitimate and Coercive Power} \]

The third hypothesis states that perceived supervisor power level varies inversely with the degree of emphasis supervisors are perceived as placing on legitimate and coercive power. The corresponding statistical null hypothesis is as follows:

\[ H_{0,3}: \text{There is no correlation between subordinate perceived supervisor power level and the degree of emphasis supervisors are perceived as placing upon legitimate or coercive power in the population from which the sample was taken.} \]

Part IV of the questionnaire provided an indication of perceived supervisor power level. There were five possible responses, from "far above average" to "far below average." The degree of emphasis supervisors were felt to place on legitimate and coercive power was indicated by the rank assigned to those power bases in Part III.
Summarization of the relevant data resulted in two five by five matrices, one relating power level to the rank order of legitimate power and the other relating power level to the rank order of coercive power. These had to be collapsed to two-by-two matrices, however, in order to avoid empty or nearly empty cells. This was accomplished by combining cells on each side of the median for each variable. The procedure for this is explained in the narrative immediately preceeding Table 5. A chi-square test of significance was then performed.

$H_4$: Situational and Personal Variables Vs. Power Base Effectiveness

Questionnaire results included information as to the age, background (rural or urban), tenure, educational level, and frequency of supervisor-subordinate interactions. It was hypothesized that these are systematically related to the perceived rank order of effectiveness of the power bases from Part II of the questionnaire. A testable null hypothesis with the opposite implication is:

$H_{0,4}$: There is no systematic relationship between the situational and personal variables identified in this study and subordinate perceptions of the rank order of effectiveness of supervisor power bases in the population from which the sample was taken.
Five matrices were produced by SAS for each situational or personal variable, one of the five for each power base. This was a total of twenty-five matrices. Again, the matrices had to be collapsed to avoid an excess of sparse cells. For example, the five educational classes from the questionnaire were reduced to two—those who had attended college and those who had not. The number of age groups was reduced to three by combining subjects over thirty-five into one group.

Chi-Square analysis was performed on each of the twenty-five matrices. Where significant relationships were found, inspection of the individual-cell frequencies and expected frequencies output by SAS revealed the directions of those relationships.
CHAPTER V

REPORT AND ANALYSIS OF DATA

As previously noted, the questionnaire results were coded as shown in Data Card Format, Appendix A. The responses to Parts I and IV of the questionnaire were converted to ordinal data (except that item 1.2 resulted in nominal data) by numbering the possible responses from left to right and from top to bottom. For example, a mark in the space indicating an age of 36-45 years was coded "3." The raw data is presented in Appendix B. The columns in Appendix B to the right of "FIRM," proceed in the same order as the questionnaire, Appendix A.

The Perceived Rank Order of

Effectiveness

Questionnaire items II A, B, C, D, and E relate respectively to the perceived effectiveness of referent, expert, reward, coercive, and legitimate power. The SAS program computed the means and the rank sums for responses to these items. Table 2 presents this information.

The Friedman test was performed on the rank sum information with the result that every difference was found to be significant at
Table 2. Average Rank Order of Effectiveness and Rank Sums

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Power Base</th>
<th>Mean Rank</th>
<th>Rank Sum</th>
<th>Rank of Rank Sums*</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2A</td>
<td>Referent</td>
<td>2.84</td>
<td>486</td>
<td>3</td>
</tr>
<tr>
<td>R2B</td>
<td>Expert</td>
<td>1.91</td>
<td>326</td>
<td>1</td>
</tr>
<tr>
<td>R2C</td>
<td>Reward</td>
<td>3.54</td>
<td>605</td>
<td>4</td>
</tr>
<tr>
<td>R2D</td>
<td>Coercive</td>
<td>4.34</td>
<td>742</td>
<td>5</td>
</tr>
<tr>
<td>R2E</td>
<td>Legitimate</td>
<td>2.37</td>
<td>405</td>
<td>2</td>
</tr>
</tbody>
</table>

*The rank order is inverted to make it consistent with the underlying data.

the 0.01 level except the difference between variables R2A and R2E (referent and legitimate power), which was significant at the 0.05 level.

This result reveals that the questionnaire items designed to embody the French and Raven power bases were clearly distinguished from one another by the workers surveyed. Not only can it be said with confidence that workers report coercive power to be the least effective basis of supervisor power and expert power to be the most effective, but the following rank order of perceived effectiveness can now be asserted: expert power, legitimate power, referent power, reward power, coercive power.

To test the generality of this conclusion, chi-square analysis was performed to determine if the variable "FIRM" bears any significant relationship to the variables "R2A"-"R2E." Since the firms surveyed differ substantially along several dimensions, it appears
that consistent, strong results among the firms would impute great
generality to the rank order of effectiveness obtained.

The only significant relationship found in this analysis was
between "FIRM" and "R2D" (coercive power). The chi-square matrix for
this relationship is reproduced below. The largest row chi-square

Table 3. Identity of the Firm and Rank Order
Of Emphasis on Coercive Power

<table>
<thead>
<tr>
<th>Firm</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>13</td>
<td>11</td>
<td>26</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>9.1</td>
<td>8.4</td>
<td>21.4</td>
<td>70.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>1.7</td>
<td>0.8</td>
<td>1.0</td>
<td>2.1</td>
<td>111</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>2.1</td>
<td>2.0</td>
<td>5.0</td>
<td>16.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>2.1</td>
<td>2.0</td>
<td>1.8</td>
<td>3.5</td>
<td>26</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2</td>
<td>1.1</td>
<td>1.1</td>
<td>2.7</td>
<td>8.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2</td>
<td>0.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>14</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.4</td>
<td>1.5</td>
<td>1.5</td>
<td>3.9</td>
<td>12.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.4</td>
<td>1.5</td>
<td>0.2</td>
<td>0.0</td>
<td>0.1</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>3</td>
<td>14</td>
<td>13</td>
<td>33</td>
<td>108</td>
<td>171</td>
</tr>
</tbody>
</table>

Legend

$X^2 = 21.95$, 12 d.f.

Frequency

p = 0.0399

Expected Frequency

Cell Chi-Square
value, 9.9, relates to firm B, J. C. Penney Company. Twenty-Four of twenty-six respondents in that firm ranked coercive power fifth, and the other two ranked it fourth. Observation of Table 3 reveals that coercive power tended strongly to be ranked fifth by employees of each firm. Thus, it appears that the relationship between "FIRM" and "R2D" is significant only because the J. C. Penney employees ranked coercive power more consistently last than did the other subjects.

In light of this analysis and the strength of the underlying data, it should be expected that the rank order of perceived effectiveness given above applies broadly to industrial and commercial employees and their supervisors.

Marshall obtained an identical rank order of effectiveness in his extensive research involving 653 school teachers.\(^1\) Ivancevich reported a similar rank order (with legitimate and expert power reversed) in his study of insurance agents and agency managers.\(^2\) The result of the present study with regard to coercive power's being ranked last in perceived effectiveness accords with the preponderance of the evidence cited herein (see Table 1). Therefore, while no generality beyond industrial and commercial workers is claimed, it

\(^1\)Marshall, "Elementary Principals' Primary Bases of Power and the Relationships with the Teachers' Need-Fulfillment and Self Actualization." p. 56.

seems that, at least with regard to coercive power, the perceived rank order of effectiveness discovered in this study is a very general phenomenon.

The Perceived Rank Order of Emphasis by Supervisors

Part III of the questionnaire was designed to determine if supervisors tend to emphasize the bases of power deemed most effective by their subordinates. Table 4 reports the mean ranks, the rank sums, and the resultant perceived rank order of emphasis from this data.

Table 4. Average Rank Order of Emphasis and Rank Sums

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Power Base</th>
<th>Mean Rank</th>
<th>Rank Sum</th>
<th>Rank of Rank Sums*</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3A</td>
<td>Referent</td>
<td>2.85</td>
<td>488</td>
<td>3</td>
</tr>
<tr>
<td>R3B</td>
<td>Expert</td>
<td>2.06</td>
<td>353</td>
<td>1</td>
</tr>
<tr>
<td>R3C</td>
<td>Reward</td>
<td>3.10</td>
<td>530</td>
<td>4</td>
</tr>
<tr>
<td>R3D</td>
<td>Coercive</td>
<td>4.42</td>
<td>755</td>
<td>5</td>
</tr>
<tr>
<td>R3E</td>
<td>Legitimate</td>
<td>2.57</td>
<td>439</td>
<td>2</td>
</tr>
</tbody>
</table>

*The rank order is inverted to make it consistent with the underlying data.

The rank sums were found to be significantly different at the 0.01 level except that the differences between those applying to referent and legitimate and referent and reward power were not
significant. From this information, it can be concluded that supervisors are perceived as emphasizing the power base considered most effective by their subordinates (expert power) and as deemphasizing the power base deemed least effective (coercive power).

Supervisor Power Level and Emphasis Upon Coercive and Legitimate Power

Part IV of the questionnaire was designed to obtain an indication of supervisor power level. The data were ordinal from "far above average," coded "1," to "far below average," coded "5." To determine if there were any systematic relationships between this variable (coded SUP) and R3D or R3E, above, chi-square analysis was used. Since each of the variables has five possible values, the two resultant matrices were five by five. To avoid sparse or empty cells, however, both had to be collapsed to two by two matrices. This was accomplished by SAS in accordance with special program statements. These statements are repeated below:

\[
\begin{align*}
\text{IF (R3D = 1 OR R3D = 2 OR R3D = 3 OR R3D = 4) THEN R3D = 1} \\
\text{IF (R3D = 5) THEN R3D = 2} \\
\text{IF (R3E = 1 OR R3E = 2) THEN R3E = 1} \\
\text{IF (R3E = 3 OR R3E = 4 OR R3E = 5) THEN R3E = 2}
\end{align*}
\]

\(^3\) The Friedman test was used.

\(^4\) Understanding of these program statements is enhanced if R3D is read "The rank of questionnaire item III D (coercive power)," R3E is read "The rank of questionnaire item III E (legitimate power)," and reference is made to the questionnaire itself, Appendix A.
IF (SUP = 1 OR SUP = 2) THEN SUP = 1
IF (SUP = 3 OR SUP = 4 OR SUP = 5) THEN SUP = 2

The collapsed matrices are shown below.

Table 5. Supervisor Power Level and Rank Order Of Emphasis on Coercive Power

<table>
<thead>
<tr>
<th>Supervisor Power Level</th>
<th>R3D 1</th>
<th>2</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>25</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>41.4</td>
<td>19.6</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>0.7</td>
<td>1.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Totals</td>
<td>116</td>
<td>55</td>
<td>171</td>
</tr>
</tbody>
</table>

Legend
$X^2 = 3.381, 1$ d.f.
Frequency $p = 0.0660$
Expected Frequency
Cell Chi-Square

The relationship in Table 5 approaches significance at the 0.05 level ($P = 0.0660$). The correlation is in the direction earlier results would anticipate. Coercive power was perceived by subordinates as being by far the least effective form of power (see Table 2). If it is, in fact, least effective, emphasis on coercive power should tend to decrease a supervisor's power level. As can be seen from Table 5, the actual frequency exceeds the expected frequency in the upper right and lower left cells. The opposite is true in the other
Table 6. Supervisor Power Level and Rank Order Of Emphasis on Legitimate Power

<table>
<thead>
<tr>
<th>R3E</th>
<th>Supervisor Power Level</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>59</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>61.1</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>54.9</td>
<td>26.1</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Totals</td>
<td>116</td>
<td>55</td>
</tr>
</tbody>
</table>

Legend

\[ X^2 = 0.453,1 \text{ d.f.} \]

Frequency \[ p = 0.5009 \]

Expected Frequency

Cell Chi-Square

cells. Of supervisors who are perceived as placing more emphasis on coercive power (top row), more than mathematically predicted have low power levels (right cell), and fewer than predicted have high power levels (left cell). Of those who are felt to deemphasize coercive power (bottom row), more than expected have high power levels (left cell), and fewer than expected have low power levels (right cell). While this information does not statistically justify such a conclusion, it does appear likely that future research will show that emphasis on coercive power tends to decrease a supervisor's power level.
Table 6 reveals no significant relationship between perceived supervisor emphasis on legitimate power and perceived supervisor power level.

Personal and Situational Variables Versus Rank Order of Effectiveness of Power Bases

Chi-square analysis was used to search for systematic relationships between the five variables from Part I of the questionnaire and the rank order of effectiveness of each of the power bases. Twenty-five matrices were necessary. Many of these had to be collapsed along one dimension in the manner described earlier. Table 7 lists the variables and the power bases and indicates whether each relationship was significant.

Table 7. Significance of Relationships Between Situational and Personal Variables and Perceptions of Power Base Effectiveness

<table>
<thead>
<tr>
<th>Power Base Effectiveness</th>
<th>R2A</th>
<th>R2B</th>
<th>R2C</th>
<th>R2D</th>
<th>R2E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background (Rural or Urban)</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure with current Supervisor</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of Supervisor Visits</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table 7 single asterisks indicate relationships significant at the 0.05 level; double asterisks indicate significance at 0.01 level.
Chi-square matrices are presented below for the significant relationships.\(^5\)

Table 8 suggests that the place of one's upbringing, rural or urban, does affect his self-perceived susceptibility to referent power.

Table 8. Background of the Subject and Rank Order of Effectiveness of Referent Power

<table>
<thead>
<tr>
<th></th>
<th>R2A</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES</td>
<td>1</td>
</tr>
<tr>
<td>Rural</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Urban</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>6.6</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td>Totals</td>
<td>18</td>
</tr>
</tbody>
</table>

Legend

\[X^2 = 11.178,4 \text{ d.f.}\]

Frequency

\[p = 0.0246\]

The highest cell chi-square values are in the corner cells of the matrix, and the indication is clear that relatively more of those with urban backgrounds deem referent power effective. For example, (referent power)

\(^5\)Note again that R2A should be read "The rank of questionnaire item II A (referent power)" and R2E should be read "The rank of questionnaire item II E (legitimate power)."
only one of sixty-three respondents who grew up in the city ranked referent power fifth; fifteen of one hundred eight who grew up in the country ranked referent power fifth.

The relationship shown in Table 9 is significant at the 0.01 level. Again, the highest cell chi-square values are in the corner cells. Subjects who had been with their current supervisors more than two years tended to consider referent power more effective than those who had not. The implication, here, is that as supervisor and subordinate work together over a period of time referent power becomes a more effective basis of control.

Table 9. Tenure with Current Supervisor and Rank Order of Effectiveness of Referent Power

<table>
<thead>
<tr>
<th>Ten</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 Yrs.</td>
<td>8</td>
<td>42</td>
<td>38</td>
<td>20</td>
<td>16</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>13.1</td>
<td>39.2</td>
<td>37.7</td>
<td>22.5</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>0.2</td>
<td>0.0</td>
<td>0.7</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>More than 2 Yrs.</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>11</td>
<td>0</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
<td>14.8</td>
<td>14.3</td>
<td>8.5</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.2</td>
<td>0.5</td>
<td>0.0</td>
<td>0.7</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>18</td>
<td>54</td>
<td>52</td>
<td>31</td>
<td>16</td>
<td>171</td>
</tr>
</tbody>
</table>

Legend: 

- $X^2 = 14.934,4$ d.f. 
- $p = 0.0048$ 
- Expected Frequency 
- Cell Chi-square
The only other significant relationship isolated was between educational level and the perceived rank order of effectiveness of legitimate power, Table 10. If the left-hand column of Table 10 is ignored, the direction of this relationship becomes apparent. Persons of a higher educational level tended to consider legitimate power more important than did those of a lower educational level.

Table 10. Educational Level of the Subject and Rank Order of Effectiveness of Legitimate Power

<table>
<thead>
<tr>
<th>Ed</th>
<th>R2E</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than College</td>
<td></td>
<td>36</td>
<td>17</td>
<td>21</td>
<td>20</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32.7</td>
<td>22.2</td>
<td>24.0</td>
<td>17.5</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3</td>
<td>1.2</td>
<td>0.4</td>
<td>0.3</td>
<td>1.8</td>
<td>100</td>
</tr>
<tr>
<td>Some College</td>
<td></td>
<td>20</td>
<td>21</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.3</td>
<td>15.8</td>
<td>17</td>
<td>12.5</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5</td>
<td>1.7</td>
<td>0.5</td>
<td>0.5</td>
<td>2.5</td>
<td>71</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>56</td>
<td>38</td>
<td>41</td>
<td>30</td>
<td>6</td>
<td>171</td>
</tr>
</tbody>
</table>

Legend

\[ \chi^2 = 9.711,4 \text{ d.f.} \]

Frequency

\[ p = 0.00456 \]
CHAPTER VI

SUMMARY AND IMPLICATIONS

As stated at the outset, the main purpose of this study has been to determine the relative effectiveness of the bases of power identified by French and Raven. If the questionnaire results reported herein are valid—and there is every reason to believe that they are—this purpose, as well as the three secondary purposes mentioned in Chapter I, has been largely accomplished. Specific conclusions are set forth below. The final sections of this chapter will attempt to rationalize the results with regard to power base effectiveness, explain some practical implications, and suggest future research directions.

Conclusions with Regard to the Hypotheses

The four empirical hypotheses of this study and their corresponding statistical null hypothesis are listed below.

$H_1$: The French and Raven power bases can be ranked in terms of subordinate perceptions of their effectiveness in producing subordinate compliance with supervisor preferences.

$H_{0,1}$: There is no difference in the values of $R_1 - R_5$ (the rank order of effectiveness rank sums) for the population from which the sample was taken.
H₂: Supervisors are perceived by their subordinates as placing most emphasis on those power bases which are perceived by subordinates as being most effective in producing subordinate compliance with supervisor preferences.

H₀₂: There is no difference in the values of R₁ - R₅ (the rank order of emphasis rank sums) for the population from which the sample was taken.

H₃: Subordinate-perceived supervisor power level varies inversely with the degree of emphasis supervisors are perceived as placing on legitimate and coercive power.

H₀₃: There is no correlation between subordinate-perceived supervisor power level and the degree of emphasis supervisors are perceived as placing upon legitimate or coercive power in the population from which the sample was taken.

H₄: Certain situational and personal variables such as the identity of the organization under study, the age, background, and educational level of the respondent, and the duration and intensity of the supervisory relationship are systematically related to the subordinate-perceived rank order of effectiveness of supervisor power bases.

H₀₄: There is no systematic relationship between the situational and personal variables identified in this study and subordinate perceptions of the rank order of effectiveness of
supervisor power bases in the population from which the sample was taken.

\( H_{0,1} \), above, can be rejected at the 0.01 level (See Table 2 and the discussion following that Table). Even the quantitatively adjacent rank sums are significantly different. This leads to the acceptance of \( H_1 \) and the conclusion not only that the French and Raven power bases can be ranked in terms of subordinate-perceived effectiveness but that the rank order is as follows: expert power, legitimate power, referent power, reward power, coercive power.

\( H_{0,2} \) can also be rejected at the 0.01 level but, in this case, only the differences between expert and legitimate power and reward and coercive power are significant (see Table 4). Still, the results are strong enough to allow acceptance of \( H_2 \) with regard to the power bases ranked first (expert) and last (coercive) in terms of perceived effectiveness. It is concluded that supervisors in the population from which the sample was taken are perceived as placing most emphasis on the power base deemed most effective by subordinates (expert power) and least emphasis on the power base deemed least effective (coercive power).

The third null hypothesis, \( H_{0,3} \), cannot be rejected on the basis of the data available. It does appear likely however, that further research might result in its rejection and the consequent acceptance of \( H_3 \) with regard to coercive power only (see Table 5 and the accompanying discussion).
Testing $H_{0,4}$ required consideration of twenty-five possible relationships. Only three of these turned out to be significant. $H_{0,4}$ is rejected and $H_4$ accepted with regard to these three relationships. The following conclusions appear justified: (1) Subjects with urban backgrounds considered referent power to be relatively more effective than did those with rural backgrounds (Table 8). (2) Subjects who had worked for a given supervisor for more than two years considered referent power to be relatively more effective than did those who had worked for their supervisor for a shorter period of time (Table 9). (3) Subjects who had at least some college considered legitimate power to be relatively more effective than did those of a lower educational level (Table 10).

A Remarkable Consistency

The most intriguing result of this study is the degree of significance of the power base effectiveness rankings. It had been anticipated that a rank order of effectiveness would emerge but that probably only the extreme elements, i.e., those ranked first and fifth, would be significantly differentiated. Yet, as reported earlier, every difference was significant, all but one at the 0.01 level. Single company results were not tested for significance but the absolute rank order for each firm, as determined by arranging the rank sums in ascending order, was the same as the overall rank order. In addition, the rank order of perceived effectiveness could
not be shown to vary greatly with personal and situational variables. In this regard only three of twenty-five possible relationships were significant. Thus it appears that the rank order of perceived effectiveness found here (expert, legitimate, referent, reward, coercive) is a very general phenomenon. The perceived rank order of effectiveness is probably constant across many demographic compositions, across firms, and regardless of many technological and situational factors. This conclusion is reinforced by similar results in studies by Adams, Grzyb, Ivancevich, Marshall, Mizell, Natemeyer, and Walker (See Table 1).

Why would this be the case? Perhaps the psychologists French and Raven had more insight into the human psyche than they are generally given credit for. As French and Raven suggest, each power base may represent a distinct region in Lewinian life-space. And perhaps humans are similar in their readiness to respond to valences in each region.

An additional comment is appropriate with regard to coercive power. Coercive power relies upon negative sanction, a type of stimulus which is almost never accepted willingly. To respond to coercive influence is to accept domination—control from without. Alfred Adler felt that man's primary goal, from the cradle to the grave, is superiority over his environment, including other people.  

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1French and Raven, p. 159.

So workers might rank coercive power last in terms of effectiveness for very deep psychological reasons.

Some Practical Implications

Whether he likes it or not, the manager is involved in influencing people—his subordinates, his peers, his superiors, and those outside the organization. Almost every management action he takes indicates a preference for one or the other of the French and Raven power bases. If the manager sternly says to his subordinate, "Don't come in late again!" he is probably attempting to use coercive power. If he tries to lead by example, he is emphasizing referent power. If a manager, in addressing a problem, mentions how frequently he has handled similar problems in the past, he may be trying to increase his expert power.

Differing opinions concerning the relative efficacy of the various bases of power, while seldom specifically addressed, have been, and are, central to the selection of a management style and a management philosophy. One who believes that legitimate authority and rigid discipline (legitimate and coercive power) are the secrets to organizational success would tend to be an autocratic manager. If subordinates are felt to respond primarily to rewards, reliance might be placed on the expectancy theories of motivation. Those managers who believe that workers are most easily influenced through emphasis on friendship and a liking for their supervisor (referent power) would
favor modern behaviorism. Finally, reliance on a manager's competence and good judgment (expert power) as determinants of effectiveness is reminiscent of the so-called "Traitist" approach to leadership.

Contingency theorists approach the sticky question of which forms of power are most effective by saying "it all depends." And, to an extent, it does depend--on a variety of factors.

This study has shown, though, that there is great consistency among workers in their power perceptions. If the reported perceptions are to be believed, it says a great deal about where a manager's emphasis should be. Contrary to the predictions of expectancy theories, workers felt that they were little influenced by rewards and penalties. Reward and coercive power ranked distinctly fourth and fifth among the five power bases in terms of subject-perceived effectiveness. The most effective basis of power was indicated to be expertness or "competence and good judgment." The second most effective was legitimacy, operationalized through the following statement: "He has a legitimate right, considering his position, to expect that his suggestions be carried out."

It seems reasonable to conclude that the manager will enhance his ability to manage by nurturing subordinate perceptions that he has special competence and good judgment and that his position of leadership is a legitimate one. A more striking conclusion is that the manager should not place much faith in rewards and punishments, the administration of positive and negative valences, and so forth, as means of influence.
Management consultants might find the power base hierarchy a very useful tool. A manager who feels power-deficient—and most probably do—might be encouraged to increase his expert power base. This could be done by education and training—to increase the manager's real competence and expertness—or by insuring discreetly that employees are aware of the manager's experience, education, and competences—to increase the manager's perceived expertness.

As a second choice, weak managers might benefit from increasing their legitimate power. For example, a certain man with whom the writer is acquainted was serving as a foreman without having been officially designated such. His men routinely disregarded his directives. However, when he was charged as a foreman by the Plant Manager in the presence of the workers, occasions of insubordination disappeared.

There are many ways that legitimate power might be increased. Communication of a title change or official charge can create perceptions of legitimacy, as in the case above. Exercise of authority through a manager tends to enhance his legitimate power. Access to senior managers and to others in power, if subordinates are aware of it, leads to perceptions of legitimacy. In the military services, uniforms and insignia are worn to impart legitimate power to the wearer. Also, legitimate power tends to be assigned to older persons more than to younger persons, to men more than to women, and to tall men more than to diminutive ones.
So it is clear that power, the ability to influence people, can be enhanced through attention to individual power bases. Also the individual manager can have a greater impact upon the behavior of his subordinates if he emphasizes the more effective power bases. The surface has just been scratched, though, and research is needed to firmly establish the degree of generality which can be assigned to the hierarchy of power base effectiveness presented herein.

Suggestions for Future Research

Power is full of promise as a research topic. Some important questions relate to the power need of the manager as a determinant of managerial success, the impact of power base emphasis by the manager on subordinate satisfaction, and the impact of subunit power upon organizational structure and decision making.

None of these questions is more vital to managerial success, though, than the central question of this research—what is the relative effectiveness of various bases of managerial influence. The strength of the present research and its consonance with other studies hold out the possibility that a management principle which is not contingent has been discovered. If the power base effectiveness hierarchy found here is fairly constant for various management situations, the implications are profound.

There is a need for further research along two avenues. First, is the result of the research valid in the sense of truly reflecting the behavior of power subjects and not just their perceptions? Second,
is the power base hierarchy really as independent of employee
carderistics and circumstance as this research and the other
studies reviewed suggest?

The first question can be addressed indirectly through
laboratory validation and modification of Part II of the questionnaire
(see Appendix A) or directly through workplace experiments. The
second method, workplace experimentation, is considered preferable.

It is probably not feasible to test all five power bases in
one experiment. An alternative to this is the method of paired com­
parisons. A typical experiment might consider the expert and the
coercive power bases. Several pairs of similar work groups might be
selected and a measure and record of group responsiveness developed.
Next, the supervisor of one member of each pair might be counseled
carefully to increase his emphasis upon coercive influence. The
supervisor of the other pair member might be counseled to use expert
power more than in the past. The direction and/or magnitude of any
changes in employee responsiveness would indicate, though not estab­
lish, the effectiveness of expert power vis-a-vis coercive power. A
consistent result across many groups would tend to establish the
relationship.

The second suggested research question—-is the power base
effectiveness hierarchy non-contingent—-can be answered through a
volume of comparable research in a variety of organizations. The
increasing interest in the concept of power discussed in the
introduction to this paper should result in a large volume of
research in a sufficient variety of work groups. The suggestion here is that the French and Raven model be accepted as an adequate one so that comparability of results might be obtained.

Concluding Remarks

The management professional, whether in academe or in practice, should be encouraged by the results of this study. This is true for two important reasons. First, the viewpoint taken in recent research as to the locus of power is a morally comfortable one. Power is seen as residing in the perceptions of subordinates. As previously pointed out, the manager does not hold power in the sense of possessing it. Subordinates assign power to the manager and by virtue of that assignment the manager is able to direct or influence their activities.

Second, the more effective bases of power appear to be those which are most palatable from an ethical standpoint. If there is a single criterion of a good leader which most people would accept, it is that of competence or expertness. It is only "right" that the most competent member of a work group be its leader. The results of this study indicate that expert power, competence and good judgment, is the most effective basis of influence.

In some cases, though, emphasis upon expert power is not feasible. It is not always possible to select those persons for leadership positions who are best qualified, as desirable as that might be. Moreover, subordinates may not always agree as to the
competence level of their supervisor. Thus, organizations may have to function at times under the direction of leaders who are deficient in expert power. In those cases, it seems right to rely upon the internalized norms or values of subordinates as a source of leader power--norms as to the leadership rights of age, official position, physical size, sex, etc. Power based upon internalized norms or values is legitimate power in the French and Raven scheme. The results of this study suggest that legitimate power is second most effective among the five power bases.

At the opposite extreme is coercive power, apparently the least effective power base of all. Few would say that coercive influence--negative sanction or threat--is other than the least moral means of controlling human behavior.

In light of these observations, it is clear that power is an entirely honorable field of study in addition to being a useful management concept. The benefit to mankind can be very great if the results of the present study are confirmed by further research and communicated to management practitioners and scholars.
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APPENDICES
APPENDIX A

Questionnaire, Forwarding Letter

And Data Format
QUESTIONNAIRE

This questionnaire is designed to obtain data for use in a Ph.D. study. It is concerned with workers' feelings about their supervisors and themselves.

There are no "right" or "wrong" answers—only YOUR feelings are desired. There is NO place on the form for your name. The responses will not be considered individually, only in terms of averages.

Pre-testing indicates that it takes less than ten minutes to complete the questionnaire. Thank you for your time and consideration—it IS appreciated.

PART I

1.1 Age: 15-25 ____; 26-35 ____; 36-45 ____; 45-up ____.

1.2 Where did you grow up? (Check the most nearly correct answer.) Country ____; City ____.

1.3 Counting this month, how long have you worked for your present supervisor? Less than 6 months ____; 6 months to a year ____; One to two years ____; Two to five years ____; Over five years ____.

1.4 What is your highest level of formal education? Less than 9th grade ____; Some high school ____; High school graduate ____; Some college ____; College graduate ____.

1.5 How frequently would you say you see or speak with your immediate supervisor while you are at work? (Check only one.)

____ 1. Every few minutes.
____ 2. About every hour or two.
____ 3. Once or twice a day.
____ 4. Every few days
____ 5. Less frequently than every few days.
PART II

Listed below are five reasons often given by employees when they are asked why they do the things their supervisors suggest or want them to do. Read all five carefully. Then number them according to their importance to you as reasons for doing the things your supervisor wants you to do. Number "1" will be the most important reason, number "2" the second most important, and so on.

"I do the things my supervisor suggests or wants me to do because:

___A. "I admire him for his personal qualities and want to act in a way that merits his respect and admiration."

___B. "I respect his competence and good judgment about things with which he is more experienced than I."

___C. "He can give special help and benefits to those who cooperate with him."

___D. "He can apply pressure or penalize those who do not cooperate."

___E. "He has a legitimate right, considering his position, to expect that his suggestions be carried out."

PART III

The next list is similar to the previous one. Number these in the order of importance placed on them by your supervisor. Again, the most important statement should be numbered "1."

"In supervising my work my supervisor tends to emphasize:

___A. "His respect and liking for me."

___B. "His competence and good judgment."

___C. "His ability to give special help and benefits to those who cooperate with him."

___D. "His ability to apply pressure or penalize those who do not cooperate with him."

___E. "His official position and his legitimate right to expect that his suggestions be carried out."
PART IV

Consider the following carefully. Mark only one answer.

"Compared to other supervisors who are in similar positions, my supervisor's ability to get his subordinates to do what he wants done is:

___ Far above average.
___ Above average.
___ About average.
___ Below average.
___ Far below average.
SAMPLE COVER LETTER

December 2, 1976

To the Monroe Employees of J. C. Penney Company

Dear Friends:

The management of the Monroe J. C. Penney store has kindly agreed to distribute the attached questionnaire for me. It is important to my research that each of you complete the form.

You should be able to answer all the questions in just a few minutes. I would appreciate it if you would complete the questionnaire now, or possibly on your next break. To assure the confidential nature of your answers, please return the questionnaire directly to me, using the stamped envelope provided.

Sincerely,

Arthur D. Sharplin, MBA
Louisiana State University
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II3
VITA

Arthur Daniel Sharplin, the third of six sons of Thomas Franklin Sharplin and Rhoda Thompson Sharplin, was born near Siminary, Mississippi on March 22, 1939. He attended many public schools in Mississippi and Louisiana and graduated from Delhi (Louisiana) High School in 1957.

In 1959, he married Kathryn Rebecca Collier. They now have two children, Arthur Daniel Sharplin, Jr., age 15, and Sylvia Dianna Sharplin, age 16.

Mr. Sharplin served for eleven years with the United States Navy ending in 1971. While in the Navy he earned a B.B.A. degree at Memphis State University.

Since leaving the Navy in 1971 he has earned an M.B.A. degree from Louisiana State University and is now a candidate for the Ph.D. degree at that institution. Mr. Sharplin's major field of study is Management and his minor is Finance.

Mr. Sharplin is co-owner and board chairman of several closely-held business enterprises in Monroe, Louisiana.
EXAMINATION AND THESIS REPORT

Candidate: Arthur Daniel Sharplin

Major Field: Management

Title of Thesis: Power Base Effectiveness Perceptions: An Empirical Study

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

November 16, 1977