



Bases of Power and Subordinates' Satisfaction with Supervision - The Contingent Effect of Educational Orientation

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Abstract

The study seeks to find out the impact of the supervisory power bases on subordinates' satisfaction with supervision in industrial settings. The influence of educational orientations of superiors and subordinates was also examined. The results indicated that referent power, expert power and reward power showed positive relationship with satisfaction with supervision. In terms of rank ordering of bases of power, referent power ranked the highest among other power exercises. This was followed by expert and reward power. The expert power base was also found to be positively related to the superiors' educational orientations rather than the subordinates'. The results also showed that superiors' evaluation of subordinates' competency and ability were based on their education orientations.

Keywords: Supervisory Power Bases, Satisfaction with Supervision, Educational Orientation

1. Introduction

This research investigates the consequences of supervisory power in relation to subordinates' satisfaction with supervision. Power is said to be a "part of the larger study of the determinant of human behaviour" (Cartwright, 1965, p.3). We are likely to consider the reality of power at some point in the analysis of organizational phenomena. Organizational change and control may be viewed from a power perspective. Differences in the perceptions of power possess implications in its own right because superiors' use of power may be reinforced by subordinates' response or the superiors may anticipate subordinates' reaction to the use of power. It would be helpful for the superiors to be aware of the existence of multiple sources of power in work situations and how they affect employees' satisfaction (Churchill, Ford and Walker, 1976; Rahim and Buntzman, 1989). Knowing how power affects satisfaction will allow superiors to change or maintain their power bases to achieve desirable outcomes. On the other hand, understanding of the role of educational orientation in the organizational study may be as important as the knowledge of the relationship between the main variables of interest and will obviously increase the usefulness of the research findings.

1.1 Objectives of the Study

The framework for this study is shown in Figure 1 (Note 1). The study also analyzed the influence of educational orientation on power bases, and subordinates' satisfaction with supervision. Another objective of this study is to compare the outcomes of social power relationship in Malaysian work setting with those reported happening in the West. In this region, the educational level specialized work experience and expertise of superiors are often more limited as compared to advance country? The culture is characterised by strong traditional values according to which deep commitment to friends, superiors and relatives is the locus of social relations among individuals. These cultural and environmental factors are likely to influence the outcomes of the different bases of superior power and also in the manner in which other contingent factors affect the acquisition and use of these powers.

The key research questions are:

- What are the consequences of power relationships upon subordinates' satisfaction with supervision?
- Are there any correlations between power bases, and superiors-subordinates' educational orientation?

2. Literature Review

Many power theoreticians (Dahl 1957; Emerson, 1962; Kornberg and Perry, 1966; Nagel, 1968; Wrong, 1968) emphasized that power should be conceptualized as a relationship between or among persons and not an attribute or

possession of a person or group. Within organizational context, theorists largely agree that individual power in organization is the ability to control others, to exercise discretion, to get one's own way.

Differences among definitions given by many researchers (Kanter, 1977; Scott, 1981; House, 1984) appear to be a function of differences on three basic issues about power. First of all, definitions given by researchers often reflect individual orientation and arena of interest (e.g. sociological, political, organizational, etc.). Secondly, theorists tend to focus their definitions on different systemic levels which include the individualistic, the dyadic and systemic. A third divisive element among power theorists has to do with which variables are most central to a conception of power. Despite the irregularities in the conception of power, certain cumulative character appeared from this large body of research in terms of the description of power relations.

From this description of power relation, it is obvious that the notion of influence is particularly important to the concept of power. In short, leadership and influence are a function of power. Power is the potential to influence. In order to analyze the power dependence relations adequately, we need to separate the holding of power because its dependence on one's person, one's office, the willingness to exercise it, and the tendency to do so can change the nature of influence.

2.1 *The Bases of Power*

Several categorizations have been used in differentiating bases of social power in organizations (Peabody, 1961; Etzioni 1964; Patchen, 1974; Twomey, 1978; Kipnis, Schmidt & Wilkinson, 1980; Shukla, 1982; Rahim, 1989). However, French and Raven (1959) typology of power is still the most famous in research work (Cobb, 1980; Frost & Stahelski, 1988; Rahim, 1989; Rahim, Antonioni, Krumov, & Illieva, 2000). French and Raven defined bases of power as below:

2.1.1 Coercive Power

Coercive power involves the concept of influence based upon "the expectation of punishment for failure to conform to an influence attempt". The strength of coercive power depends on the magnitude of the "negative valence of the threatened punishment multiplied by the perceived probability that a power recipient can avoid the punishment by conformity". One of the key elements is that people subject to coercive power are either indifferent to, or opposed to, the wielder of authority.

2.1.2 Expert Power

This power usually manifests in information, knowledge and wisdom, in good decision, in sound judgment and in accurate perception of reality. Expert power is restricted to particular areas as the "expert" tends to be specialised. The extent of expert power is not clearly a function of the face-to-face interaction or the personal quality of that interaction between role partners; it may be a function of the knowledge possessed by the power wielder, not of his presence.

2.1.3 Reward Power

Reward power is derived from the ability to facilitate the attainment of desired outcomes by others. In a sense, this form of social power is closely related to coercive power. If one conforms to gain acceptance, reward power is a work. However, if conformity takes place to forestall rejection, coercive power has to be exercised. In accordance to French and Raven, reward power depends on the power wielder (individual or group) administering "positive valences and reducing or removing negative valences".

2.1.4 Referent Power

This involves the concept of "identification", which French and Raven (1959) define as "a feeling of oneness or a desire for such an identity". If referring to a group, then an individual seeks membership in such group or has a desire to remain in an association already established.

2.1.5 Legitimate Power

Closely tied to the Weberian concept of "legitimate authority", legitimate power is induced by norms or values of a group that individuals accept by virtue of their socialisation in the group. By the French-Raven, definition, this power "stems from internalised values which dictate that there is a legitimate right to influence and an obligation to accept this influence".

2.2 *Satisfaction with Supervision*

Job satisfaction is a collection of feelings or affective responses of the organizational members which are associated with the job situation within the organization. Smith, Kendal and Hulin (1969), in their well documented measure, the Cornell JDI (Cornell Job Descriptive Index) described five areas of satisfaction: the work itself, the supervision, the co-workers, the pay, and the opportunities for promotion on the job. Since the present study is on the superior-subordinate relationships, the job-facet satisfaction is most relevant to satisfaction with supervision.

Obviously, from human relations perspectives, supervisory satisfaction is related to the personality traits of the superior which as his/her temperament, openness, industriousness, pleasantness etc. The positive side of all of these traits can enhance satisfaction. Related to the personal resourcefulness, supervisory satisfaction is also dependent on the superior's distinguishing qualities and abilities such as intelligence and knowledge.

2.3 Educational Orientation

The educational orientation that shapes one's knowledge, problem solving skills, inductive reasoning, syntactic evaluation etc. will affect ability on how a person evaluates and interprets various cues and stimuli in the working environment and also on how a person acts as a consequence of these interpretations. Research has showed that subordinates with low levels of education are likely to be more susceptible to influence if their superiors use legitimate, reward and coercive sources of power (Hackman and Oldham, 1976; Shetty, 1978; Sussman and Vecchio, 1982). On the contrary, subordinates with higher levels of education have been found to be more receptive if their superiors use expert and referent sources of power. There was no reported research known to the authors which specifically examines superiors' educational orientations with regard to the bases of social power and satisfaction with supervision. The present research hopes to bridge this gap.

3. Hypotheses to be tested

The hypotheses derived for this study are:

H1a: Superiors' non-coercive bases of social power (expert, referent, reward and legitimate) are positively associated with the subordinates' satisfaction with supervision

H1b: Superiors' coercive base of social power is negatively associated with the subordinates' satisfaction with supervision.

H2a: There are no differences in the subordinates' perceptions of power bases and satisfaction with supervision in relation to the superiors' educational orientation.

H2b: There are no differences in the subordinates' perceptions of power bases and satisfaction with supervision in relation to their own educational orientation.

4. Research Methodology

4.1 Sampling Design

Stratified random sampling technique was used to select companies with a number of employees more than 25. This number was arbitrarily chosen but the intention here was to include only establishments where a more formal organizational structure and system of supervision more likely to exist and function. The factories that met the above criteria were selected from the master list of factories registered with the Federation of Malaysian Manufacturers. Data was obtained through survey questionnaires.

4.2 Research Instruments

All data used in the study consist of responses to questionnaire items. Measures of relevant constructs were discussed here.

4.2.1 Bases of Supervisory Power

The five French-Raven bases of supervisory power were measured by using the Rahim Leader Power Inventory (RLPI) (Rahim, 1988). This multi-item instrument uses a 5-point Likert scale to measure perceptions of subordinates regarding their superiors' bases of power. The instrument comprises of 29 items.

4.2.2 Satisfaction with Supervision

The instrument used to measure satisfaction with supervision is the updated version of the original Job Descriptive Index (JDI; Smith et al., 1969) which was later revised by Roznowski (1989). The revised scale was shown to be more internally consistent than the original scale with the alpha coefficient of .912. The unweighted sum of the individual item score was used as a measure of satisfaction with supervision. The instrument is made up of 18 items.

4.3 Data Analysis Techniques

Reliability and factor analysis was used to check the consistency and dimensionality of the scale items. Multiple regression analysis is performed to check the criterion-related validity of the scale items. Pearson Intercorrelation was used to measure the associations among the social power bases and satisfaction with supervision. Additional analysis of variance (ANOVA) was performed to test the different in power bases and satisfaction with supervision with superiors' educational orientation and subordinates' educational orientation.

5. Research Results and Discussions

5.1 Sample Characteristics

Data from 230 respondents were received out of total 1432 questionnaires sent. Only 210 data were usable. Sample characteristic is described in Table 1 (Note 2). The highest number of respondents is from Chinese ethnic group. A mere 7% female respondent reflects the male domination in the industrial sector. More than 60% of the respondents were from factories located in the Klang Valley. The highest proportion of respondents fell into the 31-40 years age group.

On the whole, the education level of the respondents was high. Nearly 61% of the respondents had education up to university in technical field while 15% received university education in non-technical field. Only 24% of the respondents had no tertiary education. The high educational level was reflected in the position or the type of occupation held by the majority of the respondents i.e. 5 Assistant General Managers, 54 Divisional Manager and Assistants, 74 Engineers and Assistants, 11 Chemists, 32 Supervisors, 12 Plant Operators and the rest comprised of System Analysts, Draughtsmen, Quality Control Inspectors etc. The average salary of the respondents was higher than the population's average. On average, the respondents had worked in the present company for 7 years.

The survey also revealed the information about the respondent's superiors. Almost all of the superiors reported in the survey were males. A majority of them were holding medium to high management positions. On average, the superiors had worked in the organization for 11 years – far longer than the subordinates' average. Most of the superiors were holding high positions in the company with 36% of them in the first hierarchical level. Their educational level was also strikingly high, with 70% of them having had tertiary education in technical fields.

5.2 Validating the Scales

The data on the 29 power items from the sample of 210 respondents were factor-analyzed. The selection of a factor and an item was guided by the criteria: eigenvalue > 1.0 and Scree Plot and factor loading > 0.4, respectively (Ford, MacCallum & Tait, 1986). Based on these criteria, the first five factors were selected (result not shown).

Considering that the result as a whole supported the a priori grouping of items, it can be concluded that the power scale developed by Rahim (1988) was suitable for application to the present data although some purification was necessary to improve its accuracy. The indices of the five power bases were computed by averaging the samples responses to the items in each factor. This resulted in the creation of five continuous subscales.

The mean, standard deviation and standardized Cronbach Alpha and the corrected item-total correlation for each subscale is provided in Table 2 (Note 3). The internal consistency reliability coefficients for all the scales were satisfactory (Nunnally, 1978). All the scales had coefficient Cronbach Alpha greater than .70. A corrected item-total correlation is a correlation between an item's score and subscale score computed from the remaining items in the set. The item-total correlations for the five scales ranged between .29 and .76.

A multiple regression analysis was run to test the relationship between the five bases of leader power and the subordinates' satisfaction with supervision. The results are presented in Table 3 (Note 4). The results showed that the referent, expert, and reward power bases positively influenced satisfaction with supervision. The five power bases together explained about 45% of the variance in satisfaction. The relations between the five power bases and the "theoretically-related" dependent variable supported the criterion related validity of the power scale.

5.3 Testing of Hypotheses

H1a & H1b: Power Bases and Supervisory Satisfaction

The correlational results in Table 4 (Note 5) provided good support for H1a. The non-coercive bases of social power (expert, referent, reward and legitimate) showed positive relationships with satisfaction with supervision. Referent power ranked highest among other power exercises (coefficient .64). This was followed by expert power and reward power which both had coefficients of correlation of 0.47. The ranking of intercorrelation was somewhat similar to the study of Rahim and Buntzman (1989) conducted on respondents with post graduate working experiences. It was expected that referent and expert power represent a high level of internalisation or inner acceptance. In the exercise of referent power, internalisation derived from the identification of power recipient with the wielder of referent power – a personalised commitment to the group or its representative. As Raven (1974) found out, the exercise of referent power tends to encourage a more satisfied, cooperative and prolonged relationships between superiors and subordinates.

Expert power benefits from an umbrella of authority which may go beyond superiors' specialised skills. Among technical staff, expertise emerges as a very important cue for acceptance and recognition of the superiors' direction as reflected in the present result. It most likely gains their compliance and least likely to provoke their resistance (Podsakoff & Schriesheim, 1985). Similarly, greater satisfaction with supervision among subordinates may lead to greater cooperation and heightened dependence.

Both referent and expert power were labelled by Yukl (1981) as "personal" form of power. The present results supported the general view that "personal" power has a positive effect on the leader-subordinate relationship. The high degree of intercorrelations among the referent, expert and reward power bases served to temper the previous

discussions and tended to suggest that while referent power emerged as the dominant explanatory power base, its effective utilisation might be tied, to some extent, to the superiors' exercise of a combination of other power bases i.e. in this case, expert and reward power bases.

Although earlier findings (Warren, 1968) acknowledged that reward power shows less inner acceptance, the present correlational results indicated a high level of satisfaction with supervision. This power derives from control over positive or rewarding outcomes for subordinates is expected to be an effective means of influence to increase productivity in the organisation. Schopler and Layton (1974) held that the use of reward power is likely to increase the attraction between the manager and subordinate while coercive power is likely to decrease it. Too much emphasis of this power base, however, should be guarded against, since the withdrawal of positive sanctions is apt to result in the subordinates' reversion to their previous behaviour. Further, the effect of the inducement, even if continued, is subject to diminishing utility.

The legitimate power showed relatively lower correlation with the satisfaction with supervision. In the exercise of legitimate power, subordinates' responses tended to be dependent on the normative acceptance of the position and prerogatives of the organization at large including its leadership. The present result concurred with the conclusion made by Yukl (1981) that "position" power such as legitimate and coercive are less effective means of influence attempt.

The result for coercive power was not exactly consistent with hypotheses H1b. The study indicated that the amount of coercive power perceived to be held by a superior was not associated with supervisory satisfaction when it was earlier hypothesized to have negative association. However, the result failed to reach statistical significance. Past researchers also had mixed results with regard to this correlation. For example, Rahim and Buntzman (1988) – weak positive; Busch (1980), Hinkin and Schriesheim (1989) – negative. The coercive power which is derived from control over negative or punishing outcomes for other does not appear to be a suitable power base for dealing with subordinates. The traditionalists believed that punishment is ineffective and can lead to discontinuation of social interaction. The present results however, neither confirmed nor disproved the effectiveness of punitive treatments to get things done but it was obvious that this power exercise should not lead to subordinates' satisfaction. Moreover, people could not be coerced into a deep-seated acceptance of organizational requirements.

H2a & H2b: Power Bases, Supervisory Satisfaction and Educational Orientation

The results of testing H2a are shown in Table 5 (Note 6). The data provided general support for the hypothesis of no differences between superiors with different educational orientations in terms of subordinates' perception of power bases and satisfaction with supervision. Only two of the seven contrasts were significant at the traditionally acceptable levels, i.e. expert power base ($F = 3.00, p < .05$) and reward power base ($F = 6.15; p < 0.005$). These contrasts deserve some explanations. Subordinates' perception of superiors with technical and engineering background as having more expertise than any other group is an important signal to the management of highly qualified technical personnel. It was apparent that the perception of expertise is often related to the educational level and the relevancy in the field of study seems to play a part in reinforcing this perception. Thus, if expert power is to be used effectively, it is preferable that the superior has the relevant expertise required by his/her department. In addition, the expertise evokes a sense of dependency of the superior's direction in the organization which has the positive impact on team productivity (Fiorelli, 1988). In the case of reward power, the distinction between the mean scores on the three groups was clear. The superiors with non-technical tertiary education were highest in the reward power score whereas superior without any tertiary education scored the lowest.

Strong relationships between qualification, position and power to reward might have profound influence on the present results. In general, the superiors with a lower level of education will take on a lower position job than those with a higher level of education. They are then often less resourceful than the other managers which limit their capacity to sanction or influence rewards, leading to the lower perception of reward power. It must be remembered that the perception of power embraces not only the willingness but also the capacity to reward. On the other hand, the large proportion of the lower educated subordinates who reported to the superiors of the same educational category as evidenced in the cross tabulation results in Table 6 (Note 7) could have contributed to this observed variation in reward power base perception. Due to the inherent limitations of this study, admissibility of the above explanations can only be evaluated from other research findings dealing with the same variables conducted in similar work and social setting.

H2b test results, as earlier shown in Table 5, supported the general contention of no differences in the subordinates' perceptions of power bases and satisfaction with supervision between subordinates with different educational orientation.

6. Conclusion

In general, the results of this study in relation to the administration of industrial people were quite consistent with our hypotheses based upon other organizational studies involving qualified and professional people. The instruments used in the study were tested and found to be applicable to our work environment. The results provided some tentative, but

hopefully useful guidance for industrial administrators.

Intercorrelations among the five power bases showed that French and Raven (1959) power bases are not mutually exclusive. Reward and referent power bases were the most closely related followed by expert and referent power bases. The results revealed that referent power, expert power and to some degree reward power and legitimate power are found to be in association with each form of power. On the other hand, coercive power was the least correlated with all other power bases and most often stands alone. Among all of the power bases, coercive power was most related to reward power. It indicates that reward and coercive power tend to be used interchangeably. Though not considered as a serious disadvantage, notable intercorrelations among the five power bases denote the difficulty of finding power typology which is both exhaustive and conceptually distinct.

In assessing the effectiveness of the various influence attempts, the results suggested that referent, expert and reward power should be emphasized to ensure subordinate acceptance. Coercive power should be minimised in any influence attempt except in situation that call for such approach (e.g. time of crisis, low performance etc). The position of legitimate power was the lowest among the non-coercive power bases in influencing subordinates' behaviour for the case of management of technical and professional staff. Comparative studies revealed an interesting difference in the rank ordering of bases of the superiors' influence attempts. The present study and Rahim and Buntzman (1989) study ranked referent and expert power as the most favourable and legitimate power the lowest among the non-coercive power bases in eliciting subordinates' acceptance.

Perception of expertise was related to the superiors' educational orientation and this perception was reinforced when the field of study was relevant to the expertise requirement of the department. Perception of reward power also tended to correspond with the education orientations of the superior in which the superior with non-technical tertiary education was perceived to give greater reward than the rest.

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Notes

Note 1. Supervisory Power Bases and Satisfaction with Supervision

Note 2. Respondents' Characteristics

Note 3. Reliability of Scales: Power Bases and Satisfaction with Supervision

Note 4. Multiple Regression Analysis: Power Bases and Satisfaction with Supervision

Note 5. Pearson Correlations among Key Variables

Note 6. ANOVA: Perception of Power Bases and Satisfaction with Supervision

Note 7. Cross Tabulation: Superiors' Educational Orientation by Subordinates' Educational Orientation

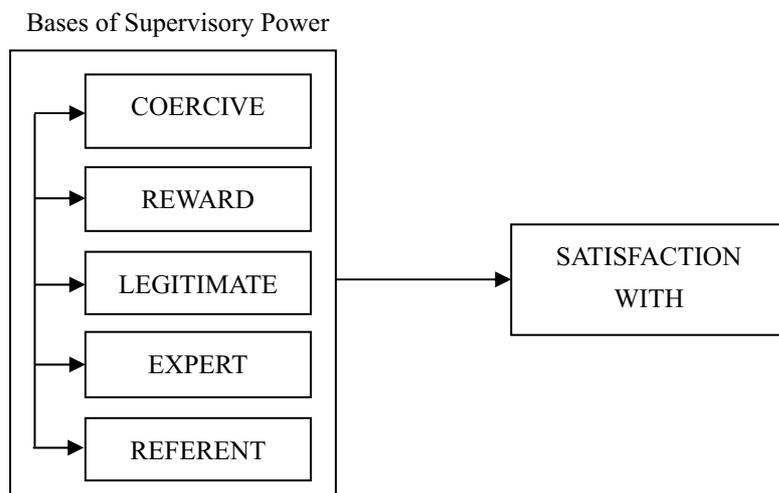


Figure 1. Supervisory Power Bases and Satisfaction with Supervision

Table 1. Respondents' Characteristic

Respondents Characteristics	Classification	Percentage (%)
Ethnic Group	Chinese	72
	Malay	18
	India	8
	Others	2
Gender	Male	93
	Female	7
Factories Location	Selangor (Klang Valley)	60
	Perak, Penang, Kedah, Perlis	20
	Johore, Negeri Sembilan, Malacca and Pahang.	20
Age	41 and above	16
	31 - 40	50
	20 - 30	34
Education	Technical Field	61
	Non Technical Field	15
	No Tertiary Education	24
Occupation	Assistant General Managers	2
	Division Manager and Assistants	26
	Engineers and Assistants	35
	Chemists	5
	Supervisors	15
	Plant Operators	6
	System Analysts, Draughtsmen, Quality Control Inspectors	11
Income per month	RM5000 and above	29
	RM4001 - RM5000	12
	RM3001 - RM4000	16

	RM2001 - RM3000	13
	Below RM2000	30
Length of service	More than 12 years	12
	8 - 12 years	17
	5 - 8 years	21
	2 - 4 years	23
	1 year or less	27
Organizational Size	More than 1000 employees	11
	401 - 1000 employees	10
	201 - 400 employees	14
	101 - 200 employees	24
	25 - 100 employees	41
Types of Business	Machinery	29
	Food	13
	Chemical	13
	Non metal, Basic metal, Textile, Wood and Paper.	45
Respondents' Superior		
Ethnic Group	Chinese	76
	Malay	7
	India	7
	Others	10
Gender	Male	90
	Female	10
Education	Technical Field	70
	Non Technical Field	12
	Non Tertiary Education	18
Designation	Directors	19
	General Manager	15
	Divisional Manager	43
	Assistant Manager, Engineers, Supervisors	23
Length of service	More than 20 years	11
	16 - 20 years	15
	11 - 15 years	15
	6 - 10 years	34
	1- 5 years	16
	Less than 1 year	9
Hierarchy level	First Level	36
	Second Level	31
	Third Level	24
	Lower Level	9

Table 2. Reliability of Scales: Power Bases and Satisfaction with Supervision

Scales	No. of Items	M	SD	Item-Total Correlation	Cronbach Alpha
Expert	6	3.45	.76	.46 to .71	.84
Reward	5	3.82	.75	.57 to .76	.85
Referent	5	3.56	.77	.57 to .72	.84
Coercive	5	3.71	.71	.40 to .60	.76
Legitimate	6	3.88	.53	.37 to .54	.73
Satisfaction with Supervision	18	13.10	4.30	.29 to .64	.86
SDS	10	6.26	2.00	-	-

This table shows the mean, standard deviation and standardized Cronbach Alpha and the corrected item-total correlation for each subscale.

Table 3. Multiple Regression Analysis: Power Bases and Satisfaction with Supervision Dependent variable: Satisfaction with supervision

Predicted Variables	b	Standard Error	Beta	T Value
Legitimate	-.348	.451	-.043	-.772
Coercive	-.049	.323	-.008	-.152
Referent	2.689	.359	.486	7.486 *
Expert	1.055	.350	.188	3.020 **
Reward	.818	.364	.142	2.248 **

F = 34.749

Significance F < 0.0001

R (adjusted) = .447

Intercept: a = - 1.738

* p < .0001

** p < .05

Multiple regression analysis was performed to test the criterion related validity of the power scales in relation to its predictive relationship with satisfaction with supervision.

Table 4. Pearson Intercorrelations of Main Variables of Interest

Variables	1	2	3	4	5	6
1 Expert Power	1.000	.41	.48	.07	.33	.47
2 Reward Power		1.000	.53	.21	.21	.47
3 Referent Power			1.000	.14	.20	.64
4 Coercive Power				1.000	.16	.09
5 Legitimate Power					1.000	.15
6 Satisfaction with supervision						1.000

Note: r's > .11 is significant at p < .05

r's > .21 is significant at p < .001

This table shows the intercorrelations among key variables.

Table 5. ANOVA: Perception of Power Bases and Satisfaction with Supervision

	Group Means Educational Orientation			F-ratio
	Primary to Secondary	Tertiary Technical	Tertiary Non-Technical	
		Superiors'		
Expert	3.18	3.52	3.42	3.00*
Reward	3.63	3.79	4.26	6.15**
Referent	3.60	3.51	3.77	1.30
Coercive	3.70	3.66	4.00	2.71
Legitimate	3.88	3.85	4.04	1.51
Satisfaction with Supervision	12.62	13.01	14.15	.35
		Subordinates'		
Expert	3.48	3.45	3.38	.16
Reward	3.70	3.88	3.78	1.00
Referent	3.60	3.58	3.42	.62
Coercive	3.73	3.67	3.86	.90
Legitimate	3.90	3.84	4.00	1.09
Satisfaction with Supervision	13.52	13.17	11.97	1.31

Notes: * Significant at the .05 level

** Significant at the .005 level

Degree of freedom between groups 2

Degree of freedom within groups 207

Table 6. Cross Tabulation: Superiors' Educational Orientation by Subordinates' Educational Orientation

Superior Educational Orientation	Subordinate Educational Orientation		
	Primary to Secondary	Tertiary Technical	Tertiary Non-Technical
Primary to Secondary	21	10	6
Tertiary Technical	25	105	17
Tertiary Non-Technical	6	13	7

Chi-Square: 32.81

Degree of freedom: 4

Significant level < 0.0001