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How do workplace features at the office and at home determine workplace choice during a flexible workday?

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ABSTRACT

Hybrid work has emerged as a prominent trend, especially after the COVID-19 pandemic, providing employees with the flexibility to work either from home or in the office. Even though this work arrangement has seen a notable increase in adoption and attention in workplace studies, it remains

unclear what workplace designs employees prefer when choosing between home and the office on a 'flexible' day. A stated choice experiment was conducted with 1,495 employees from two Dutch municipalities between 15 August and 01 October 2023. The data was analysed with a multinomial logit model to identify the perceived utilities of workplace attributes, including seven office-based and two home-based attributes. The findings show that all workplace attributes, except aesthetics at the office, have a significant impact on workplace choice decisions on a flexible workday. Regardless of the type of workplace design offered at the office or home, home-workplace is somewhat preferred over the office-workplace alternative. The presence of direct colleagues at the office and the absence of others at home are found as the most influential factors favouring each workplace alternative. Smart technology implementations, gaming amenities, socializing events, and a single office room with one glass wall in the office-workplace can impact decision making in favour of the office. The results provide new insights into the workplace preferences of civil servants when choosing between working in the office or at home. Organisations and facility managers can use the results in decision-making in workplace policies and design for hybrid work settings.

Keywords

Workplace Preferences, Flexible Work, Hybrid Work, Smart Workplaces.

1 INTRODUCTION

Hybrid work became prevalent during and soon after the COVID-19 pandemic. Despite a growing number of workplace studies on preferences for hybrid work, it remains unclear what type of workplace employees would prefer when given the choice to work either at home or at different office design qualities. Understanding workplace preferences within hybrid work settings is vital for organisations to provide optimal workplace environments to support their employees. Therefore, this study aims to understand the impact of workplace features on choice behaviour during a flexible workday where employees can choose between their home workplace and different office workplace scenarios. A stated choice experiment is conducted with office employees from the Dutch Municipalities Almere and Amsterdam.

1.1 Literature Review

The definition of hybrid work refers to the work setting where employees have some level of autonomy and flexibility in choosing the location where they perform their work tasks (Halford, 2005). The term relatively blends the traditional 'in-office' work with remote work, where employees can choose to work from an office or any other remote location (e.g., home, cafe, coworking place) outside their employers' premises.

Since a great number of employees experienced this work setting during the aftermath of the COVID-19 pandemic where it gained its popularity, several workplace studies on preferences for hybrid work were conducted. Some focused on experiences with working from home and showed its positive influences on individuals with improved work efficiency, work-life balance, and spending more time with their families (Hopkins & Bardoel, 2023; Ipsen et al., 2021). Conversely, other studies have underlined the potential disadvantages of working outside the employers' premises, such as the

gradual loss of corporate identity, a feeling of loneliness, work-home conflict, work intensification and other downsides (Bentley et al., 2016; Eddleston & Mulki, 2017; Oppong Peparah, 2024). To avoid the downsides of working from home, one recent study conducted a stated choice experiment to examine the factors that may attract employees back to the office. They showed the preferences for workplace features at the office may differ based on age, gender, type of employment, and administrative roles (Appel-Meulenbroek et al., 2022). However, they did not include any workplace features at home compared to those in the office alternatives.

Existing studies show that workplace features at home also impact individuals' work experiences and, thus, their preferences. For example, layout of the apartment (Kleeman & Foster, 2023), the size of the workspace (Cuerdo-Vilches et al., 2021), having a separate room for work (Ng, 2010), presence of household members (Sridhar & Bhattacharya, 2021) and having an ergonomic chair or external monitors (Gerding et al., 2021; Janneck et al., 2018) can influence individuals' work experience at home negatively or positively. So far, it still remains unclear how home-based workplace features are experienced and preferred by individuals compared to workplace features in an office within the hybrid work setting.

Regarding the office environment, studies have highlighted that the office-workplace enhances the overall workplace experience for individuals, especially through interaction with colleagues (Yang et al., 2022). Break-out spaces have been identified as crucial within office environments that support and facilitate such interactions (Tuzcuoğlu et al., 2021). Similarly, an open plan layout is also considered to improve communication and interactions; however, there can be potential negative effects like distraction and stress on users (Danielsson et al., 2015; Kim et al., 2016). To promote the enhancement of such interactions, organising socialising and wellness events in the office environment can facilitate office experience. In particular, these office events in hybrid work settings may help home-based workers to build relationships with others by informal communication (D'Oliveira, 2023; Goetzel, 2020). In terms of physical office feature, the appearance can influence office experiences and preferences. In particular, studies have shown potential psychological aspects of indoor green plants (Elsadek & Liu, 2021) and the use of colours (Elliot & Maier, 2014), and the presence of art may also evoke positive emotional output, or affect mood and well-being (Mastandrea et al., 2019). However, it is not yet clear how these office features influence individuals' workplace choice behaviour in hybrid work setting.

Technological advancements at home or at the office workplace can impact user preferences in terms of workplace use and experiences. Technology implementations in office-workplaces can improve office experience by offering new ways of workplace use with such applications as location-based user applications, booking possibilities and monitoring space use (Buckman et al., 2014; Jackowska & Lauring, 2021; Sinopoli, 2010). Individuals also prefer the state-of-the-art technology and design in their office environments (Tuzcuoglu et al., 2022). In the home-workplace, technology can help alleviate the possible downsides of remote work, such as social isolation and challenges in communication and collaboration (Green, 2020). Yet, it remains unclear what technology preferences employees have for their home workplace and how this would impact their choice for a workplace at home or at the office.

Overall, existing studies investigate workplace preferences; however, they lack insights on preferences for workplaces at the office compared to at home. Thus, this study aims to explore workplace preferences for home and office environments by identifying the trade-offs employees make when choosing their work location on a flexible workday.

2 Methodology

2.1 Experiment Design (Stated Choice Experiment)

A stated choice experiment (SCE) was designed and conducted on an online platform (LimeSurvey). SCE is chosen as it allows for systematic analysis of participants' preferences by presenting them with a series of hypothetical workplace scenarios and asking them to choose their preferred option. This method thus can reveal the relative importance of different attributes (workplace features) and the trade-offs that participants are willing to make. The online survey consisted of stated choice experiment and additional questions. In the choice experiment section, participants were instructed that they had two workday options: a flexible and an in-office workday. This paper focuses only on stated preferences during a flexible workday, where employees can choose where they want to work, either at home or in an office environment.

In the experiment, participants were randomly shown six choice questions for such a flexible workday and were asked to make a choice between the presented workplace alternatives. In each choice question, a hypothetical office workplace and their own home workplace (with two additional attributes) and a 'no preference' option were presented. Participants were asked to select 'no preference option' if they did not favour one workplace alternative over the other. A total of nine workplace attributes were selected for the choice experiment: seven for the office and two for the home (see Table 1). Only two attributes were selected to be presented in the home workplace (i.e., the presence of other people and innovative technology enhancements). For the workplace design at home, participants were asked to imagine their current physical workplace at their own home with these two attributes mentioned above to prevent the cognitive burden of respondents from imagining both the office environment and a new home workplace. The relevant information about their current workplace at home is gathered in the additional questions section.

Table 1. Attribute selection

Workplace Attributes	Level ID	Attribute Levels
at the office		
1 Workspace type	1	Single-office with non-transparent walls
	2	Single-office with one glass wall
	3	Open office with half-wall separation
	4	Open office with no separation
2 Workspace access	1	(online) reservation is required
	2	Reservation is not possible
3 Aesthetic (comb. 3)	1	Plants, warm colours, art objects
	2	No plants, cool colours, no art objects
4 Other people	1	Direct colleagues
	2	Others
5 Break-out spaces	1	Kitchenette with standing tables
	2	Kitchenette with sitting area
	3	Kitchenette with sitting and gaming area
	4	Only kitchenette
6 Events	1	No-events
	2	Socialising focused
	3	Wellness focused
7 Innovative properties	1	Smart technology
	2	Basic technology
at home		
1 Innovative properties	1	Smart technology
	2	Basic technology
2 Presence of others	1	Presence of others
	2	No presence of others



Three workplace attributes at the office (physical arrangement, aesthetic and break-out spaces) were depicted and presented as images to enhance the comprehension of the workplace alternatives with the other attributes presented as texts (see Figure 1). Additional definitions were provided for some attributes to improve clarity. For instance, smart technology at home was defined in the questionnaire, as employer supplies of equipment, such as digital tools, meeting equipment, and a fast internet connection, and smart technology at the office was explained as interactive, informative, smart screens, smart workstations, and meeting tables with a touchscreen.

Considering the selected workplace attributes and their respective levels (at the office and at home), there are $2^6 \times 4^2 \times 3^1 = 3072$ different possible combinations. To lower the number of combinations to be used in this study, a small fraction of 16 alternatives was generated using an orthogonal fractional factorial design using SPSS software. In this orthogonal design, the attributes systematically vary independently of each other; thus, the unique effect of each attribute can be measured.

Figure 1. Example choice set

On this day, suppose you have no responsibilities at home such as shopping or childcare.
 WORKING TASKS: **individual work & (online) meetings**

Which workplace do you prefer on this day?

 <p>WORKPLACE</p>  <p>KITCHENETTE with sitting + gaming zone</p> <ul style="list-style-type: none"> Office floor shared with DIRECT COLLEAGUES Office has SMART TECHNOLOGY interactive, informative smart screens, smart workstation, meeting table with touchscreen Workplace NO ADVANCE RESERVATION POSSIBLE Organization has a specific focus on WELLNESS ACTIVITIES mindfulness sessions, fitness program, wellness talks <p>workplace at OFFICE</p>	<p>WORKPLACE AT YOUR HOME Imagine that your current workplace at your home additionally has the features described below.</p> <ul style="list-style-type: none"> There are OTHERS at HOME - family member/s, housemate Your workplace at home has BASIC/REGULAR TECHNOLOGY ordinary technology - not advanced/smart technology <p>workplace at HOME</p>	<p>No preference</p>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.2 Data Collection

Employees were invited to this research with an online link to the survey by their respective employers: the Municipality of Almere between 03 August and 16 October 2023 and the Municipality of Amsterdam between 11 September and 9 October 2023. The survey was provided in Dutch and took approximately 17 minutes. Responses were received from 1495 employees from both municipalities: 1258 responses from Amsterdam (out of approximately 20,000 employees) and 237 from Almere (out of approximately 2,000 employees). Overall, 58.7% were women and 39.4% were men; 29.8% were aged above 55, 26.6% between 46-55, and 22.5% between 36-45, while 21.1% were aged less than 35 (see Table 2).

Table 2. Demographics

	Sample (N = 1495)	Sample (%)
Municipality		
Almere	237	
Amsterdam	1258	
Gender		
Female	878	58.7 %
Male	589	39.4 %
Other / no answer	28	1.9 %
Age		
18-35	315	21.1 %
36-45	337	22.5 %
46-55	398	26.6 %
55+	445	29.8 %

2.3 Multinomial logit model (MNL)

A multinomial logit model (MNL) is used to identify the preferences and to investigate which attributes affect these preferences and to what extent. The model assumes all parameters are the same for all employees. Based on the workplace choices made by the employees in the experimental choice situations, the utility of each alternative was estimated using Nlogit6 software (Econometric Software, 2016):

$$V_{office} = \beta_1^{office} X_1^{office} + \beta_2^{office} X_2^{office} + \dots + \beta_7^{office} X_7^{office}$$

$$V_{home} = \beta_0 + \beta_1^{home} X_1^{home} + \beta_2^{home} X_2^{home}$$

$$V_{none} = \alpha_0$$

X_k^{office} represents the k^{th} workplace attribute at the office and X_k^{home} represents the k^{th} workplace attribute at home. Parameters β_k^{office} and β_k^{home} measure the contribution of attribute k to the utility of the relevant alternative. β_0 refers to the base utility of the home alternative (without taking its attributes into account). Finally, α_0 represents the utility of the no-preference option.

Effect coding is used in the data analysis as it facilitates the comparison of the utilities to the overall mean. Therefore, the analysis provides insights into the relative importance of different attribute levels in driving workplace choice behaviour. In the case of three attribute levels, two indicator variables are needed. The first indicator is equal to 1 if the first level applies; similarly, the second indicator is equal to 1 if the second level applies. Two indicators are -1 in the case of the third level. If an attribute has two

levels, only one indicator variable is needed, with 1 for the first level and -1 for the second level. β s are estimated for each indicator variable of each attribute. The value of a β represents the part-worth utility of the corresponding attribute level. The part-worth utility of the last level is equal to the negative of the sum of the part-worth utilities of attributes' other levels.

3 FINDINGS

The MNL analysis revealed that respondents place great importance on workplace features both at home and in the office when choosing their work location. Almost all selected attributes for the office and home (except the aesthetic attribute at the office) have a significant role in choice decision of a workplace during a flexible workday (Table 2). The parameters (β) of the workplace attributes represent how they influence respondents' choice behaviour and, consequently, their workplace preferences. The attributes and levels are depicted based on their preferences (β) for workplace attributes at home and at the office (see Figure 2).

Regardless of specific workplace characteristics, respondents were more likely to select the home-workplace alternative over other alternatives, with the utility level of choosing the home-workplace being positive ($\beta_0=0.573$) and statistically significant at the 1% level. The utility of choosing "no preference" was negative ($\alpha_0=-2.445$) and statistically significant at the 1% level, referring to that respondents were more likely to select one of the workplace alternatives, either at home or at the office, over the "no preference" option.

3.1 The utility of workplace attributes at the office

The analysis revealed that sharing an office floor with direct colleagues was the most influential factor in choosing the office alternative. Unlike other attributes, only the aesthetics attribute (plants, colours, art) at the office did not significantly influence decision regarding workplace selection.

Regarding the workspace type, respondents significantly preferred the single office with one glass wall (enabling visual interaction) and disliked the open office with half-wall separation. The single office option with non-transparent walls and the open office option without separation did not influence their workplace choice decision. Respondents preferred office workplaces equipped with smart technology, which significantly influenced their decision-making in favour of the office alternative. The type of workspace access was also an influential factor in decision-making. They disliked the workplace alternative requiring advanced booking. Lastly, respondents did not prefer the workplace alternative without any organised events. They preferred socialising and wellness events, with a slight preference for socialising over wellness. In the experiment, different types of kitchenettes referring to break-out spaces are examined. While either a "sitting area" or "standing tables" adjacent to the kitchenette did not significantly affect workplace choices, a "gaming area" adjacent to the kitchenette (with a sitting area) emerged as an appealing feature that positively influenced decision-making towards an office alternative.

Table 2. Output of MNL model

Attributes	Levels	β	Significance
At office			
Workspace type	Single office with non-transparent walls	0.028	
	Single office with one side glass wall	0.066	*
	Open office with half-wall separation	-0.076	*
	Open office with no separation	-0.018	
Workspace access	Advance reservation is required	-0.049	**
	No advance reservation is required	0.049	
Aesthetic (comb. 3)	Plants, warm colours, art objects	-0.025	n.s.
	No plants, cool colours, no art objects	0.025	
Other people	Direct colleagues	0.343	***
	Others	-0.343	
Break-out spaces	Kitchenette with standing tables	-0.017	
	Kitchenette with sitting area	0.060	
	Kitchenette with sitting and gaming area	0.082	**
	Only kitchenette	-0.124	
Events	No-events	-0.202	***
	Socialising focused	0.138	***
	Wellness focused	0.064	
Innovative Properties	Smart technology	0.076	***
	Basic technology	-0.076	
At home			
β_0	Constant of the home alternative	0.573	***
Innovative Properties	Smart technology	0.060	***
	Basic technology	-0.060	
Presence of others	Presence of others	-0.139	***
	No presence of others	0.139	
α_0	No preference option	-2.445	***
<i>Significance *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$, n.s. = not significant</i>			

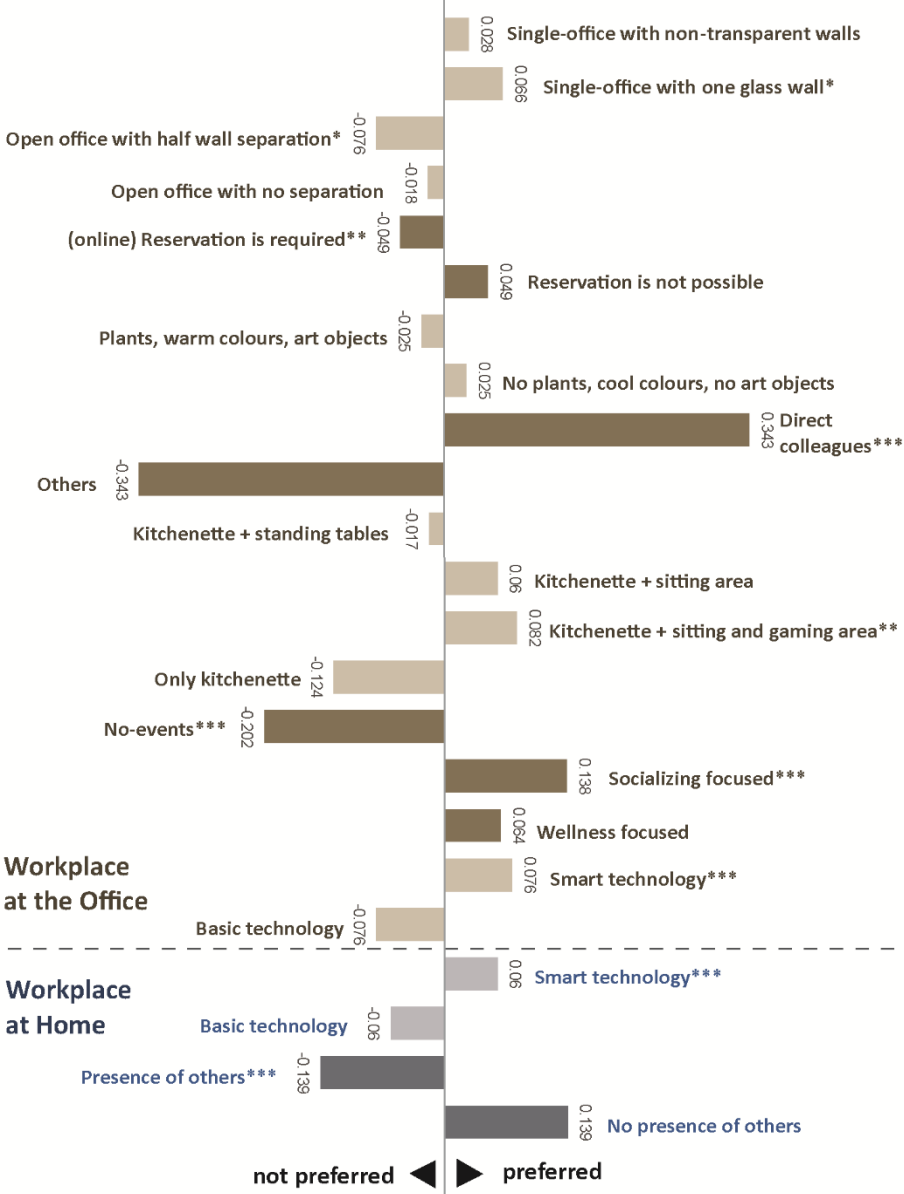
3.2 The utility of workplace attributes at home

This study examined two home-based attributes, both which were significant in influencing workplace choice behaviour. The findings indicate that having other household members present significantly discouraged respondents from choosing to work at home, suggesting that a solitary home environment increased the appeal of the home-workplace alternative.

Regarding the innovative properties at home-workplace, findings show that respondents preferred smart technology enhancements in their home workplace, which significantly influenced their decision-making in favour of working at home. This suggests that having basic technology in the home

workplace made the alternative less appealing. Furthermore, the innovation properties in the home alternatives had a comparable influence on decision-making as those in an office alternatives

Figure 2. Preferences (β) for workplace attributes



4 DISCUSSION, limitations and implications

This study aimed to explore how individuals choose a work location and how workplace features influence this choice during a flexible workday. The results revealed workplace features at home and at the office both had a significant influence on workplace choices. In this study, respondents were asked to consider a mix of tasks (individual work and meetings) when making their workplace choice. The

findings show that the home-workplace was somewhat more likely to be selected than the office workplace alternatives, regardless of specific workplace characteristics. This finding contributes to new insights into mixed-work-task-based preferences. Particularly, it is worthwhile to compare with a recent hybrid workplace study (Appel-Meulenbroek et al., 2022), which found that employees with individual-work tasks tend to prefer the home alternative, whereas those with meeting-based tasks prefer office alternative.

The findings indicate a favour towards choosing to work from home when other members of the household are absent. This preference could be linked to findings from a different study, which suggests that having family members present at home reduces work efficiency (Sridhar & Bhattacharya, 2021). In this study, respondents were presented with a scenario that excluded home responsibilities (e.g., childcare, post-delivery) to avoid assumptions about home-related obligations related to their personal circumstances. However, future studies can further explore the preference for the home alternative over the office alternative across different demographics, such as varying ages of children and other household members.

Regarding the office environment, the presence of direct colleagues is the strongest factor influencing the preference for working in the office over the home alternative, overshadowing all other workplace features examined in this research. This finding confirms the importance of social interaction and collaboration with direct colleagues in shaping individuals' preferences for office-based workplaces, aligning with current literature on socializing in office-environments (Tuzcuoğlu et al., 2021; D'Oliveira, 2023). The findings further suggest that having a gaming area in breakout spaces has a positive influence favouring the choice of the office alternative. This finding can be related to the desire for restorative and relaxation areas in the workplace, aligning with previous studies (Korpela et al., 2015).

In terms of workspace type in office environments, the findings show a strong preference for a single office with a transparent (glass) wall, which may imply a preference for a focused workplace while still maintaining a visual connection with colleagues. In contrast, open workplaces with half-wall separation were not preferred, which may be attributed to the negative experiences with noise in open office environments (Jahncke et al., 2011; Kim & de Dear, 2013). Future hybrid workplace research can further investigate preferences for open office environments, including factors such as noise levels, layout variations, and privacy considerations, in comparison with employees' home workplace environment. Furthermore, respondents strongly preferred workplaces equipped with smart technology both at home and in the office. This finding aligns with previous study where users prefer advance technology in office environments (Papagiannidis & Marikyan, 2020). On the other hand, concerning the use of technology for workplace booking, the findings revealed that individuals strongly dislike the necessity to book workplaces in advance (online). However, current studies have rarely explored preferences for workplace booking within a hybrid setting and the reasons behind them. Further research is needed to shed light on the factors influencing employees' preferences for booking options for the office workplace alternative. Additionally, further research into the psychological and social factors that contribute to workplace choice can provide a more comprehensive understanding of preferences in a hybrid work setting.

5 CONCLUSION

This study provides new insights into the workplace preferences of civil servants when choosing between working at the office or at home during a flexible workday. All workplace attributes significantly impact the decision-making process, except for the aesthetic features of the office. Regardless of workplace features, the home-workplace alternative has a clear preference over the office alternative. The presence of direct colleagues at the office and the absence of others at home are the most influential factors favoring each workplace alternative. Furthermore, this study shows that smart technology implementations, gaming amenities, socializing events, single office room with one glass wall in the office may attract employees to choose the office alternative. Overall, organizations and facility managers can utilize the insights from this study in shaping workplace policies and design for hybrid work settings. By understanding the trade-offs employees are willing to make, employers can create successful hybrid workplace environments.

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