A REVIEW OF INDUSTRIAL SUPERVISION: Effectiveness and Dimensions

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In the past, the term "supervision" was frequently made synonymous with "Ordering people about."[55] During the era of 'Scientific Management', the quality of supervision was regarded to be important only in relation to policing activity and the primary determinants of productivity were considered to be tools, methods and pay.[42] But now it has been established by empirical studies that good supervision is as important as tools, methods and pay in increasing the productivity. Roger Hull, while speaking on 'The Art of Scientific Management' said, "Good procedures and Methods are essential to obtain maximum results, but there is another factor, more important than sound procedures. It has been my observation that enthusiastic people will do better work even with poor procedures, and that principle is even more true when groups of people are concerned."[32] Besides the people engaged in management, the psychologists have given a great deal of attention to this problem of supervision. E.D. Smith says, "With the same group of workers, with the same pay and with the same equipment, under a certain management, the workers will give their best in energy and intelligence; whereas, under another management, these workers will give as little as they can get by with, and some men may go farther and interfere where they can."[55] He says further, "A company

pays the same for labor whether it is managed well or whether it is not, but what it gets from its labor depends not only upon the methods and equipment that the management provides, but upon whether the employees work with a will. This in turn depends largely upon the skill of the junior executives in dealing with human nature."[56]

The present paper surveys the various approaches followed in studying industrial supervision, with special reference to the effectiveness of supervisory factors and dimensions of supervision. An approach to the study of supervisory dimensions has ben suggested, and a model has been presented for the testing of hypothesis regarding the relationship between the dimensions of supervisory behaviour and productivity.

Supervision and Productivity

The classical study demonstrating the effectiveness of industrial supervision by showing a certain percent increase in the output due to good supervision was the study done in Hawthorne Plant of the Western Electric Company during the years 1927-32. A number of studies were conducted in this plant in order to determine the effects of various factors such as level of illumination, conditions of work, method of payment, hours of work, introduction of rest pauses and supervision. According to Roethlisberger and Dickson, out of the total increase of 30%, 15% increase in output was due to the changes in working conditions and supervision i.e., all factors other than wage incentives[66]. Roethlisberger and Dickson said, "The most important of these inadver-

tently introduced changes was the new method of supervision."[49]

Another early study which demonstrated that supervision can play an important role in stimulating output was reported by H. Feldman. The experiment was performed in an insurance company employing 1000 clerks which were divided into 22 divisions. In 1933 a new wage plan was introduced which provided group incentives. For the year 1933 every section showed an improvement in performance of 2% to 12% with an average of 8%. On the basis of this difference in output all the 22 divisions were divided into two groups i.e. above-the-average bonus groups and below-the-average bonus groups. In 1934 the management wished to determine whether the differences in results were related primarily to differences in supervision or to differences in the quality of personnel or other conditions of work. The management transferred the section heads (supervisors) of above-the-average bonus groups to below the-average bonus groups and vice versa. An analysis of the production for the year 1934 showed an increase in production in all the sections ranging from 6% to 18%. The order of merit of supervisors remained practically the same as it was in 1933. This greater increase in the production of below-the-average sections could then be attributed to the changes in supervision i.e. supervision of below-the-average groups in 1934 was better than supervision in 1933.[55]

Subsequently, studies were made to determine and define the characteristics, attitudes and behaviour of supervisory personnel contributing to changes in motivation,

productivity and morale of workers. Particular mention may be made of the following two studies carried on by Survey Research Center of the University of Michigan.

In 1947 an investigation was conducted in the home office of Prudential Insurance Company with clerical workers and their supervisors. According to the investigators there were only two variables which could account for group differences in productivity:

(a) Management and supervision within the sections and divisions, and

(b) Interpersonal relations among employees in the work group.

An experimental design was set up "with productivity as the dependent variable, supervision and management as the independent variables and worker morale as the intervening variable".[56] Analysis of the findings of this study showed that the supervision of the High-productivity Sections differed from the supervision of the Low-productivity Sections in certain welldefined characteristics, attitudes and behaviour. Employee-centred supervisors proved to be higher producers than the production-centred supervisors. The employee centred supervisors spent more of their time in supervision, at the same time giving the employees full opportunities to work out the details of when and how the work would be handled. They considered employees as people not essentially different from themselves; people capable of taking some responsibility, people with many different interests and needs. On the other hand low-producing supervisors, known as 'Production centred' supervisors entered into the production process themselves. They were more interested in production rather than in the

employees, and were more authoritarian in their outlook than the employee-centred supervisors.[54,56]. It was found that the heads of high producing sections are significantly more likely:

(i) to receive general rather than close supervision from their superiors;

(ii) to like the amount of authority and responsibility they have in their jobs;

(iii) to spend more time in supervision;

(iv) to give general rather than close supervision to their employees;

(v) to be employee oriented rather than production-oriented.[54]

The second study undertaken by Survey Research Center of University of Michigan investigated maintenance-of-way section gangs working in the Pere Marquette District of the Chesapeake and Ohio Railroad. The objectives of the study were:

(a) to discover the relationship between supervisory attitude and behaviour, and group productivity among section gangs on a railroad;

(b) to compare the findings from this study with those that emerged from the earlier investigation of clerical workers in the Prudential Insurance Company;

(c) to discover the relationship between productivity and worker morale in this situation.[55]

The methods which were used in the previous investigation were also used in this investigation. Four main findings appeared in this study:

(i) High and low productivity foremen do not differ significantly in degree of satisfaction with their jobs and other aspects of the work situation.

(ii) Low productivity foremen do not clearly perceive their leadership role. High-productivity

foremen are typically more aware of their position as leader and supervisor and are better able to function effectively in their leadership capacity.

(iii) Foremen of high and low sections differ in their attitudes toward their men. Foremen of high-sections are more positive toward their men, take more personalised approach to them and give more attention to their problems.

(iv) Foremen of high producing sections evaluate their sections more highly than do foremen of low producing sections.[35]

Comparing the two investigations[34, 35] four relationships appeared consistently:

(i) There is a direct relationship between section productivity and the assumption of leadership role by the supervisor.

(ii) There is a direct relationship between section productivity and the "employee-orientation" of the supervisor.

(iii) There tends to be an inverse relationship between section productivity and the supervisor's feeling of pressure from above.

(iv) There is a direct relationship between section productivity and the first line supervisor's feelings of autonomy in relation to high-level supervision.

Training of supervisors would also be expected to affect production. Relevant findings are as follows:

(a) Handyside found an increase of 8 percent as the result of a training course for foremen.[3]

(b) An investigation in 1943-45 in the United States showed that over these two years 63 percent of the plants reported an improvement of 25 percent or over in production following the introduction of T. W. I. (Training Within Industry) Courses.[5]

Besides these investiga-

tions carried on in foreign countries, some studies have been carried on in India. The most important of these was conducted by H. C. Ganguli of Indian Institute of Technology, Kharagpur in a "Government Engineering Factory", which was carried out to determine:

(i) actual supervisory practices and policies;

(ii) worker's perception of these practices and their attitude toward them;

(iii) supervisor's attitude toward and aspirations in his job;

(iv) characteristics of supervision that are effective from the worker's and management's point of view.

The analysis of the findings regarding the time spent by the supervisors shows that one-third of the total time of 80 percent supervisors was spent in production matters while on personal matters 22 percent of the supervisors spent one-third of their time and only 26 percent of the supervisors devoted the same proportion of time on non-supervisory work e.g. clerical etc. Two types of supervisory practices were found: (i) practices related directly to production problems, and (ii) personnel and human relational practices relating to training, appraising the workers' performance, etc. It was found that the lower level supervisors are more concerned with sympathetic superiors, promotion, material benefits and treatment of grievances than higher level supervisors.

Factors of supervisory efficiency were determined in terms of (i) the workers' point of view, and (ii) the management's point of view. Emphasis on training workers, looking after their difficulties and grievances, giving recognition for good work, and proper distribution and planning of work were considered to be

the main characteristics of good supervision from both points of view. From the worker's point of view the good supervisors were effective participants in management while from the management's point of view, it is necessary that such supervisors participate actively in managerial policies and actions.

All the investigations reviewed have shown a positive relationship between poductivity and good supervision. It is also clear from the findings that employees are more willing to work hard if their supervisor is sympathetic, spends more time in general supervision rather than specific, and is considerate of their grievances and requirements.

Increase in productivity was also found to depend upon the morale of the supervisors. The supervisors who were satisfied with their jobs were aware of their position as leaders and highly evaluated their workers. Supervisory training was also found to contribute to better supervision. The objectives of the above mentioned investigations have been to determine the effect of good supervision on productivity and morale. Although they have not measured the different aspects of supervision, attempts have been made to isolate and assess possible factors and dimensions of supervision. Without consideration of their results, the present discussion would be incomplete.

Dimensions of supervision

On the basis of an analysis of outstanding leadership displayed by successful personalities, both military and civilian, J. H. Carter has reported a list of 11 principles of leadership adopted by the United States Army. This list was re-phrased and reorganised and the number of princi-

ples was reduced to 7: (i) Performing professional and technical speciality. (ii) Knowing subordinates and showing consideration for them. (iii) Keeping channels of communication open. (iv) Accepting personal responsibility and setting an example. (v) Initiating and directing action. (vi) Training men as a team. (vii) Making decisions.[89]

To discover the critical requirements of an Air Force officer's job, the American Institute for Research has studied 640 Air Force officers whose ranks and jobs differed widely. Each officer was interviewed and asked to think of a definite situation in which he had observed an officer behave either effectively or ineffectively. The following general areas of behaviour were found:

(i) Supervising personnel (ii) Planning, initiating and directing action (iii) Handling administrative details (iv) Accepting personal responsibility (v) showing group belongingness and loyalty to the organisation (vi) Performing professional or technical speciality.[89]

In another study Couch and Carter[39] attempted to determine factorial dimensions of the behaviour of the individuals in group situations. Three factors have emerged.

Factor I: Group Goal Facilitation, i.e., efficiency insight, cooperation etc.

Factor II: Individual prominence, i.e., traits of influence, aggressiveness, leadership, initiative and confidence.

Factor III: Group Sociability, i.e., sociability, striving for group acceptance, cooperation and adaptability.

Carter reports that the average loadings for leadership are: for Factor I, .35, for factor II, .90, and for Factor III, .05.

A thorough study con-

cerned with determination of factors of leader-behaviour was conducted by Hemphill and his colleagues at Ohio State University,[89] in which leader behaviour was studied along 9 dimensions (Table 1). By factor analysis, 4 factors were found to be important; they are given as below along with the percentage of total variance.

(i) Consideration (49.6 percent): the extent to which the leader, while carrying out his leader function, is considerate of the men who are his followers.

(ii) Initiating structure (33.6 percent): the extent to which the leader organises and defines the relation between himself and his subordinates or fellow group members.

(iii) Production Emphasis (9.8 percent) represents a cluster of behaviours by which the leader stresses getting the job done.

(iv) Sensitivity (Social Awareness) (7.0 percent). A leader, in order to be socially acceptable in the group, should be sympathetic and cooperative in his behaviour.

E.A. Fleishman prepared a questionnaire of 150 items to measure Air Force leadership covering 9 dimensions :

(i) Integration, (ii) Communication, (iii) Production emphasis, (iv) Representation, (v) Fraternisation, (vi) Organisation, (vii) Evaluation, (viii) Initiative, and (ix) Domination.

When these itemswere subjected to factor analysis, two major and two minor factors were revealed. The major factors were (i) Consideration and (ii) Initiating Structure. The final questionaire consisted of 45 items, each with a high loading on one factor, and as close as possible to a 0.0 loading on the other. This questionaire was then applied to industrial situations;

the two factors showed quite high reliability coefficients (Table 2), and were found to be independent, with a correlation of–.01.[5,19] Bass found a correlation of .27 between 'Consideration' and future success as a supervisor and a correlation of —.09 between rated success as a supervisor and attitudes favouring 'Initiating Structure'.[5] Rombo also studied leadership behaviour with these two factors and found a high degree of reliability (Table 2) and independence of the 2 factors, with a correlation of .02 [46]

At the Southern California University, Wilson and others[59] constructed questionnaire measures of supervisory and group dimensions. The original questionnaire had 108 items which was supposed to measure 13 dimensions but the number of dimensions was reduced by factor analysis method. The final factors found were:

(*A*) *Supervisory:*

(i) Lack of arbitrariness (ii) Communication (iii) Safety enforcement (iv) Social nearness.

(*B*) *Group Dimensions:*

(v) Absence of dissension (vi) Informal control (vii) Group Unity, and (viii) Pride in work group.

Elaborate investigations on 'Dimensions of Organisational Behaviour' were conducted by Comrey and his co-workers at the University of Southern California, studying 3 different types of groups, namely, (i) Field service workers; (ii) Air craft workers; and (iii) Air craft supervisors.[18, 29, 30] In the first part of the study i.e., with Field Service Workers the following 14 dimensions were taken into consideration: (i) Absence of dissension (ii) Lack of arbitrariness (iii) Communication down (iv) Formalisation (v) Group unity (vi) Informal leadership (vii) Job

competence (viii) Planning and organising (ix) Production drive (x) Pride in work group (xi) Public relations (xii) Safety enforcement (xiii) Social nearness (xiv) Sympathy (Table 1). The reliability coefficients which they obtained are given in Table 2. When the intercorrelations among these dimensions were subjected to centroid factor analysis, the following four factors were extracted: (a) Efficient Management (b) Consultative supervision (c) Familiarity with subordinates and (d) Forceful supervision.[13] In the second investigation with Aircraft workers, 16 dimensions were considered. Three more dimensions, namely Consistency, Decisiveness and Discipline, were added to the first list of 14 and two dimensions, namely job competence and public relations were eliminated. Planning and organisation were conidered as separate dimensions.[13,29] The reliability coefficients are given in Table 2. The 4 factors extracted by the centroid method were: (a) Effective management (b) Consultative supervision (c) Familiarity with subordinates, and (d) Group cohesiveness.[29] Twentyone dimensions were used in the third study. Reliability coefficients were calculated for each dimension (Table 2) and the intercorrelations were subjected to factor analysis. The following factors were found: (i) Communication (ii) Consultative supervision (iii) Effective management (iv) Pressure for production (v) Counselling (vi) Paternalistic supervision (vii) Irresolute supervision and (viii) Familiarity with subordinates.[30]

Besides these studies done by psychologists investigating the dimensions of supervisory and leadership behaviour, persons engaged in the industrial management have also

considered this problem and have given some characteristics and managerial skills considered to be essential for effective supervision. According to E.R. Cornwall, three managerial skills, namely, analysis, communication and planning must be developed in order to achieve effective supervision.[14] R. H. Ewing has given a list of 50 characteristics which are required for good supervision.[17] J. L. Krieger, after analysing one hundred and thirtyone problems relating to executive leadership, isolated ten executive abilities and personal characteristics as necessary for developing executive capability: (i) Leadership (ii) Integrity (iii) Intelligence (iv) Use of good judgements and know how to make decisions (v) Initiative (vi) Know-how to develop subordinates and stimulate them (vii) Analytical and Reasoning and problem solving ability (viii) Know-how to stimulate teamwork for good of the organisation (ix) Emotional stability, and (x) Courage (endurance and tenacity of purpose).[37]

Areas of supervision and Dimensions

After careful consideration of the dimensions studied in different investigations, it was considered to be appropriate to categorise these dimensions in terms of attitudes and behaviour relevant to different aspects of the supervisor's "life space", i.e., both self and working environment. Four categories were thus adopted: leadership role, attitude toward men, attitude toward work, and attitude toward management and rules. Dimensions isolated in the different studies have been categorised into these 4 areas. The dimensions which don't fall in these areas have been categorised as 'Miscellaneous'. Table I

on the opposite page presents the dimensions which have been reviewed here under the appropriate area of supervision.

It was also considered important to see whether measurement of these dimensions has been adequate. One criterion of adequacy would be the reliability of the dimensions. For this purpose, Table 2 on the opposite page was prepared, summarising reliability coefficients reported in the studies reviewed.

It is clear from the tables that there are some dimensions which have been isolated only in one or two studies. These may arise due to specific characteristics unique to a particular industry or type of work. Here we are concerned with the general dimensions considered to be common to all Industrial Supervision. The following dimensions have been proposed as representative of the four areas of Industrial Supervision. The basis for inclusion has been that the dimension must have been found in 3 or more studies included in the tables. The proposed list follows:

Area of Supervision	*Dimensions*
1. Leadership role	1. Planning and Organising 2. Decisiveness 3. Willingness to assume responsibility. 4. Initiating structure (F)
2. Attitude towards men	1. Lack of arbitrariness 2. Communication 3. Social nearness 4. Group unity 5. Absence of dissension 6. Sympathy 7. Consideration (F)
3. Attitude towards work	1. Pride in work group 2. Production drive
4. Attitude towards rules	1. Safety enforcement

TABLE 1

Dimensions of Supervisory and Leadership Behaviour

Sl. No.	Empirical Studies (References in parentheses)	Areas of Supervision				
		Leadership role	Attitude towards Men	Attitude towards work	Attitude towards Management and rules	Miscellaneous
1.	Survey Research Center, University of Michigan[44,45]	1. Assumption of a leadership role	1. Foreman's relation to his men	1. Foreman's satisfaction with his work	1. Relation to his superiors	
2.	Ganguly[38]	1. Authority and Power 2. Planning and distribution of work	1. Personal and human relationship	1. Aspirations in his job		
3.	Carter[21]	1. Responsibility 2. Initiation and direction 3. Decisiveness	1. Consideration for his men 2. Communication	1. Training men for team work		1. Professional & technical speciality
4.	American Institute for Research[18]	1. Planning, Initiating and directing action 2. Responsibility 3. Administration	1. Supervision of personal individuality		1. Loyalty to the organisation	1. Professional & technical speciality
5.	Hemphill[29]	1. Initiation 2. Representation 3. Integration 4. Organisation 5. Domination	1. Membership 2. Communication 3. Recognition	1. Production		
6.	Fleishman[16]	1. Integration 2. Representation 3. Organisation 4. Initiation 5. Domination	1. Communication 2. Fraternisation	1. Production emphasis 2. Evaluation		
7.	Wilson and others[59]	1. Informal control	1. Lack of arbitrariness 2. Communication 3. Social nearness 4. Group unity 5. Absence of dissension	1. Pride in work group	1. Safety enforcement	
8.	Comrey and others[13,39,40]	1. Formalisation 2. Informal leadership 3. Planning and organising 4. Decisiveness 5. Discipline 6. Adequate authority 7. Willingness to assume responsibility	1. Absence of dissension 2. Lack of arbitrariness 3. Communication down 4. Group unity 5. Public relations 6. Social nearness 7. Sympathy 8. Avoidance of unpleasantness 9. Democratic orientation 10. Lack of favouritism 11. Non-hyper-critical attitude towards subordinates	1. Job competence 2. Production drive 3. Pride in work group 4. Consistency 5. Job helpfulness 6. Lack of pressure for production	1. Safety enforcement 2. Adherence to regulation, work procedure 3 Confidence in compar 4 Influence with superiors 5. Urgency 6. Attitude towards paper work	1. Good conference practice 2. Self improvement
9.	Bass[4]	1. Initiating structure (F)	1. Consideration (F)			
10.	Rombo[46]	1. Initiating structure (F)	1. Consideration (F)			

(F) *indicates factor*

TABLE 2

Reliabilities of Measures of Supervisory Dimensions

(Split half Correlations corrected by Spearman-Brown formula)

Areas of Supervision	Dimensions	Studies giving Nature and Size of Sample					
		Wilson, High & Comrey[25] N = 100 (Civilian tradesman)	Comrey, High & Goldberg[18,32,50] N = 96 Field Service Workers	Comrey, High & Goldberg[18,32,50] N = 100 Aircraft Workers	Comrey, High & Goldberg[18,32,50] N = 100 Aircraft Supervisors	Fleishman[8,10] Airforce population	Rombo[48] N = 197 Management men
Leadership style	1. Informal Control	.74					
	2. Formalisation		.89	.73			
	3. Informal leadership		.93	.66			
	4. Planning and Organising		.80	.81, .63*			
	5. Decisiveness			.58	.90		
	6. Adequate authority				.97		
	7. Willingness to assume responsibility				.75		
	8. Discipline			.65			
	9. Initiating Structure (F)					.79	.88
Attitude towards men	1. Lack of arbitrariness	.88	.96	.62	.80		
	2. Communication	.87	.90	.78	.83		
	3. Social nearness	.76	.73	.67	.77		
	4. Group unity	.67	.89	.59			
	5. Absence of dissension	.85	.88	.84			
	6. Public relations		.93				
	7. Sympathy		.81	.79	.76		
	8. Avoidance of unpleasantness				.35		
	9. Democratic orientation				.16		
	10. Lack of favouritism				.87		
	11. Non-hyper critical attitude towards subordinates				.60		
	12. Consideration (F)					.70	.84
Attitude towards work	1. Pride in work group	.22	.75	.70	.78		
	2. Job competence		.94				
	3. Production drive		.43	.76			
	4. Consistency			.73			
	5. Job helpfulness				.82		
	6. Lack of pressure for production				.73		
Attitude towards management and rules	1. Safety enforcement	.67	.77	.82			
	2. Adherence to regulation, work procedure				.56		
	3. Confidence in company				.73		
	4. Influence with superiors				.51		
	5. Urgency				.30		
	6. Attitude towards paper work				.87		
Miscellaneous	1. Good conference practice				.72		
	2. Self Improvement				.76		

(F) *indicates factor.*

.81 for Planning

.63 for Organizing

In this list of dimensions two factors *viz.* (i) initiating structure, and (ii) Consideration have been included. They have been widely used to represent the whole sphere of supervision, however they are not mutually exclusive of the dimensions mentioned under 'Leadership Role' and 'Attitude towards men.'

With these dimensions in view the following hypotheses can be formed:

(i) The supervisors of highest producing section will have high (positive) scores on all these dimensions.

(ii) The supervisors of the lowest producing section will have low scores on the above dimensions.

The above mentioned hypotheses are formed on the assumption that all these dimensions are present in a supervisor. Of course there may be variations in the degree to which they are present. In practice we may find that neither the best nor the worst supervisors exist but that most of the supervisors are between the two extremes. This creates the problem of drawing the line of demarcation classifying the supervisor as good or bad on the particular dimension. It is necessary to undertake an experimental approach which may give more complete information regarding the solution of this vital problem of supervision. The experimental model of this approach is given below:

Experimental Model:

Before finding out the requisite degree required on the various dimensions for good supervision, it is essential to ascertain the reliability and validity of the dimensions. It is suggested that validity of each dimension can be determined by the following method: the following data should be obtained

for each supervisor on the particular dimension:

(i) ratings given by the persons whom he supervises;

(ii) ratings by the management;

(iii) ratings of his job obtained by job analysis; and

(iv) his scores on the test which is a measure of the particular dimension.

If these ratings and the test scores are in agreement, i.e., are highly correlated, the dimension is judged to be valid. For a complete picture of reliability, it would be desirable to have the same supervisor rated again by all the three methods and given a parallel test. If the results obtained both times correlate highly, the particular dimension can be taken as a reliable dimension. In this manner the reliability of the experimental measure and the criteria are estimated. This process may be repeated for each of the relevant dimensions.

Now the question arises of determining the degree to which the different dimensions are required for good or bad supervision. This can be done by taking two extreme groups of supervisors, i.e., good and bad, and comparing their performance on these dimensions. Supervisors may be allocated to one of the extreme groups in terms of production workers' and management's ratings. Taking each dimension separately, a critical score on the test (item iv) should be determined. Where the distribution is discontinuous, i.e., there is a gap between the scores of good and bad supervisors, this is readily obtained. Where the distribution does not show any such clear difference, the critical score may be defined giving the percentage of good and bad supervisors above and below it.

When the above mentioned conditions have been fulfilled, i.e., (i) Reliability and validity have been ascertained, and (ii) the critical score for the dimension has been determined, the hypotheses can be confirmed, i.e., (i) that the supervisors whose scores on these dimensions are high will be high producing supervisors, i.e., good supervisors; (ii) that the supervisors whose scores on these dimensions are low, will be low-producing supervisors, i.e., poor supervisors; and (iii) the test which is used to measure these dimensions can be utilised to predict potentially successful candidates for supervisory jobs in industry.

Summary:

The present paper contains a review of the existing literature on industrial supervision and presents a consolidated list of dimensions essential for supervision and an experimental model for testing the validity and reliability of dimensions. The review of the literature has shown:

(i) The effectiveness of good supervision has been demonstrated by some important studies which concluded that good supervision results in improved performance of workers and thereby increases production; (ii) many dimensions are involved in supervisory behaviour, which have been empirically isolated and measured in a number of studies.

On the basis of this review, it was found that the dimensions fell into four broad areas. The four areas are given below along with a consolidated list of dimensions appearing in 3 or more studies.

1. Leadership role: Planning and Organizing, Decisiveness, Willingness to assume responsibility and Initiating structure.

2. Attitude towards

men: Lack of Arbitrariness, Communication, Social Nearness, Group Unity, Absence of Dissension, Sympathy and Consideration.

3. Attitude towards work: Pride in work group and Production drive.

4. Attitude towards management and rules: Safety enforcement.

Finally an experimental model has been suggested to investigate the reliability and validity of each dimension and to find out the critical score on the test measuring that dimension differentiating good and poor supervisory performance.

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