

# FIELD APPLICATION OF THE PM LEADERSHIP THEORY ON THE SENIOR HIGH SCHOOL MASTERS OF SHANDONG PROVINCE IN CHINA

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**Abstract:** The teaching level of senior high school education is closely related to the management model and the leadership ability of the principal. This paper is an empirical study on the leadership behavior of the senior high school masters in Shandong Province using a modified form of the PM scale for leadership behavior assessment according to the characteristics of China's educational system. The result of our research shows that the PM leadership behavior in the senior high school has these characteristics: The two functions of senior high school masters in "P" and "M" leadership behavior factors have significant differences when contrasted with the other organizations. Evaluations of teachers and managerial staff with regard to leadership behavior indicate a significant difference in the P leadership behavior factor. On the other hand, evaluations of teachers and the managerial staff indicate no significant difference in M leadership behavior factor. With regard to the values of working situation factors in schools, the teacher group and the managerial staff group indicate no significant difference in stimulation, satisfaction degree toward treatment and performance criteria, but indicate a distinctive difference in information communication. And, based on the present managerial situation of China's senior high schools and the PM theory of leadership, some advice is presented on how to improve the management behavior of principals.

**Key words:** leadership behaviour, P factor, M factor

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## 1. INTRODUCTION

The PM research program began at Kyushu University in the city of Fukuoka on the southwestern Japanese seacoast facing China. Jyuji Misumi began the work while he was a graduate student there in the late 1940s; Jyuji and the research continued to be centered in Fukuoka through the 1960s (Mark F. Peterson, 1989). The PM leadership theory that Misumi advanced is a theory of leadership behavior based on two group functions, the first function is oriented towards goal achievement or problem solving, and the second function is oriented towards the continuation or maintenance of the group itself. The acronym "PM" stands for Performance and Maintenance. P, as the initial of Performance, represents a leader's effort to realize management objectives; M, as the initial of Maintenance, represents the function of maintaining and reinforcing an organization. The P function mainly includes making plans and undertaking the pressure to fulfill missions, which concerns a leader's effort to improve the efficiency and performance of the whole organization. The M function concerns the effect of reinforcing and maintaining an organization. Misumi classifies leaders into four patterns according their recognition of the importance of P and M functions: PM, Pm (or P), Mp (or M) and pm. PM-type leadership reflects "substantial" (roughly, above average) emphasis on both functions. P-type leadership reflects substantial emphasis only on P, just as M-type leadership reflects substantial emphasis only on M. The pm-type reflects little employee-experienced emphasis on either function (Mark F. Peterson, 1985). The core of the PM leadership theory is not only to evaluate and review the effect and performance of a leader's P and M function, but also to examine the interaction of these two functions (XuLiancang, 1986).

The first attempt to verify the PM leadership theory in the field was a study of workers of a coal mine, using the questionnaire method (Misumi and Tasaki, 1965). Later, in a variety of work organizations including production, service, and governmental organizations in Japan (Misumi; Mark F. Peterson, 1985), Misumi and others validated in laboratory and field tests that the best leadership pattern among the four is PM, which is just what an ideal leader is supposed to exhibit. Misumi and his colleagues based their PM scale on a thorough survey of 400,000 people. It is unusual anywhere in the world to use such a large population in a survey.

Over the last two decades, people such as Bass (1985), Burns (1978), Conger and Kanungo (1988), House (1977), Sashkin (1998) have proposed several new leadership theories, These theories variously labeled transformational, charismatic, or visionary, have become more and more prevalent. Compared with these new paradigms, Misumi's research on PM still has a unique character and advantage in analysis technique. Researching leadership behavior from these two aspects advanced by Misumi is beneficial, because the approach provides a practical and workable definition of the subject matter at hand. Moreover, the introduction of two dimensions of behavior makes it possible to measure, observe and evaluate the two functions. This conforms to the leadership behavior research that has been conducted in Ohio State University and the University of Michigan since the 1950s and the Managerial Grid Theory put forward in 1964 by two American scholars, Robert R. Blake and Jane S. Mouton. As he synthetically analyzed leadership behaviors and management situation factors combined with the ideas of the Contingency Theory of Management. Misumi's research eliminated the limitations of the Trait Theory, Behavior Theory and Contingency Theory of leadership. Instead, only the advantages of the three models were selected and combined to get a refined theory that has a great value in its practicability and applicability. The PM scale was used in cross-cultural studies of leadership style by P.M. Smith, Misumi, Tayeb, Peterson, and Bond (1989) and P.B. Smith, Peterson, Misumi, and Sugiman (1990). All of these tested that the PM scale is efficient.

Although the PM perspective on leadership was developed in Japan and has had considerable influence there, its use in management development may turn out to be even more wide-ranging in the version adapted to the Chinese Mainland (Mark F. Peterson, 1989). The PM feedback program in China has expanded rapidly. It was begun in 1982 and as of November 1986 had involved about 15,600 respondents from a broad cross-section of organizations in 17 of China's 29 provinces. Participating

organizations have included machinery manufacturers, chemical processing plants, textile producers, steel factories, mines, shipyards, electronics manufacture, government and research offices (Mark F. Peterson, 1989), and got the value of ordinary model in “P” and “M” leadership behavior factor. The results of these researches were satisfactory as they were consistent.

Misumi and other scholars once did some research in specific environments. For example: Arima(1983) studied leadership in relation to the performance of simple tasks involving perceptual vigilance and motor activity, low skill requirements and highly repetitive and structured. The results indicate that it is preferable to have no P emphasis in the absence of an M emphasis. When M leadership is provided, however, P leadership promotes performance (Misumi; Mark.F.Peterson, 1985). Several experiments indicate that PM-type leadership contributes to the emergence of high group-performance norms (Sasaki and Yamaguchi, 1971) and member satisfaction. P-type leadership may promote the highest groups in which much of the communication flows through the leader (Kano, 1970). However, P-type leadership also tends to evoke hostility and member dissatisfaction even in those circumstances under which it promotes effective short-term group performance (Misumi and Seki, 1971). The two group situations in which P-type leadership was found to be superior for performance are not likely to be the norm in Japan (Misumi; Mark.F.Peterson, 1985).

Shandong Province is a province with large population and education in this province is relatively more advanced than in most of the other provinces in China. The number of students who take college entrance examination in Shandong Province has occupied the largest percentage in the whole country for many years. Its admission rates for college entrance examination have respectively gone beyond 50%, 60% and 70% during the latest three years. The secondary education of Shandong Province has made a great contribution to China’s talent strategy and its experience deserves studying and using for reference. Many researches discover that the teaching level of secondary education is closely related to the management model and the ability of the principal. Under heavy pressure of entering a higher school, which side does the leadership behavior of the principal in the senior high school emphasize? Efficiency or relationship? Do they Pay attention to two or morethings in this specific educational environment? How do the teachers and managerial staff value the leadership style in school? What are the differences between the teacher group and the managerial staff group in working situation factors in school? This is an interesting and potential significance study.

In the past, the PM theory has rarely been applied in research work concerning learning institutions, especially the leadership behavior of senior high school masters. The few research studies indicate that there is little contrast with the leadership behavior of other organizations. We seldom concern the difference of the Evaluations to leadership behavior between the teacher group and the managerial staff group. The relation between the teachers and Managerial staff on the working situation factors awaits study further. This paper will take the senior high schools in Shandong Province as a case to make a thorough study on the leadership behavior of China’s principals by using a modified version of Misumi’s PM Leadership Scale.

According to the PM theory, We will consider the difference between schools and enterprises in term of managerial characteristics and management levels, Three main hypotheses will be tested in this study:

Hypothesis 1: The two functions of senior high school masters in “P” and “M” leadership behavior factor will have significant difference contrast with the other organizations.

Hypothesis 2: Evaluations of teachers and managerial staff to leadership behavior have significant difference on the P and M leadership behavior factor.

Hypothesis 3: The teacher group and the managerial staff group have no significant difference on the working situation factors’ values.

## **2. METHOD**

### **2.1 Sample and data collection**

The schoolmasters chosen in this research are those who are presiding over the daily works of senior high schools in Shandong Province. On the basis of economic development, geographical location, grade of the school and other factors, the Principals of 18 general senior high schools were selected as research objects. These 18 Principals come from 6 cities in Shandong Province, Jinan, Qingdao, Binzhou, Rizhao, Heze and Laiwu. Eight of the 18 schools are located in downtown area, four in peri-urban, and six in villages. Seven of the 18 schools are normative schools at the provincial level, six are normative schools at the city level, and the other six are not normative schools. The research on schoolmaster's leadership behavior is based on the perception of their teachers and general managerial personnel. The subjects were selected by stratified random sampling from teachers and managerial personnel according to their ratio.

430 questionnaires were distributed. After the removal of 17 invalid questionnaires from 389 respondent, the final useful data was 372 questionnaires which consisted of 307 from teachers and 65 from managerial staff.

### **2.2 Measures**

#### **2.2.1 Questionnaire design**

This research used the PM scale revised by XuLiancang in 1985 as the survey tool. At the same time, considering the difference between schools and enterprises in term of managerial characteristics and management levels, and the difference between teachers and workers in term of the nature of their jobs, some sentence have changed adapted.

The questionnaire is composed of leadership behavior evaluation and working situation evaluation.

The evaluation of leadership behavior consists of two parts. One is the performance of a school master (P factor, in short), which includes 10 questions relating to a school master's professional knowledge, working plan and the effectiveness in leading faculties according to the plan and other regulations. The goal is to evaluate the leadership function used by a schoolmaster to achieve the teaching tasks. The other part is the function of maintaining an organization (M factor, in short), which includes 10 questions relating to a school master's working method, relationship with subordinates, ability to promote the solidarity of the school, the degree of caring about faculty member, and the efficiency of coordinating the whole organization. The goal is to evaluate the leader's concern for maintaining the school organization as a collective whole.

The evaluation of working situation consists of four parts. The first is stimulation, which is meant to evaluate the interest and the responsibility of the subjects with respect to their work. The second is the satisfaction degree regarding treatment, which is meant to evaluate the degree of the subjects' satisfaction in terms of salary, premium and other monetary benefits and their method of payment. The third is communication, which is meant to investigate the communication of information and exchange of ideas between upper and lower levels and among colleagues in an educational organization. The last is performance criteria, which is meant to evaluate the criteria by a working group to set objectives and tasks. The first two factors can be called hygiene-motivation factors because they reflect the degree of satisfaction of every individual. The last two can be called organizing process factors because they reflect the managerial situation inside a school.

### 2.2.2 Reliability

The five-point Likert scoring is applied in all the questions. Questions related to different factors are classified to different grades. The reliability can be reached statistical analysis after the test. This research takes the different aspects to be tested in the questionnaire as elementary sub-scales and conducts their Cronbach  $\alpha$  reliabilities to test the consistency of the questionnaire itself. The results are as follows: the Cronbach  $\alpha$  of P factor is 0.936, the Cronbach  $\alpha$  of working situation factor 1, 2, 3, 4 are 0.831, 0.873, 0.787, and 0.80 respectively. This indicates the reliability of this research is relatively high, that is, this questionnaire is perfectly reliable.

### 2.2.3 Data processing

All the data are processed in Spss 10.0 software package.

## 3. RESULT

### 3.1 Classification of senior high school master's leadership behavior

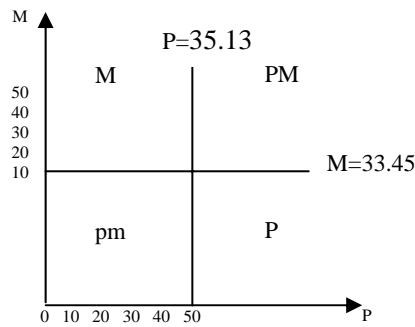
Table 1 displays the statistical values of P factors and M factors of every schoolmaster.

**Table 1 P & M factor values of senior high school masters**

School Number	P	M
1	31.62	33.75
2	36.41	32.28
3	32.58	37.77
4	33.65	32.20
5	31.83	35.50
6	37.95	34.55
7	37.05	34.05
8	33.84	34.47
9	36.10	35.50
10	34.70	27.95
11	33.94	28.33
12	35.78	28.22
13	34.09	34.68
14	39.10	36.45
15	37.50	37.50
16	37.45	32.85
17	34.15	29.55
18	36.58	35.00
Mean	35.13	33.45

Take P as the horizontal coordinate and M as the vertical coordinate to build a plane of coordinates. Take the overall-averaged value of P and M factors as the comparative norm standards to build the PM plan. Make a line perpendicular to the M axis at the point of M's total mean, and then make a line perpendicular to the P axis at the point of P's total mean. These two lines intersect each other and divide the graph into four areas which represent four different leadership patterns. ①PM pattern: the values of P

and M are all higher than the mean, which represents that the working performance and the ability of maintaining an organization are both high. ②P pattern: the P value is higher than the mean, but the M value is lower than the mean, which represents the leader's performance is high but the maintaining ability is low. ③M pattern: the M value is higher but the P value is lower than the mean, which represents the leader's maintaining ability is high but the working performance is low. ④pm pattern: the values of P and M factors are all lower than the mean, which represents the leader's performance and maintaining ability are both low.



**Fig. 1 Coordinates of senior high school master's leadership patterns**

Leadership behavior can be classified into four patterns by comparing the P and M values of every senior high school master with the means. (See table 2)

**Table 2 Classification of senior high school master's leadership behavior patterns**

Pattern	Frequency	Ratio (%)
PM	6	33
P	3	17
M	5	28
Pm	4	22

The results of table 1, table 2 and figure 1 suggest that the means of P and M factors are 35.13 and 33.45 respectively. Senior high school masters' leadership behavior can be classified into four patterns: PM, P, M, and pm. Among them, PM pattern accounts for 33%, P 17%, M 28% and pm 22%. The ratios reflect the current leadership situation in senior high schools on the whole.

### 3.2 Analysis of leadership behavior in senior high schools compared to the other organizations

According to the result of XuLiancang's research in 1980s in the Chinese Mainland by the PM scale, the value of ordinary model in "P" and "M" leadership behavior factor is 33.24 and 29.76. We use t-test to test the significant difference.

The results in table 3 show that the means of P and M factors of senior high school master are all significant difference contrast with the other organizations. Accordingly this confirms the first hypothesis.

The increase of P and M means reflects that the promotion ability of a school master's leadership level, and that the management value orientation has shifted from thinking much about an organization

to paying more attention to human resources and from thinking much about organization construction and scientific management to paying more attention to human-oriented management.

**Table 3 One-sample test(two-tailed) of P and M factor**

Leadership factor	n	Average	Standard Deviation	Std. Error Mean	t	P
p	18	35.13	2.17601	.51289	3.899	.001
m	18	33.45	3.08010	.72599	4.968	.000

\*\*P<0.01

### 3.3 Difference analysis of the school master's leadership behavior evaluation between teachers and managerial staff

Table 4 displays the significance test of the means of P and M factors' values in the teacher group and the managerial staff group.

**Table 4 Significance test (two-tailed) of P and M's means in the teacher group and managerial staff group**

Leadership Function factor	Role	Number of people	Average	Standard Deviation	t	P
P	Teachers	307	34.78	6.28	-2.347	0.019*
	Managerial staff	65	36.80	6.44		
M	Teachers	307	33.22	6.80	-1.397	0.163
	Managerial staff	65	34.55	7.90		

\* P<0.05

The t test results in table 4 show the evaluations of teachers and managerial staff regarding leadership behavior. These two groups show a significant difference on the value of P factor, which reflects that there still exist levels and grades and a set of integrated organizational system in a school, even though schools are different from those tightknit organizations such as enterprises and militaries. The managerial staff in every level distinctly differs from average teachers in comprehending the leader's carrying out functions, operating the system and coordinating the organization. On the other hand, the teacher group and the managerial staff group have no significant difference in M function, which indicates that a school master regards managers of every level and average teachers as a whole and has no bias against any side when he /she maintains the stability of the organization.

### 3.4 Analysis of working situation factors in schools

Table 5 and table 6 show the results of comparing the statistical results of the working situation factors' values in schools and in enterprises and militaries.

The statistical results in table 5 reveal that the values of the four working situation factors have distinct difference. Among them, the value of stimulation is obviously higher than that of satisfaction degree toward treatment, which reflects that stimulating teachers is an important leadership behavior to prompt the enthusiasm, initiative and creativity of teachers. And the value of performance criteria is much higher than that of information communication, which reflects that information does not flow

smoothly within educational organizations. Table 6 shows that among the working situation factors, the value of stimulation factor is higher in schools than in enterprises and militaries; the value of satisfaction degree toward treatment is lower in schools than in enterprises and militaries; the value of information communication in schools is higher than that in militaries but lower than that in enterprises; and the value of performance criteria is higher in schools than in enterprises and militaries.

Table 7, 8, 9, 10 displays the significance test results of working situation factors in the teacher group and the managerial staff group.

**Table 5 Values of working situation factors in schools**

School No.	Working situation 1 (stimulation)	Working situation 2 (satisfaction with treatment)	Working situation 3 (information communication)	Working situation 4 (performance criteria)
1	20.50	11.00	13.37	20.21
2	19.00	11.59	14.34	20.21
3	19.68	14.00	14.87	20.00
4	19.45	13.25	14.60	20.85
5	19.78	13.11	13.50	18.94
6	19.35	13.00	15.70	21.00
7	18.20	12.70	14.15	21.35
8	19.16	12.47	15.00	22.21
9	19.40	14.10	15.90	20.35
10	19.85	11.20	12.80	20.95
11	18.33	10.56	11.72	21.17
12	18.72	12.78	13.50	21.28
13	17.91	13.50	14.91	19.95
14	18.15	15.05	16.30	20.30
15	20.14	10.36	14.64	18.79
16	18.95	13.05	15.55	20.80
17	18.80	12.35	14.30	20.45
18	20.42	12.00	16.05	22.68
mean	19.21	12.61	14.53	20.62

**Table 6 Values of working situation factors in schools, enterprises and militaries**

Situation factors	Schools	China's enterprises	China's militaries
Stimulation	19.21	18.51	18.74
Satisfaction degree toward treatment	12.61	13.02	12.91
Information communication	14.53	15.30	13.85
Performance criteria	20.62	18.66	17.82

**Table 7 Significance test (two-tailed) of stimulation in the teacher group and managerial staff group**

Working Situation factor	Role	Number of people	Average	Standard Deviation	t	P
Stimulation	Teachers	307	19.27	2.98	0.739	0.46
	Managerial staff	65	18.95	3.65		



**Table 8 Significance test (two-tailed) of satisfaction degree toward treatment in the teacher group and managerial staff group**

Working Situation factor	Role	Number of people	Average	Standard Deviation	t	P
Satisfaction degree toward treatment	Teachers	307	12.52	3.86	-0.977	0.329
	Managerial staff	65	13.05	4.41		

**Table 9 Significance test (two-tailed) of information communication in the teacher group and managerial group**

Working Situation factor	Role	Number of people	Average	Standard Deviation	t	P
Information communication	Teachers	307	14.27	3.41	-3.109	0.002**
	Managerial staff	65	15.75	3.91		

\*\*P<0.01

**Table 10 Significance test (two-tailed) of performance criteria in the teacher group and managerial staff group**

Working Situation factor	Role	Number of people	Average	Standard Deviation	t	P
Performance criteria	Teachers	307	20.49	3.21	-1.758	0.08
	Managerial staff	65	21.25	2.79		

The t test results in table 7, 8, 10 shows that the teacher group and the managerial staff group have no significant difference in stimulation, satisfaction degree toward treatment and performance criteria, but have distinctive difference in information communication (table 9). This indicates that managerial staffs obviously differ from average teachers in acquiring information.

#### 4. CONCLUSION AND IMPLICATIONS

This study demonstrated that the leadership behavior of the senior high school masters have their own characteristics in contrast with the other organizations.

**Hypothesis 1** was supported by the finding. In this research, Leadership behavior also can be classified into four patterns by comparing the P and M values of every senior high school master with the means. This validates and make up the theory of PM. But the means of P and M factors of senior high school master are all show a significant difference from those or other organizations. This makes clear that the degree of PM leadership behavior is different in various organizations. We showed that the senior high schoolmaster's leadership is higher than the other organizations, This reflects that

management level has improved in the competitive circumstance. The findings of this study give support to Misumi's distinction between general and specific aspects of behavior. In the high senior schools in China, are not like a plant. In their case, M is best exemplified by the tactfulness employed in resolving personal difficulties in an indirect manner, while P is shown by encouragement of cooperative work behaviors. These findings accord well with other studies of Chinese cultural patterns and the educational condition.

**Hypothesis 2** was also supported partly by the finding. Evaluations of teachers and managerial staff of leadership behavior show significant difference on the value of P factor. On the other hand, evaluations of teacher group and the managerial staff group show no significant difference in M function. This shows that the comprehensive to leadership style in the performance factor has divarication between teachers and managerial staff. This reflects that there exists an integrated organizational system or bureaucracy in school. The managerial staff differs from average teachers in relation to the leader.

**Hypothesis 3** was supported mostly by the finding. The teacher group and the managerial staff group have no significant difference in stimulation, satisfaction degree toward treatment and performance criteria, but have distinctive difference in information communication. This may be an important factor blocking the leadership efficiency. And the information communication also can influence the style of leadership.

The questionnaire of senior high schoolmaster's leadership behavior provides empirical data about school management and evidences for the PM leadership theory. Our investigation and analysis thus contribute to the improvement of schoolmaster's leadership performance.

#### **4.1 The PM pattern of leadership should be the objective that a schoolmaster strives to achieve.**

We found that in PM schools, teachers and students were all in high spirits and the atmosphere in the organization was aggressive. The schoolmasters have foresighted and care about every individual as well as tasks, who are most welcomed. This conformed to the above theoretical analysis. On the other hand, those schoolmasters who have difficulties and frustrations in their work should seek solutions through better function-implementation and interpersonal relationship, and try to improve their leadership performance by controlling the P and M dimensions evenly.

#### **4.2 Human-oriented management is the value orientation of management behavior a schoolmaster should follow.**

The research results show that when the value of P factor increases to a specific degree, the value of M factor begins to increase. And among the working situation factors, the values of stimulation and performance criteria factors are obviously higher in senior high schools than in enterprises and militaries, which reflect the characteristics of school work. In this regard, therefore, a schoolmaster is supposed to change their bureaucratic managerial method and to seek a scientific and sensible leadership behavior pattern. As a special organization, the center of whose management is human, a school should display the modern management philosophy of human orientation in its operation and start every task from the point of motivating the teachers and staff enthusiasm, initiative and creativity.

#### **4.3 Schools should promote the flow of information and communication.**

The results reveal that the information flow is somewhat slow in educational organizations and the value of information communication factor is even lower in schools than in enterprises. This problem should be treated seriously. School leaders should spend relatively much time in communicating with teachers and students. School managers and teachers are equal colleagues who just undertake different educational tasks. They are in principle both educational workers and both play an important role in

uplifting the quality of education in schools. Thus, vertical communication, regard and respect between school leaders and teachers are the keys to well run school.

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