The formation of job- and competency-based human resource management in Japan: The steel industry, 1947–1973

Makoto Suzuki
Nagano University

Abstract

This paper examines the formation of job- and competency-based human resource management (HRM) in Japan, drawing on oral histories from the steel industry to trace the path of development. At Nippon Steel and Nippon Kokan, the personnel systems evolved from the prewar academic background-based status system to the postwar academic background-based status system and finally the competency-based grade system. The process of shedding the postwar academic background-based status system required the concept of competency, which established its foundation due to two contributing factors. First, the existence of job-based wages brought the nature of specific jobs into clearer light. Second, recruiting high school graduates for blue-collar jobs created uniformity among the workforce in terms of academic background—and that enabled assessments on competency-based, not academic, criteria. Middle school graduates and university graduates came from altogether different academic backgrounds, but high school graduates came in with similar levels of knowledge—a prerequisite for applying work-oriented criteria. Despite those similar trends, Nippon Steel and Nippon Kokan would then embark on different paths in developing their respective personnel systems. Whereas Nippon Steel essentially perpetuated its job-based wage structure, Nippon Kokan converted its existing job-based wages into competency-based rates—and the difference emanated from the companies’ HRM policies.

Keyword: job- and competency-based human resource management, academic background-based status system, competency-based grade system, HRM policy, oral history

I. Introduction

This paper examines the formation of job- and competency-based human resource management (HRM) in Japan, drawing on oral histories from the steel industry to trace the path of development.

At Japanese companies in pre-WWII Japan, blue-collar workers and white-collar workers were on opposite sides of a yawning status gap. Status differentiation was common within both camps, as well: certain segments of white-collar workers received better treatment than others, and the same went for blue-collar workers. Academic background was one of the biggest factors in shaping status. Several researchers have probed the dynamics behind the process. A study by Ujihara (1959), a prominent work in the field, explained how four employment tiers at prewar Japanese firms (full-time employees, junior employees, factory workers, and subcontracted day-laborers) corresponded with educational
background (university or technical school diploma, middle school diploma, upper primary school diploma, and elementary school diploma). From that standpoint, the prewar personnel framework appears to have operated on an academic background-based status system.

In the aftermath of the war, labor unions began to form in Japan. Contemporary workers, facing the confusion of the postwar socioeconomic climate and the threats of starvation, banded together in hopes of securing sufficient wages to get by and support their families. As inflation ballooned throughout the Japanese economy, the labor unions called for substantial wage hikes. Their demands eventually came to fruition in October 1946, when the “densan” wage system—a setup with an emphasis on providing life security—came into being.

The densan wage system included the component of ability-based pay. Under the agreed framework, ability-based pay varied according to “skill” level and “performance” level. Employers evaluated a worker’s “skill” based on the importance and difficulty of the skill in question; the “performance” assessment covered intangibles like the worker’s sense of responsibility, processing capacity, compatibility, inquisitiveness, and diligence. The framework took official effect in April 1947 (Labor Dispute Investigation Committee, ed. 1957, 177-180). In the years following the end of the war, then, the term “ability” was a familiar part of the vocabulary on both sides of the employer-employee dynamic.

Besides calls for higher pay, there was another impetus driving the emergence of labor unions: a demand for the democratization of company management. The prevalent status distinctions between blue-collar workers and white-collar workers, which I noted above, created disparities in working conditions ranging from salary and bonuses to promotions and benefits. Labor unions thus criticized the status divide separating the frontline and the back office and insisted on reforms to the existing personnel system, one where academic background essentially reigned supreme. In the effort to work out their differences, both sides of the labor conflict once again turned to the concept of ability as a replacement for academic background at the foundations of various personnel systems.

As previous studies including Nimura (1994) and Hisamoto (1998) have showed, however, the postwar efforts failed to bridge the existing blue-collar worker–white-collar worker status gap completely. Saguchi (1990) came to the same conclusion, explaining that the academic background-rooted labor market did change in the postwar context—but the new employment categories of “professional clerk,” “engineer,” “general clerk/technical assistant,” and “factory worker” still correlated with the divisions between university graduates, high school graduates, and middle school graduates. Instead of disappearing, as labor unions were hoping it would, the prewar academic background-based status system simply gave way to a postwar academic background-based status system.

Employers and employees did not create the postwar academic background-based status system on their own volition, it appears. Labor unions had, indeed, made their voices heard in determining the personnel systems in the immediate wake of the war; many of their aims came to fruition. However, the concept of competency failed to take full root until the corporate community began shifting toward competency-based management in the 1960s. In substance, the personnel systems in place at Japanese companies had to maintain their links to academic background.

In a 1993 work, scholar Nitta Michio argued that the “core philosophy behind competency-based management” was, in its simplest terms, “to establish uniform management of all employees on the basis of job and competency” (Nitta 1993, 33). Companies value an employee’s competency, which is
inherently connected to his or her job; competency is not an independent variable, in other words. The idea of the “job” was originally central to the concept of competency-based management.¹

The personnel systems at Japanese companies followed the same basic evolutionary trajectory, going from the prewar academic background-based status system to the postwar academic background-based status system and then on to the competency-based grade system. Getting past the postwar academic background-based status system hinged on the concept of competency. The competency-based grade system is a practical embodiment of competency-based management, a personnel system that rests on a structure of coherent, consistent competency standards. By ranking all employees within that type of competency-based grade system and implementing both grade promotions and converting work roles in a systematic fashion, companies were able to establish consistent internal orders that made logical sense to their workforces.

The concept of competency took root thanks in large part to two key background factors. First, companies’ use of job-based wages had already given their employees clear ideas of what specific jobs entailed. The second factor had to do with the academic level of incoming employees. Up to that point, companies that hired middle school graduates and university graduates lacked a feasible way to evaluate their employees—the gap in academic knowledge between the two segments was simply too large. By hiring high school graduates to work in their factories, however, companies had much less scholastic disparity to contend with. As their hires had similar academic backgrounds, companies could use the competency yardstick more consistently and effectively.

The following sections look at how job- and competency-based HRM formed in Japan, using the cases of Nippon Steel Corporation (Nippon Steel) and Nippon Kokan Ltd. (Nippon Kokan) to flesh out the analysis.² Section 2 introduces various oral histories from the steel industry, which form the basis of my discussion. Sections 3 and 4 then present the cases of Nippon Steel and Nippon Kokan, respectively, and Section 5 concludes the paper with a summary of the findings.

II. Oral histories from the steel industry

The research community has been proactive in collecting and compiling oral histories from the steel industry. With the scope of available resources always growing, scholars have probed the materials to craft numerous reports and analyses.³ Nippon Steel and Nippon Kokan account for a sizable

¹ Nōryoku-shugi kanri [Competency-based management], a policy paper by the Japan Federation of Employers’ Associations, also states that the “central idea behind competency-based management is managing employees separately, according to their aptitude, from a job-centric perspective.” The document defines applying a “job-centric perspective” to individual employee management as “analyzing the competencies requisite to a specific job, assigning employees with said competencies to said job, and determining employee treatment in light of the job and competency in their corresponding duties (Japan Federation of Employers’ Associations Study Group on Competency-based Management, ed., 1969: 20-21).

² Aoki (2012) took up the case of F Steel Company to examine the development of competency-based management in the steel industry. In his paper, Aoki focused on how companies responded to changes in job types and, secondary to that main question, how they handled imbalances in opportunities for promotions. Other relevant research includes Umezaki (2010) and Umezaki (2014), which use oral histories for a discourse analysis of Nippon Kokan’s personnel-system reforms and explore the notion of labor management as a science. For various investigations of job- and competency-based HRM in the electric industry, especially within the Mitsubishi Electric organization, refer to Suzuki (2008), Suzuki (2010), Suzuki (2012), Suzuki (2016), Suzuki (2017a), and Suzuki (2017b).

³ I, personally, have never taken part in creating an oral history from the steel industry. This paper thus uses oral histories from various outside sources.
portion of the oral histories, a preponderance that owes itself to the dominant presence of the two companies in the industry.

1. Nippon Steel oral histories

There are ten existing oral histories on Nippon Steel, comprising interviews with personnel directors, labor-union leaders, and worksite employees.

i. “Shōgen—Kōdo seichō-ki no Nihon, dai 73-kai: Sangyō shakai no henbō” [Testimony—Japan during the economic boom, #73: Transformations in industrial society] (interviews with Komatsu Hiroshi, former vice-president of Nippon Steel), *Economist* 60(43), 60(44) (1982): 108-115, 84-89.

ii. “Nihon-teki koyō kankō o kizuita hitotachi: Komatsu Hiroshi-shi ni kiku” [The people who created Japanese employment practices: An interview with Komatsu Hiroshi] (interviews with Komatsu Hiroshi, former vice-president of Nippon Steel, by Tanaka Hirohide), *Nihon Rōdō Kyōkai zasshi* [The Monthly Journal of the Japan Institute of Labour] 24(2), 24(3), 24(4) (1982): 66-76, 56-70, 38-55.

iii. *Hito o ikasu! Genba kara no keiei rōmu-shi* [Getting the most out of people: A history of labor management from the factory-floor perspective] (interviews with Fukuoka Michio, former director of the labor division at Nippon Steel’s Yawata Steel Works, by Okazaki Testuji, Satō Hiroki, Sugayama Shinji, and Tsuru Tsuyoshi), Nikkeiren Publishing Department, 2002.

iv. “Shirīzu: Kono hito ni kiku rōshi kankei, dai 4-kai” [Series: Labor relations firsthand, #4] (interviews with Fukuoka Michio, former director of the labor division at Nippon Steel’s Yawata Steel Works, by Nitta Michio and Watanabe Akira), *Chūō rōdō jihō* [Central labor bulletin] 1123, 1125, 1127, 1132 (2010–2011): 2-11, 2-11, 4-11, 4-11.

v. *Miyata Yoshiji ōraru hisutorī* [The oral history of Miyata Yoshiji] (interviews with Miyata Yoshiji, former chair of the IMF-JC and former chair of the Japan Federation of Steel Workers Unions, by Inoki Takenori, Kurosawa Hiromichi, and Umezaki Osamu), National Graduate Institute for Policy Studies, 2003.

vi. *Gekidō-ki no rōshi kankei: Kamaishi Seitetsujo rōsei/rōso no ōraru hisutorī* [Labor relations in tumultuous times: Oral histories of labor administration and labor unions at the Kamaishi Works] (interviews with personnel staff members and factory workers at the Kamaishi Works by Nakamura Naofumi, Nitta Michio, Umezaki Osamu, and Aoki Hiroyuki), Institute of Social Science, The University of Tokyo, 2010.

vii. *Honoo no kioku I: Seisen, seikō, Tōkai tenshutsusha-hen* [Memories of flame I: Pig-iron manufacturing, steelmaking, and Tōkai-area out-migrants] (interviews with personnel staff members and factory workers at the Kamaishi Works by Nakamura Naofumi, Nitta Michio, Umezaki Osamu, and Aoki Hiroyuki), Institute of Social Science, The University of Tokyo, 2011.

viii. *Honoo no kioku: Kamaishi Seitetsujo rōdōsha no ōraru hisutorī II: Atsuen, setsubi-hen* [Memories of flame: Oral histories of laborers from the Kamaishi Works II: Rolling and facilities] (interviews with personnel staff members and factory workers at the Kamaishi Works by Aoki Hiroyuki), Institute of Social Science, The University of Tokyo, 2010.
ix. *Genba kanri no sekai: Kamaishi Seitetsujo gijutsusha no ōraru hisutorī* [The world of factory-floor management: Oral histories of engineers at the Kamaishi Works] (interviews with engineers at the Kamaishi Works by Nakamura Naofumi, Nitta Michio, Umezaki Osamu, and Aoki Hiroyuki), Institute of Social Science, The University of Tokyo, 2010.

x. *Tetsu-zukuri o sasae shinten saseru gijutsusha* [Engineers: Sustaining and propelling the iron-making process] (interviews with engineers from the steel industry by Aoki Hiroyuki), *Kōchi Tanki Daigaku kenkyū sōsho* 2 [Kochi Junior College research series] 2, 2013.

2. **Nippon Kokan oral histories**

The following seven titles are the available oral histories on Nippon Kokan. Like the resources on Nippon Steel, most are interviews with personnel directors and labor-union leaders.

i. *Okuda Kenji ōraru hisutorī* [The oral history of Okuda Kenji] (interviews with Okuda Kenji, former personnel staff member at Nippon Kokan, by Odaka Kōnosuke, Umezaki Osamu, and Hashino Tomoko), National Graduate Institute for Policy Studies, 2004.

ii. *Gotō Tatsuo ōraru hisutorī* [The oral history of Gotō Tatsuo] (interviews with Gotō Tatsuo, former Nippon Kokan union leader, by Odaka Kōnosuke, Umezaki Osamu, Hashino Tomoko, Inoue Masao, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2004.

iii. *Kunimoto Minoru ōraru hisutorī* [The oral history of Kunimoto Minoru] (interviews with Kunimoto Minoru, former Nippon Kokan union leader, by Odaka Kōnosuke, Umezaki Osamu, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2004.

iv. *Tanno Shōsuke ōraru hisutorī* [The oral history of Tanno Shōsuke] (interviews with Tanno Shōsuke, former Nippon Kokan union leader, by Odaka Kōnosuke, Umezaki Osamu, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2004.

v. *Nishikawa Tadashi ōraru hisutorī* [The oral history of Nishikawa Tadashi] (interviews with Nishikawa Tadashi, former personnel staff member at Nippon Kokan, by Odaka Kōnosuke, Umezaki Osamu, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2005.

vi. *Iwasaki Kaoru ōraru hisutorī* [The oral history of Iwasaki Kaoru] (interviews with Iwasaki Kaoru, former Nippon Kokan union leader, by Odaka Kōnosuke, Umezaki Osamu, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2005.

vii. *Nippon Kōkan gijutsusha ōraru hisutorī* [The oral histories of Nippon Kokan engineers] (interviews with former Nippon Kokan engineers by Odaka Kōnosuke, Umezaki Osamu, and Aoki Hiroyuki), National Graduate Institute for Policy Studies, 2005.

3. **Japan Federation of Steel Workers Unions oral histories**

Authors have also conducted interviews with leaders of the Japan Federation of Steel Workers Unions, an industry-specific labor organization, and compiled the results into the four oral histories below.4

---

4 There are also several other oral histories that deal with the steel industry; see, for example, *Tekkō sangyō/rōshi kankei ōraru hisutorī* [An oral history of labor relations in the steel industry] (interviews with former personnel staff members and union leaders at steel companies by Umezaki Osamu and Sugiyama Hiroshi), KAKENHI Report, 2008.
The steel industry, an area that consistently draws considerable interest in the academic community, has inspired many scholars to compile oral histories in the field. Out of that deep reservoir of first-person testimonials comes valuable insight into the industry’s various institutions and an understanding of their design, which constitutes the main thrust of this paper.

III. The case of Nippon Steel

The following section examines the formation of job- and competency-based HRM at Nippon Steel.

1. Growing out of the postwar academic background-based status system

According to Nippon Steel Corporation Company History Editorial Committee, ed. (1981a), the prewar structure at Japan Iron & Steel (the entity that existed before the company dissolved into Yawata Iron & Steel and Fuji Iron & Steel) separated employees into four categories: staffers, junior staffers, factory workers, and contract workers. Like many other firms, then, it would be reasonable to argue that Japan Iron & Steel abided by the prewar academic background-based status system. The company then went on to abandon the existing status divisions after World War II and change gears in 1947, categorizing employees into office workers, engineers, workers, medical staff, and ship workers. When Japan Iron & Steel split into Yawata Iron & Steel and Fuji Iron & Steel in 1950, Yawata Iron & Steel retained the 1947 structure. Problems eventually began to appear, however; the system placed a fixed number on employees in each grade, which prevented some workers—regardless of how superior they may have been in ability, knowledge, skill, or experience—from earning promotions. From the drooping morale among that group of employees to a slackening workplace order and the difficulty of ensuring proper employee treatment, issues abounded. The company ultimately overhauled the personnel system in 1953 to divide employees into another set of categories: clerical workers, technical workers, factory workers, special workers, and field workers. In the postwar context, Yawata Iron & Steel faced the need to build a personnel system around the idea of ability.

According to Komatsu Hiroshi’s oral history, however, “Office workers who’d graduated from technical schools or universities got clerical jobs; engineers with technical school or university diplomas went into the ‘technical workers’ category; and middle school graduates got the factory jobs, which were mostly physical labor,” Komatsu recalled. “Your academic background pretty much determined where you’d land” (Komatsu 1982, 110). The concept of competency had yet to instill itself in the
Yawata Iron & Steel organization, making it impossible for the organization to transcend the prewar academic background-based status system—instead, the structure then in place simply evolved into its postwar equivalent.

It was not until Yawata Iron & Steel merged with Fuji Iron & Steel in 1970, creating Nippon Steel, that the postwar academic background-based status system met its end, if only partially. With the integration came revisions to the personnel systems in place, and the merger agreement stipulated that the new company would work to ensure the fair treatment of its employees by implementing management rooted in job and competency (Komatsu and Tanaka 1982, 74).

2. Introducing job-based wages

Yawata Iron & Steel instituted a job-based wage system in 1962 (Nippon Steel Corporation Company History Editorial Committee, ed. 1981a, 650-652) for two main reasons: to ensure fair treatment of employees, first and foremost, and streamline its business-operation organization and personnel management. The labor negotiations took a total of 46 meetings and consumed roughly three months before the sides reached an agreement on a setup for job-based wages. Considering that the Yawata Iron & Steel wage system was rife with contradictions and inconsistencies, the labor union chose to fight for corrective measures to the existing framework rather than oppose job-based wages head-on. With the union taking a receptive stance, the company instituted a new job-based wage system that would account for 13.8% of all wages.

Yawata Iron & Steel’s job-based wages applied range rates, as Table 1 shows. In addition to reflecting the difference in work quality between new employees and experienced employees, the range-rate approach also served to prevent an employee from spending excessive amounts of time at the same wage point. Under the structure, no job-based wage ever exceeded an advanced wage; the only way for an employee to earn more than the advanced wage was to move up into the next-higher grade. That fact, even despite the range rates, suggests that the job-based wages at Yawata Iron & Steel centered primarily on the job in question.

The year 1962 also saw Fuji Iron & Steel institute job-based wages (Iwabuchi 1964, 64-65). Five years earlier, in April 1957, the company had conducted job evaluations of workers in blue-collar positions and determined some of the evaluation-based bonuses based on the results. That initial foray was a response to young laborers working on the front lines with brand-new equipment; aiming to steer its operations toward the policy of equal pay for equal jobs, the company adopted evaluation-based bonuses as a means of making its wage policy fairer. The process stumbled into a variety of roadblocks, however. First, there was the issue of ensuring company-wide balance—the need to prevent inconsistencies in evaluations for the same jobs at different worksites. Another was the complexity of the evaluation methods. Third, the company had to grapple with opposition from the labor union, which was reluctant to sign on to the new system because executives had failed to provide a thorough explanation of the system when it took effect. The fourth problem revolved around discrepancies with the actual jobs that employees were doing: the tasks and conditions comprising each job changed, creating disconnects in the system. Fifth, technical issues emerged in the job evaluations. To remedy the situation, Fuji Iron & Steel began implementing job evaluations on a company-wide basis in March 1961 and exploring ideas for concise, complication-free evaluation methods that would represent the best fit for the company and satisfy both the management side and the labor side. The company, knowing that input from the employee side would be vital, met with the union to formulate an acceptable setup. After obtaining the union’s approval for the new system, Fuji Iron & Steel officially put its job-based wages in place in 1962.
As Table 2 shows, Fuji Iron & Steel’s job-based wage structure employed range rates with an adjustment factor that varied according to length of continuous service. Still, the primary determinant in the company’s pay scale—like the arrangement at Yawata Iron & Steel—was the job, not duration of service.

Table 1: Job-based wages (in yen) at Yawata Iron & Steel (as of 1962)

| Grade | Starting wage | Standard wage | Advanced wage |
|-------|---------------|---------------|---------------|
| 1     | 2,650         | 2,750         | 2,950         |
| 2     | 2,950         | 3,050         | 3,250         |
| 3     | 3,250         | 3,350         | 3,550         |
| 4     | 3,550         | 3,650         | 3,850         |
| 5     | 3,850         | 3,950         | 4,150         |
| 6     | 4,150         | 4,250         | 4,470         |
| 7     | 4,470         | 4,590         | 4,810         |
| 8     | 4,810         | 4,930         | 5,150         |
| 9     | 5,150         | 5,270         | 5,490         |
| 10    | 5,490         | 5,610         | 5,830         |
| 11    | 5,830         | 5,950         | 6,170         |
| 12    | 6,170         | 6,290         | 6,530         |
| 13    | 6,530         | 6,670         | 6,910         |
| 14    | 6,910         | 7,050         | 7,290         |
| 15    | 7,290         | 7,430         | 7,670         |
| 16    | 7,670         | 7,810         | 8,050         |
| 17    | 8,050         | 8,190         | 8,430         |
| 18    | 8,430         | 8,570         | 8,810         |
| 19    | 8,810         | 8,950         | 9,190         |
| 20    | 9,190         | 9,330         | 9,570         |

Source: Komatsu 1963, 14.

Note: Grades 1-3 were for jobs in the non-skilled group; 4-6 for jobs in the general group; 7-9 for jobs in the skilled group; 10-12 for jobs in the senior group; 13-17 for jobs in the officer group; and 18-20 for jobs in the leader group.
3. Maintaining job-based wages

Yawata Iron & Steel and Fuji Iron & Steel merged to create Nippon Steel in 1970. Even after the merger, the existing structure for job-based wages stayed firmly in place. For proof, one can simply look at the ratios of job-based wages to total wages across time. In 1963, job-based wages amounted to 15.4% and 13.7% of all wages at Yawata Iron & Steel and Fuji Iron & Steel, respectively. Those same percentages sat at 19.2% and 19.5% in 1969, just a year before the merger. After the integration into Nippon Steel was complete, the composite share of job-based wages actually jumped: the number went from 20.6% in 1970 to 24.6% in 1973 (Nippon Steel Labor Department 1973, 5-13).

While the job-based wages at Yawata Iron & Steel and Fuji Iron & Steel had employed range rates from the outset, job type was the most prescriptive component of both systems. In Fuji Iron & Steel’s initial job-based wage setup, the adjustment factor depended on length of service. In 1968, the company then switched the variable for the adjustment factor from service duration to competency.
classification (Nippon Steel Corporation Company History Editorial Committee, ed. 1981b, 701). Following the merger in 1970, however, the new Nippon Steel used the Yawata Iron & Steel approach as its basic blueprint for job-based wages. Fuji Iron & Steel’s last framework, with its focus on competency, was thus short-lived; job type remained the decisive attribute in the job-based wage system at Yawata Iron & Steel and, thereafter, at Nippon Steel, as well.

Nippon Steel also created an “additional pay” compensation category, a form of monetary recognition for expertise and skill. The additional pay was entirely separate from job-based wages, however, and applied to a scant few employees: the percentage of job-based wages as of 1973 was 24.6%, but additional pay accounted for just 6.3% of the total (Nippon Steel Labor Department 1973, 4).

4. Interpreting the oral histories

The personnel system at Nippon Steel evolved from the prewar academic background-based status system to the postwar academic background-based status system and finally on to the competency-based grade system. That the postwar academic background-based status system essentially inherited the legacy of the prewar academic background-based status system, with little substantial change, was the result of a conceptual hole: the idea of competency had not yet lodged itself in the contemporary consciousness. The process of evolving out of the postwar academic background-based status system required the concept of competency, and the concept of competency was able to establish that crucial foundation due to two contributing factors. The first was the presence of job-based wages, which had made the nature of specific jobs more salient and easier to grasp. Second, hiring high school graduates to work in the field gave companies a relatively uniform set of employees in terms of academic background—and that enabled assessments on competency criteria. Whereas the middle school graduates and university graduates that companies employed came from disparate academic backgrounds, which formed the basis of the existing systems, high school graduates came into their jobs with similar levels of knowledge and thereby led employers to apply different evaluation criteria.

Interviews with Fukuoka (2002 and 2010) hint at the importance of that first factor: how implementing job-based wages had helped clarify the concept of the job itself.

“The biggest thing that job-based wages did was create the whole concept of the ‘job.’”
(Fukuoka 2010, 9)

“With job-based wages, people could see the idea of competency through the ‘job’ filter. . . . On the factory floor, the concept of competency gave workers a way of understanding their abilities in the context of their jobs—and that was revolutionary. I’d say it played a big role in driving massive innovation in the industry, in fact.” (Fukuoka 2002, 92-93)

The other factor was academic background. From 1952 to April 1955, Yawata Iron & Steel implemented a no-new-hire policy due mostly to the company’s slagging production after the Korean War. When it resumed recruitment in 1955, however, the company began hiring more and more high school graduates for jobs on the technical side of operations. The relative weight of high school graduates in the entire hiring picture stayed sizable for years: they accounted for 416 of the 589 new recruits in 1955, 1,031 of 1,362 in 1956, and 1,043 of 1,234 in 1957. High school graduates brought an influx of high-caliber talent into the company, with many excelling in their careers (Komatsu and Tanaka 1982, 61).

According to Komatsu (1982), the motivations behind the effort to hire more high school graduates lay largely in a growing need for sophisticated skills on the factory floor.
“Up to the time between the mid-1950s and the mid-1960s or so, we tended to hire elementary school graduates and middle school graduates to fill out our engineer and factory-worker positions. From that point on, though, it got harder and harder to get by on those skill levels; it took employees with a high school background to operate a lot of the electrical equipment, power equipment, and other mechanical facilities. The need for skilled labor was fading, and we switched over to hiring high school graduates.” (Komatsu 1982, 112)

As Komatsu’s words imply, the company’s decision to hire high school graduates for on-site positions came about because of changing technical conditions. That shift had direct consequences on how administrators evaluated employees. Given that middle school graduates and university graduates came from decidedly different academic backgrounds, it was virtually impossible to evaluate everyone against identical ability criteria. By focusing its hiring scope to high school graduates, the company gained an inflow of recruits with similar academic backgrounds—and could thus implement evaluations in a consistent fashion around the concept of competency.

IV. The case of Nippon Kokan

For another exploration of how HRM incorporated the elements of job and competency, the next section examines the case of Nippon Kokan.

1. Growing out of the postwar academic background-based status system

According the oral history of Orii Hyūga (1973, Chapter 3), Nippon Kokan was aware of the need to do away with the prewar academic background-based status system. However, the traditional split between white-collar workers and blue-collar workers was still in place after the war. Executives, harboring concerns about disrupting the existing order, continued to deny the labor union’s demands for an end to the white-collar worker–blue-collar worker status divide.

However, a series of facility-rationalization initiatives spawned a variety of complications at Nippon Kokan. The streamlining efforts made the jobs of white-collar workers and the jobs of blue-collar workers increasingly similar in nature, first of all. In terms of academic background, blue-collar workers were also nearing their white-collar counterparts. Third, the imbalanced labor circumstances among blue-collar workers created inequalities in promotion opportunities. Considering these and other issues, dissatisfaction with the existing status differentiation was growing—and survey responses made the sentiment clear. According to the results of a September 1963 questionnaire, 64% of all employees supported the elimination of the “staffer” and “factory worker” denominations. That sentiment was particularly strong in the ranks of factory workers, 73% of whom voiced their displeasure with the categorization. The mood pervading the workforce prompted the company to discontinue its use of the “staffer” and “factory worker” designations in January 1964 and instead refer to all workers as “employees.” Just over two years later, in April 1966, Nippon Kokan went on to implement a new, competency-based personnel system.

The new personnel system sought to rectify the significant status barriers between “staffer” and “factory worker”, first of all, and use competency criteria to ensure both fair employee treatment and effective management of the promotion protocol. Under the framework, the company classified employees not by job type but by competency—and competency became the determining factor for a host of other conditions. The company began using competency level to assign employees to different grades, and the ability to base employee treatment on competency helped the company lay out clearer standards and rules for earning promotions.

@2019 Business History Society of Japan
As was the case at Nippon Steel, the prewar academic background-based system at Nippon Kokan thus survived despite criticism from its detractors and simply evolved into its postwar counterpart with all its basic components intact. Not until the second half of the 1960s did the company gradually start to grow out of the academic-background mold.

2. Introducing job-based wages

Nippon Kokan had already installed a single-rate structure for job-based wages in April 1963. Under the system, white-collar employees actually received competency-based rates—not job-based wages. Instead of referring to the compensation as “job-based wages,” which would be technically inaccurate, the company therefore referred used the phrase “work wages” to cover both white- and blue-collar employees. The “work wages” were a comparatively small part of the overall wage system, however: whereas regular wages accounted for 47.5% of the aggregate, performance wages at 34.8%, and work wages at 13.6%. Rounding out the total were family wages and special-work wages at 2.7% and 1.5%, respectively (Imada 1963, 3).

Orii (1973, Chapter 4) recalled that Nippon Kokan had begun discussing a way of unifying its job-evaluation methods on a company-wide scope in June 1961, when projects to build new factory facilities prompted inter-worksitie employee transfers and thereby led to some confusion on the job-evaluation front. Out of those discussions came an idea for a model, which the company then tested out in actual assessments. Based on the results, the company submitted a proposal for the new job-evaluation system to the labor union in March 1962. Management knew that it would have to engage fully with the labor side and win approval for the new system, as there was a diversity of opinions on the matter and the potential for conflicts of interest between different employees was real. The company headed into negotiations ready and willing to incorporate whatever input it could from the labor union representatives.

After receiving the proposal from management, the labor union spent three months mulling over the terms and eventually came up with a response. The official statement from the General Council of Trade Unions in Japan, then a national umbrella organization, raised several issues with Nippon Kokan’s proposal. First were concerns that job-based wages would lead to tougher individual control over workers. Another sticking point was Nippon Kokan’s plan to weight evaluations in favor of “contributions to the company,” which the General Council saw as a possible means of tightening worker bondage to the company—not a reliable way of assessing an employee’s actual performance of his or her job. Having cited several shortcomings, the General Council announced that it would continue to oppose the measure. Echoing the General Council, its upper-tier organization, the Nippon Kokan labor union also adopted a critical stance on the plan for job evaluations and job-based wages. The group was not looking for an all-or-nothing battle, however; leaders opted for the more realistic approach of seeking revisions that would benefit union members, if only slightly, rather than calling for a complete overhaul of the proposal.

Subsequent negotiations between management and labor representatives went on for nearly two months. Upon eventually reaching a provisional agreement with the labor union in August 1962, management began making the necessary adjustments to job evaluations across the organization. The sides then came to a final agreement in March 1963.

3. Converting job-based wages into competency-based rates

In 1967, Nippon Kokan converted the existing work wages into a sliding arrangement that would pay employees according to their internal grades—their competency levels, in other words (Orii 1973,
Chapter 4). As I noted earlier, the company eliminated the “staffer” and “factory worker” division in its personnel system to create a system that managed all of its employees in a standardized system of job types and competency levels. When the management and labor sides reached a provisional agreement on the personnel system in the spring of 1966, the company set to renovating the work-wage setup.

The existing work wages had been in place for three years, over which time the system began to show symptoms of a critical flaw: an employee might demonstrate a clear improvement in competency, but his or her work wage could very well stay the same. Obviously, the concern was that the framework might sap workers of their motivation for self-development. The proportion of work wages to total wages had risen since the system took effect, as well. Management knew it had to make adjustments so that the system would reward workers for competency enhancements, regardless of whether or not they moved up to a different job grade. That was the impetus behind the revisions to the work-wage system, which management and labor representatives agreed to in the spring of 1967. Table 3 shows how, within each grade, there were multiple pay points for different job types and competency levels.

While the company shifted away from its single-rate framework for competency-based rates and adopted job-based wages, it understood the merits in breaking down the staffer–factory worker barrier and ensuring the benefits of competency-based wages extending to blue-collar workers. The blue-collar segment was bringing in employees with higher-level academic backgrounds, which gradually made it impossible to maintain the existing divide in management approaches. The changing demographics exposed a clear need to align the management techniques for blue-collar workers and their white-collar counterparts more closely. For Nippon Kokan, the effort to convert work wages into competency-based rates seems to have aspired to meeting that need.

### Table 3: Work wages (in yen) at Nippon Kokan (as of 1967)

| Competency grade | Supervisor | Manager Grade 1 | Manager Grade 2 | Employee Grade 1 | Employee Grade 2 | Employee Grade 3 | Employee Grade 4 | Employee Grade 5 | Employee Grade 6 and below |
|------------------|------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|--------------------------|
| Job grade        |            |                 |                 |                  |                  |                  |                  |                  |                          |
| 10               | 19,280     | 18,950          | -               | -                | -                | -                | -                | -                | -                        |
| 9                | 17,490     | 17,150          | 16,820          | 16,480           | -                | -                | -                | -                | -                        |
| 8                | 15,360     | 15,020          | 14,690          | 14,350           | -                | -                | -                | -                | -                        |
| 7                | 13,500     | 13,160          | 12,830          | 12,490           | -                | -                | -                | -                | -                        |
| 6                | 12,830     | 12,490          | 12,150          | 11,810           | 11,470           | 11,140           | 10,800           | -                | -                        |
| 5                | 11,420     | 11,080          | 10,740          | 10,400           | 10,070           | 9,730            | 9,390            | 9,050            | -                        |
| 4                | 10,200     | 9,860           | 9,520           | 9,190            | 8,850            | 8,510            | 8,170            | 7,830            | -                        |
| 3                | 9,120      | 8,780           | 8,440           | 8,100            | 7,770            | 7,430            | 7,090            | 6,750            | 5,460                    |
| 2                | 8,160      | 7,820           | 7,480           | 7,150            | 6,810            | 6,470            | 6,130            | 5,790            | 5,460                    |
| 1                | 7,340      | 7,000           | 6,660           | 6,320            | 5,980            | 5,650            | 5,310            | 4,970            | 4,630                    |

Source: Orii 1973, 66.

Note: The grades (1-10 on the vertical axis) correspond to job-based wages (with 10 being the highest), while the grades (on the horizontal axis) correspond to competency.
4. Interpreting the oral histories

Okuda Kenji, then a personnel staff member at Nippon Kokan, recalled how the system took shape. “When you make systems like our job-based wage structure, you can lay out the competency requirements for each competency level in so much detail: the equipment and machinery an employee needs to be able to operate, for example, and the repair skills an employee needs to have,” he said. “That means that if you boost your competency, you get a better competency evaluation—it’s simple” (Okuda 2004, 57). As Okuda’s statement suggests, the idea of having a “competency” for performing a certain “job” was becoming part of the common consciousness at Nippon Kokan.

Nippon Kokan also began hiring high school graduates to fill factory-floor positions in 1959, thus infusing both the white- and blue-collar segments with workers from the same basic high school background. “We’d bring a high school graduate into the factory one day and give a high school graduate a white-collar job the next,” Okuda remembered. “Even though we knew there’d be some confusion in terms of personnel treatment, we did it because we had to. We started seeing problems right away, just as we’d expected. Recruits from the exact same high school would land on both sides—some became blue-collar workers, and some became engineers. They’d see their friends and get to talking, you know, about how it didn’t make much sense the way the jobs shook out. When you get to that point, you realize that you’re probably going to have to unify the whole employee system. Sometimes, there’s just no way around it—the entire setup needs to go. We got to talking about possible solutions and, in 1964, decided to eliminate the ‘staffer’ and ‘factory worker’ status distinction altogether” (Okuda 2004, 242). Agitation in the workplace, therefore, opened management’s eyes to important issues and put Nippon Kokan on course to grow out of its postwar academic background-based status system.

Behind that development was a series of problems that Nippon Kokan encountered after several facility-rationalization initiatives. The efforts made the staffers’ and factory workers’ jobs more similar, first of all. Factory workers also demonstrated stronger academic backgrounds, approaching their staffer counterparts. Third, factory workers did their jobs within an imbalanced structure that created an uneven playing field for promotions. “We started hiring high school graduates for blue-collar jobs right around the time we launched a cutting-edge hot strip mill (capable of producing thin sheets at high speeds) at our new Mizue Plant,” Okuda recalled. “The technology was sophisticated—much more advanced than what we’d been using—so we needed capable workers. If you didn’t have the skills that a high school graduate brought to the table, you simply couldn’t run the machinery” (Okuda 2004, 62). Okuda’s statement points to the larger significance of recruiting high school graduates for blue-collar jobs: it enabled Nippon Kokan to focus on the idea of competency, which gave the company a consistent conceptual platform for evaluating all its employees across the board. At Nippon Kokan, the presence of blue-collar workers with high school backgrounds created the need to reassemble the company’s internal order. By acting on that need, the company moved past the evolutionary step of the postwar academic background-based status system—but doing so, of course, required the concept of “competency” to be firmly in place.

Nippon Kokan, unlike Nippon Steel, transformed its job-based wages into competency-based rates. The seeds of that change, however, had already begun to take root before the job-based wage system emerged. Okuda’s oral history again provides an illuminating perspective:
“The job surveys we’d been doing for so long were finally starting to have an impact on actual wages. From our internal discussions, we started to understand that we needed a more fluid system—one that made it easier to move people up and down. Sticking to a fixed structure wasn’t going to get us anywhere.” (Okuda 2004, 222)

As Okuda’s words suggest, the HRM policy at Nippon Kokan had been leaning in the direction of competency-based rates from the beginning. When worries about single-rate job-based wages began to surface three years after the system went into operation, the company quickly moved to implement competency-based rates in place of the existing job-based wages. Embracing different HRM policies, Nippon Steel and Nippon Kokan would see their personnel systems develop in different directions.

V. Conclusion

This paper traced the formation of job- and competency-based HRM in Japan through the cases of Nippon Steel and Nippon Kokan. At both companies, the personnel systems evolved from the prewar academic background-based status system to the postwar academic background-based status system and finally the competency-based grade system. The process of shedding the postwar academic background-based status system required the concept of competency, which established its foundation due to two contributing factors. First, the existence of job-based wages brought the nature of specific jobs into clearer light. Second, recruiting high school graduates for blue-collar jobs created uniformity among the workforce in terms of academic background—and that enabled assessments on competency-based, not academic, criteria. Middle school graduates and university graduates came from altogether different academic backgrounds, but high school graduates came in with similar levels of knowledge—a prerequisite for applying work-oriented criteria. Despite those similar trends, Nippon Steel and Nippon Kokan would then embark on different paths in developing their respective personnel systems. Whereas Nippon Steel essentially perpetuated its job-based wage structure, Nippon Kokan converted its existing job-based wages into competency-based rates—and the difference emanated from the companies’ HRM policies.

Looking ahead, there are numerous ways to deepen and enrich the findings above. Advocates of competency-based management began to make their voices heard in the 1960s, but the idea only started to jell into actual competency-based grade systems in the 1970s. Even then, the systems at many companies simply ignored the element of the “job” itself. As a result, Japanese firms ran with the idea of performance-based pay in the 1990s and set to overhauling their competency-based grade systems—a process that observers tend to see as a failure. Looking at the circumstances from a different angle, however, that failure did not mean that Japanese companies remained in the same framework of competency-based management in the early 2000s. Currently, the role-classification system—a practical embodiment of performance-based management—is becoming the standard framework at Japanese companies. Future research could analyze the development of performance-based management and the role-classification system from a historical perspective.

Acknowledgements

This paper was funded in part by a Grant-in-Aid for Scientific Research (B): Basic Study on Archiving Oral History in Post-War Labor History (Project Number: 23330115). I would like to extend my sincerest gratitude for the valuable support.
Reference

Aoki, Hiroyuki. “Tekkōgyō ni okeru nōryoku-shugi no keisei: 1960 nen-dai ni okeru shokumu seido no dōnyū” [The formation of competency-based management in the steel industry: Job changes and new qualification systems in the 1960s]. In Chingin, jinji seido kaikaku no kiseki: Saihen katei to sono eikyō no jittai bunseki [Tracing transformations in wages and personnel systems: An analysis of the restructuring process and its effects], edited by Iwasaki Kaoru and Taguchi Kazuo, 19-43. Kyoto: Minerva Shobo, 2012.

Fukuoka, Michio (former director of the labor division at Nippon Steel’s Yawata Steel Works). Hito o ikasu! Genba kara no keiei rōmu-shi [Getting the most out of people: A history of labor management from the factory-floor perspective]. Tokyo: Nipkeiren Publishing Department, 2002.

——. “Shirīzu: Kono hito ni kiku rōshi kankei, dai 4-kai (sono 1): Yawata Seitetsu no jinji/kyūyo kaikaku ni sankaku suru” [Series: Labor relations firsthand, #4 (part 1): Driving the personnel and payroll reforms at Yawata Iron & Steel]. Chūō rōmu jihō [Central labor bulletin] 1123 (2010): 2-11.

Hisamoto, Norio, Kigyō-nai rōshi kankei to jinzai keisei [Internal labor relations and human-resource development]. Tokyo: Yuhikaku Publishing, 1998.

Imada, Masaharu (director of the labor section at Nippon Kokan). “Nippon Kōkan no shokumukyū-ni tsuite” [Job-based wages at Nippon Kokan]. Tekkō Rōmu Tsūshin [The Steel Labor Report] 846 (1963): 2-11.

Iwabuchi, Takashi (personnel staff member in the labor division at Fuji Iron & Steel). “Shiten shita Fujii Seitetsu no shokumukyū-ka” [The development of job-based wages at Fuji Iron & Steel]. Keieisha [Executive] (August1964): 64-68.

Japan Federation of Employers’ Associations Study Group on Competency-Based Management, ed. Nōryoku-shugi kanri: Sono riron to jissen [Competency-based management in theory and practice]. Tokyo: Japan Federation of Employers’ Associations Publicity Department, 1969.

Komatsu, Hiroshi (director of the labor division at Yawata Iron & Steel). “Yawata Seitetsu ni okeru shokumukyū-ka to shomondai” [The transition to and complications of job-based wages at Yawata Iron & Steel]. Rōmu shiryō [Labor resources] 75 (1963): 1-30.

—— (former vice-president of Nippon Steel). “Shōgen—Kōdo seichō-ki no Nihon, dai 73-kai: Sangyō shakai no henbō 1, nōryoku-shugi no saiyō” [Testimony—Japan during the economic boom, #73: Transformations in industrial society 1, the introduction of the competency-first principle]. Economist 60, no. 43 (1982): 108-115.

——, and Tanaka Hirohide. “Nihon-teki koyō kankō o kizuita hitotachi: Komatsu Hiroshi-shi ni kiku (2)” [The people who created Japanese employment practices: An interview with Komatsu Hiroshi (2)]. Nihon Rōdō Kyōkai zasshi [The Monthly Journal of the Japanese Institute of Labour] 24, no. 3 (1982): 56-70.

Labor Dispute Investigation Committee, ed. Sengo rōdō sōgi jittai chōsa, dai 2-kan: Densan sōgi [Surveying postwar labor disputes, vol. 2: The Densan dispute]. Tokyo: Chuo Koronsha, 1957.

Nimura, Kazuo, “Sengo shakai no kiten ni okeru rōdō kumiai undō” [The labor-union movement in the formative years of postwar society]. In Shirīzu Nihon kin-gendai-shi: Kōzō to hendō 4, sengo kaikaku to gendai shakai no keisei [A series on modern Japanese history: Structure and change 4, postwar reforms and the formation of modern society], edited by Banno Junji et al., 37-78. Tokyo: Iwanami Shoten, 1994.

Nippon Steel Corporation Company History Editorial Committee, ed. Honoo to tomo ni: Yawata Seitetsu Kabushiki Gaisha-shi [With the flames: The history of Yawata Iron & Steel Co., Ltd.]. Tokyo: Nippon Steel, 1981a.

——. Honoo to tomo ni: Fujii Seitetsu Kabushiki Gaisha Gaisha-shi [With the flames: The history of Fuji Iron & Steel Co., Ltd.]. Tokyo: Nippon Steel, 1981b.

Nippon Steel Labor Department. “Shinnittetsu ni okeru kyūyo seido no zen’yō: Shokumukyū seido hossoku-ji kara genzai made no hensen o tadoru” [The whole story behind the job-based wage system at Nippon Steel: From its inception to the present day]. Chingin tsūshin [The Wage] 26, no. 26 (1973): 1-13.
Nitta, Michio. “Nihon to Beikoku ni okeru nōritsu kanri no tenkai: Sengo-ki o chūshin ni” [The development of performance management in Japan and the United States: A look at the postwar environment]. In Rōshi kankei no hikaku kenkyū: Ōbei shokoku to Nihon [Comparative research on labor relations: The West and Japan], edited by Ishida Mitsuo, Inoue Masao, Kamii Yoshihiko, and Nitta Michio, 15-40. Tokyo: University of Tokyo Press, 1993.

Okuda, Kenji (former personnel staff member at Nippon Kokan). Okuda Kenji ōraru hisutorī [The oral history of Okuda Kenji]. Tokyo: National Graduate Institute for Policy Studies, 2004.

Orii, Hyūga (former labor division manager at the Nippon Kokan head office). Rōmu kanri nijū-nen: Nippon Kōkan ni miru sengeo Nihon no rōmu kanri [Twenty years in labor management: Postwar Japanese labor management at Nippon Kokan]. Tokyo: Toyo Keizai, 1973.

Saguchi, Kazurō. “Nihon no naibu rōdō shijō” [The Japanese internal labor market]. In Keizai riron e no rekishi-teki pāsupekutibu [Historical perspectives on economic theory], edited by Yoshikawa Hiroshi and Okazaki Tetsuji, 207-234. Tokyo: University of Tokyo Press, 1990.

Suzuki, Makoto. “Sengo-gata gakureki mibun sei kara nōryoku-shugi-teki jinji shogū seido e: Mitsubishi Denki no 1968-nen jinji shogū seido kaitei” [From the postwar academic background-based status system to the competency-based personnel system: Mitsubishi Electric’s 1968 revisions to its personnel system]. Nihon Rōdō Kenkyū zasshi [The Japanese Journal of Labour Studies] 572 (2008): 93-107.

———. “Nōryoku-shugi-ka ni okeru shokumu-kyū, nōritsu-kyū: Mitsubishi Denki 1968-nen jinji shogū seido kaitei no mō hitotsu no sokumen” [Job-based wages and performance wages under competency-based management: Another facet of Mitsubishi Electric’s 1968 revisions to its personnel system]. Nihon Rōdō Kenkyū zasshi [The Japanese Journal of Labour Studies] 596 (2010): 69-84.

———. “Shin-shokunō shikaku seido’ to shokumu-jūshi-gata nōryoku-shugi no saihensei: Mitsubishi Denki no 1978-nen jinji shogū seido kaitei” [The “new competency-based grade system” and the restructuring of job-specific competency-based management: Mitsubishi Electric’s 1978 revisions to its personnel system]. Nihon Rōdō Kenkyū zasshi [The Japanese Journal of Labour Studies] 624 (2012): 78-87.

———. “Mitsubishi Denki ni okeru shokunō shikaku seido no keisei” [The formation of the competency-based grade system at Mitsubishi Electric]. Ōhara Shakai Mondai Kenkyūjo zasshi [Journal of Ōhara Institute for Social Research] 688 (2016): 40-54.

———. “Mitsubishi Denki no 1950-nen shokkai seido dōnyū: Sengo chokugo-ki ni okeru shokumu-jūshi-gata jinji-rōmu-kani no hōga ni kan suru ichikōsatsu” [Mitsubishi Electric’s 1950 introduction of the job-class system: An inquiry into the beginnings of job-specific HRM in the immediate aftermath of World War II]. Shakai Seisaku [Social Policy and Labor Studies] 9, no. 1 (2017a): 122-136.

———. “Sengo-gata gakureki mibun-sei no keisei: Mitsubishi Denki no 1948-nen mibun seido kaitei” [The formation of the postwar academic background-based status system: Mitsubishi Electric’s 1948 revisions to its status system]. Ōhara Shakai Mondai Kenkyūjo zasshi [Journal of Ōhara Institute for Social Research] 710 (2017b): 63-81.

Ujihara, Shōjiro. “Sengo Nihon no rōdō shijō no shosō” [Facets of the postwar Japanese labor market]. Nihon Rōdō Kyōkai zasshi [The Monthly Journal of the Japanese Institute of Labour] 2 (1959): 2-14; later appeared as “Sengo rōdō shijō no henbō” [Transformations in the postwar labor market]. In Ujihara Shōjiro, Nihon no rōshi kankei [Japanese labor relations]. Tokyo: University of Tokyo Press, 1968.

Umezaki, Osamu. “Kigyō-nai de ‘nōryoku’ wa ika ni katataretetika no ka: Hyōka, chingen seido o meguru gensetsu no bunseki” [How companies talked about “competency”: A discourse analysis of evaluations and wage systems]. In Rōdo shinpan 1: Tenkan-ki ni rōdō to “nōryoku” [Labor judgment 1: Labor and “competency” in times of change], edited by Honda Yuki, 59-93. Tokyo: Ōtsuki Shoten, 2010.
“Kōdo seichō-ki tekkō sangyō ni okeru jinji seido henkaku no katei bunseki: Ōraru hisutori mesoddo ni yoru jicchi kenshō no kokoromi” [Analyzing the processes of transforming personnel systems in the steel industry during Japan’s period of high growth: An on-site investigation via the oral-history method]. Kigyō Kenkyū [Corporate Research] 26 (2014): 71-93.