RESEARCH ON THE IMPACT OF TELEWORK
ON WORK-LIFE BALANCE IN JAPANESE HUMAN RESOURCES MANAGEMENT

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Abstract
To increase workers’ own Work-life Balance (WLB) satisfaction under telework in Japan, a high level of interest in the workplace or monitoring, a reduced telework workload, autonomy in the performance of duties, and interdependence of duties are effective. High interest from the workplace or monitoring and reduced telework workload also increases the level of satisfaction with the company's WLB measures. Telework in Japanese companies presents different challenges from job description-based job performance systems, and we need to explore effective ways of using telework and improving its efficiency in Japanese-style Human Resources Management (HRM) in the future.

Keywords: work-life balance (WLB), telework, work from home, job-based employment, membership-based employment

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1. Introduction and Research Background

First, we describe the state of telework implementation to address the COVID-19 pandemic in Japan.

The new coronavirus infection spread globally from the end of 2019, and the first declaration of a state of emergency (Lockdown statement) was issued by the Government of Japan in April 2020. Hyogo Prefecture, where we work, was included in this declaration, and companies in the prefecture were forced to implement measures to control the spread of infection.

A survey at the national level shows that 27.9% of all full-time employees have teleworked, of which more than two-thirds have teleworked for the first time (Persol Research Institute, April 2020). 34.6% of full-time workers have teleworked (more than 40% of regular employees) (Cabinet Office, 25 May - 5 June 2020). However, many companies in Hyogo Prefecture were not necessarily able to implement teleworking in a carefully prepared manner. Rather, it is likely that many of them were forced to implement teleworking in response to sudden changes in the external environment.

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The general human resource management system of Japanese companies is unique in the world. Japanese companies, especially traditional large enterprises, do not have a job-based hiring, evaluation, and reward system. Instead, they hire new graduates in batches regularly without assigning them to specific jobs, and promote human resource development within the company through reassignment. They have also introduced a system in which duties are not directly linked to remuneration, and employees with high evaluations take the higher positions and gain higher remuneration. Because of that, many Japanese researchers call the world standard human resources management system the 'job style'. On the other hand, the Japanese HRM system is called the 'membership style.'

A distinctive feature of job performance in membership-based employment is that individual duties are not stipulated and are carried out with supervisors and coworkers, reporting and consulting with them as needed. Most workers around the world work based on a job description: a list of the responsibilities that they have and the duties they are expected to perform in their work. However, most Japanese companies do not use job descriptions. The important point in the management of Japanese companies is that jobs and wages are loosely linked, not directly linked. They have a rough division of roles, but the scope of duties of each employee is not always clear. The central feature of Japanese HRM is called 'the capability qualifying system.' The main framework is a system in which employees are assigned job performance grades according to their ability to perform their duties, and the ranking of these grades is used to determine compensation and other benefits. This is a system for ranking employees according to their level of importance within a company's organization. It is the foundation of human resource management and the basis for the operation of the measures of HRM. This style, in which duties and compensation are not directly linked, but are linked by employee ratings within the company, is called a membership style.

The characteristics of membership- and job-based employment and the systematic structure of the job qualification system in Japanese companies are presented in the following Table 1. and Figure 1.
The system of job performance in Japanese companies, especially large enterprises, is a way of working that is not suitable for telework because each employee’s job is not clear. Therefore, the implementation of telework may undermine workers’ WLB. By conducting a survey of workers in Hyogo Prefecture during the COVID-19 pandemic, an attempt will be made to identify issues in the implementation of teleworking. The workers have been forced to implement telework due to changes in the external environment. So, we will analyze the workers’ own WLB satisfaction through telework in Japanese companies.

In this study, we explore how telework during the COVID-19 pandemic has affected workers’ work-life balance in Japan. The study will reveal the challenges faced by workers who were forced to telework, in some cases, due to changes in the external...
environment and will identify the challenges that Japanese human resources management faces in implementing telework.

Note that the term 'telework' is used mainly in the United States, along with other names such as 'work from home' and 'remote work'. Strictly speaking, these are different concepts, but to avoid confusion, we will use the term 'telework' in this study.

2. Theory and Hypothesis

Factors that are said to contribute to work-life balance satisfaction are job flexibility, or autonomy, and job interdependence.

Based on job characteristics theory, increased job flexibility increases work motivation (Hackman and Oldham, 1980). When job flexibility is high, employees are free to change their work procedures and they are less likely to harbor negative feelings. Also, the ability to flexibly adjust work hours and schedule management at their discretion affects workers' WLB satisfaction (Glass and Finley, 2002). Since WLB satisfaction is affected by the characteristics of the jobs in which they are engaged, it is necessary to consider not only formal WLB systems at the organizational level but also WLB promotion which considers the characteristics of jobs at the individual level (藤本, 2009). 森田 (2004) called such autonomy "autonomy in job performance," and pointed out that this alone does not sufficiently address the WLB issue of "the relationship between the two domains of work and life" and "how to cross over between the two domains. In other words, he pointed out that "autonomy in determining the boundary between work and private life" is a different concept from "autonomy in job performance".

On the other hand, job interdependence means the degree to which one's work and the work of others affect each other (Kiggundu, 1981). Moderate job interdependence improves team performance (Lipnack and Stamps, 1997). Face-to-face teams perform better with high interdependence, while virtual teams perform better with low interdependence (Rico and Cohen, 2005). That is, environments with high job interdependence are a hindrance to the use of telework. Some previous research has shown that job interdependence is a disincentive to telework for the following reasons. One is that telework creates physical distance between teleworkers and other members of the workplace (Lembrechts et al., 2018). Another is that supervisors have more work to coordinate, such as assigning teleworkers' work assignments to other members of the team (Beham et al., 2015). Finally, the presence of face-to-face communication is a disincentive to telework in the Japanese workplace due to its high context culture (古川, 2015).
On the other hand, regarding the workplace practices of Japanese companies and telework, there are some issues as follows. Japanese workplaces require face-to-face communication to share the atmosphere and place (高尾, 2004). The Japanese way of working, with ambiguous job assignments and teamwork, can be a disincentive to telework (平野 and 江夏, 2018; 小豆川 and Spinks, 1999). That is, telework is difficult because of ambiguous job assignments. Workers reconcile the demands of their superiors and colleagues and the duties they are to perform through in-depth information exchange with colleagues and related departments (平野 and 江夏, 2018).

Essentially, virtual communication, such as telework, also has problems such as the inability to convey nonverbal content that would be conveyed in a face-to-face setting (Robbins et al. 2012). Also, it becomes difficult to implement communication among members (上林, 厨子, and 森田, 2018).

In the above, we have discussed how Japan's human resource management system makes it difficult to implement telework. A lot of studies have been conducted around the world under the conditions of the COVID-19 pandemic and how telework will affect the work-life balance of employees from 2020 to 2022.

Workload pressure, task interdependence, professional isolation, and family interference in work lead to exhaustion and further stress, whereas the presence of autonomy and schedule flexibility and sufficient technological resources improve employees' work-life balance and further improve productivity and performance and job satisfaction (Jamal et al., 2021). The research conducted by Juchnowicz and Kinowska (2021) verified the relationship between employees' well-being and the degree of teleworking. It showed the existence of a significant impact of telework on workplace relationships and the ability of employees to maintain a work-life balance. Telework has a negative effect on work-life balance and work stress, and also work-life balance has a positive and significant effect on job satisfaction (Irawanto et al., 2021). This implied that employees have the flexibility and autonomy to balance their work and personal life, and tend to increase their job satisfaction. This study also found that work-life balance can mediate the effect of working from home on job satisfaction.

However, these studies focus on telework and work-life balance/well-being or telework and work engagement/stress in a specific country. Jamal et al. (2021) only represent employees working in IT and IT-enabled services in a specific geographical region of India, and Juchnowicz and Kinowska (2021) only concern Polish employees. Furthermore, concerning Irawanto et al. (2021), the participants of the study were Indonesian citizens who worked from home and came from all parts of Indonesia, with most participants coming from the island of Java, which is the center of the public and private sectors in Indonesia. Therefore, a meta-analysis
of these studies is expected in the future, but the level of theoretical generalization is not very high at this time. However, these studies focus on telework and work-life balance/well-being, or telework and work engagement/stress in a specific country. Jamal et al. (2021) represent only employees working in IT and IT-enabled services in one particular geographic region of India. and Juchnowicz and Kinowska (2021) only concerned Polish employees. Furthermore, regarding Irawanto et al. (2021), the participants of the study were Indonesian teleworkers who originated from all parts of Indonesia, most participants came from Java Island, which is the center of the public and private sector in Indonesia. Therefore, a meta-analysis of these studies is expected in the future, but the level of theoretical generalization is not very high at this time.

This study contributes to the body of research on the relationship between telework and work-life balance that has been analyzed in different countries. It will also confirm whether the results of previous studies apply to human resource management in Japan, where job allocation and job performance systems are different. This will increase the level of theoretical common ground on the impact of telework on work-life balance.

Based on the previous studies discussed so far, the following quantitative analysis is conducted with job flexibility and autonomy, job interdependence on telework, and design and operation of teleworking schemes as independent variables, and WLB satisfaction as the dependent variable. Three sub-dimensions were established for the indicator of design and operation of telework: the degree of job stipulation/separation, monitoring from the workplace, and the workload, or additional burden, for implementing telework. These are presented in the following hypotheses.

Hypothesis 1. The perception of job characteristics will significantly affect work-life balance satisfaction.

Hypothesis 1a. The perceptions of job flexibility and autonomy will significantly affect work-life balance satisfaction.
Hypothesis 1b. The perception of job interdependence will significantly affect work-life balance satisfaction.

Hypothesis 2. Workers’ perceptions of the design and operation of teleworking schemes will significantly affect work-life balance satisfaction.

Hypothesis 2a. The perceptions of the degree of job stipulation/separation will significantly affect work-life balance satisfaction.
Hypothesis 2b. The perceptions of monitoring from the workplace will significantly affect work-life balance satisfaction.
Hypothesis 2c. The perceptions of workload for telework will significantly affect work-life balance satisfaction.
3. Methods

Sample

The summary characteristics of the data set used in this analysis are as follows:

Survey period: August to October 2020.
Target group: trade union members working in companies in Hyogo Prefecture.
Survey method: Questionnaire survey using the Likert 5-point scale, surveys were mailed to 1,500 identified workers.
Number collected: 1,500 copies distributed, 900 collected (response rate 60.0%)
Number of valid responses: 898 (valid response rate 59.9%)
Average age: 40.6 (±9.5) years.
Type of industry: 422 (47.0%) manufacturing, 469 (52.2%) non-manufacturing, 7 non-responses.
Size of employer: less than 50 people 80 (8.9%), 50-100 people 29 (3.2%), 101-300 115 (12.8%), 301-1000 179 (19.9%), more than 1001 487 (54.2%), 8 non-responses.
Marital status: 254 (28.3%) without a spouse, 439 (48.9%) with an employed spouse, 192 (21.4%) with an unemployed spouse, 13 non-responses.
Family status: 291 (32.4%) without children living with them, 493 (54.9%) with children living with them, 114 non-responses.

The survey also asked whether respondents teleworked in the wake of the COVID-19 pandemic, whether they had teleworked before it, and whether they had teleworked consistently or not.

![Figure 2. Classification of the timing of telework initiation](source)

To achieve the above-mentioned objectives, first, the confirmatory factor analysis and reliability coefficients for the variables used were reviewed as preparation for analysis.
Measures

Table 2. The results of Factor Analysis (regarding telework design and operation)

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Factor1</th>
<th>Factor2</th>
<th>Factor3</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can easily select those of my duties that are suitable for processing at home.</td>
<td>0.92</td>
<td>-0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>I can easily select those of my duties that are suitable for processing at my workplace.</td>
<td>0.68</td>
<td>0.12</td>
<td>0.05</td>
</tr>
<tr>
<td>I can use telework when I want to.</td>
<td>0.46</td>
<td>0.11</td>
<td>-0.14</td>
</tr>
<tr>
<td>I believe that my workplace monitors and manages the distinction between work and non-work time of teleworkers.</td>
<td>0.01</td>
<td>0.92</td>
<td>0.05</td>
</tr>
<tr>
<td>I think my place of work has an adequate understanding of how and when teleworkers do their work.</td>
<td>0.01</td>
<td>0.64</td>
<td>-0.01</td>
</tr>
<tr>
<td>I think that my place of work appropriately identifies and manages overtime, holiday work, etc.</td>
<td>0.01</td>
<td>-0.14</td>
<td>0.33</td>
</tr>
<tr>
<td>I think my employer has complicated internal rules and regulations for using telework.</td>
<td>-0.05</td>
<td>0.03</td>
<td>0.83</td>
</tr>
<tr>
<td>At my place of work, I need to make special arrangements and preparations to work from home.</td>
<td>0.05</td>
<td>-0.07</td>
<td>0.69</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>2.03</td>
<td>1.93</td>
<td>1.35</td>
</tr>
</tbody>
</table>

As indicated in Table 2. above, the confirmatory factor analysis confirmed that the variable telework design and operation has three sub-dimensions: degree of job separation (factor 1), monitoring from the workplace (factor 2), and load for telework (factor 3), (maximum likelihood method, Promax rotation). Although some of the factor loadings of the scales are not necessarily high, all factors have eigenvalues greater than 1, so there should be no problem in adopting these measures.

Also, the following Table 3. shows all sample items, including the factor analysis results presented above, and Cronbach's alpha for each variable. Several variables have Cronbach's alphas below 0.7, indicating a slight problem with internal consistency. This means that in correlation and regression analysis, which primarily examines the strength of association between indicators, estimates of the strength of association are smaller. Of course, we are aware of this "dilution of correlations," but since the values are not so low that they cannot be analyzed, these variables will be used in subsequent analysis.
<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Number of Items</th>
<th>Sample Items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job flexibility and autonomy</td>
<td>3</td>
<td>I have a high degree of independence and freedom in carrying out my job. I am able to make many of my own decisions about how to carry out my work.</td>
<td>0.868</td>
</tr>
<tr>
<td>Job interdependence</td>
<td>4</td>
<td>The quality of my work has a direct impact on the work of others in the workplace. If I do not finish the work I am responsible for, my colleagues' work cannot be finished either.</td>
<td>0.653</td>
</tr>
<tr>
<td>Degree of job stipulation/separation</td>
<td>3</td>
<td>I can easily select those of my duties that are suitable for processing at home. If I can use telework when I want to.</td>
<td>0.735</td>
</tr>
<tr>
<td>Monitoring from the workplace</td>
<td>3</td>
<td>I believe that my workplace monitors and manages the distinction between work and non-work time of teleworkers. I think my place of work has an adequate understanding of how and when teleworkers do their work.</td>
<td>0.689</td>
</tr>
<tr>
<td>Workload for telework</td>
<td>3</td>
<td>I think my employer has complicated internal rules and regulations for using telework. At my place of work, I need to make special arrangements and preparations to work from home. (R)</td>
<td>0.714</td>
</tr>
<tr>
<td>Own WLB satisfaction</td>
<td>3</td>
<td>I am satisfied with my time allocation between my work and personal life. My work life is fulfilling.</td>
<td>0.785</td>
</tr>
<tr>
<td>Satisfaction with the company's</td>
<td>2</td>
<td>I am satisfied with the company's efforts to review work styles that enable diverse human resources to play an active role in the workplace and to improve productivity at the same time. I am satisfied with the company's work-life balance initiatives in the workplace.</td>
<td>0.685</td>
</tr>
</tbody>
</table>
4. Results

As shown in Table 4, no particularly high coefficients were found.

Table 4. Pearson Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Job flexibility and autonomy</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Job interdependence</td>
<td>0.03</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Degree of job separation</td>
<td>0.37 ***</td>
<td>0.05</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Monitoring from the workplace</td>
<td>0.15 **</td>
<td>0.14 **</td>
<td>0.37 ***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Workload for telework</td>
<td>-0.09</td>
<td>0.20 ***</td>
<td>-0.18 ***</td>
<td>-0.08</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Own WLB satisfaction</td>
<td>0.22 ***</td>
<td>0.10 **</td>
<td>0.26 ***</td>
<td>0.27 ***</td>
<td>-0.19 ***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7 Satisfaction with the company's WLB measures</td>
<td>0.22 ***</td>
<td>0.06</td>
<td>0.26 ***</td>
<td>0.34 ***</td>
<td>-0.19 ***</td>
<td>0.55 ***</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5. Regression Analysis

<table>
<thead>
<tr>
<th>Own WLB satisfaction</th>
<th>β</th>
<th>Satisfaction with the WLB measures</th>
<th>β</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.05</td>
<td></td>
<td>-0.02</td>
<td>-0.17 *</td>
</tr>
<tr>
<td>Presence of children under 5 years of age</td>
<td>-0.08</td>
<td></td>
<td>-0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td>Presence of an employed spouse</td>
<td>-0.02</td>
<td></td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Job flexibility and autonomy</td>
<td>0.24 **</td>
<td></td>
<td>0.22 **</td>
<td>0.17 *</td>
</tr>
<tr>
<td>Job interdependence</td>
<td>0.23 **</td>
<td></td>
<td>0.17 *</td>
<td>0.16  *</td>
</tr>
<tr>
<td>Degree of job separation</td>
<td>-0.02</td>
<td></td>
<td>-0.02</td>
<td>-0.04</td>
</tr>
<tr>
<td>Monitoring from the workplace</td>
<td>0.31 ***</td>
<td></td>
<td>0.36 ***</td>
<td></td>
</tr>
<tr>
<td>Workload for telework</td>
<td>-0.16 *</td>
<td></td>
<td>-0.20 **</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>0.13 ***</td>
<td></td>
<td>0.24 ***</td>
<td>0.08 **</td>
</tr>
<tr>
<td>ΔR2</td>
<td>0.12 ***</td>
<td></td>
<td>0.16 ***</td>
<td></td>
</tr>
</tbody>
</table>

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

To test Hypotheses 1 and 2, we regressed own WLB satisfaction and satisfaction with the company's WLB measures. For all equations, we controlled for employees' age, the presence of children under five years of age, and the presence of an employed spouse.

As shown in Table 5, job characteristics, that is job flexibility and autonomy, and job interdependence affected positively own WLB satisfaction, therefore supporting Hypothesis 1a and Hypothesis 1b. On the other hand, job interdependence and autonomy, and job interdependence did not affect satisfaction with the company's WLB measures, therefore we find no support for H1a and H1b. H1 is partially supported.

Next, the results of the multiple regression analysis when workers' perceptions of the design and operation of the telework system were used as the independent variable were different from the effects when job characteristics were used as the independent
variable. Monitoring from the workplace positively affects own WLB satisfaction, and the workload for telework negatively affects satisfaction with the company's WLB measures. However, we used reverse scales for workload for telework. Also, the degree of job separation was not significant. Therefore, H2a was rejected, Hypotheses 2b and 2c were supported, and H2 was partially supported.

In summary, job flexibility and autonomy, job interdependence, monitoring from the workplace, and workload for telework have a significant positive impact on WLB satisfaction. Monitoring from the workplace and workload for telework have a significant positive impact on satisfaction with the company's WLB measures.

5. Conclusions and Additional Avenues of Future Research

Based on the results above, it can be said that, rather than the segregation of duties that were considered important in previous telework research in Japan, it is the lack of an additional burden in implementing telework, together with a high level of interest from the workplace, that increase workers' WLB satisfaction in Japan and satisfaction with the company's WLB measures.

The results of the analysis differ from previous studies, which showed that job interdependence is an obstacle to the use of telework. The results of the analysis show that there are some issues the use of telework under ambiguous job assignments is characteristic of Japanese-style HRM. That is, in Japanese-style HRM, in addition to the factors of job flexibility and autonomy, and job interdependence that have been identified in previous telework studies, monitoring from the workplace and reducing the workload for telework execution are also used. Consideration needs to be given to the appropriate implementation of teleworking based on a loose job assignment, that is the Japanese HRM, rather than the use of teleworking based on job performance according to a job description.

Previous telework and work-life balance studies have devoted much effort to exploring job factors that enhance work-life balance in telework, which implicitly assumes job-based employment. This study, however, discussed telework mechanisms that enhance work-life balance in membership-based employment. The results of this study show that monitoring from the workplace is one of the significant variables that contribute to the improvement of work-life balance. Monitoring from the workplace can help reduce employees' social isolation, which is one of the challenges of telework in job-based employment. Therefore, the results of this study can contribute to theoretical generalizing telework and work-life balance.

For future research, as the present analysis was conducted only on the work aspect and no independent variables concerning the life aspect were entered, in the future, clearer implications will be presented by analyzing job satisfaction and other factors as dependent variables. Also, as the survey and analysis were conducted under the
special conditions of the global prevalence of COVID-19, it cannot be said that direct theoretical implications can be presented or generalized sufficiently.

Finally, various studies have been conducted on whether telework increases organizational and individual effectiveness and efficiency, as well as productivity, but these have not always come to a certain conclusion. On the other hand, Google and Meta require their employees to work at least three days a week, even though they are companies that develop ICT-based communication tools. Amazon also requires its employees to be fully present at work. They argue that this is because face-to-face collaboration and casual chats in the workplace increase employee engagement and encourage innovation. In other words, the intrinsic characteristics of telework and the way telework should be introduced in Japanese-style management need to be addressed as separate research topics in the future.

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