Empathy, Fulfillment, Well-being を実現する ABW オフィスの実験的研究

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Experimental study of ABW Office for Empathy, Fulfillment, and Well-being

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Abstract

An activity-based working (ABW) experiment is currently being conducted in the main building of the Obayashi Corporation Technology Research Institute to explore the impact of design setups on workers. This report presents the results of our analysis on the following points. (1) The presence or absence of a monitor affected seating choice, and the relationship between the thermal environment and space satisfaction differed between individual concentrated work and situations in which multiple people were relaxing or conversing. (2) In desk-sharing offices, the important factors for seat selection differed between the morning and afternoon, and the influence of conversation also differed from that in fixed-seat offices; however, no significant difference was observed in the number of conversations.

1. Introduction

The global spread of coronavirus disease (COVID-19) prompted many companies in Japan to introduce remote work. Combined with advances in cloud services and collaboration tools, this shift has enabled employees to work from virtually any location, drawing renewed attention to Activity-Based Working (ABW). ABW, a work style that originated in the Netherlands in the 1990s, is characterized by allowing employees to choose the most suitable environment for their tasks rather than being constrained by fixed times or locations[1),2)]. It has further been proposed that offices should provide a variety of settings tailored to different types of work[2)]. Consequently, numerous initiatives have been undertaken to enhance alignment with ABW principles and to improve employees' intellectual productivity.

A series of studies (hereinafter referred to as "this research"), including the previously reported study[3)], regards ABW as a means for office workers to engage in their preferred work style. In November 2022, three concept spaces designed to promote ABW were introduced in the main building of the Obayashi Corporation Technology Research Institute (hereinafter referred to as "this building"). A workstyle classification survey conducted prior to implementation revealed that the desired workstyles of the building's employees were "Well-being," "Empathy," and "Fulfillment," which were therefore established as the core vision. The corresponding concept spaces were named "Wakuwaku Café," "Nobinobi Studio," and "Yurayura Terrace" and were equipped with furnishings and features expected to contribute to realizing the core vision (Fig. 1). The introduction of these features and mechanisms is expected to enable employees' work practices to align more closely with the core vision. Accordingly, this study compares and evaluates both subjective and objective data, including usage patterns of each space—such as frequency of use, length of stay, and modes of use—and the psychological responses of occupants. In a previous report[3)], the usage status of each space and the degree of contribution to realizing the core vision were evaluated by analyzing questionnaire responses collected before and after implementation. The results indicated that, following the introduction of the facilities, the contribution levels to the three core visions increased significantly in the "Nobinobi Studio" and the "Wakuwaku Café."

This study reports the results by analyzing: ① the impact of

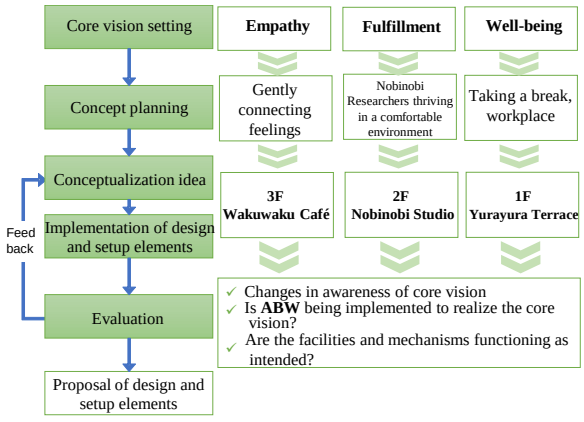


Fig. 1 Framework of the Study

the presence or absence of monitors at seats on usage patterns, as well as the relationship between the thermal environment and space satisfaction; and ② the impact of the layout of work locations and conversational interactions under desk-sharing conditions in which personal desks are unavailable.

2. Survey and analysis regarding the use of "Wakuwaku Café"

Previous studies have reported that the presence or absence of a monitor plays an important role in seat selection in ABW offices[4] and that satisfaction with the thermal environment has a significant impact on overall satisfaction[5]. However, these studies were limited in scope, as the surveys were conducted over only a few weeks. Therefore, the present study conducted a survey and analysis at the "Wakuwaku Café" with the aim of clarifying long-term and continuous trends regarding the impact of monitor presence or absence at the facility, as well as the relationship between the facility's thermal environment and space satisfaction. Table 1 lists the survey items. The "Wakuwaku Café" was selected because it allows comparison of monitor presence/absence within the same facility and exhibits minimal variation in thermal environment compared to other available facilities.

2.1 Overview of "Wakuwaku Café"

The "Wakuwaku Café" is located near the south-facing windows on the 3rd floor of this building. The concept of this space is: "to gain empathy by sharing feelings a little bit." It supports both collaborative discussion and focused, non-verbal work. The layout includes a solo booth (1 seat), a solo lounge (4 seats), a café corner, a library, and booth tables (2 tables accommodating 4 people each), arranged sequentially from east to west along the south side of the 3rd floor. These elements are positioned to create a "Wai-Gaya gradient", ranging from the solo booth for individual concentration to the booth tables for group discussions (Fig. 2).

The two booth table areas are positioned adjacent to each other. One is equipped with a monitor (hereinafter referred to as the "with monitor seat"), while the other is not equipped with a monitor (hereinafter referred to as the "without monitor seat").

2.2 Differences in seat usage at booth tables based on monitor availability

To clarify differences in usage based on monitor presence, the two booth table areas were compared. Image-recognition techniques using AI cameras were employed to count the number of occupants.

Fig. 3(a) shows the number of visits by length of stay during the first six months following the installation of the booth tables. Focusing on this period, seats with monitors were used more frequently than seats without monitors when the duration

Table 1 List of Survey Items

Items	Method	Area	Period
Number of uses	Image recognition using AI camera	Booth Table	2023/7 ~2024/6
Purpose of uses	Questionnaire response using the survey button	Solo Lounge and Booth Table	2024/7 ~2024/12
Space satisfaction			2023/2 ~2023/12
Thermal environment	Measurement using data loggers (sensors)		2023/2 ~2023/12

Wakuwaku Café (Full view)


Solo Lounge


Solo Booth

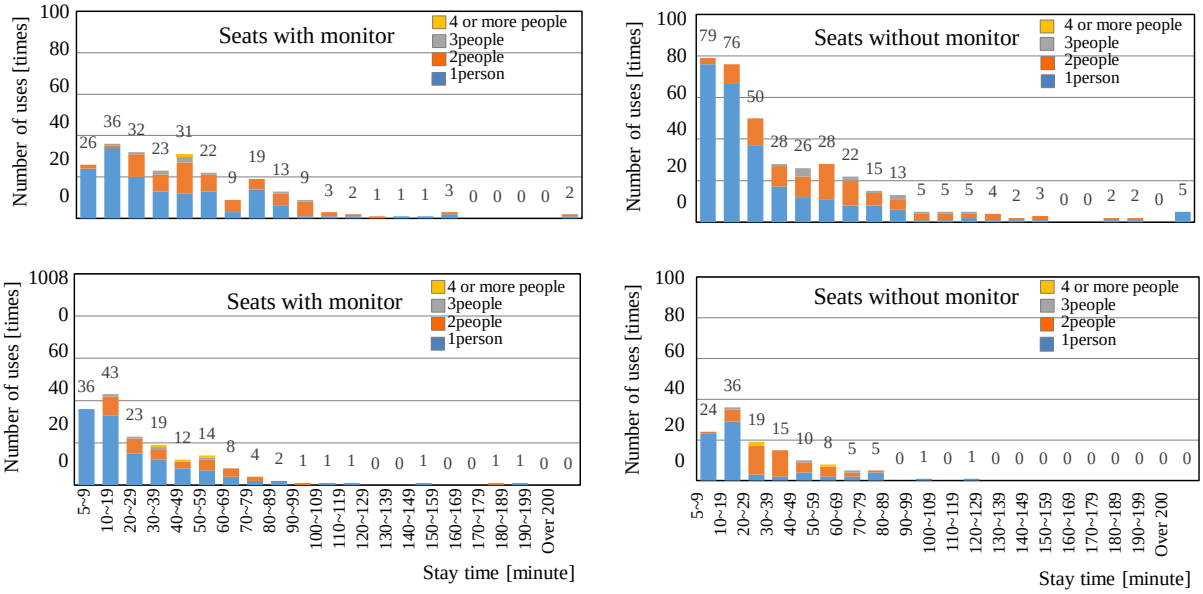

Café Corner


Library

Booth Tables

Fig. 2 Wakuwaku Café Design Setup

of stay was 60 min or longer. For visits under 60 min, seats with monitors were also used more frequently; however, for visits under 20 min, seats without monitors were used approximately 1.3 times more often. Furthermore, for visits of 60 min or more, seats with monitors were used 32 times, which is four times more frequent than seats without monitors (8 times). These results suggest that seats with monitors tend to be used for extended periods by multiple users, whereas seats without monitors tend to be used for shorter periods by individuals. This indicates that seat selection is influenced by the intended purpose of use. Similar results for the second half of the year are shown in Fig. 3(b). Focusing on the second half of the year, unlike in the first half, the number of times seats with monitors were used for short periods of 10 to 20 min



(a) First half of year (July 2023~December 2023)　(b) Second half of year（January 2024~July 2024)

Fig. 3 Frequency of Booth Table Usage

Table 2 Aggregation of Booth Table Usage Frequency

	First half of year 2023/7 ~2023/12	Second half of year 2024/1 ~2024/6	1 whole year 2023/7 ~2024/6
Seat with monitor	233times (1)	370times (1.59)	603times (2.59)
Seat without monitor	167times (1)	124times (0.74)	291times (1.74)
Total	400times (1)	494times (1.24)	894times (2.24)

※The numbers in parentheses represent the ratio when the value for the first half of each item is set to 1.

exceeded the number of times seats without monitors were used. Examining the total number of uses (Table 2), overall usage increased by a factor of 1.24 times in the second half of the year compared with the first half, while usage increased by 0.74 times for seats without monitors and by 1.59 times for seats with monitors. These findings suggest that the use of the booth seats gradually expanded following their installation, and that seats with monitors began to be used for a wider range of purposes—not only for meetings, but also for remote conferences, individual work, and other activities.

Furthermore, seats with monitors and seats without monitors were used simultaneously 71 times over the course of the year. This corresponds to 11.8% of the total 603 uses of seats with monitors and 24.4% of the total 291 uses of seats without monitors. From this, it can be inferred that, at most, approximately one-quarter of the time, people were compelled to choose a non-preferred seat because their preferred option was unavailable.

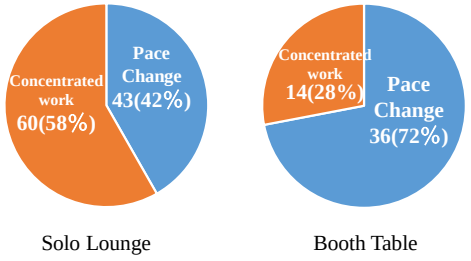


Fig. 4 Purpose of Using Solo Lounge and Booth Table (July 2024–December 2024)

2.3 Relationship between Thermal Environment and Space Satisfaction

To clarify the relationship between the thermal environment and space satisfaction, questionnaire buttons and temperature sensors were installed in the Solo Lounges and the Booth Table (seats without monitors), and the collected data were analyzed. Two types of questionnaires were implemented: one that asked users to select two options regarding their purpose of use, and another that asked users to select four options regarding their space satisfaction. The questionnaire on the purpose of use was administered from July 2024 to December 2024, whereas the questionnaire on space satisfaction was conducted from February 2023 to December 2023. The latter questionnaire assessed overall satisfaction with the space, including the thermal environment, rather than satisfaction solely with the thermal environment itself.

The results regarding the purpose of use are presented in Fig. 4. The numbers in the pie chart represent the number of responses for each setting and their corresponding percentages. A tendency was observed for the Solo Lounges to be used

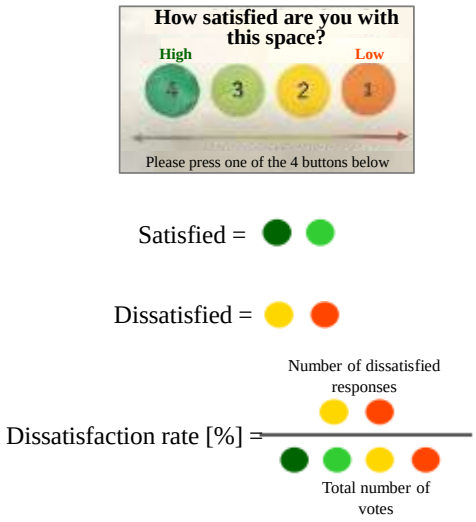


Fig. 5 Contents of Space Survey and Definitions of Satisfaction, Dissatisfaction, and Unsatisfactory Rate

primarily for concentrated work, whereas the booth tables were more frequently used for a change of pace.

In this chapter, space satisfaction was analyzed by classifying responses in the top two satisfaction levels as "satisfied" and those in the bottom two levels as "dissatisfied." The dissatisfaction rate was defined as the ratio of the total number of dissatisfied responses to the total number of responses (Fig. 5), and its correlation with the indoor temperature at the time the survey button was pressed was analyzed.

The results are shown in Fig. 6. The numbers and plot sizes in the graph represent the total number of responses for each temperature range. In the Solo Lounge, there was a tendency for the dissatisfaction rate to increase once the indoor temperature reached approximately 25 °C. On the other hand, no clear correlation was observed between the dissatisfaction rate and indoor temperature for the booth tables. It should be noted that the dissatisfaction rates for temperature ranges with fewer responses based on the opinions of a small number of respondents and therefore requires careful interpretation. For this reason, we plan to continue collecting data and understand trends.

Further analysis was conducted to clarify the factors behind the correlation between indoor temperature and dissatisfaction rate in the Solo Lounge. Fig. 7 presents the monthly tabulations of the number of responses regarding space satisfaction and the corresponding dissatisfaction rates in the Solo Lounge. The result shows that, with the exception of December—when the number of responses was low—the dissatisfaction rate was high in July, August, and October, with the number of dissatisfied responses being particularly elevated in August. Fig. 8 shows the space satisfaction

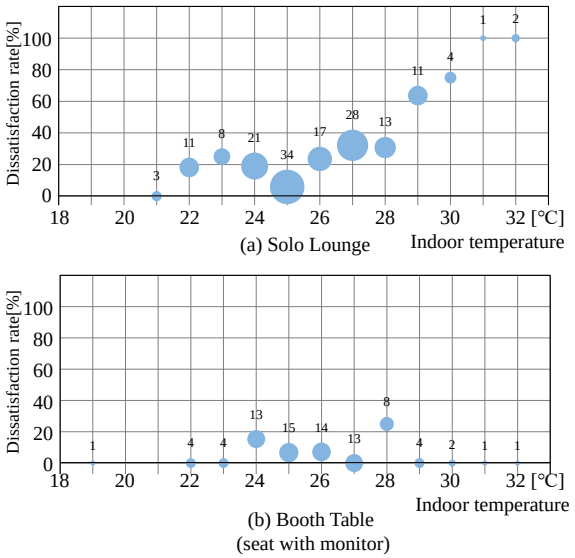


Fig. 6 Correlation between Dissatisfaction Rate and Indoor Temperature (February 2023–December 2023)

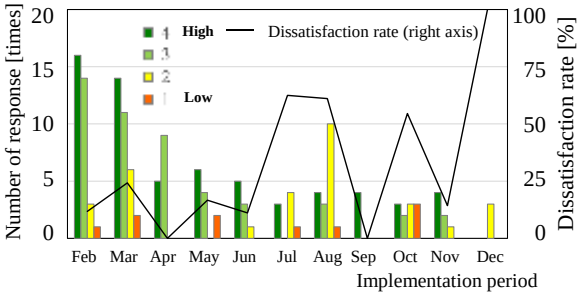
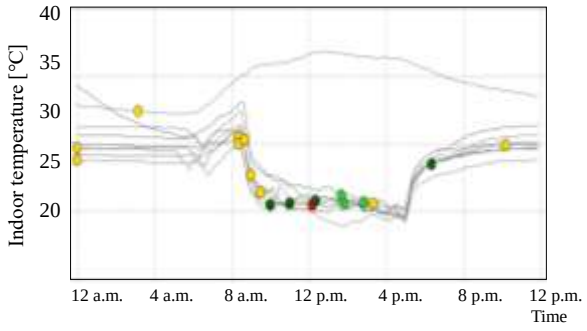


Fig. 7 Monthly Trends in Space Satisfaction in Solo Lounge: Number of Responses and Dissatisfaction Rate (February 2023–December 2023)



※ The line in the graph shows the change in indoor temperature on the day of the response.
※ The plots in the graph indicate the color of the survey button pressed and the indoor temperature at the time it was pressed.

Fig. 8 Space Satisfaction Responses in Solo Lounge and Indoor Temperature Trends on Response Day (August 2023)

responses in August and the indoor temperature on the days when the responses were recorded. The broken line in the graph represents the daily fluctuation in indoor temperature, and each plot indicates the color of the survey button pressed

and the indoor temperature at the time it was pressed. It was found that dissatisfied responses were concentrated during non-air-conditioning hours and immediately after the air conditioning was turned on.

Based on these findings, it can be confirmed that in Solo Lounges, where individuals primarily use the space for focused work, users' sensitivity to indoor temperature increases. By contrast, booth tables are used primarily by individuals or groups to change their mood, relax, or engage in casual conversation, and thus achieving these purposes takes priority. Therefore, even when the thermal environment is unfavorable, dissatisfaction rates tend to remain low, indicating higher overall space satisfaction.

3. Workplace selection and conversation trends in the desk-sharing experiment

3.1 Experiment Overview

In the main building, employees are assigned fixed desks but may also freely choose their work location, either their own fixed desks or seats in shared spaces designed for ABW (hereinafter referred to as "ABW seats"). Previous studies have examined the effectiveness of ABW setups through combined evaluations of fixed and ABW seats. However, in this study, we conducted a desk-sharing experiment in which employees worked under conditions where fixed seats were unavailable, to clarify the effectiveness of ABW seats. The experiment period spanned two weeks (10 business days) from December 9 to December 20, 2024, and participants selected any five days according to their availability. The recommended experiment dates (December 10, 12, 13, 17, and 19) were announced in advance to maximize overlap in participation.

The age and gender of the participants are shown in Table 3. The participants consisted of 19 researchers from the same department. The pattern of fewer participants in their 40s and a larger number in their 50s and above, as well as the predominance of male participants, was generally consistent with the demographic profile of this Research Institute. During the experiment, fixed seats were, in principle, unavailable, and participants were required to change their work location at least once per day.

3.1.1 Questionnaire survey A questionnaire survey was conducted regarding the choices of work location and conversations in the morning (08:30–12:00) and afternoon (13:00–17:15) every day during the survey period, as well as during the week preceding and the week following the experimental period. The survey items and fixed seating conditions are shown in Table 4. In addition, the response options used in this study for the analyses "Reasons for satisfaction/dissatisfaction

Table 3 Age and Gender of Experimental Participants

(People)	20s	30s	40s	Over 50s
Male	3	4	0	8
Female	1	2	0	1

Table 4 Daily Questionnaire Items and Fixed Sea

			Before survey	During survey	After survey
Assigned seat (Personal Desk) use			Yes	No	Yes
Survey items	Seat selection	Primary work location	-	●	-
		Job description	-	●	-
		Reason for selecting work location	-	●	-
		Work location Satisfaction	-	●	-
		Reasons for workplace satisfaction/dissatisfaction	-	●	-
		Use of other facilities	-	●	-
	Conversation	Casual conversation	●	●	●
		Relation among conversation participants	●	●	●
		Conversation effect	●	●	●

●Implemented Items

Table 5 List of Reasons for Satisfactory and Unsatisfactory Responses

	Satisfaction or Dissatisfaction reason (Multiple answers allowed)
a	Ease of changing mood
b	Ease of concentration
c	Ease of creative work
d	Ease of taking breaks
e	Relaxation while working
f	Thermal environment
g	Acoustic environment
h	Light environment
i	View
j	Facilities and equipment (monitors, power sources, trash cans etc.)
k	Furniture (desk, chairs etc.)
l	Other people's gaze
m	Because it is an open space
n	Because it is a space with a closed feeling
o	Presence of someone I wanted to have discussion
p	Keep distance from people
q	Location was designated (e.g., for a meeting)
r	Trial purpose
s	There's no particular reason, I've used it before
t	Elimination method (e.g. there was no seat available that seemed suitable)
u	Other (please specify)

Table 6 Conversation Effectiveness

Effects of conversation (Multiple answers allowed)
Was able to change mood
Was able to gain new knowledge (work related)
Was able to gain new knowledge (private)
Was able to acquire insight for advance work
Was able to fulfill the urge to have conversation
No particular benefit
Others (please specify)

Table 7 Locations for ABW Used in Desk-sharing Experiment

Floor	1F		2F	3F			
Space name	Yurayura Terrace		Nobinobi Studio	Wakuwaku Café			Existing private booth (existing facility)
Facility name	High Counter	Booth Table	Nobinobi Studio	Booth Table(with/without monitor)	Solo Lounge (with/without monitor)	Solo Booth	
Photo							
Seating capacity	2 seats	4seats	10seats	8seats	4seats	1seat	8seats
Features	Located south facing adjacent to the cafeteria, separate from the office area. Offers a pleasant view from the nearby windows. Outside of experimental periods, usage is low except for lunch breaks. Background music is played.		Located outside the office facing north. Features 3D printers and vending machines, as well as two large monitors for meetings.	Located in the south perimeter zone. BGM plays four days a week.	Located in the southern perimeter zone. Adjacent to a drink/snack corner. The view from others is blocked by partitions.	Located along the south corridor. No monitors.	Located near the center of the building. Half of the eight booths have monitors. Designed to minimize sound leakage, making it an ideal environment for online meetings.

with work location" and "Effectiveness of conversation" are presented in Tables 5 and 6, respectively.

3.1.2 Experimental location The ABW seats primarily used in this experiment are presented in Table 7. Participants were instructed to primarily use these spaces (37 seats in total) during the experiment.

3.2 Survey Results

3.2.1 Selection of work location

(1) Work location user rate: Fig. 9 shows the user rates of work locations used during the desk-sharing period at work. Work locations with user rates below 5% in both the morning and afternoon were categorized as "Other." The user rate refers to the number of times a work location was selected throughout the entire experimental period, divided by the total number of selections for all work locations. User rates for the "3rd Floor, Existing Private Booths" and "2F, Nobinobi Studio" were high, exceeding 10% in both the morning and afternoon. For the "3F, Solo Lounge with Monitor," the user rate was more than 5% lower in the afternoon compared to the morning. For the "1F, High Counter," the user rate was more than 5% higher in the afternoon compared to the morning.

(2) Reasons for satisfaction with work location: When asked whether they were satisfied or dissatisfied with the location where they spent the longest time working in the morning and afternoon, approximately 80% of participants responded "satisfied." As there were sufficient satisfied responses to allow analysis by work location, we analyzed the reasons for satisfaction for each work location.

Those who answered "satisfied" or "dissatisfied" were asked to select multiple reasons for their responses. Fig. 10 shows the reasons for satisfaction with work location (excluding the top items). The response rates for "b: Ease of concentration," "j: Facilities and equipment," and "f: Thermal environment" were high, exceeding 30% in both the morning and afternoon. The response rates for "j: Facilities and equipment" and "k: Fixtures" were more than 5% lower in the afternoon compared to the morning. In contrast, the response rates for "g: Sound environment" and "e: Relaxation while working" were more than 5% higher in the afternoon compared to the morning. Given the freedom to choose one's work location, the bias in the selection of reasons for satisfaction is likely attributable to the importance placed on these factors when choosing a work location. Therefore, Fig. 10 suggests that participants placed greater importance on facilities, equipment, and fixtures in the morning, whereas the sound environment and relaxation were more important in the afternoon.

Fig. 11 shows the reasons for satisfaction for 3F Existing

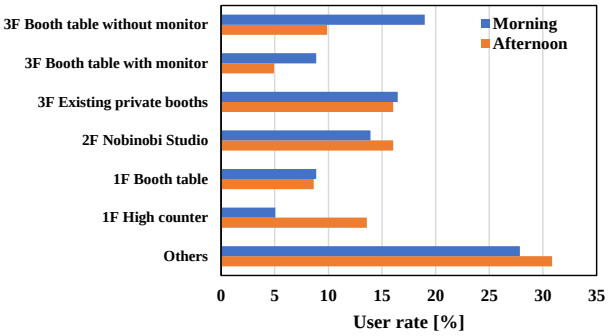


Fig. 9 Work Locations Selected During Desk-sharing

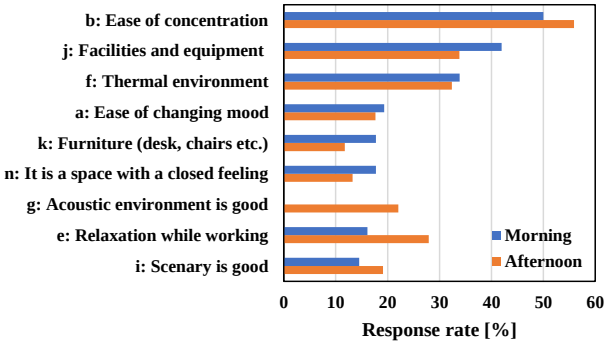


Fig. 10 Reasons for Satisfaction with Work Location (Top Items)

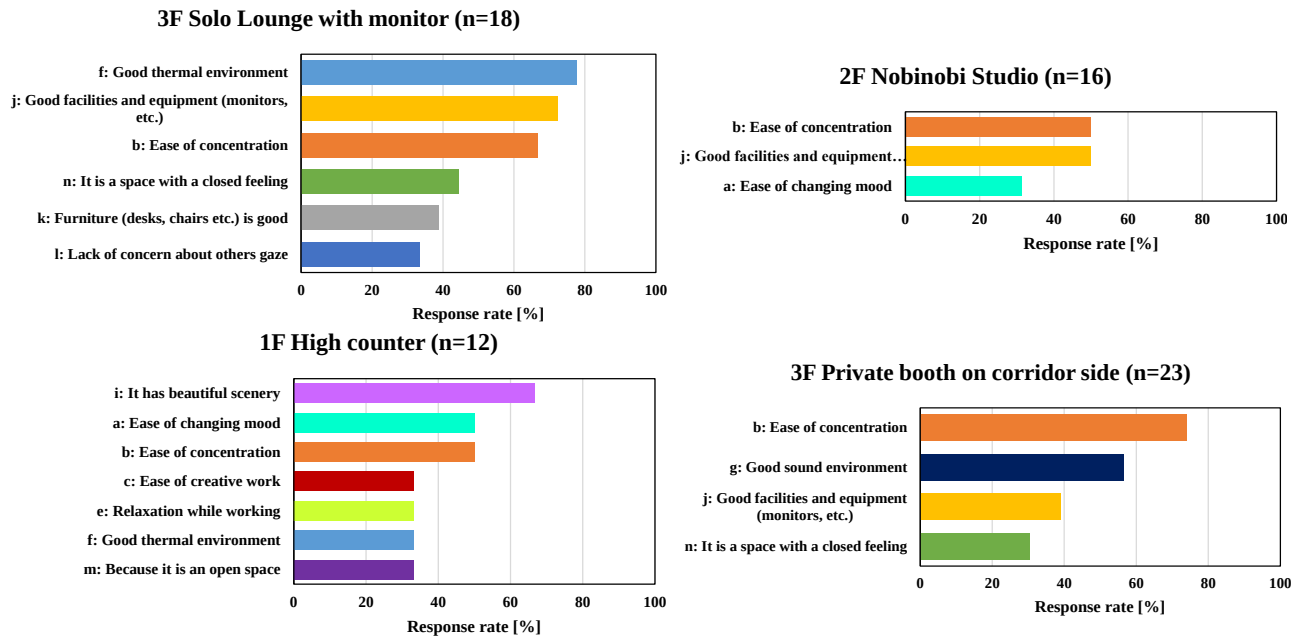


Fig. 11 Reasons for Satisfaction with Work Location

Private Booths, 2F Nobinobi Studio, 3F Solo Lounge with monitors, and 1F high counter, which exhibit the morning and afternoon user rate trends described in (1). For the "3F Solo Lounge with monitors," which had a high user rate in the morning in Fig. 9, the items with the highest response rates were "f: Thermal environment," "j: Facilities and equipment," "b: Ease of concentration," "n: Space that creates a feeling of being enclosed," "k: Fixtures," and "l: Other people's gazes." Items "j" and "k" correspond to those with the highest response rates in the morning in Fig. 10. From the above, it can be inferred that the high morning user rate of the "3F Solo Lounge with monitors" was due to its well-equipped environment in terms of devices and fixtures.

Furthermore, in the 1st floor high counter area, which had a high usage rate in the afternoon, the items with the highest response rates were "i: View," "a: Ease of changing mood," "b: Ease of concentration," "c: Ease of creative work," "f: Thermal environment," and "m: Open space". Item "e" corresponds with a high response rate in the afternoon in Fig. 10. Based on the above, it is assumed that the "1st floor high counter" had a high usage rate in the afternoon due to the provision of an environment that facilitated relaxation while working. Additionally, in Fig. 11, the "1st floor high counter" showed high response rates for items "i" and "a." The good view and ease of changing mood are considered to be related to item "e." The usage rate of the "1st floor high counter" was low except during the experimental period when fixed seats were available, but it increased when fixed seats were unavailable. Under desk sharing at work, the restriction of "changing work location at least once per day" led to increased work outside the 2F, where fixed seats are located, and encouraged movement between floors. This is thought to have contributed to the increased usage rate.

In Fig. 9, the "2F Nobinobi Studio" had a high usage rate in both the morning and afternoon, and in Fig. 11, the response rates for "b: Ease of concentration," "j: Facilities and equipment," and "a: Ease of changing one's mood" were also high. Items "b" and "j" correspond to those with high response rates in both the morning and afternoon in Fig. 10. From the above, it can be assumed that the "2F Nobinobi Studio" had a high usage rate throughout the day owing to its well-equipped facilities and equipment, and an environment conducive to concentration.

In Fig. 9, the "3F Existing private booths," which had a high usage rate in both the morning and afternoon, were often used for online meetings. As shown in Fig. 11, the "3F Existing private booths" had high response rates for "b: Ease of concentration," "g: Sound environment," "j: Facilities and equipment," and "n: Secluded space," suggesting that these characteristics make them suitable for online meetings.

Approximately 20% of respondents were dissatisfied with the location where they spent the longest time working. As analysis by work location was not possible, Fig. 12 shows the overall trend. As a reason for dissatisfaction, more than half of the respondents in both the morning and afternoon indicated "f: Thermal environment," which had the highest response rate. The response rates for "g: Sound environment" and "h: Lighting environment" were higher in the morning compared to the afternoon, whereas the response rates for "j: Facilities and equipment" and "b: Ease of concentration" were higher in the afternoon compared to the morning.

The reasons for the satisfaction results shown in Fig. 10

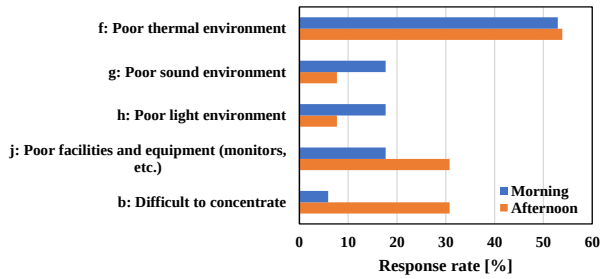


Fig. 12 Reasons for Dissatisfaction with Work Location (Top Items)

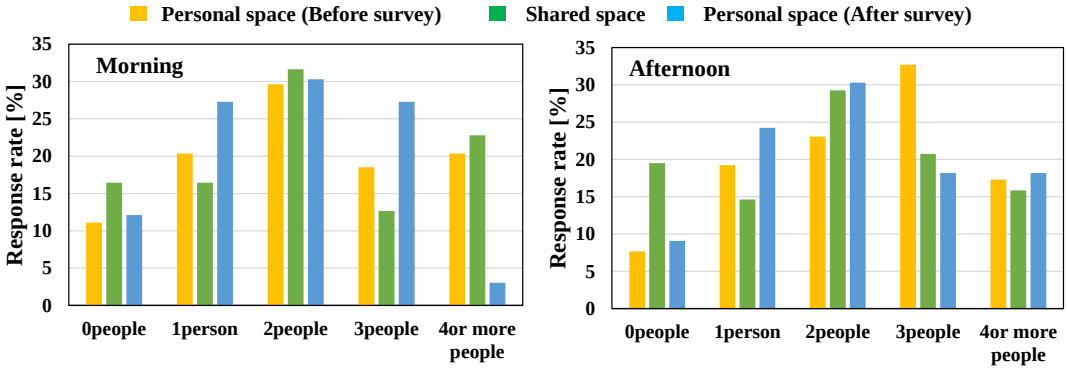


Fig. 13 Percentage of Reported Number of People Conversing (Excluding Meetings)

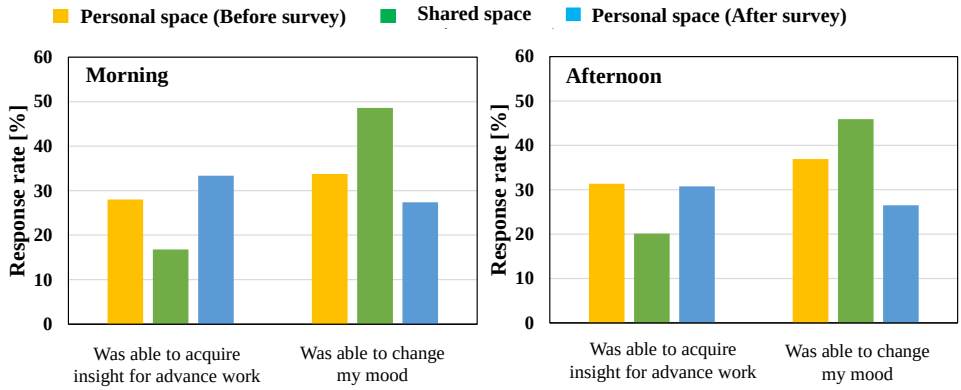


Fig. 14 Comparison of Effectiveness of Conversation (Top Two Items)

suggest that people desire a comfortable thermal environment in both the morning and afternoon, as well as an environment equipped with a monitor that supports concentration. Furthermore, as people concentrate on simple tasks in the morning, it is assumed that they tend to place greater importance on a large desk and a comfortable chair that allow them to work comfortably, with or without a monitor. In the afternoon, it appears that people tend to prefer a place with a good surrounding physical environment where they can work in a more relaxed manner.

The reasons for the dissatisfaction results shown in Fig. 12 suggest that most people were dissatisfied with the uncomfortable thermal environment in both the morning and afternoon. Regarding item “b,” which exhibited the largest difference between the morning and afternoon, this is presumably because the work locations used in this experiment were closer to the windows, and the survey did not provide sufficient data to identify the reasons for dissatisfaction. In the future, it will be necessary to consider not only the characteristics of the location but also physical and physiological factors, such as the accumulation of fatigue from morning to afternoon and the influence of biological factors.

3.2.2 Impact on conversation Figure 13 shows the percentage of responses regarding the number of people with whom participants engaged in conversation (excluding meetings) when using fixed seats and desk-sharing seats. There was no significant difference in the number of people with whom participants conversed between the two seating conditions. In this experiment, participants were asked only about the number of people with whom they conversed; however, the number and duration of those conversations were not considered. Therefore, it was not possible to capture

changes in the absolute amount of conversation.

On the other hand, in the comparison of the effects of conversations between fixed seating and desk-sharing, the responses “was able to acquire insight for advance work” and “was able to change my mood” were frequently reported, as shown in Fig. 14. For the response “was able to acquire insight for advance work”, the percentage of responses was more than 10% higher in fixed seating (before and after the experiment) compared to free-address seating, regardless of whether it was morning or afternoon. For the response “was able to change my mood”, the percentage of responses was more than 9% higher in free-address seating (before and after the experiment) compared to fixed seating (before and after the experiment), again irrespective of whether it was morning or afternoon. While fixed seating often involved work-related conversations due to the presence of colleagues with similar specialties, desk-sharing provided more opportunities to speak with a diverse range of people, which likely contributed to the change in mood. This suggests a shift in the nature of conversations depending on the seating arrangement style.

4. Conclusions

In this study, we explored the impact of ABW settings and mechanisms on workers by analyzing 1) the effect of seat monitors on usage patterns and the relationship between the thermal environment and space satisfaction, and 2) the effect of seat configurations on work location selection and conversations when individual desks are unavailable (desk-sharing). The key findings are summarized below.

1) In the first six months of implementation, we found that seats with monitors at “Wakuwaku Café” tended to be used for long periods of time by multiple people, whereas seats without monitors tended to be used for short periods of time by individuals. This suggests that seat selection is purpose-driven. Unlike during the first six months, seats with monitors later exceeded seats without monitors even for short periods of use. This indicates that the use of booth tables has gradually become more widespread and that seats with monitors are preferred for a variety of purposes, including not only meetings but also remote conferences and individual work.
2) In the “Wakuwaku Café” Solo Lounge, dissatisfaction rates tended to increase when the temperature exceeded 25 °C. In contrast, no clear correlation was found between dissatisfaction rates and indoor temperature for booth tables. This suggests that solo lounges are primarily used for concentrated work, making people more sensitive to indoor temperature. A deteriorating thermal environment thus leads to increased dissatisfaction with the space. Conversely, booth tables are primarily used by individuals or groups to refresh their minds, relax, and chat. Therefore, satisfaction with the space tends to be influenced more by the achievement of these purposes than by the thermal environment.
3) Regarding work locations, it is likely that people seek a thermally comfortable environment in both the morning and afternoon, along with access to a monitor that enables concentration. Furthermore, people appear to prioritize an environment that supports focused work in the morning and an environment that allows them to work in a more relaxed manner in the afternoon.
4) Regarding the number of conversations among participants, no significant changes were observed before and after the experiment, regardless of whether the seating was fixed or desk-sharing. However, there was a clear difference in the effect of the conversations: a higher percentage of people in fixed seating reported that they “were able to acquire insight for advance work,” whereas a higher percentage of people in free-address seating reported that they “were able to change their mood.”

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