

博士論文

The social construction of jobs and its association with job stress:
A qualitative study of workers at a construction management firm

(仕事の社会的構築と職業性ストレスとの関係：総合建設企業
の従業員を対象とした質的研究)

横内 陳正

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Abstract

Background: The social construction of jobs can affect the job-stress-related experiences of workers. This study aimed to develop a theoretical model to explore the process of how jobs are socially constructed at the workplace and its association with the negative and positive experiences of workers.

Methods: A qualitative research design was employed based on grounded theory methodology. In the present study, the interviewees were construction engineers at a Japanese construction management firm. Semi-structured interviews were conducted with seventeen construction engineers. The interview data were analyzed using coding procedures with an emphasis on constant comparison.

Results: The analysis of the interview data revealed that construction engineers' perceptions, understandings, and interpretations of their jobs (*job*) developed along with their work-related identity (*self*) over the course of their careers, and this process was enabled by development-enhancing work environments (*enhancing environments*). Additionally, the relationships between *job* and *self* comprised the construction engineers' attitudes toward performing their work (*attitudes toward work*). These themes, i.e., *job*, *self*, and *attitudes toward work*, became the contexts for what was experienced as stressful and motivational (*negative and positive experiences*), and mitigating stressful encounters (*moderators*).

Conclusions: The stressful and motivational experiences of workers at the workplace varied across the developmental stages of *job*, *self*, and *attitudes toward work*. These findings imply that prospective job stress interventions could remove and reduce specific stressors by

considering the developmental stages of the workers. Additionally, providing development-enhancing work environments could possibly mitigate the detrimental effects of stressful encounters.

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1 Introduction

1.1 Adverse health effects of job stress

Among the various definitions of stress provided to date [1], Selye proposed an original definition of stress and defined stress as a nonspecific biological response of the body to any external stimulus [2]. In his definition, Selye emphasized that stress can be either good or bad depending on the circumstances [3]. Good stress is referred to as ‘eustress’, and bad stress is referred to as ‘distress’. Despite the dual nature of stress proposed by Selye, many subsequent studies investigating job stress or job-related stress in work environments focused exclusively on ‘distress’ or the negative aspects of work experiences, such as diseases, disorders, and dysfunction [4].

The adverse effects of job stress on the well-being of workers have been considered in a wide range of domains. Outcomes of job stress include physical responses (e.g., cardiovascular disease, psychosomatic symptoms, physiological indices, musculoskeletal disorders) [5-8], psychological responses (e.g., anxiety, depression, burnout, job dissatisfaction) [9-12], and behavioral responses (e.g., alcohol consumption, smoking, absenteeism, counterproductive work behavior) [13-16].

These outcomes can be further classified into different levels based on their relevance to either individuals (e.g., cardiovascular disease, anxiety, depression) or organizations (e.g., job dissatisfaction, absenteeism, counterproductive work behavior) [17-19].

1.2 Theoretical models of job stress

Past empirical studies, including the ones listed above, were often based on theoretical models

of job stress that were developed to theorize job stress as well as related constructs. Some well-known models in the field of public health are Karasek's job demand–control model and Siegrist's effort–reward imbalance model [20, 21] (see Appendix A for other prominent job stress models). These models also developed valid and reliable scales for measuring variables in empirical studies [22, 23].

Despite the different focus of each job stress model, many of the models share some common features. First, the constructs related to job stress are grouped into either stressors (i.e., exposures) or strains (i.e., outcomes) (or sometimes into moderators and mediators). Second, based on the classification, the models present causal relationships between stressors and strains.

For example, in the Cooper and Marshall model, the 'sources of stressors at work' (e.g., relations at work) represent stressors, and 'symptoms of occupational ill health' (e.g., depressive mood) represent strains [24]. These stressors and strains are connected by a causal link, along with 'individual characteristics' (e.g., tolerance for ambiguity) function as moderators [24]. Similarly, in the job demand–control model, 'job demand' and 'control' represent psychosocial stressors in the work environment that lead to adverse health outcomes among workers [20, 25].

Compared to the above-mentioned models that have attributed stressors solely to work environments, other models, such as the person–environment fit model and the effort–reward imbalance model, have focused on discrepancies between individuals and environments and hence regarded those misfits as stressors that result in strain responses in workers. Nevertheless, the basic elements and the structures composing these models are similar in that they aim to illustrate causal relationships between stressors and strains.

Although these theoretical models of job stress and subsequent empirical studies have contributed to identifying various stressors, strains, and their relationships, there are still some

research gaps that remain unaddressed. Importantly, these models assumed static and generalized stimuli–response relationships between stressors and strains [26, 27], while limited attention has been paid to the dynamic process of how workers experience job stress under diverse psychosocial contexts over the duration of workers’ careers.

To elaborate on this point in more detail, many of the existing job stress models regard stressors as essentially good or bad and as always leading to certain strains. For example, the job demand–control model suggests that work environments characterized by high demand and low control are bad because they result in high strain for workers, whereas work environments characterized by high demand and high control are good because they result in active workers. The focus on static and generalized causal relationships has its roots in the epistemological perspective underlying these theories, which is primarily positivistic. As explicitly stated by some job stress models, positivist theories seek causes and results and emphasize the universality of causal relationships [28-30].

However, at least theoretically, some studies have suggested that stressors are neither good nor bad but rather experienced as negative or positive in different contexts [1]. For example, Lazarus proposed the concept of cognitive appraisal in his theory of the stress-coping process [31, 32]. Lazarus claimed that whether a potential stressor leads to a stress reaction in a person depends on the meaning that person attaches to the encounter. If the person evaluates the encounter as a challenge, he/she would seek coping resources to address the challenge. Lazarus’s theory has more affinity with the interpretivist (or social constructivist) perspective because the theory addresses the experience of stress rather than merely the causes or results pursued in the positivistic perspective [1]. However, the theory is oriented toward the cognitive or psychological process occurring in a person, but the dynamically changing experience of job stress under diverse psychosocial contexts has not been explored to date.

1.3 Social construction of jobs

Another point to consider is that many of the existing job stress models also regard a job as a fixed concept that is provided by managerial and supervisory personnel in a top-down manner [33]. Jobs have been traditionally defined as a collection of task elements grouped together under a representative title that is assigned to a person [34]. According to this definition of jobs, workers are often regarded as recipients of predetermined jobs and, hence, play only passive roles in the workplace [33].

In contrast to this traditional perspective, several theoretical studies have introduced a different view of jobs by drawing upon social constructivism. These theoretical studies proposed that jobs, including tasks, interpersonal relationships, and cognitive stances, are rather socially constructed at the workplace with the active involvement of workers as a part of its construction (i.e., social construction of jobs) [35, 36]. Specifically, a branch of subsequent studies has proposed the concept of job crafting to denote the proactive behavior of workers in constructing their jobs [36-38]. Job crafting was hypothesized to occur in three dimensions, namely, physical, relational, and cognitive aspects. The physical aspect of job crafting refers to workers redesigning the amount and contents of tasks. The relational aspect of job crafting represents workers altering the interpersonal relationships involved in performing their work. The cognitive aspect of job crafting refers to workers reframing the meanings or purposes of their work [33, 36]. Recently, empirical evidence has indicated that job crafting is associated with the well-being of workers in terms of their job satisfaction, work engagement, and burnout [39, 40].

Despite initial attempts to conceptualize jobs as a social construct, subsequent studies dominantly pertain to job crafting, exclusively focusing on the proactive behaviors of workers. In contrast, limited attention has been paid to the psychosocial process of job construction,

which involves interactions between workers and their work environments over the course of their careers, or the effects of that process on workers' job-stress-related experiences.

1.4 Objective

The purpose of the present study was to develop a theoretical model to explore the process of how jobs are socially constructed at the workplace and its association with the negative and positive experiences of workers. The specific research questions were “how are jobs socially constructed at the workplace?” and “how is this process associated with the negative and positive experiences of workers?”

The development of a new job stress model is crucial from a practical perspective as well. Conventional job stress interventions have aimed at removing or reducing stressors such as workload, work schedule, and work process, regardless of context [41]. Thus, by exploring how contexts, such as the psychosocial process of job construction, are associated with the negative and positive experiences of workers, it might be possible to design job stress interventions that target specific stressors based on the contexts or circumstances presented to workers.

2 Methods

2.1 Study design

The present study used a qualitative research design because the phenomenon of how the social construction of jobs is associated with the negative and positive experiences of workers has not been fully explored to date. Specifically, grounded theory methodology was employed for data collection and data analysis because the ultimate goal of this study was the development of a theoretical model [42].

2.2 Sampling

The present study focused on engineers working at a Japanese construction management firm or a so-called general contractor (hereafter referred to as construction engineers). This focus was chosen because construction work is often characterized by long work hours and client-imposed schedules, and hence, it is physically and psychologically demanding for construction personnel generally, including construction engineers [43, 44]. In Japan, among all occupations, construction engineers had some of the most numerous compensation claims for job-stress-induced cerebrovascular and cardiovascular disease and mental disorders [45]. Therefore, construction engineers were considered appropriate for a study investigating job-stress-related experiences at the workplace especially due to their long work hours and client-imposed schedules.

Purposive sampling was used at the beginning to recruit interviewees who worked at the participating company. The inclusion criteria included construction engineers who were permanently employed and had experience performing engineering work (e.g., construction

site management, design work, and technical assistance) at either the civil engineering department or the architecture department. The selection of interviewees was followed by theoretical sampling based on the concepts derived from the analysis. In particular, among the seventeen interviewees (Table 1), ten interviewees were recruited during the first phase of data collection. During the second phase of data collection, five interviewees with experiences of transfer or career change were recruited because these interviewees were considered relevant for further developing the categories. Similarly, two more interviewees, one of which was aged in the 20s, were recruited during the third phase of data collection.

In the recruitment process, a staff member from the company supported the researcher by acting as a liaison between the researcher and the company. First, the liaison contacted the civil engineering department, architecture department, and human resources department of the company to invite the interviewees on behalf of the researcher. Then, the liaison contacted both prospective interviewees and the researcher to set dates and venues for the interviews.

Table 1 Demographic characteristics of the interviewees ($N = 17$)

Characteristics of the interviewees	<i>N</i>	Characteristics of the interviewees	<i>N</i>
Gender		Highest education	
Male	14	Master's degree or higher	10
Female	3	Bachelor's degree	6
		Technical/junior college	1
Age		Career change	
50s	1	None	15
40s	7	Once or more	2
30s	8		
20s	1	Occupational position	
Affiliations		General manager	2
Civil engineering	10	Manager	5
Architecture	5	Assistant manager	3
Others	2	Others	7

2.3 Data collection

Interviews were conducted by an interviewer (N.Y.) from April 2017 to October 2018. The interviews took place in meeting rooms at the company's offices. After informed consent was obtained from the construction engineers, the interviewer conducted semi-structured interviews based on an interview guide. Following the questions about the construction engineers' demographic information, including age, gender, education, and work experience, the construction engineers were asked to describe their negative and positive experiences at the workplace. Examples of interview questions are "could you talk about your experience when you feel stressed in your work?" and "could you talk about your experience when you feel motivated in your work?" All the interviews were audio-recorded, and field notes were taken for analysis. Each interview lasted from 60 to 90 minutes. Among the seventeen construction engineers, five participated in follow-up interviews.

2.4 Data analysis

All interviews were transcribed verbatim prior to analysis. The analysis mainly consisted of three coding steps, namely, initial coding, axial coding, and theoretical coding [42, 46]. First, initial coding (or open coding) was conducted, during which the interview data were coded word-by-word and line-by-line to understand the detailed experiences of the interviewees. To incorporate a variety of analytical perspectives at an initial stage of the analysis, experienced supervisors and graduate students who had experience in analyzing qualitative data joined the analysis.

Second, axial coding was conducted to organize and synthesize the fragmented pieces of codes into categories with higher levels of abstraction. Additionally, the relationships between

the categories were explored by comparing the data within and between the interviewees.

Third, theoretical coding (or selective coding) was conducted to develop a theory by focusing on the relevant themes, categories, and their relationships. Although the distinction between these steps is not always clear-cut, they were repeated iteratively throughout the analytical process.

2.5 Ethical considerations

The study was reviewed and approved by the Research Ethics Committee of the Graduate School of Medicine, The University of Tokyo (No. 11507, Appendix B). Before the interview, the interviewer provided a brief explanation of this study to the prospective interviewees, including its objective, methods, ethical considerations, and other relevant information. Then, informed consent was obtained from those who agreed to participate in the research (Appendix C). Except for the interviewer and the interviewee, no one else was present in the room during the interview.

2.6 Rigor

This study has taken various procedures to ensure its credibility by addressing suggested criteria, such as methodological consistency, quality, and applicability [42]. In the early stage of data collection and analysis, peer debriefing was conducted with researchers who are familiar with the grounded theory methodology in order to obtain feedback on the data collection and analysis process. Member checking and follow-up interviews were also undertaken with the interviewees to ensure that the researcher's interpretations reflected the intended meaning of the interviewees. During the later stages of data analysis, the results of

the study were presented to the interviewees to determine whether the findings resonated with their experience and whether the findings seemed to be applicable to their daily practices. These procedures contributed to methodological consistency, quality, applicability, and hence, the credibility of the study a whole.

3 Results

Figure 1 shows the themes (i.e., *job*, *self*, *enhancing environments*, *attitudes toward work*, *negative and positive experiences*, and *moderators*) and constitutive categories that emerged, which together explain the psychosocial process of job development and its association with negative and positive experiences at the workplace. In particular, the construction engineers' perceptions, understandings, and interpretations of their jobs (*job*) developed along with their work-related identity (*self*) over the course of their careers, and this process was enabled by development-enhancing work environments (*enhancing environments*). Additionally, the relationships between *job* and *self* comprised the construction engineers' attitudes toward performing their work (*attitudes toward work*). These themes of *job*, *self*, and *attitudes toward work* became the contexts for what was experienced as stressful and motivational (*negative and positive experiences*), and mitigating stressful encounters (*moderators*).

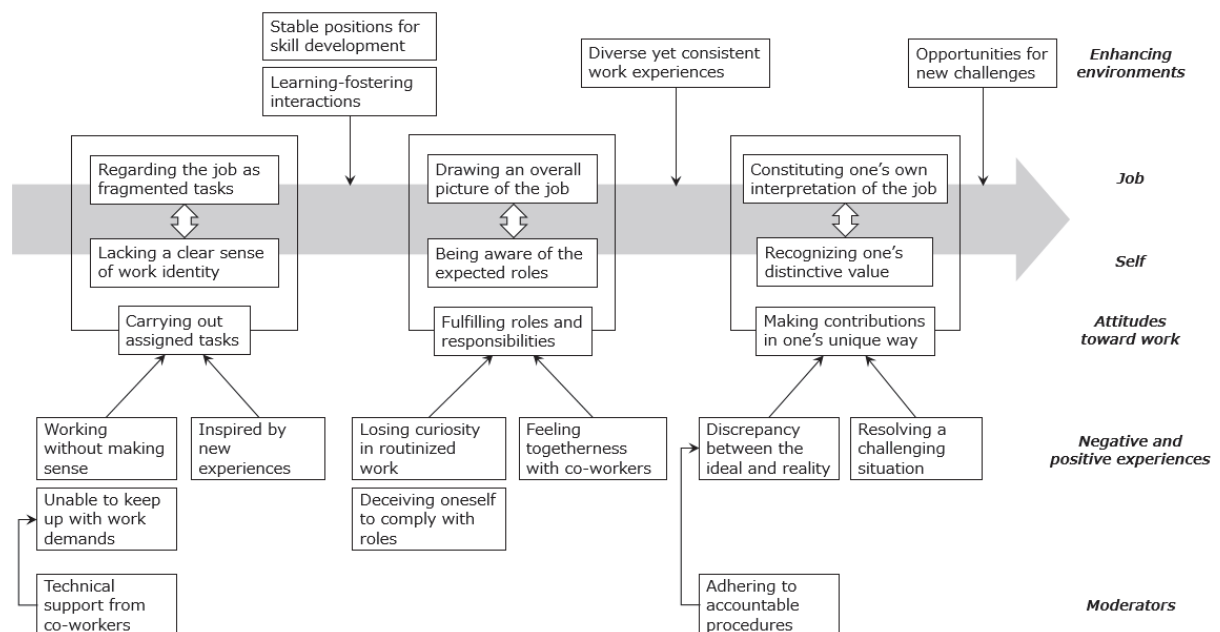


Figure 1 Psychosocial process of job development and its association with negative and positive experiences.

3.1 Themes

Job. This theme refers to the construction engineers' perceptions, understandings, and interpretations of their jobs, including construction site management, design work, and technical assistance. The major patterns in which *job* was manifested during the developmental process were *regarding the job as fragmented tasks, drawing an overall picture of the job, and constituting one's own interpretation of the job.*

Self. This theme denotes the work-related identity possessed by the construction engineers; it develops together with *job* over the course of their careers. The major patterns in which *self* was manifested during the developmental process were *lacking a clear sense of work identity, being aware of the expected roles, and recognizing one's distinctive value.*

Enhancing environments. This theme describes the characteristics of work environments that enable and foster the development of *job* and *self* over the course of construction engineers' careers. *Enhancing environments* are composed of categories, such as *stable positions for skill development, learning-fostering interactions, diverse yet consistent work experiences, and opportunities for new challenges.*

Attitudes toward work. This theme illustrates the construction engineers' attitudes toward performing their work in the sense of what they primarily focus on. *Attitudes toward work* stem from the relationships between *job* and *self* and exhibit the following patterns: *carrying out assigned tasks, fulfilling roles and responsibilities, and making contributions in one's unique way.* In addition, the construction engineers' *attitudes toward work* do not simply transfer from one state to the other but rather become multifaceted alongside the development of *job* and *self*.

Negative and positive experiences. This theme represents stressful and motivational encounters at the workplace experienced by the construction engineers as significant. Notably, *job, self, and attitudes toward work* became the contexts for what was experienced by the construction engineers as stressful (i.e., *working without making sense, unable to keep up with work demands, losing curiosity in routinized work, deceiving oneself to comply with roles, and discrepancy between the ideal and reality*) and motivational (i.e., *inspired by new experiences, feeling togetherness with co-workers, and resolving a challenging situation*).

Moderators. This theme refers to experiences of the construction engineers that mitigate their stressful encounters at the workplace. *Moderators* include categories, such as *technical support from co-workers* and *adhering to accountable procedures*. Similar to negative and positive experiences, *job, self, and attitudes toward work* became the contexts for what was perceived by the construction engineers as mitigating their stressful encounters.

3.2 Categories

Regarding the job as fragmented tasks. When the construction engineers were new to their jobs, they regarded the pieces of the tasks assigned to them as their jobs. Due to the lack of knowledge and experience, the construction engineers could hardly perceive the purpose of each task, and they did not understand the relationships between the tasks. This was how the construction engineers perceived their jobs early in their experience.

Before I got used to the basic procedures of my work, I had no idea as to what I should do. So, I just worked on those miscellaneous tasks being given to me. (#5, male, 40s)

Lacking a clear sense of work identity. The novice construction engineers rarely had a clear sense of work-related identity. They were still unsure about the roles they were expected to play and were unable to position themselves among the various stakeholders at the workplace. They often called themselves ‘freshmen’ to express that they were inexperienced and unskilled regarding their jobs, regardless of how long they had been working at the company. One construction engineer even referred to himself as ‘a person without any knowledge’ when he had begun working as a construction site manager.

At that time, although I was a person without any knowledge, I had to give instructions to the subcontractors, who were older than me. That was a hard time for me. (#7, male, 30s)

In addition to their blurred self-concepts, the construction engineers occasionally found it difficult to know how to behave and present themselves at the workplace.

At the beginning, I mean just after I entered the company, I didn't know how to present myself in the workplace. (#8, male, 40s)

Carrying out assigned tasks. During this period, working at the company was mostly related to *carrying out assigned tasks*, given the nature of *job* and *self*. The construction engineers primarily focused on completing the assigned tasks for their own sake because they had no choice to attach different meanings to their work. Additionally, because they were incapable of judging the urgency of each task, they usually followed the given instructions, and thus their attitudes toward their work were rather passive during this period.

At the beginning, although I was given some task assignments, I wasn't sure why I was doing

that work because I had no image of the overall picture. I was doing my work just because I was told to do so. (#9, male, 30s)

Working without making sense. Provided that the construction engineers focused on *carrying out assigned tasks* during this period, one potentially negative experience could be *working without making sense*. They often carried out their tasks without clearly understanding the purposes of those tasks. This situation was primarily due to lack of knowledge and experience regarding their tasks. Consequently, the construction engineers were frequently unable to find meaning in their work, which they experienced as stressful. This feeling, however, gradually disappeared as they came to understand the purposes and necessities of the tasks.

I couldn't see the whole picture of my job at the beginning, so I was often asking myself if there was any meaning in doing this work. (#9, male, 30s)

Unable to keep up with work demands. Another stressful experience was the inability to keep up with the demands of work. The construction engineers in this period were often deficient in the skills and knowledge required to carry out their tasks within the given time limits.

I felt that the project was progressing without my involvement. The speed that I learn and understand about my work was not fast enough to catch up the speed of its progress, and I was feeling like "oh, wait wait wait!" (#15, male, 20s)

In addition to the lack of skills and knowledge, this feeling was caused by excessive workloads being imposed on the construction engineers. When the number of demanding tasks exceeded their capacity, the construction engineers could hardly finish the assigned tasks in a

timely manner, leaving them feeling overwhelmed by their work.

There were so many things to do every day, with lots of items to take care of. It was just not possible for me to manage them. (#7, male, 30s)

Technical support from co-workers. Some construction engineers were supported by their co-workers when they experienced difficulty in carrying out their tasks. The collegial support provided was often instrumental because most of the novice construction engineers suffered from either lack of know-how or excessive workloads. Thus, this collegial support was especially effective in mitigating the detrimental effects of being *unable to keep up with work demands*.

If I was not given support from my colleagues during that difficult time, I may have quit this job. It was also possible that I suffered from depression because of the stress. (#13, male, 40s)

Inspired by new experiences. On the other hand, there were also experiences that had positive or motivational effects on the construction engineers. Particularly, they were inspired by new experiences and events at the workplace.

I was happy that my work was something related to architecture. It was my first working experience, so everything, including those miscellaneous tasks, was a lot of fun for me. (#4, female, 30s)

In addition, the construction engineers were motivated to acquire new knowledge and skills,

although this feeling did not last long and eventually disappeared as they became accustomed to their new jobs.

[by working on new tasks] My skills as an engineer improved, and I was gradually becoming capable of doing those new tasks. This brought me a feeling of satisfaction. (#6, female, 30s)

Stable positions for skill development. There were characteristics of the work environment that enabled and fostered the development of both *job* and *self*. For the construction engineers in this period, stable positions enabled them to build up their skills to the extent that they felt they were capable of performing their work. Conversely, frequently changing positions would reset their skills, which forced them to rebuild their skills from the beginning. These changes had a disruptive effect on the development of *job* and *self*.

I was suddenly being told to transfer to a design section, which I didn't expect at all. I had been working in the R&D department for only about a year, and I just started getting used to the work there. So I should say it was really a halfway through. (#3, female, 30s)

Learning-fostering interactions. This characteristic of the work environment also enhanced the development of *job* and *self*. Interactions with the surrounding co-workers, especially with their bosses or other senior personnel, had educational effects on the construction engineers. Some of them began to realize the purposes of their tasks, while others broadened their views of their jobs. These interactions usually occurred as informal communications at the workplace rather than formal programs designed specifically for training.

When I had a chance to talk with a senior site manager whom I know well, I was told that it

is useless to only improve the analytical skills. His advice really changed my way of thinking, and I began paying attention to various aspects of my work more seriously. (#7, male, 30s)

Drawing an overall picture of the job. As the construction engineers became more experienced and skillful, they came to recognize the purpose of each task as well as of the relevant stakeholders; they came to understand how those tasks and stakeholders were interrelated with each other.

As I worked at a construction site for a while, I started to notice the overall cycle of the construction work. For example, when creating reinforced concrete structures, we make pillars first, next with beams, and then floors. (#8, male, 40s)

Hence, they were able to draw clearer images of their jobs in their minds and had a better understanding of their jobs.

Although I'm still on the way to learn about architecture, I had a sense that I began to understand what architecture is about. (#4, female, 30s)

Being aware of the expected roles. Based on the overall picture of their jobs, the construction engineers began to understand their expected roles and responsibilities at the workplace. This understanding also became part of their work-related identity.

At first, I thought I came to this department to learn a variety of skills. I recognized myself as a guest. But it eventually changed. I started to think that I should be working as a leading person in this department regarding concrete technologies. (#9, male, 30s)

Fulfilling roles and responsibilities. For the construction engineers in this period, work was more than just carrying out the assigned tasks; it expanded to *fulfilling roles and responsibilities*. The notable difference compared to the previous period is the agency of the construction engineers. When they focused solely on carrying out their tasks, they tended to follow instructions in a passive manner. In contrast, during this later period, they had a growing sense of responsibility in their jobs and were confident in making some decisions by themselves as proactive agents, based on the skills and experiences being acquired.

There was a growing sense of responsibility in myself. Previously, I was doing what I was told to do, but now, I have to think by myself, and I'm responsible for the decisions I make.
(#4, female, 30s)

Losing curiosity in routinized work. For construction engineers who focused on fulfilling roles and responsibilities, *losing curiosity in their work* was one of their significant negative experiences. As construction engineers became familiar with their jobs, there would be fewer things to learn but more occasions to apply their know-how. Thus, some of them would gradually come to see their work as the repetition of routinized procedures. One construction engineer described herself as 'being a machine' when working in this type of situation.

I became capable of doing my work. I mean I could follow my own rules without using too much of my brain. So, it was like being a machine. (#6, female, 30s)

Several construction engineers even felt bored of their work because there were rarely new events or learning opportunities that interested them.

Of course, quickly responding to the technical questions being asked is my responsibility in this department. However, you will eventually get used to it, which makes you feel bored.
(#5, male, 40s)

Deceiving oneself to comply with roles. There were also instances when the construction engineers disagreed with but had to comply with their roles. For example, one construction engineer who was responsible for architectural design was asked by her boss to incorporate an extra number of windows into a design because neighboring residents were expected to request a reduced number of windows due to privacy issues. Although she thought that doing this was cheating the residents, she had no choice but to fulfill her roles and responsibility as a designer.

I felt like I was cheating the neighboring residents. I entered this company because I wanted to do something good for people, but I felt like I was only pursuing the company's benefit. I really hated that. Although that was my work, I didn't want to keep doing that. But, now, I'm ok with that. (#4, female, 30s)

Feeling togetherness with co-workers. One of the positive and motivational experiences of the construction engineers during this period was the feeling of being accepted as a member at the workplace.

What makes me feel motivated is a sense of being a member of the team because our work is not done by a single person. We need teamwork. We need to gather up if we want to construct a dam, for example. (#11, male, 40s)

Particularly, the construction engineers had a feeling of togetherness when they were trusted

and relied upon by their co-workers. One construction engineer was able to confirm that he successfully played his role as a member of the team when he felt he was trusted by the other members.

I felt that I became a construction site manager when the subcontracting staff asked me some questions. When they trusted in me that I can do something for them, I could confirm that I was successfully playing my role as a member, that was a construction site manager. (#9, male, 30s)

Diverse yet consistent work experiences. The development of *job* and *self* in this period was enhanced by *diverse yet consistent work experiences*. In particular, different types of work experiences enabled construction engineers to keep learning and improving themselves.

I'm requesting my boss to assign me different types of buildings that I haven't experienced before. If I have done similar ones in the past, then I feel myself not progressing anymore. (#6, female, 30s)

The consistency of the experience was also crucial for the construction engineers to create a consistent story of work life at the company, whereas perceived inconsistency could hamper both *job* and *self* from developing.

[I always wanted to work at the construction site] So, when I was transferred to this design section, I could barely accept it because I thought I'm not good at it. Even now, I question myself "why am I working here?" (#3, female, 30s)

Constituting one's own interpretation of the job. The construction engineers eventually constituted their own interpretation of the job based on their work experiences. Their interpretations were often in the form of simple statements regarding what they considered essential to their jobs. For example, some construction engineers re-defined their jobs as a harmonizing process among various stakeholders, which emphasized the interpersonal aspect rather than the well-known engineering aspect of construction work.

It is my philosophy that there is nothing that cannot be solved in construction work. People from different organizations with different professional backgrounds get together and build one object. So, there will always be conflicts, disputes, and disagreements. And it is our job to fill in the gap between different parties. (#8, male, 40s)

Recognizing one's distinctive value. In reference to their own interpretations of their jobs, the construction engineers became increasingly aware of the value they could provide in performing their work.

*I don't know how to express it properly, but it is like the *raison d'être* [reason of being] in the workplace. If we are not superior in that aspect, we don't have any value in the workplace. (#7, male, 30s)*

This feeling was also related to the construction engineers' recognition of the strengths that enabled them to provide value in their work. The recognition of their values and strengths further contributed to their work-related identity because these features distinguished them from the other construction engineers.

For me, working as a designer now, my experience at the construction site was the most valuable and became my strength. (...) I also realized that it is experience at the construction site that makes me different from the others, which I noticed when I talked to the other designers who had no experience of working at a construction site. (#2, male, 30s)

Making contributions in one's unique way. In addition to carrying out the assigned tasks and fulfilling roles and responsibilities, the construction engineers in this period also focused on *making contributions in their unique ways*. For example, the construction engineers who re-defined their jobs as a harmonizing process attempted to actively contribute to the creation of harmony, such as consensus, among diverse stakeholders by taking full advantage of their personal strengths.

[when faced with a problem] If we communicate with the stakeholders and break down the complicated problem, then there will always be a way to solve it. This is my philosophy, and this is what I was trying hard to do at the construction site. (#8, male, 40s)

Discrepancy between the ideal and reality. One significant stressful encounter experienced by the construction engineers during this period was *discrepancy between the ideal and reality*. The proficient construction engineers usually had 'the ideal' in their mind as to what was the preferred process and outcomes of their work. Nevertheless, as mentioned by some construction engineers, construction work is inherently open to various possibilities because divergent perspectives are introduced by multiple stakeholders. This unpredictability often resulted in the processes or outcomes of work being different from what the construction engineers considered ideal.

Although I had an idea to solve the problem, I wasn't able to push through my idea. As a result, it ended up in a solution that was different from what I considered favorable. The problem was solved, but that was not the best way. (...) So I was not happy about that. (#5, male, 40s)

Adhering to accountable procedures. Even if the discrepancy between the ideal and reality made the construction engineers feel uncomfortable, *adhering to accountable procedures* mitigated those negative feelings. The construction engineers tried to persuade themselves that although the reality was different from what they believed to be ideal, it was still accountable and justifiable. Hence, they could somehow accept and appreciate the ways in which projects were being done.

[When my decision was overturned by a new construction site manager] Of course, I felt upset about that because I dedicated myself to the decision. But, if the new decision was valid and persuasive, then I don't have choice other than accepting the decision being made. (#5, male, 40s)

Resolving a challenging situation. In contrast, resolving a challenging situation at work was a motivational experience that led to positive feelings among the construction engineers. For example, when they were able to successfully create consensus among stakeholders and push the project forward in a proactive manner, they felt that they were making unique contributions to their work. This feeling also resulted in a stronger sense of engagement in their jobs and increased self-worth.

Even when I get 'bingo' in my work where my contribution is quite valuable, it is often

unnoticed. Nevertheless, I feel honorable when I'm handling my part of the project without being caught up in any trouble. (#2, male, 30s)

Opportunities for new challenges. Although *job* and *self* were developed to a certain extent, such development was part of a longer process. Some construction engineers experienced new challenges that allowed them to continue to improve. For example, one construction engineer worked as a construction site manager for decades and then moved to a sales department, which was a brand new job for him. This change motivated him to develop new skills and a new identity at the company.

I have spent all my time working at the construction site. And now, I'm working as a sales person here, which is a completely new job for me. Of course, I lack experience compared with the other staff here; so, I try to have various new experiences. (#17, male, 50s)

Other construction engineers proactively changed their environment to acquire new skills and experiences that were necessary for achieving what they believed to be ideal processes and outcomes.

I requested to transfer to a design section because I thought learning about design might make me capable of attaining what I believe to be the right way of doing projects. (#5, male, 40s)

4 Discussion

4.1 Key results

The present study constructed a theoretical model that explains the process of how jobs are socially constructed at the workplace and the association between this process and the negative and positive experiences of workers. To summarize the key features of the theoretical model, first, the social construction of jobs involved the development of *job*, *self*, and *attitudes toward work* over the duration of the construction engineers' careers. Second, the construction engineers' stressful and motivational experiences varied across the developmental process of *job*, *self*, and *attitudes toward work*. Third, the development of *job* and *self* was enabled and enhanced by work environmental characteristics, such as *stable positions for skill development*, *learning-fostering interactions*, *diverse yet consistent work experiences*, and *opportunities for new challenges*. Finally, many stressful encounters experienced by the construction engineers were mitigated and overcome in conjunction with the development of *job*, *self*, and *attitudes toward work*.

4.2 Interpretations

First, the developmental process of *job* and *self* delineated in this study partially overlaps with some theoretical propositions in previous studies. For example, studies investigating job crafting have proposed that changes in jobs could occur at the physical, relational, and cognitive aspects [36, 37]. The categories explored in this study, such as *regarding the job as fragmented tasks*, *drawing an overall picture of the job*, and *constituting one's own interpretation of the job*, are especially related to the cognitive aspect because these categories

emphasize the change in perceptions and understandings of the jobs and how the construction engineers interpreted and attached meanings to their jobs. Similarly, the developmental process of *self* delineated in this study could be compared with the results reported in previous studies investigating identity creation. For example, Mead's social identity theory has proposed that continuous conversation between 'I' and 'me' constitutes the identity of a person [47]. In the present study, *being aware of the expected roles* is comparable to the concept of 'me' in Mead's theory, which arises primarily from how one thinks he/she is being seen by others. In the case of the construction engineers, *being aware of the expected roles* is closely related to how they perceived the expectations of co-workers at the workplace. Likewise, *recognizing one's distinctive value* is the result of responding to 'me' and forming one's own sense of self, which approximates 'I' in Mead's theory. In contrast to previous theories that considered job construction and identity creation at the workplace separately, the results of this study indicated that *job* and *self* developed together in an intertwining relationship along with work environmental characteristics that enabled and enhanced the development, which is original to the current study.

Second, the results suggest that *job* and *self* constitute the construction engineers' *attitudes toward work*. This finding is supported by some past models of professional development at workplaces. For example, the five-stage model of skill acquisition proposed by Dreyfus illustrates how a working person develops from a novice to an expert [48]. The Dreyfus model notes that along with skill acquisition, a working person's attitude may also change from simply following the rules to more involved participation with emotional commitment [48]. This idea is similar to the findings of the present study because along with the development of the construction engineers' perceptions, understandings, and interpretations of their jobs (*job*) and their work-related identity (*self*), their primary attitudes towards their work also changed from merely *carrying out assigned tasks* to *fulfilling roles and responsibilities*, followed by *making*

contributions in one's unique way. In contrast to the Dreyfus model, which focuses exclusively on skill acquisition, the results of this study indicate that it is not merely skill acquisition but *job* and *self* as a whole that determine the construction engineers' *attitudes toward work*.

Third, part of the categories comprising *negative and positive experiences* and *moderators* explored in this study are comparable to the concepts proposed in previous studies. Regarding negative experiences, *working without making sense* overlaps with 'meaningfulness of work', which denotes the degree to which the work is perceived as purposeful and significant [49, 50]; *unable to keep up with work demands* is often caused by excessive workloads, which is similar to 'high job demand' in the job demand–control model [20]; and *deceiving oneself to comply with roles* is related to 'role strain' in role theory, which posits that a person experiences stress associated with the expectations of their role and their own preferences [51]. Regarding positive experiences, *feeling togetherness with co-workers* is partially related to a 'sense of belonging', which indicates that workers feel themselves to be an integral part of the company [52]. Regarding the moderators, *technical support from co-workers* resembles 'workplace social support' in the demand–control–support model, one facet of which is help and trust between colleagues [53]; and *adhering to accountable processes* overlaps with the 'procedural fairness' of job fairness, which is concerned with the fairness of decision-making procedures [54]. Other categories, such as *inspired by new experiences*, *losing curiosity in routinized work*, *discrepancy between the ideal and reality*, and *resolving a challenging situation*, appeared to be original to this study. These categories warrant further refinement as well as operationalization in order to enable quantitative examination of the theoretical model.

Fourth, many stressful encounters experienced by the construction engineers were mitigated and overcome in conjunction with the development of *job*, *self*, and *attitudes toward work*. For example, novice construction engineers often suffer from a feeling of *working without making sense*. However, the negativity of this experience gradually disappeared as they became

experienced and aware of the purposes of the tasks on which they were working. Additionally, *unable to keep up with work demands* became less significant as the construction engineers placed more emphasis on *fulfilling roles and responsibilities* than merely *carrying out the assigned tasks*. In this case, excessive workloads might still be present, but the development of *job, self, and attitudes toward work* changed its significance to the construction engineers. Therefore, the development of *job, self, and attitudes toward work* might have mitigating effects on the stressful experiences of construction engineers.

Finally, the transferability of the resulting theoretical model can also be considered [55, 56]. The underlying premise of the current theoretical model was that the company attempted to provide environments and opportunities to the construction engineers to develop within their company, and the construction engineers were expecting the same thing. This type of relationship between a company and workers partly stems from the so-called Japanese employment system or lifetime employment system [57], where workers are expected and expect to develop their careers within a large and stable company until they retire. Similarly, Kegan and colleagues proposed the concept of deliberately developmental organizations (DDOs) to denote companies with cultures that help their workers grow and thrive [58]. This concept is built on the adult-development theory, which assumes and illustrates the personal development of adults in general [59]. Therefore, the themes, categories, and their relationships explored in this study may also operate well for workers in similar settings. In contrast, the theoretical model may only have limited applicability to workers in different settings, such as those in favor of a boundaryless career rather than a traditional employment system [60]. To the best of our knowledge, for the first time, the present study illustrates the underlying conditions in which a theoretical model of job stress operates.

4.3 Implications

Although the theoretical model constructed in the present study warrants a quantitative examination of its association with eustress and distress before implementation, possible implications could be inferred from the model. First, the findings of this study imply that the reduction and removal of stressors can be considered in conjunction with the psychosocial process of job development because what was experienced by the workers as stressful varied across the developmental stages of *job* and *self*, which are represented by their *attitudes toward work: carrying out assigned tasks, fulfilling roles and responsibilities, and making contributions in one's unique way*. Therefore, for those workers whose primary attitudes toward work are *carrying out assigned tasks*, intervention measures, such as reducing workloads (i.e., *unable to keep up with work demands*) and providing social support (i.e., *technical support from co-workers*), might be effective in reducing their distress. For those workers whose attitudes toward work are *fulfilling roles and responsibilities*, it might be more important for the supervisory personnel to communicate with them to determine whether their perceived roles comply with their personal goals and motives (i.e., *deceiving oneself to comply with roles*). For those workers whose attitudes toward work are *making contributions in one's unique way*, guaranteeing the fairness of the decision-making procedure (i.e., *adhering to accountable procedures*) might be more crucial for preventing their distress.

Second, the model further suggests that the development of *job, self, and attitudes toward work* could change some workers' stressful encounters into less significant ones. Thus, providing development-enhancing work environments may mitigate the detrimental effects of stressful encounters. In particular, for those workers whose primary attitudes toward work are *carrying out assigned tasks*, providing stable positions instead of frequent transfers might contribute to their development (i.e., *stable positions for developing skills*). Assigning mentors

to novice workers could also be a means of fostering their development (i.e., *learning-fostering interactions*). For those workers whose primary attitudes toward work are *fulfilling roles and responsibilities*, providing opportunities for diverse work experiences might be effective for their development (i.e., *diverse yet consistent work experiences*). For experienced workers whose primary attitudes toward work are *making contributions in one's unique way*, providing opportunities for new challenges, such as a new position in a different job, might allow them to undergo a second cycle of development regarding *job and self*.

4.4 Limitations

A major limitation of the present study is that the construction engineers who participated in the interviews were limited to those who were able to continue working at the company. Focusing on these interviewees enabled the present study to explore the conditions under which workers can overcome stressful experiences. However, although some workers experience turnover due to job stress, these workers were not recruited in the present study. Notably, the themes and categories explored in this study may not be able to explain the job-stress-induced turnover of those workers. Thus, future research could incorporate such seemingly contradicting cases into the analysis to consider the variations in the themes and categories, and perhaps modify the theoretical model developed in this study.

Furthermore, this study relied on a single data collection method and data source, which is interview data obtained from qualitative interviews with workers. Although a qualitative interview has its strength in exploring the subjective experiences of the interviewees, it is also prone to bias, such as discrepancy between the actual interactions taking place at the workplace and the interviewees' descriptions of the interactions. This bias is also called recall bias and is caused by varying memories among people about their history [61]. This weakness could

possibly be compensated through triangulation in terms of data collection methods and data sources [62]. In particular, observational data of workers' behaviors and interactions at the workplace could be incorporated into a study by conducting participant observations. Such a study may contribute to a better understanding of the phenomenon of interest and, hence, may improve the credibility of the study.

4.5 Conclusion

In conclusion, this study developed a theoretical model that explains the process of how jobs are socially constructed at the workplace and its association with the negative and positive experiences of workers. The results suggested that the social construction of jobs involved the development of *job*, *self*, and *attitudes toward work* over the course of workers' careers, which became the contexts for what was experienced by workers as stressful and motivational. In particular, what was experienced by the workers as significantly negative or positive varied across the developmental stages of *job* and *self*, which are represented by their *attitudes toward work: carrying out assigned tasks, fulfilling roles and responsibilities, and making contributions in one's unique way*. It could be inferred from the model that prospective job stress interventions may remove and reduce specific stressors by considering these developmental stages of the workers. Additionally, providing development-enhancing work environments may also mitigate the detrimental effects of stressful encounters.

Appendix A: Theoretical models of job stress

This section presents some of the prominent models of job stress: (1) the person–environment fit model, (2) the Cooper and Marshall model, (3) the job demand–control model, (4) the effort–reward imbalance model, (5) the vitamin model, (6) the NIOSH model, (7) the demand–control–support model, and (8) the job demands–resources model.

(1) Person–environment fit model (1974)

The person–environment (PE) fit model was proposed by French and colleagues [63]. This model postulates that a misfit between a person and the environment leads to strains on workers [63].

Specifically, the person–environment fit model suggested two types of fit (or misfit) between person and environment. First, there is a fit between the skills and abilities of a person and the demands imposed by the work environment (Demands–abilities fit: DA fit) [64]. Second, there is a fit between the goals, motives, and values of a person and the supplies provided by the work environment (Supplies–values fit: SV fit; or Needs–supplies fit: NS fit) [64].

In addition, French and colleagues distinguished the subjective person–environment fit from the objective person–environment fit. The subjective person–environment fit refers to the fit between a person and the environment that is measured by the perceptions of individuals, while the objective person–environment fit refers to the fit between a person and the environment measured by indicators independent of individuals [65, 66]. The model suggests that subjective person–environment misfit, i.e., DA misfit or SV misfit, leads to adverse health consequences [65, 66].

Although this model has influenced various subsequently proposed theoretical models of job

stress (e.g., the Cooper and Marshall model and the effort–reward imbalance model), some studies have noted the difficulty of applying the model to empirical studies due to the complexity of the measurement involved [67].

(2) Cooper and Marshall model (1976)

This model was proposed by Cooper and Marshall based on previous studies related to job stress [24]. The aim of the study was to link environmental and individual sources of strain with the physical and mental responses of workers [24].

The basic structure of this model is a causal relationship linking (i) sources of stress at work, (ii) individual characteristics, (iii) symptoms of occupational ill health, and (iv) disease. The model also incorporates (v) extra-organizational sources of stress as another plausible cause that leads to symptoms of occupational ill health and disease via individual characteristics [24].

In this model, sources of stressors at work were regarded as the primary exposures, which are composed of five categories (i.e., intrinsic to job, role in organization, career development, relationships at work, and organizational structure and climate). Each of the categories was further divided into several sub-categories [24].

It is noteworthy that individual characteristics were regarded as both strains and moderators. Individual characteristics were composed of four categories (i.e., level of anxiety, level of neuroticism, tolerance for ambiguity, and type A behavioral pattern) [24].

For outcomes, the model considered both symptoms of occupational ill health (i.e., diastolic blood pressure, cholesterol level, heart rate, smoking, depressive mood, escapist drinking, job dissatisfaction, and reduced aspiration) and disease (i.e., coronary heart disease and mental ill health) [24].

(3) Job demand–control model (1979, 1990)

The job demand–control (JDC) model was first introduced by Karasek and elaborated by Karasek and Theorell to conceptualize the effects of psychosocial factors at the workplace on the well-being of workers [20, 25]. In particular, the model focused on the effects of psychological job demands (i.e., job demand) and job decision latitudes (i.e., control) on workers' well-being [20, 25].

The model considered either high or low levels for both job demands and control. The combination resulted in four patterns, namely, active (i.e., high job demands and high control), high strain (i.e., high job demands and low control), low strain (i.e., low job demands and high control), and passive (i.e., low job demands and low control) [20].

Those workers at high-strain workplaces were expected to suffer from detrimental effects on health, such as a higher risk of cardiovascular diseases [20]. The model inferred that high demand itself is not a cause of impaired health per se, but the interaction between or combination of high demand and low control would impose adverse effects on workers' health [20].

The limitations of this model have been addressed by some studies. First, although control was conceptualized as representing the work environment, to date, there is no consensus regarding how objective control at the workplace can be assessed or measured [1]. Second, although Karasek and colleagues assumed interactional effects of job demands and control, whether control functions as a moderator between job demands and strains or whether it is itself a stressor remains unsolved. Empirical evidence regarding this issue is mixed and controversial [1, 68]. This uncertainty is also related to the first point because most of the empirical studies used subjective measures such as perceptions of control rather than objective measures, which is likely to result in overestimation due to common method bias [17].

(4) Effort–reward imbalance model (1986, 1996)

The effort–reward imbalance (ERI) model was introduced by Siegrist in an attempt to shed light on a different aspect of work life that could affect the well-being of workers given existing models such as the person–environment fit model and the job demand–control model [21, 69].

The main focus of this model is on the reciprocity of exchange in occupational life. The model postulates that lack of reciprocity between costs (or efforts) and gains (or rewards) results in emotional distress for workers [21]. In the earlier model, efforts were further divided into extrinsic effort (i.e., demands, obligations) and intrinsic effort (i.e., need for control), and rewards were divided into money, esteem, and status control [21].

Several aspects of the model were subsequently modified. First, although ‘need for control’ was originally regarded as a domain of intrinsic effort, it was re-conceptualized as ‘overcommitment’, which represents a set of personality characteristics related to coping style that moderate the relationship between effort–reward imbalance and strain reactions (i.e., need for approval, competitiveness and latent hostility, impatience and disproportionate irritability, and inability to withdraw from work obligations) [70, 71]. In particular, workers who have overcommitting personalities were expected, because of their higher need for approval, to have higher strain reactions to effort–reward imbalance than those who are less overcommitting [70, 71].

Second, although ‘status control’ was originally considered as a domain of reward, it was replaced with ‘career opportunity including job security’. Therefore, the modified concept of rewards included financial rewards, esteem rewards, and rewards related to career and job security [70, 71].

Empirical studies have examined the effort–reward imbalance model mainly with three types of hypotheses: adverse effects of high effort and low rewards on health, adverse effects of

overcommitment on health, and adverse effects of high efforts and low rewards on health moderated by overcommitment [70, 71]. Among these three types of hypotheses, the adverse effects of high efforts and low rewards have gained much empirical support [71, 72].

(5) Vitamin model (1987)

The vitamin model was proposed by Warr and aimed to conceptualize the effect of environmental features on mental health [73]. Specifically, the model focused on job characteristics that reflected environmental features, and introduced nine categories of job characteristics that could affect mental health (i.e., opportunity for personal control, opportunity for skill use, externally generated goals, variety, environmental clarity, contact with others, availability of money, physical security, and valued social position) [73].

The vitamin model postulated that the effects of these job characteristics on mental health were analogous to the effects of vitamins on physical health [73]. Similar to vitamins, the absence of any of these job characteristics would result in a negative health effect, while the presence of these job characteristics in a certain amount would lead to a positive health effect [73].

The effect differs when these job characteristics are presented in excess. Among the nine job characteristics, six characteristics (i.e., opportunity for personal control, opportunity for skill use, externally generated goals, variety, environmental clarity, and contact with others) were expected to show inverse U-shaped effects, indicating that excess job characteristics could have detrimental effects on health [74]. Since this is similar to the effects of vitamins A and D, Warr named the pattern ‘additive decrement’ (AD) [74].

The other three job characteristics (i.e., availability of money, physical security, and valued social position) were expected to have constant effects on workers even under excessive

exposure [74]. Since this was similar to vitamins C and E, Warr named the pattern ‘constant effect’ (CE) [74].

Recently, the model was expanded and three more job characteristics were newly incorporated (i.e., supportive supervision, career outlook, and equity), and the model now includes twelve categories in total [75].

(6) NIOSH model (1988)

This model was proposed by the National Institute for Occupational Safety and Health [76]. The original aim of the model was to enhance empirical studies that focus on identifying psychosocial stressors in the work environment and their association with employee health [76]. For this purpose, in addition to the constructs, the model provided a set of scales for measuring those constructs [76].

The core of the model lies in the causal relationship between (i) job stressors and (ii) acute reactions, which in turn lead to (iii) illnesses. The causal relationship between job stress and acute reactions is moderated by (iv) individual factors, (v) non-work factors, and (vi) buffer factors [76].

Job stressors were composed of numeral categories (e.g., physical environment, role conflict, role ambiguity, interpersonal conflict), and acute reactions focused on three major aspects: psychological (i.e., job dissatisfaction and depression), physiological (i.e., somatic complaints), and behavioral (i.e., accidents, substance use, and sickness absence) [76].

(7) Demand–control–support model (1988)

The demand–control–support (DCS) model was developed by Johnson and Hall and it

elaborated on the job demand–control model introduced by Karasek [53]. In addition to job demand and control, this model considered work-related social support another characteristic of the workplace and, hence, formed a three-dimensional model [53].

By additionally considering either high or low work support, the combinations of job demand, control, and work-related social support resulted in eight patterns of work characteristics in total (i.e., active collective, high strain collective, low strain collective, passive collective, active isolated, high strain isolated, low strain isolated, and passive isolated) [53].

Within these patterns, high demands, low control, and low work-related support were categorized as high strain isolated (also referred to as iso-strain), indicating that these work characteristics had the worst effect on workers' health [53].

One of the limitations of this model is that although the model suggested interactional effects between job demand, control, and work-related social support, there is not much empirical evidence supporting this hypothesis [17]. Rather, it is more likely that these three factors separately affect the well-being of workers [17].

(8) Job demands–resources model (2001)

The job demands–resources (JD–R) model was introduced by Demerouti and colleagues as an initial attempt to explore working conditions that lead to the burnout of workers [77].

This model assumed that any risk factors for job stress can be categorized into either job demands or job resources regardless of occupation. In the model, job demands were suggested as a determinant of burnout and job resources were suggested as a determinant of work engagement [77].

Recently, the model has been elaborated in several aspects. First, although the earlier model

focused on the main effects of job demands and job resources, later studies rather emphasized the interaction of job demands and job resources [17, 78]. It was hypothesized that job resources might attenuate the adverse effect of job demands on strains such as burnout, and this hypothesis gained some empirical support [79].

Second, psychological processes were also proposed, suggesting that working conditions affect the job strain or motivation of individuals, which in turn leads to organizational outcomes [78]. One process was referred to as the energy-driven process, where job demands lead to strains on workers and thus result in negative organizational outcomes such as absenteeism [78]. The other process was referred to as the motivation-driven process, where job resources lead to engagement of workers and thus result in positive organizational outcomes such as commitment [78]. There is some empirical evidence that supports these psychological processes [80].

Appendix B: Approval from the Research Ethics Committee

(医)

審査番号

11507

西暦 2017年04月14日

審査結果通知書 実施許可通知書

倫理委員会の設置者、実施機関の長

東京大学大学院医学系研究科・医学部長 殿

倫理委員会委員長

東京大学大学院医学系研究科・医学部倫理委員会
疫学・観察等研究倫理委員会

赤林 朗



審査依頼のあった件についての審査結果を下記のとおり通知いたします。

記

研究課題名	組織における規範と従業員の働き方の双方向的関係に関する研究
審査結果	<input checked="" type="checkbox"/> 承認する <input type="checkbox"/> 条件付きで承認する <input type="checkbox"/> 変更を勧告する <input type="checkbox"/> 承認しない <input type="checkbox"/> 該当しない <input type="checkbox"/> 既承認事項の取り消し
審査事項 (審査資料)	<新規案件> <input checked="" type="checkbox"/> 研究の新規実施 <継続案件> <input type="checkbox"/> 研究に関する変更 <input type="checkbox"/> その他 ()
審査区分	<input checked="" type="checkbox"/> 委員会審査 (審査日: 西暦2017年04月10日) <input type="checkbox"/> 迅速審査 (審査日: 西暦 年 月 日)
指摘事項および理由・条件等	
備考	

研究責任者 橋本 英樹 殿

依頼のあった研究に関する審査事項について上記のとおり決定しましたので通知いたします。

倫理委員会での審査結果が承認となりましたので、研究の実施を許可いたします。

西暦 2017年04月14日

倫理委員会の設置者、実施機関の長

東京大学大学院医学系研究科・医学部長

宮園 浩平 (公印省略)

Appendix C: Informed consent form

研究参加者の皆様へ
研究課題「組織における規範と従業員の働き方の双方向的関係に関する研究」
へのご協力をお願い

1. この研究の概要

【研究課題】

組織における規範と従業員の働き方の双方向的関係に関する研究

【研究機関名及び研究責任者・研究従事者氏名】

研究機関：東京大学大学院 医学系研究科 保健社会行動学分野

研究責任者：橋本英樹（教授）

研究従事者：横内陳正（博士後期課程）

【研究期間】

倫理審査承認（2017年4月14日）から5年間

【研究目的】

この研究では、研究参加者の皆様の職場でのご経験についてお話を伺うことで、どのような働き方をしているときに仕事が充実していたり、または逆にストレスを感じたりするのかを明らかにすることを目的とします。

【研究方法】

この研究では、研究従事者がインタビュー形式の調査を実施します。インタビューは、プライバシーが確保される場所において行われ、時間は60分程度を想定しています。インタビューの質問内容には、研究参加者（インタビューへの参加を希望される方）の皆様の職場におけるこれまでのご経験に関するものが含まれます。なお、インタビューの際は、研究参加者の方の同意の下で、録音およびメモを取らせていただきます。

2. 研究協力の任意性と撤回の自由

インタビューへの参加は任意となっております。研究参加者の方は、途中で質問への回答を拒否したり、インタビューの中止や記録の中断・停止を求めることも可能です。なお、これらの要求によって研究参加者の方が不利益を被ることはありません。一旦調査への参加に同意した場合においても、同意撤回書に署名をして、下記の連絡先まで提出することで、同意はいつでも撤回することができます。また、それに伴う不利益を被ることはありません。

同意を撤回された場合、得られた資料および研究結果は可能な限り破棄されます。ただし、すでに研究結果が論文等に公表されている場合などは、同意を撤回された場合においても破棄することができませんので、ご了承下さい。

3. 個人情報の保護

研究にあたっては、研究参加者の皆様に不利益が生じないように、個人情報の保護、プライバシーの尊重に努力し、最大限の注意を払います。

研究参加者の皆様の情報については、逐語録を作成する際に個人情報（氏名・性別等）を除外し、代わりに新しく符号をつけることで匿名に保たれます。また、元の音声データそのものに触れることができるのは、この調査に関わる研究者責任者・研究従事者に限られます。

録音した音声データ，ならびに符号をつけて匿名化した逐語録については，当研究室内の鍵のかかるロッカーにて厳重に保管します。ただし，必要な場合には，音声データや逐語録を研究参加者の皆様にお知らせすることもできます。

4. 研究結果の公表

研究の成果は，企業名，組織および参加者の方の個人情報（氏名・性別等）が明らかにならないように匿名化した上で，学会発表や学術雑誌等で公表します。

5. 研究参加者にもたらされる利益及び不利益

この研究が，研究参加者の皆様に直ちに有益な情報をもたらす可能性は高いとはいえません。一方で，長期的には，この研究の成果が，組織における従業員の働き方の新たな改善方策の開発に寄与することが期待されます。

一方，予想される不利益としては，インタビューが長時間にわたる場合，研究参加者の方の身体に負担がかかる可能性があります。ただ，研究参加は自由意思によるものであり，インタビューについては，不利益を伴うことなく，途中でいつでも中断できます。

なお，この研究への参加に伴う謝金のお支払はありません。

6. 研究終了後の資料等の取扱方針

研究参加者の皆様からいただいた資料（音声データ，逐語録）は，この研究のためにのみ使用します。

音声データについては，研究期間終了5年後に電子データを削除することによって破棄します。逐語録については，主たる研究結果の公表後5年後に電子データを削除することで破棄します。

7. 参加に伴う費用負担

今回の研究に必要な費用について，研究参加者の皆様に負担を求めることはありません。

8. 研究から生じる知的財産権の帰属

本研究で得られた知見等については，研究が行われる研究機関，ならびに研究責任者，研究従事者に帰属します。

9. その他

この研究は，東京大学医学部倫理委員会の承認を受け，東京大学大学院医学系研究科・医学部長の許可を受けて実施されます。なお，この研究に関する費用は，東京大学大学院・医学系研究科・保健社会行動学分野の運営費から支出されています。本研究に関して，開示すべき利益相反関係はありません。

ご意見，ご質問等がございましたら，お気軽に下記までお寄せください。

年 月 日

【連絡先】

研究責任者：橋本英樹（教授）

研究従事者（連絡担当者）：横内陳正（博士後期課程）

E-mail: yokouchi_n@hotmail.com

〒113-0033 東京都文京区本郷 7-3-1

東京大学大学院 医学系研究科 保健社会行動学分野

Tel: 03-5841-3514（内線 23514） Fax: 03-5684-6083

同意書

東京大学医学系研究科長・医学部長 殿

研究課題「組織における規範と従業員の働き方の双方向的関係に関する研究」

私は、上記研究への参加にあたり、説明文書の記載事項について説明を受け、これを十分理解しましたので本研究の研究参加者となることに同意いたします。

はい

いいえ

以下の項目について、説明を受け理解しました。

- この研究の概要について
- 研究協力の任意性と撤回の自由について
- 個人情報の保護について
- 研究結果の公表について
- 研究参加者にもたらされる利益及び不利益について
- 研究終了後の資料（試料）等の取扱方針について
- あなたの費用負担について
- その他について

平成 年 月 日

氏名（自署） _____

同意撤回書

東京大学医学系研究科長・医学部長 殿

研究課題「組織における規範と従業員の働き方の双方向的関係に関する研究」

私は、上記研究への参加にあたり、説明文書の記載事項について説明を受け同意しましたが、同意の是非について再度検討した結果、同意を撤回いたします。

平成 年 月 日

氏名（自署） _____

Appendix D: Memos on the themes and categories

テーマ名	Self
カテゴリー名	Lacking a clear sense of work identity
定義	It indicates that novice construction engineers rarely had a clear sense of work-related identity.
サブカテゴリー	[自分のイメージが崩れる] [1年生の人間] [何もわかっていない人間] [自分が出せない] [右も左もわからない]
プロパティ	時期——新しい Job に就いた直後（入社や異動の直後）
ディメンジョン	期間——数ヶ月から 1, 2 年 職場で自分に求められる役割——不明瞭 持っているスキルや専門性——不足している 自分の個別性——意識していない, 認識できていない 職場でのふるまい方——確立されていない きっかけ——入社, 異動
データ	[原文] まあ年上の方にやっぱり指示していくんで, 何もわかっていない人間が。まあそういったところはやっぱり苦勞したというか (#7, male, 30s) [訳] At that time, although I was a person without any knowledge, I had to give instructions to the subcontractors, who were older than me. That was a hard time for me. (#7, male, 30s) [原文] 最初はだからこう, なんていうんですかね, 自分が出せないんですよね, 入社してすぐっていうのは (#8, male, 40s) [訳] At the beginning, I mean just after I entered the company, I didn't know how to present myself in the worksite. (#8, male, 40s)
メモ	When the construction engineers were inexperienced in their job, their work identity were blurred and thus they were unable to position themselves in the workplace. In particular, they were often unsure about the roles that they were expected to play.

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