

The relationship between teachers' career capital and well-being

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Abstract: This study aimed to elucidate the effects of career capital on teachers' well-being. The data of 2028 teachers from 53 prefectural high schools in Japan were analyzed, and the multilevel analysis yielded the following findings. The accumulation and utilization of teachers' psychological capital increased their well-being, and the depletion of health capital decreased it. Well-being was strongly regulated by psychological capital at schools with difficult environments. The duration of overtime work impacted teachers' well-being; in particular, the decline in well-being for teachers whose overtime hours exceeded 80 per month was apparent.

Keywords: Career capital, psychological capital, health capital, well-being, multilevel analysis, work engagement

1. Introduction

Increasing teacher turnover and diminishing interest in the teaching profession are becoming pressing issues worldwide. The current situation of teacher turnover is quite serious. For example, approximately 30% of teachers in the United States leave their jobs within five years; in poorer areas the rate increases to approximately 50%. In the United Kingdom, approximately 20% of teachers leave their jobs within two years, and approximately 30% leave within five years. Australia's teacher turnover rate within five years is about 30–50% each year, almost the same as in the US and UK. Increased teacher turnover leads to several problems, including teacher shortages and higher numbers of teachers who are older or uncredentialed, thereby resulting in a decline in school education quality (Viac & Fraser, 2020).

Diminishing interest in the teaching profession

has also become a problem in European countries such as France, Spain, and Sweden. In a survey on the social value of teaching, less than 10% of teachers in those countries reported feeling a sense of social value (Schleicher, 2018). In Finland and Singapore, which are among the top-ranked countries academically in the Programme for International Student Assessment (PISA), the teacher turnover rate is approximately 3–4%, which is considerably lower than in the UK, the US, and Australia (Viac & Fraser, 2020). Moreover, an assessment of the social value of teaching in these two countries showed that more than 60% of teachers in both countries affirm feeling a sense of social value, which was the highest among participating countries (Organisation for Economic Cooperation and Development [OECD], 2019). As these results indicate, while some countries struggle with teacher turnover, others are indeed effective in cultivating interest in the profession and preventing

teachers from leaving their jobs.

Regarding Japan, according to a statistical survey conducted in the fiscal year 2016, the teacher turnover rates were 1.5% for both public elementary schools and public junior high schools and 1.0% for public senior high schools. These figures are lower than those in the abovementioned countries¹, suggesting the situation surrounding the teaching profession in Japan is relatively stable. Since high-stakes test-focused accountability policies have not been implemented, teachers do not need to fear employment risks, and stable employment has ensured consistently low turnover rates. However, less than 30% of teachers in Japan report feeling that their job has social value (OECD, 2019), which poses a challenge. Additionally, the Teaching and Learning International Survey (TALIS) 2013 and TALIS 2018 reported that working hours per week in Japan were the highest among participating countries/regions, and many teachers are burdened with long working hours (OECD, 2014, 2019). Since Japan has a closed labor market structure (especially in rural areas, reemploying teachers who have left their job is rare), it is difficult to leave the job willingly. Thus, Japanese teachers continue to endure being overworked and, consequently, experience chronic high-stress conditions.

Rising teacher turnover rates and the decreasing interest in and social value of teaching (coupled with the long working hours in Japan) have led to a growing global focus on teachers' well-being. This focus has also grown due to various studies that have identified factors affecting teachers' well-being and have clarified that teachers' well-being has a decisive impact on their job performance, attitudes, and behaviors.

For example, Jalali and Heidari (2016) examined the effect of teachers' well-being on their individual job performance, and discovered that well-being explained 16% of the total variance. Similarly,

Klusmann et al. (2008) showed that teachers' occupational well-being affects the quality of their educational practices. Huang and Yin (2018) revealed that teachers' well-being enhances their sense of effectiveness, which comprises lesson strategies, classroom management, and students' focus. These researches present the important implication that teachers' well-being affects the quality of, and their confidence in, educational practice. In addition to these findings, there are studies that have examined the impact of teachers' well-being on students' well-being (Becker et al., 2014). The findings that teachers' well-being is linked to classroom student well-being provide important implications for educational practice.

However, while interest in teachers' well-being has grown rapidly, there is still a lack of sufficient scientific grounds to identify what teachers' well-being means (definition and measurement) or how it is determined (determining factors). Thus, the present study aimed to explore the meaning and determining factors of teachers' well-being within the Japanese context.

2. Theoretical framework

2.1. Definition and measurement of well-being

The definitions and components of well-being are diverse. With respect to teachers, multiple studies have used "subjective well-being" or "occupational well-being" as their research framework.

Subjective well-being refers to "a broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction" (Diener et al., 1999, p. 277). It is defined comprehensively based on *emotion* in the short term, *satisfaction* in the medium term, and *cognition*, which looks back on the way of life from the long-term perspective. There are various arguments about the structure of subjective well-being. For example, in addition to emotion, satisfaction,

and cognition, the structure can be understood from the viewpoints of *frequency and strength*, *hedonic and eudemonic*, and *time and place* (Diener et al., 1985; Diener et al., 1999; Ryan & Deci, 2001; Stutzer & Frey, 2006). Subjective well-being has often been researched using micro-level analysis, and is frequently used in the field of psychology. Measurement scales for subjective well-being include the Satisfaction with Life Scale (SWLS; Diener et al., 1985), Flourishing Scale (Diener et al., 2010), WHO-5 well-being scale (OECD; 1998), and the General Well-being Scale (Fordyce; 1988). Among these, this study focused on the General Well-being Scale—a one-item measurement method that is also used for well-being surveys conducted by the OECD. It measures the respondent's current state on a one-item, 11-dimension scale with the highest well-being status being 10 and the lowest 0. It is a convenient method, and its effectiveness has been confirmed (Pavot & Diener, 1993).

In recent years, research focusing on the concept of occupational well-being has also progressed. In the context of the educational field, occupational well-being can refer to a "teacher's response to the cognitive, emotional, health and social conditions pertaining to their work and their profession" (Viac & Fraser, 2020, p. 18). For the structure of occupational well-being, there are studies focusing on scenes in schools, classrooms, and families, and studies focusing on dimension, such as well-being's affective, cognitive, and social aspects. In their study focusing on scenes, Collie et al. (2015) categorized teachers' work-related occupational well-being into workload, organization, and student interaction. Additionally, Day, Sammons, and Stobart (2007) classified teachers' sense of occupational well-being into situated factors in the context of schools and classes, professional factors that reflect work-related achievement, and personal factors, including family life. Furthermore, several studies focusing on struc-

tural dimensions of occupational well-being have been conducted (Ryff, 1989; Seligman & Csikszentmihalyi, 2000; Seligman et al., 2005). For example, Van Horn et al. (2004) performed confirmatory factor analyses modeled on Ryff (1989) to divide teachers' occupational well-being into five dimensions: affective, social, professional, cognitive, and psychosomatic.

In addition to these works, recent studies have measured well-being using a two-dimensional surrogate indicator of negative psychological conditions, such as burnout (emotional exhaustion), stress, depressive emotion, psychophysical reaction, and job turnover, as well as positive indicators, such as commitment, job satisfaction, and engagement (Bermejo-Toro et al., 2015; Klusmann et al., 2008; Parker et al., 2012; Skaalvik & Skaalvik 2018; Zee & Koomen 2016).

As explained above, methods used to measure teachers' well-being have become more diverse; however, this has also led to confusion, mostly owing to two reasons. The first is the configuration variable–explanatory variable issue. For example, it is not clear whether burnout is a factor that constitutes or explains well-being; in the two-dimensional surrogate indicator model, it is set as a component of well-being, while in other measurement models, it tends to be considered an explanatory factor. The other reason is the explanatory variable–dependent variable issue. Using burnout again as an example, it is not clear whether well-being explains (explanatory variable) or is explained by (dependent variable) burnout, and there is no consensus as of yet, due to different positioning of well-being in each study. However, the present study did not aim to clarify this difficult issue, but to clearly define the characteristics of the measurement methods. This study measured teachers' well-being using the General Well-being Scale and, due to the scale's single-factor structure, the configuration variable–

explanatory variable issue could be avoided. Moreover, well-being was set as a dependent variable. The objective of this study aligned with the mission of the PISA 2021 Survey (Viac & Fraser, 2020): to explore what determines the well-being of teachers and what helps increase the level of teachers' well-being.

2.2. Explanatory factors for well-being

Several previous studies have sought to explore the explanatory factors of teachers' well-being. Accordingly, these factors can be summarized as described below.

The first factor is workplace environment: In what kind of a place do you work? Trust in relationships with superiors and colleagues, social support (Aelterman et al., 2007; Chi et al., 2014; Cumming, 2016; Skaalvik & Skaalvik, 2018), and shared goals and values in the workplace enhance teachers' well-being. Moreover, it has been shown that capable leadership by the school principal can increase well-being, while a lack of management can decrease it (Chi et al., 2014; Spilt et al., 2011).

The second factor is work-related: How do you perform your job-related duties? When teachers have discretion, autonomy, a sense of control, and work flexibility, their well-being tends to be high (Cenkseven-Önder & Sari, 2009; McInerney et al., 2018). However, when teachers are under extreme pressure and have an excessive workload and job-related stressors, their well-being tends to be low (Aelterman et al., 2007; Spilt et al., 2011). It has been shown that high amounts of overtime and a lack of free time decreases teachers' well-being (Skaalvik & Skaalvik, 2015). Furthermore, previous studies have focused on teachers' job-related duties, such as providing student guidance. For example, it was found that well-being tends to be low for teachers working in schools in areas with low socioeconomic status, where student guidance can be difficult to

provide (Brouskeli et al., 2018). Moreover, teachers' well-being also tends to be low in schools where student guidance issues occur frequently and students' motivation to learn is weak, or where class management is unsuccessful (Skaalvik & Skaalvik, 2018).

The third factor is individual attributes: What are your attributes as a teacher? Descriptive statistics have shown that veteran teachers tend to have higher well-being than younger or mid-level teachers (Chi et al., 2014; Huang & Yin, 2018). Furthermore, well-being tends to be higher among male teachers and junior high school teachers than other teacher groups (Huang & Yin, 2018). However, findings on this issue have been inconsistent, as other studies reported that teachers' attributes are virtually independent of their well-being (Collie et al., 2015).

Teachers' well-being will be affected by socio-institutional, policy, and environmental factors at the national, regional, and organizational levels. However, well-being is also thought to have an aspect that depends on the capital individual teachers possess. This study focused on teachers' career capital and examined its relationship with their well-being while taking into account the socio-institutional, policy, and environmental contexts that govern it. Although a specific definition has not been established, career capital can be understood as an extension of human capital (e.g., educational background, qualifications) that adds to an individual's *career experience*, such as overseas business assignments (Dickmann & Doherty, 2008; Dickmann et al., 2018). Career capital encompasses not only educational background and qualifications but also various abilities, characteristics, and conditions that have been formed through individual experiences, and is considered to be able to more accurately explain teachers' well-being.

2.3. Career capital and teachers' well-being

In this study, we hypothesized that teachers' well-being would be enhanced by gaining and learning from various experiences in their work and family lives. Career capital generally refers to the capital formed through work experiences and family life. We focused on three types of capital in this study²: human capital, psychological capital, and health capital. The following is a review of trends in previous studies on the characteristics of each type of capital and its effect on well-being.

2.3.1. Human capital

The OECD has defined human capital as "the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" (OECD, 2001, p. 18). Referring to this definition, teachers' human capital can be determined using a variety of indicators, including the knowledge, skills, and abilities required to perform their job duties; years of teaching experience; qualifications; and credentials related to promotions, training background, and professional development history.

Studies examining the association between teachers' human capital and well-being have measured the former with highly observable indicators, such as years of teaching experience and management qualifications. The main reason for this is that the knowledge, skills, and abilities required for teachers to perform their job duties are difficult to define and measure, and vary greatly depending on school type and career stage. There have been several studies on this topic. For example, in a survey targeting elementary schools, Chi et al. (2014) reported that veteran teachers aged 51 years and above had higher well-being scores than younger teacher. Similarly, in a survey targeting elementary and junior high school teachers, Huang and Yin (2018) found that high well-being was recognized among veteran teachers

with 21 years or more of teaching experience and school principals.

2.3.2. Psychological capital

The OECD (2001) defines human capital by including aspects of both cognitive and non-cognitive capabilities; however, recent attention has been paid more to the latter, and studies have considered this element independent of human capital and treated it as psychological capital. For example, Luthans et al. (2007) defined psychological capital as a positive psychological developmental state characterized by efficacy, optimism, hope, and resilience. Efficacy refers to the willingness to make the necessary effort to successfully accomplish a challenging task and have confidence in performing it. Optimism means having a forward-looking outlook on current and future success. Hope means persisting in tasks to achieve goals and flexibly changing the process as needed. Resilience means being patient in working toward success when faced with adversity and bouncing back to overcome difficulties. Regarding psychological capital, Luthans et al. (2007) noted that individuals' strengths and abilities are not fixed, but are versatile and can be developed and expanded. Psychological capital is, therefore, contained within an individual, and this capital can be used in occupational life to create personal and organizational value and improve job performance (Luthans, 2002; Luthans & Youssef, 2004).

In the educational field, the positive effects of psychological capital (efficacy, optimism, hope, and resilience) on well-being have been verified by structural equation modeling (SEM) in a study targeting secondary school teachers (Kurt & Demirbolat, 2019). SEM has also been employed to verify that psychological capital, as represented by the aforementioned four factors, mitigates teachers' psychological stress and burnout tendencies and promotes job satisfaction and job participation

(Demir, 2018). Moreover, it has been shown that the four-factor model of psychological capital has a statistically significant effect on individual intention to stay in a job and has moderating effects on a principal's leadership and intention to stay in a job (Aria et al., 2019). However, although research on the four-factor model of psychological capital has professed, considerable ambiguity remains regarding the relationship between psychological capital and proximity concepts. Thus, the present study aimed to add more factors explaining *positive psychological developmental status* (Luthans et al., 2007) to the scope of psychological capital, and propose the idea of psychological capital in a broader sense. For example, based on this definition of psychological capital, work engagement, which has attracted research attention in recent years, could also be considered to be a part of it. Work engagement is a positive, fulfilling psychological condition associated with work, and is a concept characterized by energy, enthusiasm, and immersion (Schaufeli et al., 2002). Since some previous research has indicated that engagement is a psychological condition with the potential to create resources useful for solving issues in stressful situations (Bermejo-Toro et al., 2015), it is considered to function as a type of capital that generates problem-solving methods.

2.3.3. Health capital

Grossman (1972) proposed a health capital theory in which *health* is regarded as a target of capital accumulation (as is the case with education and finance), is increased by investment, and naturally wears out over time. One's lifespan generally depends on health capital, which is depleted with age. However, investment in one's health capital can reduce depletion and, indeed, increase health capital. Therefore, setting time aside to invest in personal health, such as undergoing checkups, ensur-

ing nutrient intake, and exercising, increases health capital and, consequently, the useful time available for future productive activities. Additionally, Arrow et al. (2014) developed a model to examine the impact of health capital on well-being by dividing human capital and health capital. Estimates showed that a substantial increase in health could cause only a slight increase in Gross Domestic Product (GDP), and there was no evidence that health improves productivity in developed countries. However, health has been shown to be able to contribute to improved well-being.

In general, factors such as macro-level data (e.g., life expectancy, average healthy life expectancy, and mortality rate), objective health (e.g., body mass index, medical examination results, physical function, and sick absence), and subjective health (e.g., subjective health view and mental health) are utilized to measure health capital. In research targeting teachers, measuring health capital by using mental health indicators, such as burnout, has become mainstream. Specifically, the association between mental health as health capital (e.g., burn-out control) and well-being was demonstrated in a survey targeting teachers (Høigaard et al., 2012).

2.4. Research objectives

The purpose of this study was to elucidate the effects of teachers' career capital on well-being by considering the effects of workplace environment, work-related factors, and individual attributes. The impact process in which teachers accumulate and effectively utilize human, psychological, or health capital to improve well-being has been examined in several of the aforementioned studies (Chi et al., 2014; Demir, 2018; Huang & Yin, 2018; Kurt & Demirbolat, 2019). However, these studies addressed only some aspects of career capital, and it is still unclear what aspect actually defines teachers' well-being. Moreover, these previous studies used small-

scale samples, and had limitations such as confounding factors and the effect of group-level variables not being taken into consideration in the analytical model. Given these limitations, the present study aimed to achieve the research objectives using the following methods.

3. Methods

3.1. Survey respondents and procedures

A survey was conducted as part of the Prefectural School Teacher Work Improvement Project sponsored by the Board of Education in A Prefecture. A total of 4362 teaching staff members working in 76 prefectural schools in A Prefecture were recruited, and 3649 responses were obtained (response rate: 83.7%). Finally, data of 2028 teachers from 53 prefectural high schools³ were analyzed in the present study.

The study was conducted in November 2019 using an online survey as part of A Prefecture's Work Style Reform Project. Data collection from and processing of the online questionnaire were carried out in accordance with the Personal Information Regulations of the Board of Education in A Prefecture and the Ehime University Survey Code of Ethics. This study was a secondary analysis of administrative data collected through the survey.

3.2 Survey items

3.2.1. Well-being

Subjective well-being was established as a surrogate indicator of well-being, and was measured with a general well-being scale (Fordyce, 1988). The survey asked the teaching staff to indicate their perceived level of general well-being in the past month on an 11-point scale ranging from 0 to 10.

3.2.2. Human capital

Professional development was established as a surrogate indicator of human capital. Referring to

measurement items on the TALIS 2018 (OECD, 2019), nine professional development opportunities were established (specific example issues for each item were presented, such as face-to-face lectures and seminars, online lectures and seminars, research presentations by teachers and researchers, meetings to discuss educational issues, programs to acquire formal credentials, visits to other schools, official school observational and advisory activities by colleagues, self-observation and coaching activities, participation in research groups for teachers' professional development, reading specialized documents and books, and sending teachers to graduate school). The survey asked respondents to answer *yes* if they had participated in these opportunities in the past 12 months or *no* if they had not. The total number of items for which they selected *yes* were summed to determine indicators. The reliability test results showed a Cronbach's α of 0.66 and Guttman's split-half reliability confidence of 0.61.

3.2.3. Psychological capital

Work engagement was established as a surrogate indicator of psychological capital. The Utrecht Work Engagement Scale (UWES) was applied to measure work engagement (Schaufeli et al., 2002). The survey used a short Japanese version of the UWES⁴ in which three subfactors (vitality, enthusiasm, and immersion) are measured by a total of nine items (three items per subfactor). A seven-point scale, ranging from *not feeling at all* (0 points) to *always feeling* (6 points), was used. The total possible score is 54 points and is calculated simply by adding the nine items. The reliability test results showed a Cronbach's α of 0.94 and Guttman's split-half reliability coefficient of 0.89.

3.2.4. Health capital

Depressive tendencies were established as a surrogate indicator of health capital. The Kessler

Psychological Distress Scale (K6)⁵ was used to measure depressive tendencies (Kessler et al., 2003). The K6 is a psychological stress scale designed to screen for mental health conditions, such as depression and anxiety disorder. It has only a few question items, and its effectiveness has been confirmed (Furukawa et al., 2008). Respondents answered six items related to depressive tendencies based on whether they had been felt in the past month. A five-point scale, ranging from *not applicable at all* (0 points) to *always applicable* (4 points), was used. The total possible score is 24 points, calculated by simply adding the six items. The reliability test results showed a Cronbach's α of 0.87 and Guttman's split-half reliability coefficient of 0.86.

3.2.5. Control variables (individual-level)

As individual attribute factors, two variables—gender (male and female) and age (20s, 30s, 40s, and 50s or older)—were set. Four variables were set as work-related factors: employment type (part-time or full-time), transfer to another school within A prefecture in fiscal year 2019 (yes or no), type of participation in extracurricular activities (in charge or not in charge), and overtime hours per month (0–45, more than 45 but less than 60, more than 60 but less than 80, more than 80 but less than 100, and more than 100).

3.2.6. Control variables (school-level)

The following workplace environment factors were included: school size (Z-score for the number of teachers), proportion of male teachers, teachers in their 50s or older, part-time teachers, transferred teachers, and teachers in charge of extracurricular activities, crossing the *karoshi* line (a Japanese term that translates to death by overwork; i.e., proportion of teachers with 80 hours or more overtime per month), and subjective well-being of the principal (transferring data from the principals'

responses).

3.3 Analytical strategy

To explore the research objectives, a multilevel analysis (Models 0 to 5) was performed with individual-level subjective well-being as a dependent variable. Model 0 was a null model, in which explanatory variables were not input, and served as a reference point. In Model 1, individual attributes (two variables) were input as control variables. In Model 2, additional variables of work-related factors (four variables) were input. In Model 3, three additional variables of teachers' career capital (professional development as a surrogate indicator, work engagement, and depressive tendencies) were input. In Model 4, additional workplace environment factors (eight variables) were introduced as control variables. Finally, Model 5 was designed to additionally introduce interaction terms of individual-level and school-level variables. Model examined the possibility in which the relationship between the three variables of career capital and subjective well-being was moderated by teachers' workplace environment factors. In this case, the three variables used as workplace environment factors, which indicated difficulties in the environment, were the proportion of part-time teachers, the proportion of transferred teachers, and crossing the *karoshi* line.

For multilevel analysis, it is necessary to confirm the distribution shape of the dependent variable. Descriptive statistics values for subjective well-being at the individual level (N=2028) were as follows: mean 6.02, standard deviation 1.99, range 1 to 10, median 6, mode 5, skewness -0.34, and kurtosis -0.10. A Kolmogorov-Smirnov normality test showed a statistical value of 0.13 ($p = 0.00$), in which the condition was not satisfactorily met. However, it had a distribution that was visually as close as possible to normal distribution. For teachers' subjective well-being, variance (disparity) was observed.

rved; thus, the individual- and school-level variables that could explain this variance were explored.

In the statistical analyses, IBM SPSS Statistics Base ver. 25.0 was used for descriptive statistics, reliability analysis, and correlation analysis. IBM SPSS Advanced Statistics ver. 25.0 was used for the multilevel analyses.

4. Results

4.1. Descriptive statistics

The descriptive statistics for the 18 study variables are presented in Table 1, and the correlation matrices for the continuous variables are shown in Table 2 (individual-level variables) and Table 3 (school-level variables).

The present study used data from high school teachers. First, it was essential to examine the characteristics of high school teachers' well-being and career capital. The score for subjective well-being was 6.02 points. In the Japan Cabinet Office Survey (Cabinet Office, 2019), a score of 5.89 was obtained for the general population in Japan (aged 15–89). Thus, it was apparent that the subjective well-being of high school teachers was relatively higher than that of general adults.

The correlation matrix of individual-level variables showed that subjective well-being had a statistically significant correlation with the surrogate indicators for career capital: professional development ($r = 0.05$, $p < .05$), work engagement ($r = 0.52$, $p < .01$), and depressive tendencies ($r = -0.53$, $p < .01$).

4.2. Multilevel model

4.2.1. Direct effects

Next, whether the effect of career capital on teachers' well-being would still be confirmed after controlling individual attribute factors (individual-level), work-related factors (individual-level), and

workplace environment factors (school-level) was examined. In Model 4, which introduced individual- and group-level variables (an optimal model as determined by the goodness-of-fit test results), no effect of professional development ($B = 0.02$, $p = n.s.$) was found; however, the positive effects of work engagement ($B = 0.76$, $p < .01$) and the negative effect of depressive tendencies ($B = -0.75$, $p < .01$) were demonstrated. The accumulation of psychological capital raised teachers' well-being, while the depletion of health capital reduced it. No association was found between professional development and teachers' well-being. Professional development had a weak correlation with well-being ($r = 0.05$, $p < .05$), but the effect disappeared when the regression was performed concurrently with other variables. Moreover, Chi et al. (2014) and Huang and Yin (2018), who set the number of years of teaching experience as a surrogate indicator for human capital, stated that well-being is highly prevalent among veteran teachers; however, the results of this study did not indicate such relationships.

4.2.2. Moderation effect

In Model 5, the possibility that the relationship between career capital and well-being may be moderated by workplace environment was analyzed. Three variables related to difficulties in the workplace environment—proportion of part-time teachers, proportion of transferred teachers, and crossing the *karoshi* line—were established as the moderator variables for the relationship between career capital and well-being.

When the interaction term (3×3) between these three variables and the three variables of career capital was input, there were statistically significant effects in work engagement \times proportion of part-time teachers ($B = 1.46$, $p < .01$) and work engagem-

Table 1. Descriptive Statistics for Variables Used in the Analysis

Variables	M	SD	Min.	Max.	%	N
Continuous variables						
Subjective well-being	6.02	1.99	0.00	10.00		2, 028
Professional development	3.75	1.94	0.00	9.00		2, 028
Work engagement	29.01	9.91	0.00	54.00		2, 028
Depressive tendencies	5.45	4.60	0.00	24.00		2, 028
Gender dummy (Male 1, Female 0)	0.67	0.47	0.00	1.00		2, 028
Employment type dummy (Part-time 1, Full-time 0)	0.21	0.41	0.00	1.00		2, 028
Transfer dummy (Yes 1, No 0)	0.18	0.39	0.00	1.00		2, 028
Extracurricular activities dummy (In charge 1, Not in charge 0)	0.91	0.28	0.00	1.00		2, 028
School size	-0.45	1.08	-2.48	2.20		53
Proportion of male teachers	0.66	0.10	0.44	0.89		53
Proportion of teachers in their 50s or older	0.38	0.11	0.15	0.73		53
Proportion of part-time teachers	0.23	0.10	0.06	0.53		53
Proportion of transferred teachers	0.19	0.07	0.09	0.39		53
Proportion of teachers in charge of extracurricular activities	0.91	0.05	0.73	1.00		53
Crossing the <i>karoshi</i> line	0.30	0.15	0.00	0.67		53
Principal's subjective well-being	6.92	1.47	3.00	10.00		53
Categorical variables						
Age 20s					12.0	243
30s					18.0	366
40s					31.0	629
50 years old or older					39.0	790
Overtime hours 0-45					31.3	635
More than 45 but less than 60					17.8	361
More than 60 but less than 80					17.6	356
More than 80 but less than 100					14.0	283
More than 100					19.4	393

Table 2. Correlation Matrix for Individual-level Variables

	1	2	3	4	5	6	7	8
1. Teachers' subjective well-being	1.00							
2. Gender dummy	-0.01	1.00						
3. Employment type dummy	0.53*	-0.08**	1.00					
4. Transfer dummy	0.00	-0.04*	0.14**	1.00				
5. Extracurricular activities dummy	-0.09**	0.20**	-0.46**	-0.05	1.00			
6. Professional development	0.05*	0.01	-0.35**	-0.02	0.27**	1.00		
7. Work engagement	0.52**	0.08**	0.06**	0.06*	-0.02	0.12**	1.00	
8. Depressive tendencies	-0.53**	-0.03	-0.09**	0.01	0.06**	0.01	-0.36**	1.00

Note: $N = 2028$; ** $p < .01$, * $p < .05$.

Table 3. Correlation Matrix of School-level Variables

	1	2	3	4	5	6	7	8
1. School size	1.00							
2. Proportion of male teachers	0.22	1.00						
3. Proportion of teachers aged 50 or above	0.10	-0.07	1.00					
4. Proportion of part-time teachers	-0.40**	0.19	0.25	1.00				
5. Proportion of transferred teachers	-0.17	-0.04	-0.24	-0.19	1.00			
6. Proportion of teachers in charge of extracurricular activities	0.11	0.04	-0.38**	-0.41	0.10	1.00		
7. Crossing the <i>karoshi</i> line	0.42**	0.00	-0.18	-0.50**	-0.06	0.22	1.00	
8. Principal's subjective well-being	-0.02	-0.16	0.08	0.03	0.24	-0.04	-0.24	1.00

Note: $N = 53$; ** $p < .01$, * $p < .05$; *karoshi* = Japanese for "death by overwork," *karoshi* line = 80 hours or more overtime per month.

Table 4. Multilevel Models with Subjective Well-being as a Dependent Variable

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Intercept	6.02**	0.07	6.20**	0.11	5.98**	0.23	6.26**	0.18	5.77**	1.08	5.90**	1.31
Individual-level												
Gender dummy			-0.07	0.09	0.10	0.10	-0.15*	0.08	-0.16*	0.08	-0.16*	0.08
Age 20s			-0.20	0.15	0.00	0.16	0.09	0.12	0.07	0.12	0.01	0.12
30s			-0.26*	0.12	-0.03	0.13	0.15	0.10	0.14	0.10	0.09	0.10
40s			-0.20	0.11	-0.05	0.11	0.03	0.08	0.01	0.08	0.00	0.08
50s or older			0	0	0	0	0	0	0	0	0	0
Employment type dummy					0.01	0.13	-0.21	0.10	-0.20	0.11	-0.18	0.10
Transfer dummy					-0.06	0.12	-0.14	0.09	-0.14	0.09	-0.13	0.09
Extracurricular activities dummy					-0.43*	0.18	-0.39**	0.14	-0.39**	0.14	-0.36*	0.14
Overtime hours 0-45					0.62**	0.14	0.38**	0.11	0.36**	0.12	0.34**	0.12
45-60					0.55**	0.15	0.31**	0.11	0.29*	0.12	0.27*	0.12
60-80					0.49**	0.15	0.35**	0.11	0.32**	0.12	0.31**	0.12
80-100					0.05	0.15	0.06	0.12	0.05	0.12	0.03	0.12
More than 100					0	0	0	0	0	0	0	0
Professional development							0.02	0.04	0.02	0.04	0.10	0.10
Work engagement							0.76**	0.04	0.76**	0.04	0.02	0.02
Depressive tendencies							-0.76**	0.04	-0.75**	0.04	-0.21**	0.04
School-level variables												
School size												
Proportion of male teachers									0.00	0.05	0.00	0.05
Proportion of teachers in their 50s or older									0.75	0.50	0.78	0.50
Proportion of part-time teachers									-0.51	0.51	0.48	0.51
Proportion of transferred teachers									-0.92	0.63	-5.54**	1.91
Proportion of teachers in charge of extracurricular activities									-0.52	0.70	-4.99**	2.34
Crossing the <i>karoshi</i> line									0.35	0.98	0.35	0.99
Principal's subjective well-being									-0.31	0.34	0.37	1.12
									0.04	0.03	0.04	0.03

Continued

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Individual level x School level												
Professional development × Proportion of part-time teachers											-0.22	0.23
Professional development × Proportion of transferred teachers											-0.10	0.29
Professional development × Crossing the <i>karoshi</i> line											-0.08	0.13
Work engagement × Proportion of part-time teachers											0.15**	0.48
Work engagement × Proportion of transferred teachers											0.16**	0.59
Work engagement × Crossing the <i>karoshi</i> line											-0.01	0.28
Depressive tendencies × Proportion of non-regular teachers											0.19	0.49
Depressive tendencies × Proportion of transferred teachers											0.03	0.59
Depressive tendencies × Crossing the <i>karoshi</i> line											-0.00	0.27
Random effect												
Intra-school variable	3.834**	0.122	3.829**	0.122	3.760**	0.120	2.283**	0.073	2.283**	0.073	2.278**	0.073
Inter-school variable	0.120**	0.044	0.121**	0.045	0.122**	0.044	0.023	0.017	0.021	0.018	0.020	0.017
Goodness-of-fit test												
-2LL	8523		8527		8500		7476		7472		7492	
AIC	8527		8531		8504		7480		7477		7496	
BIC	8539		8542		8516		7491		7488		7507	

Note: Individual level $N = 2028$, School level $N = 53$; ** $p < .01$, * $p < .05$; *karoshi* = Japanese for "death by overwork," *karoshi* line = 80 hours or more overtime per month.

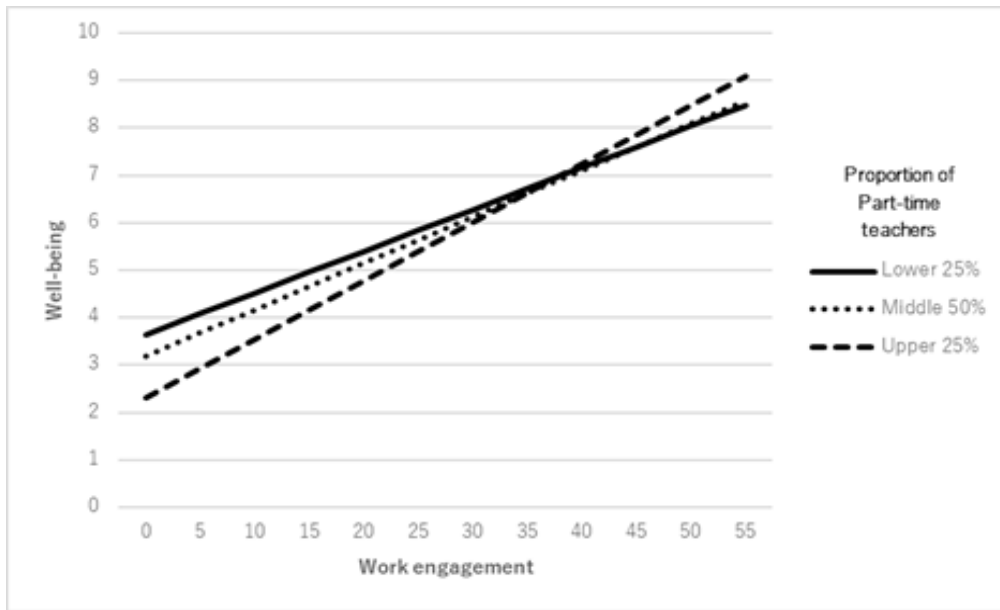


Figure 1. Moderation Effect of the Proportion of Part-time Teachers

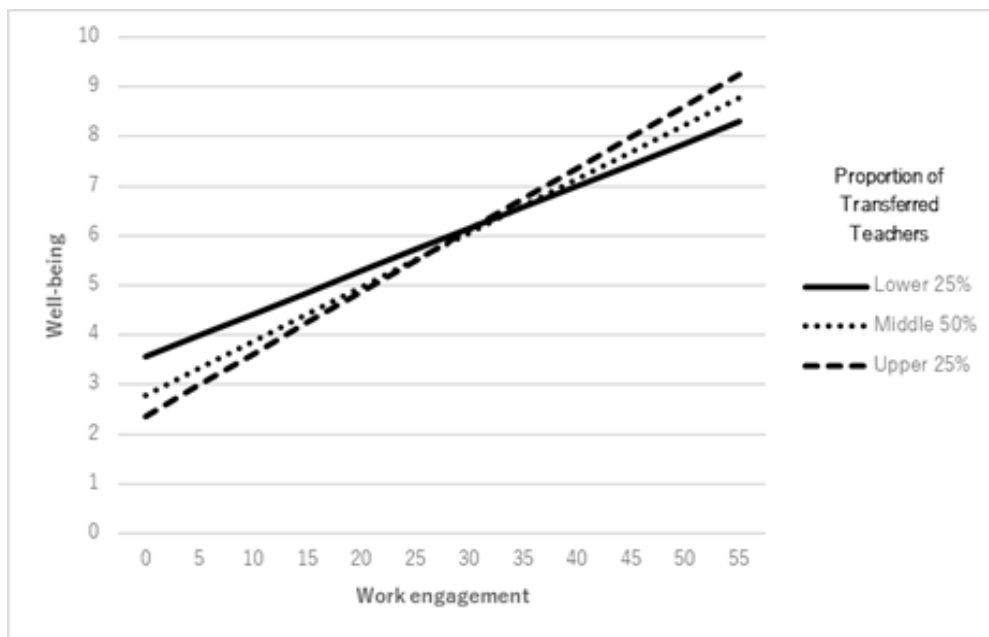


Figure 2. Moderation Effect of the Proportion of Transferred Teachers

ent × proportion of transferred teachers ($B = 1.53$, $p < .01$). The two sets of interactions are illustrated in Figures 1 and 2. The part-time teachers and transferred teachers were categorized into the high group (top 25%), middle group (middle 50%), and low group (bottom 25%), and the distribution of responses from teachers in each category was expressed by a regression line. Many schools with a

high proportion of part-time teachers and transferred teachers are non-preparatory schools located far from urban and suburban areas or in rural areas. The relationship between work engagement and well-being was stronger for teachers working in schools with such difficult environments. The relationship between work engagement and well-being was found to be moderated

by the type of school where teachers work, especially for the difficulties in their workplace environment.

4.2.3. Individual attributes, work-related factors, and workplace environment factors

Model 4, the optimal model, did not show a direct effect of workplace environment factors on well-being, but was found to have a direct effect on individual attributes and work-related factors. Regarding individual attributes, the results showed that the well-being of male teachers was lower than that of their female counterparts ($B = -0.16, p < .05$). For work-related factors, the following results were obtained: extracurricular activities dummy variable ($B = -0.39, p < .05$), 0–45 overtime hours ($B = 0.36, p < .01$), 45–60 overtime hours ($B = 0.29, p < .05$), and 60–80 overtime hours ($B = 0.32, p < .01$). Thus, the results showed that well-being was low for the teachers in charge of extracurricular activities and high for those who worked less overtime.

What then explains teachers' well-being more strongly in terms of career capital factors, individual attributes, work-related factors, and workplace environment factors? Looking at the random effects of each model, the following results were obtained: individual attribute factors (0.13%; intra-school variance (3.834–3.829)/3.834), work-related factors (1.80%; intra-school variance (3.829–3.760)/3.829), career capital factors (39.28%; intra-school variance (3.760–2.283)/3.760), and workplace environment factors (8.70%; inter-school variance (0.023–0.021)/0.023).

Career capital factors accounted for approximately 40% of the variance in well-being variance, while workplace environment factors accounted for approximately 9%, indicating that individual attribute factors and work-related factors explained little of the variance in well-being. Work environment factors, such as overtime

hours and extracurricular activities, were associated with a decrease in teachers' well-being. However, whether the teachers were able to perceive work engagement through their jobs and reduce depressive tendencies were more important in enhancing their well-being.

5. Discussion

This study aimed to clarify the impact of career capital on teachers' well-being by considering the effects of workplace environment, work-related factors, and individual attributes. After analyzing the descriptive statistics, the effect of the career capital on teachers' well-being was analyzed using a multilevel model that controlled for individual attribute factors (individual-level), work-related factors (individual-level), and workplace environment factors (school-level).

The results shown that teachers' accumulation and utilization of psychological capital (work engagement) increased their well-being, while the depletion of their health capital (depressive tendencies) decreased it. Kurt and Demirbolat (2019) and Demir (2018) also reported positive effects of psychological capital on teachers' well-being; however, these studies were not adequately designed to control confounding factors for individual- and school-level variables. The current study performed an analysis that controlled for individual attribute factors (individual-level), work-related factors (individual-level), and workplace environment factors (school-level), which contributes to increasing the validity of the results. Similarly, this study also examined the effect of health capital on teachers' well-being by controlling various individual- and school-level factors (negative effects of depressive tendencies), which goes beyond the indication of simple correlations between health capital and well-being.

Given the finding that career capital variables accounted for approximately 40% of the total varia-

nance in well-being, focusing on work engagement and depressive tendencies is essential to improve teachers' well-being. Previous studies have clarified that teachers' work engagement is influenced by the recognition of organizational support from principals and colleagues (Kose, 2016; Zahed-Babelan et al., 2019) and the recognition of relationships based on trust among managers, colleagues, students, guardians, and other stakeholders (Gülbahar, 2017). Moreover, the effectiveness of social networking has shown to reduce depression (Rosenquist et al., 2011). Based on the results of these previous studies, it can be inferred that the degree of social capital, such as social networks and trust surrounding teachers, contributes to increasing teachers' well-being, as does psychological capital (work engagement) and health capital (depressive tendencies). Although not included as a research target in the present study, the survey results and previous research findings suggest that investment in building social capital may hold important value in improving teachers' well-being.

Furthermore, well-being was more strongly defined by psychological capital (work engagement) for the teachers working in schools where the proportions of part-time teachers and transferred teachers were high—the former ranged from 6% to 53%, and the latter from 9% to 39% (see Table 1 above). When these figures are high, school management is generally not stable, and there is a greater

likelihood of the workload being distributed unevenly among some teachers, as well as more difficulties in sharing knowledge and information and a weakening cooperative system weakening. The well-being of teachers working in such schools may be more strongly defined by work engagement. In struggling schools where the proportions of part-time teachers and transferred teachers are high, it is necessary to ensure effective school management by considering teachers' work engagement. In this study, a novel finding was noted in that the relationship between work engagement and well-being varied depending on the school situation.

The results further showed that the amount of overtime worked impacted teachers' well-being. This finding supports previous findings from Aelterman et al. (2007), Skaalvik and Skaalvik (2015), and Spilt et al. (2011). Japan's overtime hours are the highest in the world (OECD, 2014, 2019), and long working hours are regarded as a key issue in educational policies. This study indicates that teachers' long working hours undermine their well-being; thus, the level at which overtime hours start to affect teachers' well-being should be explored. To this end, Figure 3 shows the relationship between monthly overtime hours and teachers' well-being (Z-value), while the relationship with the three types of career capital variables (Z-values) is also examined for comparison⁶.

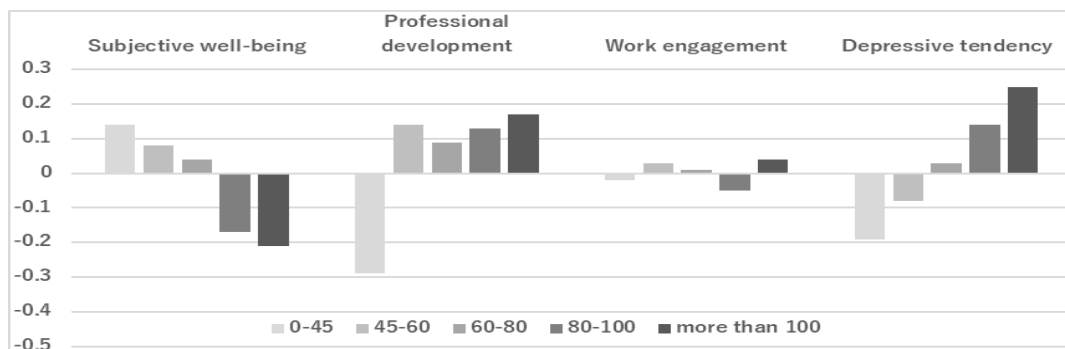


Figure 3. Relationship Between Monthly Overtime Hours and Well-being and Career Capital

5.1. Practical implications

The accumulation and utilization of teachers' career capital determines their well-being—psychological capital (work engagement) and health capital (depressive tendencies) to be specific. Career capital determines teachers' well-being more than other factors, such as individual attributes, work-related factors, and workplace environment. Based on the results of previous studies that suggested psychological and health capital are influenced by social capital in the workplace, it is possible to identify the structural pathways where the relationship based on trust with students, students' guardians, colleagues, and supervisors in the workplace creates job satisfaction and protects mental health, which, in turn, leads to teachers' well-being. These pathways have a greater influence on well-being than reducing the burdens of extracurricular activities or overtime hours. Educational leaders, such as school principals, need to utilize approaches that accumulate psychological and health capital by fostering teachers' social capital. To reduce overtime hours, it is necessary to review various events and conferences; however, it is also essential to consider whether reducing the workload of teachers would result in damage to social capital.

In particular, the heads of schools with high proportions of part-time teachers and transferred teachers need further consider methods for fostering social capital. It can be inferred that schools with these characteristics have relatively weak levels of social capital among their staff. In situations where social capital has not been created, teachers' well-being decreases significantly when they are unable to feel a sense of work engagement. When there is lack of a vibrant daily interaction with trusted colleagues, teachers' well-being is largely influenced by job satisfaction. In such day-to-day situations, well-being is maintained to a certain extent, even if job satisfaction does not increase. Thus, it can be inferred that social capital in school organizations functions as a safety net for teachers' well-being when there is no sense of job satisfaction.

5.2. Limitations and future research

This study has some limitations, as well as presents some possible directions for future research. The first limitation relates to the accumulation of longitudinal data. This study used cross-sectional data obtained by selecting one particular timepoint; hence, it is difficult to determine causal relationships, interpret transitions over time, or predict future outcomes. In subsequent research, it will be necessary to establish a link based on school ID and teacher ID and generate panel data.

The second limitation was the establishment of surrogate indicators for well-being and career capital. In this study, observable variables—subjective well-being for well-being, human capital (professional development) for career capital, psychological capital (work engagement), and health capital (depressive tendencies)—were measured and analyzed. However, human capital may also include the number of years of teaching experience, educational background (bachelor's degree, master's degree, and doctoral degree), and experience in managerial or senior positions. As for health capital, only the psychological aspects were measured; therefore, there are limitations as evidenced in the fact that the study does not include physical health factors.

The third limitation is that, within teachers' career capital, economic, cultural, and social capital are not included in the analytical model. This is also a limitation of using secondary data. In future research, it will be necessary to construct an analytical model that adds economic, cultural, and social capital to human capital, psychological capital, and health capital, to examine the relationship between these factors and well-being. In particular, it would be possible to develop an indirect effect hypothesis in which economic, cultural, and social capital have not only a direct effect but also an indirect effect on well-being through human, psychological, and health capital.

The fourth limitation is the implementation of descriptive and interpretive analyses for the process of accumulating and utilizing career capital. Although the quantitative approach used in this study was able to examine the effects of accumulated career capital,

the process of utilizing this capital has not been investigated. In the future, I would like to conduct a study to clarify the capital utilization process using both descriptive and interpretive approaches.

6. Conclusion

The purpose of this study was to explore the effect of teachers' career capital on their well-being by considering the effects of workplace environment, work-related factors, and individual attributes. Multilevel analysis yielded the following three findings. First, teachers' accumulation and utilization of psychological capital (work engagement) can increase their well-being, while the depletion of health capital (depressive tendencies) can decrease it. Second, teachers who work in schools where the proportions of part-time teachers and transferred teachers are high are more strongly affected by psychological capital (work engagement). Third, teachers' well-being is affected by the amount overtime they work and, in particular, there is a clear decline in well-being for teachers whose overtime hours exceed 80 per month. Based on the results of these analyses and those of previous studies, it is suggested that, to improve teachers' well-being, educational leaders should focus on cultivating social connections with teachers—in other words, building social capital, together with approaches to psychological capital and health capital. However, considering the study's limitations, I would like to conduct further research while carefully addressing these limitations.

Notes

- 1) This is an estimate based on the 2016 School Teacher Statistics Survey and the statistics prepared by the Ministry of Education, Culture, Sports, Science and Technology. The figure was calculated by dividing the number of people who left the job for reasons other than reaching the mandatory retirement age by the number of teachers. The results were as follows: 1.5% for public elementary schools (6007 teachers who left the job / 410 397 teachers), 1.5% for public junior high schools (3459 teachers who left the job / 236 947 teachers), and 1.0% for public high schools (1775 teachers who left the job / 173 473 teachers).
- 2) In addition to these three types of capital, there are others,

such as economic, cultural, and social capital, that increase teachers' well-being. It is believed that teachers achieve well-being by increasing their income, fostering cultural knowledge and customs, and developing relationships with others through their life experiences. Ideally, these capital effects should be incorporated into the explanatory model of well-being. However, in this study, which used administrative management data (secondary data), there are no surrogate indicators corresponding to these effects; therefore, economic, cultural, and social capital could not be incorporated into the model.

- 3) Special education schools (10), evening high schools (10), and secondary education schools (3) were excluded from the analysis because the age group of the targeted students and teachers' work type were unique. Teachers included certified teachers, school (assistant) nurses, full-time lecturers, part-time lecturers, and laboratory assistants.
- 4) <https://hp3.jp/wpcontent/uploads/2018/01/UWES1.3.pdf>
- 5) https://www.ncnp.go.jp/nimh/behavior/phn/depanx_manual.pdf
- 6) Analysis of variance results were as follows: subjective well-being ($F = 10.19$, $p < .01$), function development ($F = 20.40$, $p < .01$), work engagement ($F = 0.47$, $p = \text{n.s.}$), and depressive tendencies ($F = 14.36$, $p < .01$).

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