Management and Leadership Approaches for Improving the Creativity of Knowledge Workers in Service Sectors

Kazuhiko Itaya
Tokyo University of Agriculture and Technology, Institute of Technology, Graduate School of Industrial and Innovation, Japan

Abstract--**In developed countries in the post industrial age, the ratio of the working population in service sectors has been very high. Our great concern is to improve those knowledge workers' creative performance because it could be the source of having an advantage over our rivals. However, there has been a lack of discussion over the management of service sectors for knowledge workers engaged in creative work in those sectors. Management and leadership approaches for improving the creativity of knowledge workers are discussed from the view of comparing with those of R&D sectors.**

I. INTRODUCTION

In developed countries the working population in service sectors has increased for a long time. The ratio of this sector as tertiary industries, has reached nearly 80% in the U.S. and more than 70% in Japan. The key to the promotion of the innovation in service sectors, which are now among the main industries, is the effective utilization of human resources. From the view of creating innovation and valuing competitive power, in particular, it could be an important concern to lead knowledge workers, engaging in creative and emergent affairs, to their higher performance [2], [4], and [12]. Service sectors cover a wide range of businesses, i.e., restaurants, distribution, and individual services, which need waiting on customers, to those of infrastructure and manufacture [6]. Some integrated models of services with infrastructure or some hardware, where more effective promotion of innovation can be expected than dealing with services alone has been proposed [13]. Thus, the stages where innovation is created are varied and complicated. Knowledge workers could be the genesis of innovation from various aspects everywhere in the service sectors.

Although their importance has been pointed out, the management of knowledge workers has not been sufficiently discussed. In some fields, such as R&D sectors, an exceptional amount of work has been done. Studies have been done on the factors that enhance performance of researchers such as knowledge workers and on the styles of leadership [15], [17]. Recently, studies have moved from researchers' organizational and cognitive behavior such as a study on their 'intrinsic motivation', [10], and on management that promotes their 'act of discovering.' [11]

Unlike R&D sectors, on the other hand, generally speaking, the studies on management toward knowledge workers have been small in number and there have been insufficient discussions on positive points of view based on each sector. Recently, studies considering characteristics of each sector have finally started. Among them in service sector is a study on "the turnover conscious" of nurses as knowledge workers by Zushi [20]. Intended problems and their implications remain within the point of view of resolving "negative aspects" of the job duty in the service sectors. It can be said that the studies on knowledge workers in the service sectors are still in their embryonic stage. There seem to be few studies on knowledge workers in terms of looking at creative, emergent work and on how they can lead innovation.

Hypothesis generation is introduced from two points of view. One is the view of comparing with management of R&D sectors. Hypothesis generation is given to get effective management that leads knowledge workers in the service sectors to their creative performance by considering similarity with management (revealed by previous works) in R&D. The other one is the view of characteristic features of service sectors rather than R&D. Hypothesis generation is also given to get desirable leadership style that leads knowledge workers in the service sectors to their creative performance by considering inherent issues in service sectors. After that, a questionnaire survey is reported with its analysis and conclusion conducted at a company in Japan that engages in the service sector.

II. HYPOTHESIS GENERATION

A. Similarity with management in R&D

In general workplaces, managing style is based on supervising and controlling. This style, however, does not function effectively fields like R&D where creativity is demanded. At the same time, leaving everything to the researcher's voluntarism cannot produce effective results for the company and the organization. It is said, in R&D, what is important is autonomy [10], or to ensure autonomy on the condition of having a shared long term vision and policy [11]. Autonomy, along with capability and relationship, encourages researchers' intrinsic motivation [3] and lead them to higher performance, letting them exert creativity [1]. Here, the situation is the same for knowledge workers in the service sectors: uncertainty and indeterminacy affect the target results and there are a lot of difficulties with exerting creativity. Therefore, intrinsic motivation is desirable to them as well. Since it is important for them to ponder on their own on the basis of their expertise and experience, autonomy could promote their spontaneous motivation as the previous study regarding research and development shows. Therefore, the following three hypotheses are introduced:

Hypothesis 1: Creative performance of knowledge workers in service sectors is promoted by autonomy.

Hypothesis 2: Creative performance of knowledge workers in

service sectors is promoted by intrinsic motivation.

Hypothesis 3: Intrinsic motivation of knowledge workers in service sectors is promoted by autonomy.

B. Issues for service sectors

In what ways are the knowledge workers in service sectors different from researchers in R&D? According to the statistics, the ratio of female workers is higher in service sectors compared with other sectors. That of irregular employment is also high and it seems that those knowledge workers are in diverse HR circumstances. Unlike R&D, where researchers are given good working conditions with the expectation of being creative, they are expected to be creative in a severer circumstance where even the countermeasure against turnover is needed [20]. It would not be enough, under such conditions, to make much of their intrinsic motivation and autonomy to bring results their company wants. Importance should be given to the role of leadership that leads knowledge workers effectively. We have a great deal of data on leadership. The working conditions in service sectors can lead to an environment that is conducive to creative motivation by a supporting-style leadership, i.e., getting interested in the workers' feelings and needs, encouraging them to make remarks about their concerns and to develop their skills [14].

Moreover, some attention is needed to the diverse working conditions peculiar to the service sectors. In this thesis, therefore, the concept of social support is applied, which is 'the various forms of support from others surroundings' [9]. Social support could ease various negative effects caused by working conditions in the service sectors and could enhance creative performance.

To wrap up, the following are introduced as hypotheses peculiar to the service sectors:

Hypothesis 4: Creative performance of knowledge workers in service sectors is promoted by a supporting-style leadership.

Hypothesis 5: Creative performance of knowledge workers in service sectors is promoted by social support.

III. METHODS

A. Outline of survey

The data of this thesis were obtained at company A, which is engaged in service business in Japan. A is affiliated with manufacturer B. We identified several sections in which creativity is thought to play a part such as design, planning, and making technical documents, education service and planning of a new e-commerce, and requested to cooperate to the questionnaire. In December 2013, 70 copies of the questionnaire were distributed, and 61 of them were collected by mail. Of these, 44 among them were confirmed to be valid and were used as objects for analysis.

B. Survey items and manipulation

The questionnaire was designed as follows:

Question items as for intrinsic motivation are aimed at viewing the process in which the activity itself satisfies and motivates the workers, referring to the previous study by Teirry [19], Gange [8] and Deci [3]. Question items as for autonomy were made by reference to the study by Fujita [7]. Those for supporting-style leadership were made up with the items asking the styles, advocated by Oldham & Cummings and others [14], that 'being interested in the workers' feelings and needs, encouraging them to make remarks about their concerns, offering them positive and informative feedback, and promoting their skill development'

As for social support, the items by Sarason and others [16] referred to consist of 'instrumental support' and 'emotional support'. The former includes instructive support to the workers (by superiors and co-workers) and the latter measures mental support to them (by superiors and co-workers).

For creative performance as the dependent variable, four items are set up, referring to the scale by Tierney and others [18]. After the factor analysis, comparatively good reliability coefficients were obtained for these three items: I sometimes find myself exerting creativity, I sometimes take a risk to bring forth new ideas, and I propose innovative and realizable ideas. Only one factor was extracted with the eigenvalue 1.00 and above for these three. From this fact, the author decided to measure creative performance by the simple average of these items.

The answers, except for the dummy variables, are requested to follow the Likert scale consisted of "I don't think so," "I tend not to think so," "Yes and No," "I tend to think so" and "I think so." In the questionnaire, as the dummy variables, answers regarding sex are required.

The question items regarding independent variables, the result of the descriptive statistics and the result of the factor analysis are shown in Table 1. Through the factor analysis, four factors were extracted with the eigenvalue 1.00 and above after varimax rotation. A coefficient of reliability between questionnaires for each factor is larger than 0.6. The simple average between questionnaires for each factor is used as measuring variable. Factor 1 relates to intrinsic motivation. Factor 2 can be said, from the corresponding questions, to relate to autonomy. Factor 3 corresponds to supporting-style leadership, instrumental social support and emotional social support and is regarded as 'progress supporting-style leadership.' Factor 4 can be rephrased, from the corresponding questions, as mental supporting-style social support. The simple average of the scores to the question items corresponding to each factor was parameterized.

TABLE 1.QUESTION ITEMS REGARDING INDEPENDENT VARIABLES, RESULT OF DESCRIPTIVE STATISTICS AND RESULT OF FACTOR ANALYSIS

No.	Purpose	Questionnaire	Mean	Deviation	Factor 1	Factor 2	Factor 3	Factor 4
Q1	Intrinsic motivation	I enjoy finding solutions in business.	3.977	0.792	-0.894	0.113	0.081	-0.106
Q2	Intrinsic motivation	I enjoy improving process/product in business.	3.977	0.821	-0.784	0.354	0.135	-0.065
Q3	Intrinsic motivation	I enjoy creating new approach in business.	0.4	0.747	-0.784	0.071	0.006	-0.166
Q4	Intrinsic motivation	I enjoy creating idea in business.	4.023	0.762	-0.776	-0.160	0.207	0.120
Q5	Autonomy	Proposal by myself is esteemed.	3.614	0.689	-0.209	0.769	0.241	0.093
Q6	Autonomy	I can act by own commitment.	3.773	0.831	0.016	0.730	0.326	-0.227
Q7	Supporting-style leadership	(Superiors) would give a good account of your excellent work.	3.75	0.811	-0.172	0.193	0.778	-0.312
Q8	Supporting-style leadership	(Superiors) would encourage acquirement of knowledge and skill.	3.864	0.878	-0.081	0.145	0.908	-0.188
Q9	Supporting-style leadership	(Superiors) would encourage taking part in important decision-making.	3.523	0.792	-0.167	0.088	0.824	-0.242
Q10	Supporting-style leadership	(Superiors) would encourage counter opinion when feel complain.	3.523	0.821	-0.168	0.326	0.562	-0.462
Q11	Social support (Instrumental)	(Superiors and co-workers) would encourage absorption of new knowledge.	3.795	0.823	-0.078	0.243	0.883	-0.220
Q12	Social support (Instrumental)	(Superiors and co-workers) would support increasing skill level.	3.682	0.829	0.009	0.273	0.735	-0.404
Q13	Social support (emotional)	(Superiors and co-workers) would offer consultation when fraught.	3.955	0.746	-0.269	0.355	0.552	-0.439
Q14	Social support (emotional)	(Superiors and co-workers) would show you sympathies when upset.	3.705	0.823	0.021	0.136	0.379	-0.860
Q15	Social support (emotional)	(Superiors and co-workers) would comfort when upset.	3.727	0.845	-0.007	0.084	0.267	-0.917
Q16	Social support (emotional)	(Superiors and co-workers) would beguile when conflicting.	3.341	0.776	-0.173	-0.095	0.313	-0.762

IV. RESULT OF ANALYSIS

The analysis framework including the results and argued hypotheses are shown in Figure1. On the basis of this framework, the result of the multiple regression analysis with the dummy variable of sex is shown in Table 2. The following are the analyses of the effect of each factor.

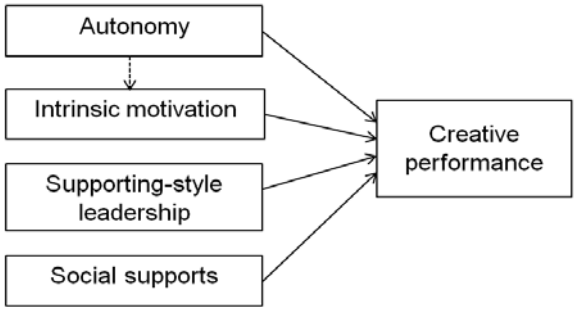

Figure 1. Framework for analysis

TABLE 2.RESULT OF MULTIPLE REGRESSION ANALYSIS

	Creative performance
	Regression coefficient
(Controlled variable) Gender	 -0.189
(Independent variable) Intrinsic motivation Autonomy Supporting-style leadership Social supports	 0.386* 0.108 0.53* -0.375*
Constant adj. R^2 F value	1.05 0.335 5.34 ***

*p<.05, **p<.01, ***p<.001

A. Effect of intrinsic motivation

The result is that intrinsic motivation has a positive effect on creative performance. This supports the validity of applying the previous study on intrinsic motivation in R&D to service sectors and Hypothesis 2 is supported by this.

B. Effect of autonomy

Autonomy does not have a meaningful effect on creative performance. This result differs from that of the previous study in R&D. The effect of autonomy on intrinsic motivation (as the parameter of creative performance) was investigated by another regression analysis, which did not bring a meaningful result either. Unlike R&D, autonomy has an effect on neither creative performance nor intrinsic motivation.

C. Effect of progress supporting-style leadership

The result tells us that supporting-style leadership is, like intrinsic motivation, has a positive effect on creative performance. The values of the regression coefficient show that its effect is larger than that of intrinsic motivation. The effect of supporting-style leadership seen in the previous study is confirmed in the service sector as well.

D. Effect of mental supporting-style social support

Mental supporting-style social support has, unlike other factors, a negative effect on creative performance. The effect is meaningful with the comparable values of the regression coefficient (negative) to spontaneous motivation (positive). This is a vastly different tendency from that of the result of the previous study.

V. CONSIDERATION

Hypotheses 1 to 5, that is, relations between creative performance and each independent variable, targeting knowledge workers in the service sectors, have been tested quantitatively. The following are the results of this validation.

Hypothesis 1 was not supported. Autonomy, despite the accumulation of validity in the field of R&D, has nothing to do with the creative performance of knowledge workers in the service sectors. Hypothesis 3 was not supported either. Autonomy does not contribute to intrinsic motivation and therefore to creative performance. These results were vastly different from the suggestion of the previous study in the field of R&D.

Hypothesis 2, on the other hand, was supported. Intrinsic motivation, as with the previous study in the field of R&D, would promote creative performance. Hypothesis 4 and one part of Hypothesis 5; moreover, were supported as the effect of progress supporting-style leadership. The part of Hypothesis 5, which was supported here is instrumental social support. Providing support to make individual progress and problem resolution can be said to be effective for creativity of knowledge workers in the service sectors.

Contrary to expectation, the effect of mental supporting-style social support, the other part of Hypothesis 5, was not supported. Not only was its effectiveness denied, but a negative effect was found. There was a possibility that 'sympathetic' support would work negatively in terms of creative performance.

Two implications are brought about from these facts above. First, we cannot idolatrously apply the suggestion derived from the field of R&D to the management to enhance creative performance of knowledge workers in the service sectors. More scrupulous management design is needed for each job characteristic. Second, in line with the previous study intrinsic motivation has been confirmed to be a powerful creativity-supporting factor common to each field.

The limitation of this study and upcoming challenges have been mentioned. As the number of the samples is insufficient, further investigation and deeper analysis is required. Moreover, as the consideration on the hypotheses is inadequate, there should be a complementary qualitative investigation.

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