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A Study of the Effect of Age on Employee Engagement

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Abstract

Stock market watchdogs in the U.S. and Japanese government have mandated that listed companies disclose human capital in their corporate IR. Human capital includes employee engagement, which is considered important. Age effects on employee engagement are assumed, but have not yet been fully researched. In this study, we used employee engagement survey data from a semiconductor company to identify characteristics of each age group. It found that engagement scores were higher in the younger age groups and once dropped in the 30-39 age group, but that engagement scores increased as age groups increased. Based on interviews with HR executives from the data provider and previous research, we concluded that this change was reasonable.

Keywords: age effects, box plot, employee engagement, formal and informal organizations, job engagement

1 Introduction

The Financial Services Agency has mandated human capital disclosure for publicly traded companies starting April 2023[1]. More companies are adopting employee engagement (EE) as a component of human capital. This is due to the fact that the companies are oriented toward management that focuses not only on business performance but also on a wide range of stakeholders. Among the top 10 Japanese companies with the largest number of consolidated employees, 5 companies disclosed EE in their sustainability reports or other reports in 2021. Furthermore, by 2023, all 10 companies have disclosed EE [2]. According to the Nihon Keizai Shimbun, an increasing number of companies have introduced schemes that link EE to corporate executive compensation [3]. The number of major Japanese companies introducing the system in 2023 doubled from the previous year to 24 [3]. For example, NEC has linked 20% of executive bonuses linked to performance to the engagement score since FY2023 [3]. NEC's objective is to "change the culture to a corporate culture where everyone can think independently and try out new ways of doing things one after another" [3]. Executive salaries at Mitsui, Nissui, and Mitsui Chemicals are linked to EE scores [3]. One reason for linking EE to executive compensation is because of the correlation between financial indicators and EE. According to Link and Motivation Inc., there is a positive correlation between employee engagement and return on equity (ROE), return on invested capital (ROIC), and price book value ratio (PBR). Companies with higher EE have higher ROE, ROIC and PBR [4].

According to the Ministry of Health, Labour and Welfare (MHLW), an international comparison of work engagement (WE) shows that Japanese companies score low on engagement [5]. In addition, according to Gallup's 2022 EE score measurement, the percentage of enthusiastic employees in Japanese companies is 5% [6]. The average percentage of enthusiastic employees at

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companies in the Organization for Economic Cooperation and Development (OECD) member countries is 20%, indicating that Japanese companies have relatively low employee engagement [6]. One possible reason for the low scores of Japanese companies is that Western survey items are directly used in EE surveys in Japanese companies. Although employee engagement is widely used in practice in Japanese companies, academic research on EE in Japan has been less successful than in the West [7]. Therefore, it is difficult to say that the survey items for engagement in Western companies are necessarily in line with those in Japanese companies. Therefore, the survey may not be appropriate.

In recent years, the way of working has changed dramatically in Japan: during the bubble economy of the early 1990s, "Moretsu employees (work hard)" were encouraged to work 24 hours a day. Employees who started working during this period were mostly between the ages of 50-59. After the bursting of the bubble economy, most of the employees who started working during the so-called " period of Japanese employment ice age" were in their 40-49 age group. The majority of employees who started working during the "prolonged slump" of the Japanese economy were in the 30-39 age group. In addition, employees in the 20-29 age group were the most likely to have started working during the period when management strongly announced the "end of lifetime employment," the "introduction of the job system," and the "reduction of working hours. Thus, the background at the time of employment for each age group is very different. For example, different age groups have very different attitudes toward changing jobs. Figure 1 shows the change in the multiplier for each year for employees who applied to job sites in April [8]. The study shows that between 2015 and 2019, the number of new hires registering on job search websites increased sharply. According to Duda, the company that conducted the survey, "One of the reasons for the increase is the change in work values among new workers, Generation Z, who entered the workforce in 2018 and beyond" [8]. Generation Z is predominantly 20-29 year olds. This group differs significantly from the 50-59 year olds who entered the company during the bubble period and were primarily employed for life. In other words, this indicates that different age groups have different attitudes toward working for companies.

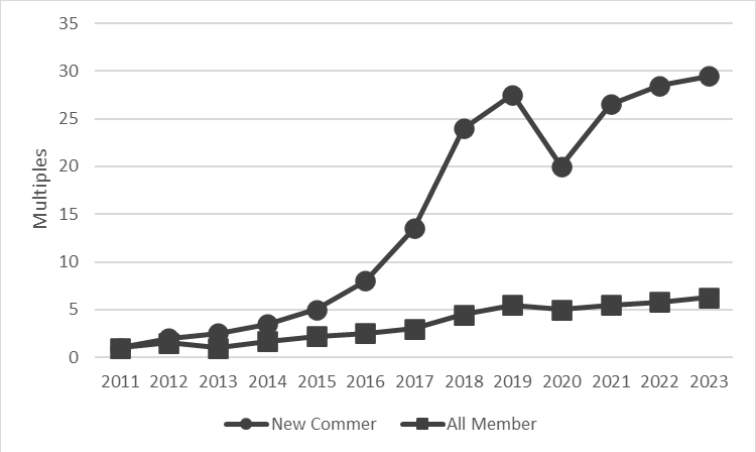

Figure 1: Increased number of employees registered on job search websites (2011 as 1)

Therefore, EE may also differ for each age group that entered the workforce at different times. Therefore, the purpose of this study is to clarify the characteristics of EE in Japanese companies by age group.

The remainder of this paper is organized as follows. Chapter 2 summarizes prior research on the concept of engagement. It also presents the differences in engagement by age group in prior research. It also presents a conceptual model of EE consisting of job engagement(JE), organization engagement(OE) in formal organization (OE-fo-org) and OE in informal organization (OE-info-org) to be evaluated for age groups. Chapter 3 presents the results of an analysis of EE scores for each age group based on data from an EE survey conducted by a semiconductor company. Chapter 4 discusses the EE scores for age groups. Chapter 5 concludes with a summary and future research directions.

2 Prior Research on the Concept of Engagement and the Impact of Age

2.1 Previous Studies on the Concept of Engagement

Kahn was the first to clarify the concept of personal engagement. According to Kahn, personal engagement is “the harnessing of organizational members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” [9] (pp.694). Kahn observed employees and identified three antecedents of personal engagement, “Psychological meaningfulness”, “Psychological safety” and “Psychological availability” [9].

- Psychological meaningfulness can be seen as a feeling that one is receiving a return on investments of one’s self in a currency of physical, cognitive, or emotional energy (pp.704).
- Psychological safety was experienced as feeling able to show and employ one’s self with-out fear of negative consequences to self-image, status, or career (pp.708).
- Psychological availability is the sense of having the physical, emotional, or psychological resources to personally engage at a particular moment (pp.714).

Studies on EE often cite Kahn's personal engagement.

According to Schaufeli & Bakker, WE is defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” [10] (pp.74). Schaufeli & Bakker also defined work engagement as a state of mind toward “work” [10]. Schaufeli & Bakker found that the three antecedents of work engagement are vitality, enthusiasm, and immersion [10].

- Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in the face of difficulties (pp.74)
- Dedication refers to being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge (pp.74)

- Absorption is characterized by being fully concentrated and happily engrossed in one's work whereby time passes quickly and one has difficulties with detaching oneself from work (pp.75)

Schaufeli & Bakker developed the Utrecht Work Engagement Scale (UWES) to enable measurement of WE score. The UWES measures the degree of vitality, enthusiasm, and immersion. The UWES measures vigor, dedication, and absorption with 17 questions. There is also a shortened version that measures with 9 questions. In addition, there is a very shortened scaled version done with 3 questions [11]. The UWES has been translated into many languages and used to measure WE in many countries. It is also widely used by doctors, nurses, and other medical professionals, and many studies have been reported.

According to Saks, EE was defined as "distinct and unique construct that consists of cognitive, emotional, and behavioral components that are associated with individual role performance" [12] (pp.602). Saks then separated employee engagement into JE, the state of engagement with the job, and OE, the state of engagement with the organization. Saks' questions for JE include UWES questions, and it is safe to assume that JE and WE are nearly identical. On the other hand, according to Saks et al. OE was defined as "the harnessing of organization members' selves to their organization role; in engagement, people employ and express themselves physically, cognitively and emotionally during organization role performances" [13] (pp.23). Saks explained JE and OE using the concept of social exchange theory (SET) [12]. According to Cropanzano et al., SET describes how relationships are initiated and maintained through the secure exchange of rewards and imposition of costs between individuals [14]. On the other hand, researchers do not agree on a method to measure EE, and there is no common gauge that can be used.

2.2 Previous Studies on Impact of Age on Engagement

WE for employees in each age group was revealed by the MHLW from UWES scores, as shown in Fig. 2 . Fig. 3 also shows WE scores by position. Both vertical axes are WE scores.

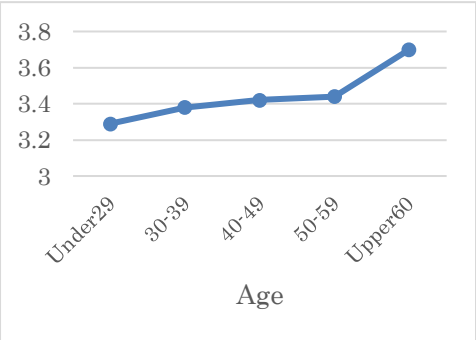

Figure 2: each age range[5](pp.178)

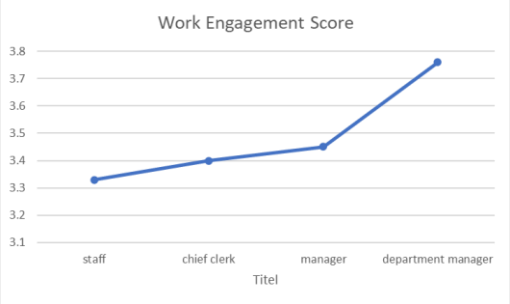

Figure 3: position[5](pp.178)

According to MHLW,

> By age or position, the WE score tends to increase with increasing age or position/responsibility. This trend may be due to the fact that as people age or increase in job position or responsibility, their self-efficacy (confidence in their work) and sense of growth through their

work increase, they have more control over their work, and they have more opportunities to take on more difficult tasks [5] (pp.177).

According to Douglas & Roberts, “The relationship between employee age and work engagement was investigated, and found employees over the age of 50 had higher work engagement scores as well as higher dedication and absorption in their work than the employees under the age of 50” [15] (pp.10). They attribute this to the fact that "The older employees having higher work engagement is likely as a result of increased personal competencies gained as one ages and having more experience in both work and life which provides more resources to manage demands faced at work" [15] (pp.10).

James & Bessen examined work engagement and reported that, on average, engagement levels were higher for those aged 50 to 64 and 65 and older than for those under 50, as shown in Figure 4 [16] (pp.12)

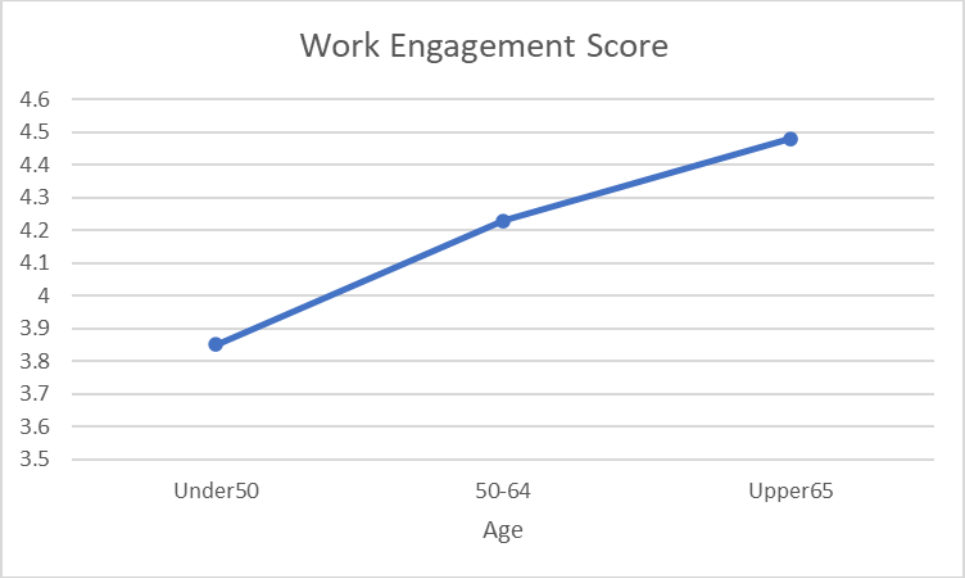

Figure 4: Work Engagement Score for age [16] (pp.12)

Sammarra et al. studied the relationship between age and WE. Unlike other studies, they found a relationship not only with simple age, but also with relational age and perceived age-related treatment. The results showed that relational age was positively associated with older worker engagement when the perceived level of positive age-related treatment was high. On the other hand, when older workers perceived that they were treated unfairly based on their age, higher relationship age was associated with lower WE. For younger workers, engagement for work was positively associated with perceptions of positive age-related treatment, regardless of the relationship age. Sammarra et al. found that “chronological age per se cannot necessarily help to predict the level of employees’ work engagement” [17] (pp.12). It is clear that age-related treatment conditions and other factors affect WE.

In a previous study, WE was investigated by age using the UWES. The results suggest that WE scores do not change with simple age, but rather with age-related treatment and correct evaluation by coworkers, etc. WE represents psychological states related to work, and cannot

represent treatment or relationships with coworkers. Evaluation by EE, which can also assess relationships with coworkers, is needed.

2.3 Previous Studies of EE That Also Show Relationships with Coworkers

Ikemizu et al. used Saks' EE and Barnard's organizational theory to clarify a new EE conceptual model that divides OE into OE-fo-org and OE-info-org [18]. Based on previous research, Ikemizu defined EE as "the psychological state in which employees act positively and proactively toward their work, the people involved, and the organization in which they work" [2] (pp.37). Formal and informal organizations in Barnard's theory of organization are defined as follows [19],

- Formal organizations: A system of consciously coordinated activities or forces of two or more persons (pp.81).
- Informal organizations: The linkage of groups of people, such as naturally occurring personal contacts and interactions(pp.120).

Ikemizu also defined OE as "the utilization of oneself as a member of an organization in one's respective roles in formal and informal organizations [2] (pp.48). Thus, OE-fo-org is about leveraging oneself into a role in a formal organization. On the other hand, OE-info-org is about leveraging oneself into a role in the informal organization. Then, Ikemizu created the conceptual model of employee engagement shown in Figure 5 [2] (pp.48)

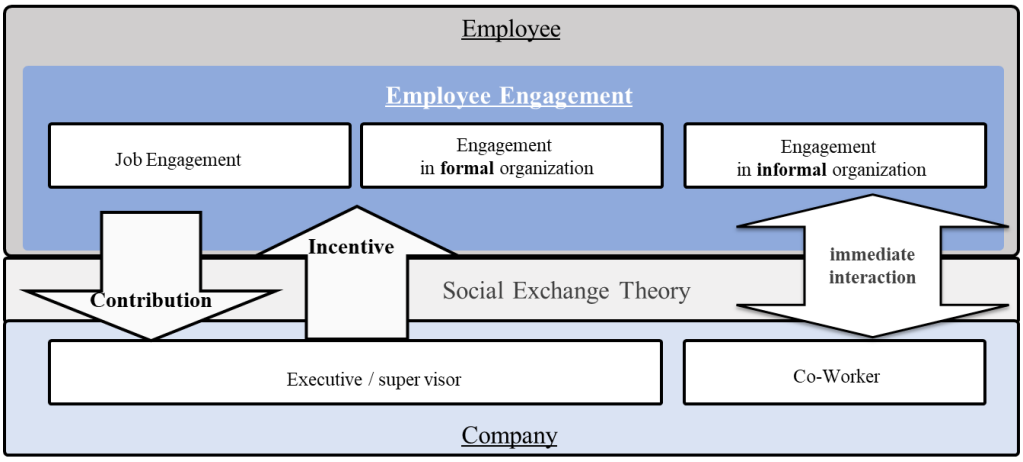

Figure 5: Concept model of Employee Engagement [2] (pp.48)

Ikemizu used the employee engagement questionnaire data shown in Table 1 to clarify the conceptual model in Figure 5. The questionnaire data were obtained from Japanese semiconductor company A. The age distribution of respondents is shown in Figure 6. The questions used in the survey are shown in Appendix 1 [2].

Tabel 1: Survey Characteristics [2]

Business Type	Semiconductor Manufacturing
Number of employees	404
Number of Responses / Response Rate	386 / 95.5%
Number of questions	13
Answer Format	Selected by 5 case method using in-house web 5 Very often, 4 Sometimes Often, 3 No Choose, 2 Rarely, 1 Almost never

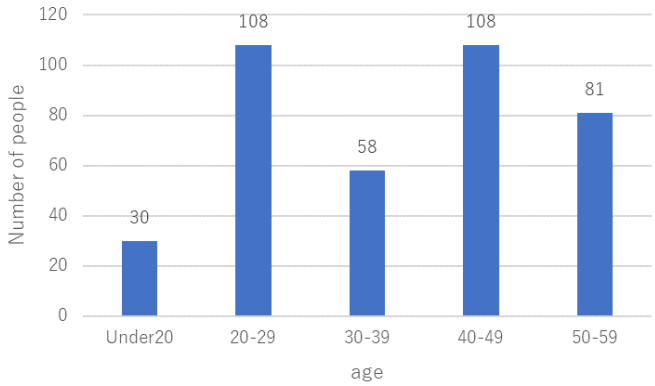

Figure 6: age distribution [2]

Ikemizu performed factor analysis and structural equation modeling analysis and found that the three engagements are strongly correlated but significantly different [2]. In addition, Ikemizu showed that there is a significant difference in the three types of engagement as shown in Figure 7, revealing that OE-info-org has the greatest impact on EE [2].

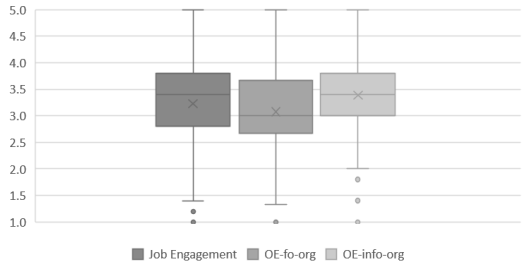

Figure 6: Comparison of Strength of Engagement [2]

Therefore, it can be seen that it is useful to separate JE, OE-fo-org and OE-info-org when measuring EE.

In summary of Chapter 2, we reviewed the concept of engagement in previous studies and found that engagement by age has been shown to differ. On the other hand, we found that prior studies measured only work-related engagement, and not OE, which is an important person-to-person relationship in the workplace. In measuring OE as well, we found it useful to use prior Ikemizu studies and data. In order to achieve the objectives of this study, Chapter 3 will analyze engagement by age group based on Ikemizu's previous studies.

3 Analysis of EE by Age Group

Using the questionnaire data presented in Table 1 and Figure 6, an analysis was conducted using box plots shown in Fig. 7, 8, 9, 10, and 11 by age group.

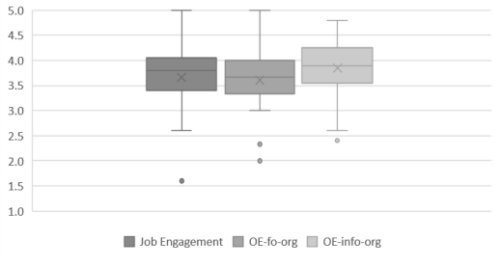

Figure 7: age under20

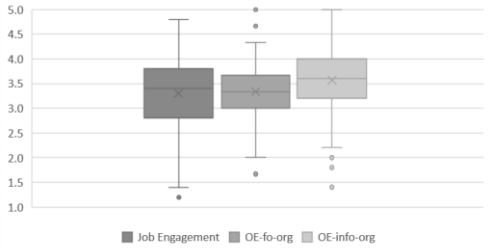

Figure 8: age 20-29

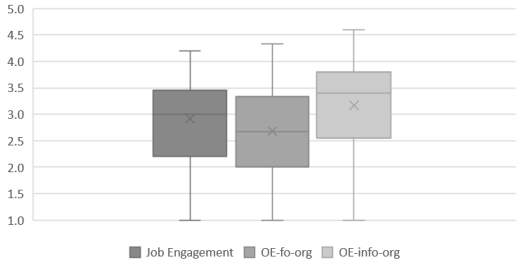

Figure 9: age 30-39

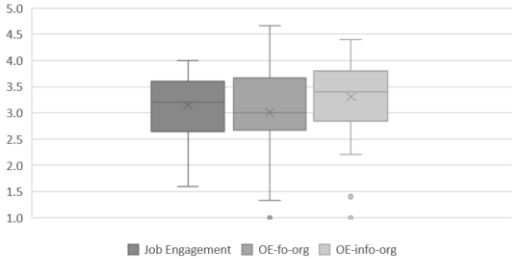

Figure 10: age 40-49

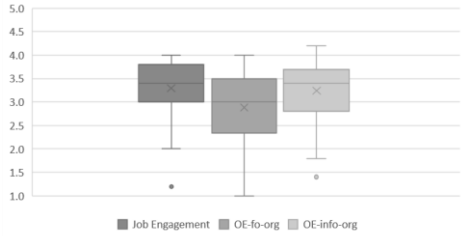

Figure 11: age 50-59

Comparing Fig. 7, 8, 9, 10, and 11, there is not much difference from the box plots of the entire population shown in Figure 6. It can be seen that approximately OE-info-org has a significant impact on EE. Furthermore, the mean values for each engagement are shown in Fig. 12 for each age group.

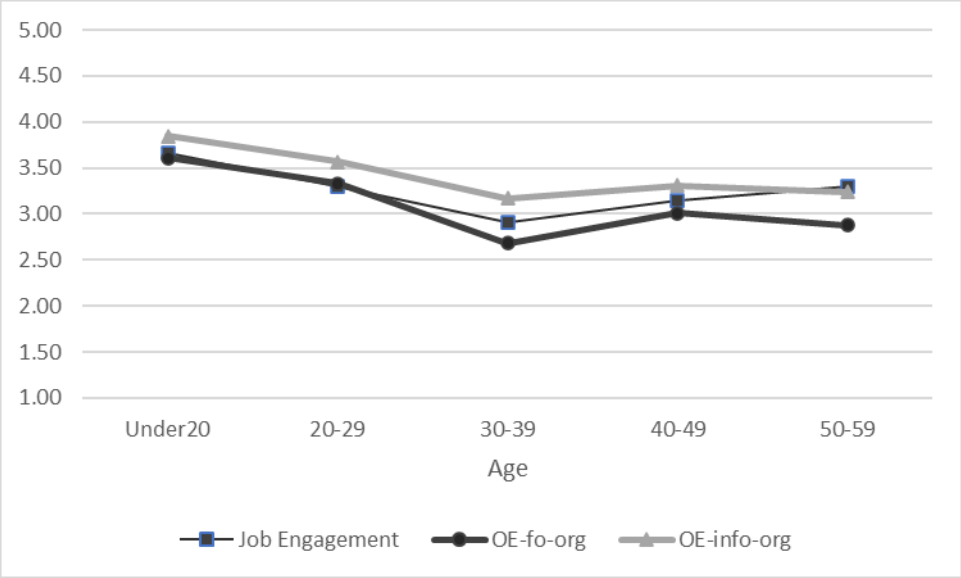

Figure 12: Average of each engagement by age group

Figure 12 shows that the age group with the highest engagement is the 18 and 19 year old group. It also shows that the 30-39 age group has the lowest engagement. Furthermore, it can be seen that engagement is higher from the 30-39 age group to the 50-59 age group. Chapter 4 provides a discussion of these results.

4 Discussion

Figures 7, 8, 9, 10, 11, and 12 were discussed with the HR directors of the companies that provided the survey data.

Engagement is higher in the 18 and 19 year old group and in the 20-29 year old group. The HR director said this result was reasonable given the high participation rate in internal company events at Company A, especially sporting events. Ikemizu et al. also found that internal company events have a positive impact on workplace relationships [20]. Thus, it is reasonable to assume that the engagement of young people is relatively high.

Regarding the 30-39 age group having the lowest job engagement, the HR officer stated following,

It is the section chief class that has learned how to work and is able to work autonomously. Work is concentrated on the section chiefs who can do the work. In addition, this group was hired at the time of the semiconductor recession and has few peers. Therefore, the retention rate at the company is lower than that of other groups because there is less interaction among peers and fewer opportunities for communication.

Ikemizu et al. show no correlation between JE and workload. Furthermore, there is a correlation between empowerment and workload [21]. Thus, it is reasonable that JE in the 30-39 age group was lower than in the other age groups.

The HR officer stated that the higher JE for the older age groups "would be reasonable since they are in a higher position in the company." The same results are also shown in the previous studies in 2-2. Therefore, it is reasonable that JE was higher for the older age groups.

As described above, the results of the present analysis were shown to be valid.

5 Conclusion and Future Work

In response to the research questions, this study was able to identify the following three.

- Engagement of young people is in a high position because of the strong engagement influence of OE-info-org
- The 30-39 age group can work autonomously, but JE is lower due to strong workload
- JE increases with older age groups.

A limitation of this study is that it uses data from only one firm. When the entire Japanese companies are considered as the population, it cannot be said that the sampled companies are representative of the entire population. This limitation should be noted.

In the future, we plan to conduct research on other companies as well, in order to clarify Japanese companies as a whole.

Acknowledgments

We would like to thank Company A and Mr. B, HR Director, for providing the employee engagement survey data for this study and for their discussion of the data obtained.

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Appendix 1. EE Questionnaire

	Almost never	Rarely	Sometimes	Often	Very often
	1	2	3	4	5
Factor	Number	Question			
OE-info-org	Q1	I have a coworker who cares about me outside of work			
	Q2	I have coworkers I can chat with even when work is difficult			
	Q3	If I see a colleague who looks like they are having a hard time at work, I can talk to them			
	Q4	A workplace atmosphere where colleagues feel free to invite each other to dinner.			
	Q5	I have a coworker who wants to work through the job with me			
OE-fo-org	Q7	I'm excited to work with my supervisor			
	Q8	I feel that the significance of your work is consistent with the significance of your work as indicated by your supervisor			
	Q9	Communication with supervisors is active			
JE	Q6	Proud to work for Company A			
	Q10	I feel energized when I work			
	Q11	I am enthusiastic about our work.			
	Q12	I get carried away with my work			
	Q13	I feel satisfied with my work			