

# The Study on the Relationships between Productivity and Job Satisfaction in Small Group Activities

— Korea and Japan Comparison —

Jung-mo YOON\*

## Abstract

This paper studied on the relationships between productivity and job satisfaction in small group activities. The researches were practiced with the same method which prof. Rao of Babson university et al.(1987) did on autonomous work groups in U.S.A.. The researcher divided companies of Korea and Japan into similar small groups such as high productive groups and low productive groups in each country and analyzed their degree of job satisfaction. According to the result, high productive groups indicated higher degree of job satisfaction than low productive groups. In the case of Korea, besides activating QC circle activity, it is also necessary to equalize the difficulty of the works, or to set up the pay system taken the difficulty of the works into consideration. In the case of Japan, it is important to encourage good human relationships and member's cooperation and unity.

## I. Introduction

It is recognized by the study of Hawthorne [1] around Mayo and Roethlisberger for 32 years from 1924 that labour is regarded as human himself not as a element of production efficiency. Since then, attitudes, morale and job satisfaction have been taken a serious view

in labour management and the principle is produced that high morale or job satisfaction brings high productivity. But the report said from many survey that the relation between job satisfaction and productivity is not always corresponded. There is occasion that low job satisfaction brings high productivity, high job satisfaction brings

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\*Department of Computer Science  
Seoul National Polytechnic University

low productivity [2]. So it is needed to investigate relation between satisfaction and productivity and take aim at high productivity from high job satisfaction in all of each work by many fact including administration management, supervising method and so on. Professor Rao [3] in Babson university surveyed job satisfaction on a company of U.S.A. which produce goods by autonomous work group. It is sure that there is a great gap of job satisfaction between the high productivity autonomous work group and the low productivity autonomous work group. This research is made by co-research with professor Rao with same method in Korean and Japanese company which do QC circle activities. The purpose of this study is to compare the differences in small group activities among Korea and Japan.

## II. Survey method

### II.1 On job satisfaction

The term job satisfaction or job attitudes has been used without discrimination. Both are reflected feeling on the work which individual is engaged in or organization belonged to. It is thought that active or positive attitudes to the work represents job satisfaction and negative or passive attitudes represents job dissatisfaction [4]. The term morale is an army word and means will of fight, that is military spirit but it has been used will of labor, will to work of "power of drive" in company. Morale survey estimates job satisfaction and it is considered that job satisfaction is the same as morale. For example Guion [5] says "Morale is in state that individual desire is satisfied and he notice job satisfaction from all of his job circumstances." It is said by

Gordon [6] "Morale is feeling of happiness which is experienced in case of being satisfied individual desire." There is in morale private psychological phenomenon with satisfaction of individual desire and it is regarded as job satisfaction. The relation between morale and productivity has been studied so many times. But the result reveals that the relation between them is not simple.

### II.2 The Purpose of Study

Recent times, various kinds of circle are active inside companies in Korea. Companies have introduced small group activity, for example, QC circle, TQC, safety control, in order to achieve the promotion of quality and productivity, and the efficiency of management. In Japan, the various development of small group activities have appeared strikingly inside companies. Most of companies have introduced some small group activities, for example, group activities combined which correspond with policy management such as safety control, suggestion system, management by objectives and so on. As mentioned above, the reason why companies are increasingly interested in small group activities and want to introduce them positively is that they expect the betterment of productivity and the efficiency of management, such as improvement of work, safety secure, improvement of quality. On the other hand, small group activities are on the basis of communication and mutual accommodation, including harmonization of communication and formation of good human relationship. Besides, there have been recognized various effects such as the betterment of recognition of participation and intention, worth of work

[7]. On the other hand, owing to strong individualism, it is difficult for America to find group activity compared with Japan's small group activity due to its strong loyalty to company and return to group.

These days, there have been shown a few group, but, in general, its productivity and a feeling of satisfaction are reported higher than past assembly line [8]. Prof. Rao of Babson university made an investigation on satisfaction of work in a certain company which had produced on the basis of autonomous work group. He examined whether there was a difference between two autonomous work group in terms of satisfaction of work, the one group had high productivity and the other group did not. This study is made up in collaboration with professor Rao to examine QC circle activity of companies in Korea and Japan. This study aims to see the difference of small group among Korea and Japan.

### II.3 Survey of job satisfaction

The researcher measures job satisfaction, morale, and attitude through questionnaire and interview. It needs a lot of time, efforts, and cost to develop excellent measuring method having enough reliability and validity. "Standardized measuring method" is made up to apply to various kinds of subjects by a number of researcher. It is being recognized and used widely. In this case, reliability means the minimum degree of error in measuring result. That is to say, it reflects the systematic dispersed degree of objects. Validity means the degree of actually measuring the value of measurement as intended. It has a special quality to equip reliability and all values of measurements [9]. There are some

standardizing methods used relatively widely. For example, Job Descriptive Index [10] which is used in estimating the satisfaction of work, Minnesota Satisfaction Questionnaire [11] which is used to measure the degree of satisfaction of work in many phases.

And in Japan, the NRK research on works which measures the morale of individual called the satisfaction of work. (The Committee of Japan Labor is being introduced widely.) It was applied the pattern of SRA developed by Burns of Chicago university to Japanese pattern and standardized. But recent times, in America, it is met recognized as useful methods due to its low internal consistency. Internal consistency means to estimate the reliability of measuring value. The higher correlation among subordinate items composing measuring values is, the higher internal consistency of questionnaire is.

It is comfortable to calculate the estimated value of "true" internal consistency of questionnaire. Therefore a few relatively simple methods have been introduced [12]. This study used Job Descriptive Index which was developed by Smith and Kendall, in order to measure the satisfaction of work. This method measures five categories of work, supervision, pay, promotion, co-workers. JDI which was developed by Crites [13], Feldman [14], Robinson [15], Ronam [16], Vroom is the most reliable measuring method. [4] It estimated value of internal consistency ranges from 0.80 to 0.89. It also indicates two validities as following;

1. Several different aspects of satisfaction with the job, i.e., work, supervision, pay, promotions, and co-workers were identified (discriminant validity).
2. Several different measures of these areas of

satisfaction agreed in what they measured (convergent validity).

Here, discriminant validity indicates the degree of lacking correlation between special measuring method and measuring value of other valuable which is considered as having no relation with it. Convergent validity indicates the degree of correlation between the scores of special measuring method and other independent measuring method. JDI is to measure individual's satisfying degree on five categories such as work, supervision, pay, promotion, companion.

### III. Research Setting

#### III.1 The Outline of Research Subject

In the case of Japan, the researcher investigate a certain company 1,100 person of workers which has produced household electronic products such as electronic razor and drier. The company belongs to the composite maker, B company which cover widely from electric home appliances to the housing equipments, the spearhead electronics. The assembly line of this plant is autonomous. And a number of worker are engaging in simple work. In this company, QC circle activities are active for the purpose of as following; "Exert human's ability, reveal endless possibility", "Respect humanity, make working place active and bright", contribute to improve. The meetings of activity are held twice a month during working time.

Members decide independently some themes such as decline of allotment per assembly hour, and promote an activity of improvement. It is possible to act in holiday or at member's private residence. Therefore, there is a difference of active time according to each of circle, and active

circle spends more time in activity. As the effects of the QC circle activity, the manager side gave; "attainment of rationalization (approximately 15,120,000 yen/month in 1987)", "workers came to have strong desire for improvement (a number of suggestions of improvement in 1987 was 25,104 cases)" and "betterment of teamwork." On the other hand, the workers gave; "acquirement of professional knowledges", "feeling of accomplishment", and "understanding of other's works". We had a manager of the factory indicate higher productive group and lower pproductive groups. In addition, we estimated the fraction defective, a number of suggestions of improvement and what not, and finally we decided high productive 10 groups (63 people) which became the "high productive teams", and low productive 9 groups (79 people) with became the "low productive teams".

In the case of Korea, we investigated a company which produces beds. Since 1970, the company has introduced QC circle activity, and had won many prizes for quality control. The production organization consisted of two sections, which were the 1st production section and 2nd production section. The 1st production section which made mattresses and springs was mostly automated, but in the 2nd production section which made frames of beds, many works were manual. In the same way as the case of Japan, we finally decided high productive 7 groups (44 people) which became the "high productive teams", and low productive 9 groups (82 people) which became the "low productive teams".

#### III.2 The category of measurement

The measurement on satisfaction of work

used Job Descriptive Index, as seen in the Section of 2.3. The purpose of this study is to measure the degree of satisfaction or work according to five categories in questionnaire as following; (A) work itself, (B) supervision, (C) pay, (D) promotion, (E) co-workers. Each of categories from A to E contain each of 18, 18, 8, 9, 18 questions. And each answers are divided "Yes", "No", "?". So subjects should choose one of three. And the score of 3 marks "satisfaction", the score of 0 marks negative answer, the score of 1 marks "?". The total score is considered as individual's marks obtained. The researcher also used party in some item of questionnaire what is adjusted according to actual condition of Korea and translated.

#### IV. Results and consideration

##### IV.1 The results in Korea

According to the result of investigation on a company of Korea, Wilkes' Lambda statistic value or approximate value of

$$\Lambda = 0.895 \quad 5$$

$$F = 2.83 > F_{124}(0.05) \div 2.29$$

$$\alpha = 0.05$$

And in the level of significant difference value of  $\alpha=0.01$ , the hypothesis which said there is no difference of satisfaction on work between high and low productivity group is rejected. We next examined each of the five JDI subscales to determine which satisfaction variable accounted for most of the discrimination. Table 1 presents the means ( $\bar{X}$ ), standard deviations (S.D), and univariate F ratios for each of the five JDI satisfaction variables. Shown in Table 2 are the standardized discriminant coefficients, the correlations between the variables and the discrim-

inant scores, and the relevant contributions to unit variance for discriminant function I. Therefore, the results show up high productivity group got higher satisfaction on work than low productivity group. The results, indicate that satisfactions with work and pay are the main discriminating variables, accounting for 0.74 and 0.26 respectively of the relative variance on the first and only discriminant function.

TABLE 1  
Means, Standard Deviations, and Univariate F Tests: JDI SATISFACTION of Korea

	High Productive Teams (N=44)	Low Productive Teams (N=82)
<u>JDI:Work</u>		
$\bar{X}$	21.18	27.81
S.D.	11.89	9.27
F Ratio	11.94(P<.01)	
<u>JDI:Supervision</u>		
$\bar{X}$	27.61	32.35
S.D.	12.87	12.33
F Ratio	4.10(p<.05)	
<u>JDI:Pay</u>		
$\bar{X}$	3.82	5.74
S.D.	3.29	4.83
F Ratio	5.60(p<.05)	
<u>JDI:Promotions</u>		
$\bar{X}$	9.48	10.60
S.D.	7.32	5.56
F Ratio	.93(n.s.)	
<u>JDI:Co-workers</u>		
$\bar{X}$	31.43	31.68
S.D.	12.27	10.81
F Ratio	.01(n.s.)	

TABLE 2

Standardized Canonical Discriminant Function Coefficients (b), Correlations Between Discriminating Variables and the Discriminant Function (r), and Relative Contributions to Unit Variance (contrib.) on Discriminant Function: JDI SATISFACTION of Korea

Variable	Function I		contrib.
	b	r	
JDI: Work	.80	.92	.74
JDI: Pay	.41	.63	.26

#### IV.2 The results in Japan

According to the result of investigation on a company of Japan, Wilkes' Lambda statistic value or approximate value of

$$\Lambda = 0.894$$

$$F = 3.209 > F_{136} (0.01) \doteq 3.16$$

$$\alpha = 0.01$$

And in the level of significant difference  $\alpha = 0.01$ , the hypothesis which said there is no difference of satisfaction on work between high and low productivity group is rejected. We next examined each of the five JDI subscales to determine which satisfaction variable accounted for most of the discrimination. Table 3 presents the means ( $\bar{X}$ ), standard deviations (S.D), and univariate F ratios for each of the five JDI satisfaction variables. Shown in Table 4 are the standardized discriminant coefficients, the correlations between the variables and the discriminant scores, and the relevant contributions to unit variance for discriminant function I. Therefore, the results show up high productivity group got higher satisfaction on work than low productivity group. The result indicate that satisfaction with work

and co-workers are the main discriminating variables, accounting for 0.58 and 0.42 respectively, of the relative variance on the first and only discriminant function.

TABLE 3

Means, Standard Deviations, and Univariate F Tests: JDI SATISFACTION of Japan

	High Productive Teams (N=63)	Low Productive Teams (N=79)
<u>JDI:Work</u>		
$\bar{X}$	26.76	22.20
S.D.	9.29	8.87
F Ratio	8.88(p<.01)	
<u>JDI:Supervision</u>		
$\bar{X}$	34.54	33.34
S.D.	11.47	11.74
F Ratio	0.37(n.s.)	
<u>JDI:Pay</u>		
$\bar{X}$	11.89	10.46
S.D.	4.31	5.06
F Ratio	3.20(n.s.)	
<u>JDI:Promotions</u>		
$\bar{X}$	11.97	12.20
S.D.	5.11	5.06
F Ratio	0.07(n.s.)	
<u>JDI:Co-workers</u>		
$\bar{X}$	34.95	30.08
S.D.	10.32	11.58
F Ratio	6.84(p<.01)	

TABLE 4

Standardized Canonical Discriminant Function Coefficients (b), Correlations Between Discriminating Variables and the Discriminant Function (r), and Relative Contributions

to Unit Variance (contrib.) on Discriminant  
Function JDI SATISFACTION of Japan

Variable	Function I		
	b	r	contrib.
JDI: Work	.70	.83	.58
JDI: Co-worker	.57	.73	.42

#### IV.3 Consideration

A company of Korea, and B company of Japan, workers who belong to high productive groups feel higher satisfaction on work than workers belonging to low productive groups. In the case of a company of Korea, high productive groups indicated higher degree of satisfaction on work and pay than low productive groups. In discriminant function of work and pay, their rate of contribution are each of 0.74 and 0.26 and revealed that satisfaction on work and pay has strong relation with productivity. On the other hands, in case of B company of Japan, high productive groups had higher degree of satisfaction on work or co-workers than low productive groups. Discriminant function of work and companion revealed there are strong relation between the degree of satisfaction on work and companion and productivity. As examining each answers in detail, the researcher find that a lot of member of high productive groups as well as low productive groups answer that their works are monotonous. Without any relation with it, the reason why significant difference of satisfaction on work is that many members of high productive groups strive for quality improvement, decline of the rate of poor quality and get efficiency of work through activity of QC circle. Members of high productive groups also had high degree of satisfaction

on companion. Through small group activity, members of circle co-operate and seek for same goal together. Owing to good human relationship satisfaction on companion, the feeling of solidarity through small group activity, workers could raise productivity.

#### V. Conclusion

This paper studied on the relationships between productivity and job satisfaction in small group activities. The researches were practiced with the same method, which prof. Rao of Babson University did on autonomous work groups in U.S.A. The researcher divided companies of Korea and Japan into similar small groups such as high productive groups and low productive groups and analyzed their degree of job satisfaction. According to the result, high productive groups indicated higher degree of job satisfaction than low productive groups. In the case of Korea, it is important to activate QC circle activity, and let team members feel satisfaction with work as well as in the case of Japan. In addition, manager should equalize the difficulty of the works by automating and so on, or set up the pay system taken the difficulty of the works into consideration to reduce the sence of unfairness.

In the case of Japan, high productivity group had higher degree of satisfaction on co-workers than low productivity group. The results said good human relationship is important to makes good working place. Company and leaders activate activity of circle such as QC and strengthen the feelings of solidarity and one unit through members cooperation for same goal. It is also important to let team members have desire to aim at higher goals. In this way,

worker's ability, pleasure, will and satisfaction      advancement of both human relations and  
with work would improve, which help the      productivity at the same time.

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