



Mindfulness and Productivity Workspace Design Factors for Work from Home

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Abstract

The economic crisis of 2024 led many businesses to use online freelancers, and some of them work from home (WFH). Despite its seeming convenience, WFH has the potential to cause issues related to productivity, physical health, and mental health, primarily due to poorly designed workspaces. Therefore, having a workspace designed to trigger mindfulness can be a solution. This research aims to investigate the workspace design factors related to mindfulness and productivity in the WFH context. The factors and issues data obtained in literature reviews were then analyzed and formulated into a table to show their direct and indirect relationship with workspace design. The study's findings show that the direct relationship is dominated by physical comfort in the physical work environment and mindfulness environment factors. Meanwhile, the indirect relationship is dominated by household characteristics, individual factors, and psychological comfort in the physical work environment. Additional testing is required to support the research findings.

Keywords: Factors, mindfulness, productivity, work from home, workspace design

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Introduction

In 2024, humanity faces a global economic crisis influenced by wars in several countries. Some companies are streamlining their human resources, switching to artificial intelligence, or hiring freelancers online.

Some companies implement a Work from Anywhere culture, and it is not uncommon for them to work from home (Aksoy et al. 2022). The Work from Home (WFH) concept was once mandatory during the Covid-19 pandemic (Mungkasa 2020) as part of the "new normal." (Mohd Sharip et al. 2023)

Although the concept of WFH seems comfortable, in practice, WFH has the potential to create various productivity issues (Mustajab et al. 2020) that affect the quantity and quality of work inefficiently. (Hanaysha 2016; Wibowo 2018).

One of the most influential factors affecting the effectiveness of achieving WFH results is the absence of a dedicated workspace or the inadequacy of existing workspaces (Kartika, Indrawan, and Jayawinangun 2021). According to (Gorlick 2020), the lack of a dedicated workspace can trigger stress and a decline in physical and mental health.

Maintaining mindfulness during WFH can be a solution to reduce stress while improving productivity, focus, calmness, and mental health (Hanh 1975). To implement this solution, workspace design must address productivity and mindfulness factors.

If these WFH concerns are not addressed, stress levels may rise, and productivity, physical health, and mental health may suffer.

While many studies have explored the relationship between workspace design and productivity, research on the relationship between workspace design and mindfulness is still limited (Altay and Porter 2021), especially in studies examining these three variables simultaneously.

Therefore, this research focuses on answering the question: What workspace design factors are directly or indirectly related to productivity and mindfulness?

By answering this research question, the challenges related to productivity and mindfulness in the WFH context are expected to be easier to understand. Additionally, planners can identify which WFH workspace design factors should be addressed to resolve these issues.

Methods

This research method uses an exploratory qualitative approach to understand the process and meaning from the perspective of the subject through collecting information from the literature (Creswell and Poth 2018). The collected data is sorted, interpreted, then arranged in a table, and in narrative form.

This study collected data regarding factors in workspace design variables, productivity levels, and mindfulness conditions in the context of WFH through a literature review of 77 journals. This literature review process consists of four stages.

First, the literature review begins with finding definitions and benchmarks of the three variables and then concludes in narrative form for each initial section of the literature review. Second, the literature review continues to look for factors and problems in productivity and mindfulness in the WFH context. Third, the factors and problem data are then analyzed to see whether they have a direct or indirect relationship with workspace design. If there are many relationships, the data is formulated into a table. If there are few relationships under 5 factors, the data is narrated. Fourth, all tables are combined, categorized, and concluded in narrative form.

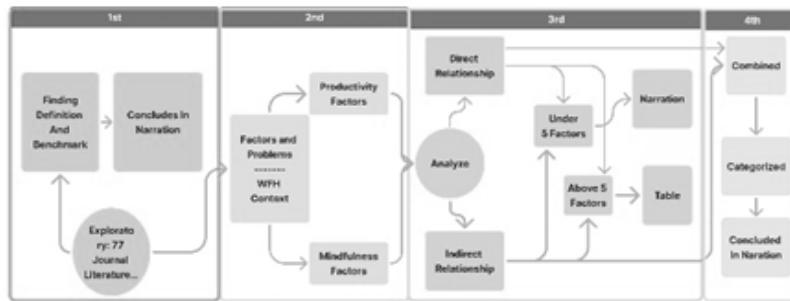


Figure 1
Research method diagram

The limitation of this study is that the data was collected solely through a review of journal literature due to the limited availability of literature on the relationship between workspace design and mindfulness conditions. The selection of literature becomes exploratory with 77 references and prioritized in journals published in the last 5 years. However, only those studies with direct and indirect relationships are cited as references in this journal.

Also, this study has not yet conducted direct testing on the users. For the next research, it is recommended that the results of this research be tested and validated by conducting a simulation, questionnaire, and interview with the users.

Literature review

The suitability of a workspace design for its intended activities has the most significant impact on WFH productivity levels (Kartika et al., 2021). Additionally, a workspace that applies natural elements (Djernis et al. 2019) and concern for physical and psychological comfort kerja

(Alibrahim and Aldeek 2022; Djernis et al. 2019; Hyrkknen, Nenonen, and Kojo 2012) have a positive influence on physical, social, and emotional restoration while fostering sustained mindfulness (Ulrich et al. 1991).

To achieve a suitable workspace design for WFH activities. A literature review was conducted to find which productivity and mindfulness factors are directly and indirectly related to workspace design while excluding unrelated factors.



Figure 2
Research findings diagram

In this study, a direct relationship (DR) is a category of relationship where a factor can only be fulfilled through workspace design. This factor discusses architectural elements and is highly dependent on workspace design.

Meanwhile, the indirect relationship (IR) is a category of relationship where a factor can be fulfilled by factors other than the workspace design. However, the workspace design factor is still important in influencing its effectiveness. The characteristic of this factor is that it does not discuss architectural elements, so this factor needs to be studied first to apply to workspace design.

The results of this study can be used as input for planners in realizing the design of WFH spaces that can trigger productivity levels and mindfulness conditions during WFH. The relationships sought include direct relationships (DR) and indirect relationships (IR), while unrelated factors are not the focus of this research.

Productivity

Work productivity refers to the activity of individuals or groups in producing goods or services, which demonstrates considerations of the efficiency of work actions, whether in terms of input or output (Wibowo 2018) as well as in terms of both quality and quantity (Hanaysha 2016).

Based on the results of the literature review and analysis, the productivity level of WFH is generally influenced by six factors:

No	General Factors of Productivity	References
1	Organizational Factors (OF)	1,2,3
2	Job Characteristic Factors (JCF)	1,3
3	Individual Factors (IF)	1,2,3
4	Technology Factor (TF)	3
5	Household Characteristic Factors (HCF)	1,3
6	Work Environment Factors (WEF)	2,4,5,6,7,8,9

Table 1
General factors of productivity

- 1 (Baker, Avery, and Crawford 2007)
 2 (Robbins and Judge 2017)
 3 (Belzunegui-Eraso and Erro-Garcés 2020)
 4 (Hakimah, Abdie, and Hasanah 2021)
 5 (Kartika, Indrawan, and Jayawinangun 2021)
 6 (Kurniaty 2020)
 7 (Nabawi 2019)
 8 (Wibowo 2018)
 9 (Yohanes B Windo Thalibana 2022)

Organizational factor

Organizational factors (OF) are productivity factors that are influenced by behavior or decisions at the management or organizational level. Based on ten journal reviews, 32 OFs were identified. One DR factor is compliance with hygienic and sanitary standards at work (De-la-Calle-Durán and Rodríguez-Sánchez 2021), and one IR factor is job satisfaction (Clements-Croome and Li 2000).

The DR factor cannot always be applied to the WFH context because homeowners are usually responsible for planning and constructing their own homes. However, implementing this factor can directly influence the workspace design. For the IR factor, the workspace is one of the elements influencing job satisfaction (Irmawati 2024), which places this factor in the IR category.

Job characteristic factors

Job characteristic factors (JCF) are productivity factors influenced by various job-related factors and aspects that influence worker motivation and satisfaction (Smither 2004). Based on 12 journal reviews, two IRs were identified from 9 JFs: work environment (Robbins and Judge 2017) and work stress (Kollmann, Stöckmann, and Kensbock 2019; Pitri and Daenuri 2020; Robbins and Judge 2017; Sridhar and Fang 2019).

The work environment factor is related because its effectiveness can be controlled or influenced by the design of the workspace, especially the physical work environment. A workspace that is physically and psychologically comfortable can also reduce work stress.

Individual factors

Individual factors (IF) are WFH productivity factors primarily influenced by their traits, such as self-conditions, behavior, mindset, skill set, or personal resources.

Based on 18 journal reviews, five IRs were identified from 36 FIs, including feeling isolated, mental and emotional conditions (Kotzé 2018; Mullins et al. 2014), physical and emotional fatigue caused by video conference (Tleuken et al. 2022), sleep quality and (Kollmann, Stöckmann, and Kensbock 2019) and being fully engaged in work (Schultz 2021).

These five factors are categorized as IR because they are significantly influenced by the workspace design.

Technology factor

The technology factor (TF) is a productivity factor in WFH influenced by the technology used for working, communicating, and collaborating online. According to the research findings from four journal reviews, four IRs have been identified from five TFs: technology infrastructure, hardware (Belzunegui-Eraso and Erro-Garcés 2020), network infrastructure (Clements-Croome and Li 2000; Tleuken et al. 2022), and computers (Mustajab et al. 2020).

These four factors are categorized as IRs because room circulation, ergonomic comfort, and visual comfort in workspace design, such as dimensions, network cable placement, artificial lighting devices, modems, and the positioning of hardware and computers, can impact productivity levels.

Household characteristic factors

Household characteristic factors (HCF) are productivity factors that are influenced by various aspects of family traits, such as family habits, expectations, living conditions, family presence, and environmental influences.

Based on four journal reviews, 11 HCFs were identified. One DR is home size and area, and five IRs are working in an unsuitable room (Gorlick 2020), sharing a space with young children, distractions from children or pets or bell (Tleuken et al. 2022), number of people who presence in the house, especially school-age children or toddlers (Parkin 2022; Kazekami 2020), and the total number of occupants in the home (Baker, Avery, and Crawford 2007).

Home size is categorized as a DR factor because it directly affects the dimension of space. Five factors are categorized as IRs because although non-design factors can solve them, they still relate to workplace privacy design.

Work environment factors

According to Sedarmayanti (Hakimah, Abdie, and Hasanah 2021), the work environment includes everything around the workers, physically and non-physically. According to (Ekaputri and Riyanto 2022), a positive work environment significantly affects employee work productivity, up to 93.7%.

The physical work environment is all physical conditions around the workplace that affect those working there. Physical work environment factors are more likely related to workspace design than other productivity factors.

Meanwhile, the non-physical or psychological work environment is a psychological condition in the work environment that is more related to the internal context or relationships between employees (Ekaputri and Riyanto 2022). Because this factor is unrelated to workspace design, it is not discussed in this study.

Physical work environment factors

The physical work environment factors are all physical conditions around the workplace that affect the people who work there. Compared to other productivity factors, physical work environment factors are most likely related to workspace design.

The physical work environment in a WFH context is typically indoors. However, the house is usually planned as a resting place, so placing a dedicated workspace is not a priority (Ariyani 2021). Bedrooms, family rooms, living rooms, and dining rooms are frequently used as workspaces (Noviantika, Kusuma, and Nurdini 2022), which, in terms of function and space design, are unsuited for work and may have a negative effect on comfort and productivity.

According to (Alibrahim and Aldeek 2022; Hyrkknen, Nenonen, and Kojo 2012), the design of a home office should consider both physical and psychological comfort elements. With a well-designed workspace, users can focus and concentrate more easily, avoid fatigue (Fivanda and Ismanto 2021)), and increase work enthusiasm and job satisfaction (Nabawi 2019).

Physical comfort factors of the physical work environment

Physical comfort factors of the physical work environment (PCF-PWE) include elements in the workspace that support users' comfort and physical health. Based on the results of a search from 14 journal literature reviews, 26 PCF-PWE were obtained, most of them have a direct relationship (DR) with the design of the workspace, as follows:

No	Physical Comfort	References
1	Accessibility	5
2	Ergonomic Furniture	4, 11, 8, 13, 6
3	Sufficient supporting facilities	11,9
4	Flexible space according to needs from time to time.	2, 3, 11, 9, 12, 1
5	Movable furniture	5
6	Number of rooms	1
7	Safety from the spread of viruses	13
8	Presence of green space, plants, and flowers indoors and outdoors	9, 13, 14
9	Freedom of movement	9, 10
10	Considering physical health	3, 13
11	Considering occupant welfare	3
12	Considering building safety	3, 13
13	Suitability of function	9, 5

Table 2
Physical Comfort factors of The Physical Work Environment (PCF-PWE)

No	Physical Comfort	References
14	Availability of work facilities and equipment	9, 6, 13
15	Healthy, restorative environment	1, 9, 5
16	Utilizing contemporary technology	5
17	Having your own space	13
18	Responding to user experience	3
19	Natural or artificial room lighting suits activities	2, 9, 11, 13
20	Ventilation, Humidity, and room air quality	6, 13,9
21	Room temperature/air temperature	11, 10, 7, 13
22	Room noise level and Quietness of disturbance	2, 10,11, 9, 13
23	Open space	1

- 1 (Alibrahim and Aldeek 2022)
- 2 (Bettaieb and Alsabban 2020)
- 3 (CIDQ 2004)
- 4 (Dimuna and Omatosne 2019)
- 5 (Hakimah, Abdie, and Hasanah 2021)
- 6 (Jalilianhasanpour, Asadollahi, and Yousem 2021)
- 7 (Arata and Kawakubo 2022)
- 8 (Khanwalkar and Dabir 2022)
- 9 (Kleeman and Foster 2023)
- 10 (Nabawi 2019)
- 11 (Noviantika, Kusuma, and Nurdini 2022)
- 12 (Özinal and Erman 2021)
- 13 (Tleuken et al. 2022)
- 14 (Wijaya 2023)

The table shows that designing a good workspace requires balancing design factors related to ergonomics, the environment, and the people using it. Design Important factors are Ensuring people are healthy and safe, creating adaptable and open workplaces, and using biophilic elements. Factors with a higher reference count, such as ergonomic furniture and lighting, should also be prioritized in design planning.

Psychological comfort factors of the physical work environment

Psychological comfort factors of the physical work environment (PsyCF-PWE) include aspects in the workspace that support users' mental and emotional well-being. Based on 17 journal literature reviews, 11 DR factors and seven IR factors were obtained with workspace design, including:

Table 3
Psychological comfort factors of
The Physical Work Environment
(PsyCF-PWE)

No	Psychological Comfort	References	Relationship
1	Organization and integration of space according to related activities	14	DR
2	User-Centered Design	2, 1	DR
3	arrangement of space, furniture, and furnishings	5, 14	DR
4	Space planning and spatial configuration	17, 24	DR
5	Privacy of space	14, 9, 2, 7	DR
6	Positive associations in the workplace	8	DR
7	Plants and flowers	5, 8	DR
8	Minimalist and clean design	5	DR
9	Aesthetic elements	5, 8	DR
10	Selection of neutral or harmonious colors that are not too striking	1, 5, 8, 11	DR

No	Psychological Comfort	References	Relationship
11	Comfort Visual view of nature	6, 4	DR
12	Job security	13	IR
13	Work comfort	4, 15	IR
14	Psychological attention and mental health	15, 8	IR
15	Work tranquility and minimal distraction	5, 9, 12	IR
16	Mindfulness and concentration conditions	10, 3, 16	IR
17	Conducive work atmosphere	5, 7	IR
18	Adjusting to cultural context	1	IR

- 1 (Agyefi-Mensah, Kpamma, and Hagan 2020)
- 2 (Alkathiri and Sari 2019)
- 3 (BARAKAT, AYAD, and EL-SAYAD 2022)
- 4 (Carvalho and Grácio 2022)
- 5 (Dimuna and Omatosne 2019)
- 6 (Fivanda and Ismanto 2021)
- 7 (Gankananda & Lanka 2016)
- 8 (Hakimah, Abdie, and Hasanah 2021)
- 9 (Jalilianhasanpour, Asadollahi, and Yousem 2021)
- 10 (Kleeman and Foster 2023)
- 11 (Lyddy et al. 2021)
- 12 (Meliana and Darmayanti 2023)
- 13 (Mustajab et al. 2020)
- 14 (Nabawi 2019)
- 15 (Noviantika, Kusuma, and Nurdini 2022)
- 16 (Tleuken et al. 2022)
- 17 (Umar and Chunwe 2019)
- 18 (Wijaya 2023)

The table above shows that eleven out of eighteen psychological comfort factors are categorized as DR, while seven are categorized as IR. The findings indicate that balancing design-driven and context-aware approaches is important for developing psychologically comfortable workspace design.

Without considering physical and psychological comfort in the workspace, WFH activities can trigger stress that negatively affects work productivity (Darmasari 2022; Johan, Saragih, and Fitriano 2021; Kurniaty 2020; Ling Sie Ni et al. 2022; Ekaputri and Riyanto 2022; Safitri and Gilang 2020), physical health, mental health (Van Preen and Janssen 2002), and organizational function (Sridhar and Fang 2019).

Thus, in addition to applying productivity factors, applying factors that trigger mindfulness can also help mitigate employee stress during WFH (Hanh 1975).

Mindfulness

Mindfulness is an Eastern meditation practice that focuses attention (Baer 2003) and fully aware of present internal and external events and experiences (Levesque and Brown 2007). It focuses on an orientation of curiosity, openness, and acceptance (Bishop 2004) without judging the experience (Kabat-Zinn 2003a; Murphy and Angelow 2022) and without

being preoccupied with the past or future (Dane 2011; Hülshager et al. 2014).

In the context of work, according to (Huang et al. 2022; Panditharathne and Chen 2021), mindfulness can be used to overcome various organizational challenges such as anxiety, depression, creativity, motivation, and better well-being; reduce attachment levels (Levesque and Brown 2007); reduce psychological stress (Jain et al. 2007); and free yourself from negative and destructive mental states (Ekman et al. 2005).

To achieve a state of mindfulness, the practice can be done formally through meditation or informally (Kabat-Zinn 2003b) using conscious perception in everyday actions, such as walking, eating, and exercising, even when WFH.

Based on 13 literature reviews, the mindfulness factors are generally divided into two main categories: individual mindfulness factors (13 factors) and environmental mindfulness factors (22 factors).

Mindfulness factors

Individual mindfulness factors are triggers for mindfulness conditions that depend on or are influenced by a person's ability to control their mental state. Although this factor strongly influences achieving a state of mindfulness, it has no relationship with the workspace design.

Environmental mindfulness factors (EMF) are factors that trigger the state of mindfulness that depend on or are influenced by environmental factors. There are two IR factors, and 20 DR factors as follows:

Table 4
Environmental mindfulness factors

No	Environmental Mindfulness Factors	References	Relationship
1	Forms That Respond to Gravity Load Patterns	5	DR
2	Being In a Park or Under A Tree	4	DR
3	Cloisters For Walking	4	DR
4	Natural Details, Golden Ratios, And Fractals	5	DR
5	Living Elements Such as Biophilia, Gardens/Parks, And Water	1,2,4	DR
6	Furniture That Can Be Rearranged	4	DR
7	Images Of Nature	4	DR
8	Symbolic Geometry and Objects That Help Focus the Mind	4	DR
9	Physical Comfort	4	DR
10	Acoustic Comfort in The Space, Including Natural Sounds	2,4	DR
11	Indoor Thermal Comfort (Air Movement, Fresh Air)	2,4	DR
12	Visual Comfort	2	DR
13	Restorative And Therapeutic Environments	3,4	DR
14	Using Fractal Patterns	5	DR
15	Using Curved or Non-Linear Patterns	5	DR
16	Natural Views Outside	4	DR
17	Spaces That Maintain Privacy, Promote Calmness, And Minimize Distractions While Allowing Connection to The Surrounding Environment	4	DR

No	Environmental Mindfulness Factors	References	Relationship
18	Adequate Room Lighting Levels (Preferably Natural Light)	2,4,5	DR
19	Medium And Harmonious Color Intensity	5	DR
20	Multisensory Experiences Directly Exposed to The Outdoor Environment	4	IR
21	Places Designed to Improve Well-Being	4	IR

- 1 (Abdel-Basset, Manogaran, and Mohamed 2018)
- 2 (CABE 2009)
- 3 (Landscape Institute Position Statement 2013)
- 4 (Porter, Bramham, and Thomas 2017)
- 5 (Salingaros 2015)

The majority of the environmental mindfulness factors (20 out of 22) are categorized as having a direct relationship (DR) with workspace design, which indicates that the majority of these factors can be applied directly to workspace design.

Factors such as forms that respond to gravity load patterns, natural details, golden ratios, fractals, and furniture that can be rearranged are frequently referenced. It may indicate that these factors are significant, but also indicate that the other factors are just a lack of references.

Only two factors are categorized as indirect relationships (IR), which suggests that these factors might require additional contextual or external influences beyond direct design interventions.

Some EMF DR factors, such as privacy, distraction, physical comfort, visual and auditory comfort, and the element of nature, are similar to PCF-PWE and PsyCF-PWE DR factors. This indicates that mindfulness influences productivity.

Results and Discussion

Based on the results of the search and analysis of the literature studies, 6 general factors of productivity, 2 general factors of mindfulness 55 productivity and mindfulness factors were identified and categorized as direct relationship (DR) factors that related to workspace design:

No	Direct Relationship Factors	Category
1	Compliance With Hygienic and Sanitary Standards at Work	OF
2	Home Size and Area	HCF
3	Accessibility	PCF-PWE
4	Availability Of Work Facilities and Equipment	PCF-PWE
5	Considering Building Safety	PCF-PWE
6	Considering Occupant Welfare	PCF-PWE
7	Considering Physical Health	PCF-PWE
8	Ergonomic Furniture	PCF-PWE
9	Flexible Space According to Needs from Time to Time.	PCF-PWE
10	Freedom Of Movement	PCF-PWE

Table 5
Direct relationship factors

No	Direct Relationship Factors	Category
11	Having Your Own Space	PCF-PWE
12	Healthy, Restorative Environment	PCF-PWE
13	Movable Furniture	PCF-PWE
14	Natural Or Artificial Room Lighting That Suits Activities	PCF-PWE
15	Number Of Rooms	PCF-PWE
16	Open Space	PCF-PWE
17	Presence Of Green Space, Plants, And Flowers Indoors and Outdoors	PCF-PWE
18	Responding To User Experience	PCF-PWE
19	Room Noise Level and Quietness of Disturbance	PCF-PWE
20	Room Temperature / Air Temperature	PCF-PWE
21	Safety From the Spread of Viruses	PCF-PWE
22	Sufficient Supporting Facilities	PCF-PWE
23	Suitability Of Function	PCF-PWE
24	Utilizing Contemporary Technology	PCF-PWE
25	Ventilation, Humidity, And Room Air Quality	PCF-PWE
26	Aesthetic Elements	PsyCF-PWE
27	Arrangement Of Space, Furniture and Furnishings	PsyCF-PWE
28	Comfort Visual View of Nature	PsyCF-PWE
29	Minimalist And Clean Design	PsyCF-PWE
30	Organization And Integration of Space According to Related Activities	PsyCF-PWE
31	Plants And Flowers	PsyCF-PWE
32	Positive Associations in the Workplace	PsyCF-PWE
33	Privacy Of Space	PsyCF-PWE
34	Selection Of Neutral or Harmonious Colors That Are Not Too Striking	PsyCF-PWE
35	Space Planning and Spatial Configuration	PsyCF-PWE
36	<i>User-Centered Design</i>	PsyCF-PWE
37	Acoustic Comfort in The Space, Including Natural Sounds	EMF
38	Adequate Room Lighting Levels (Preferably Natural Light)	EMF
39	Being In a Park or Under a Tree	EMF
40	<i>Cloisters For Walking</i>	EMF
41	Forms That Respond to Gravity Load Patterns	EMF
42	Furniture That Can Be Rearranged	EMF
43	Images Of Nature	EMF
44	Indoor Thermal Comfort (Air Movement, Fresh Air)	EMF
45	Living Elements Such as Biophilia, Gardens/Parks, And Water	EMF
46	Medium And Harmonious Color Intensity	EMF
47	Natural Details, Golden Ratios, And Fractals	EMF
48	Natural Views Outside	EMF
49	Physical Comfort	EMF
50	Restorative And Therapeutic Environments	EMF
51	Spaces That Maintain Privacy, Promote Calmness, And Minimize Distractions While Allowing Connection to The Surrounding Environment	EMF
52	Symbolic Geometry and Objects That Help Focus the Mind	EMF
53	Using Curved or Non-Linear Patterns	EMF
54	Using Fractal Patterns	EMF
55	Visual Comfort	EMF

OF = Organizational Factors

HCF = Household Characteristic Factors

PCF-PWE = Physical Comfort Factors of The Physical Work Environment

PsyCF-PWE = Physical Comfort Factors of The Psychological Work Environment

EMF = Environmental Mindfulness Factors

The table shows that FO has one DR, HCF has one DR, PCF-PWE has 23 DRs, PsyCF-PWE has 11 DRs, and EMF has 19 DRs. The data is dominated by physical work environment factors of physical comfort (PCF-PWE) and environmental mindfulness factors (EMF).

As for the results of Indirect Relationships (IR) factors, 24 factors have been obtained, as shown in the following table:

No	Indirect Relationship Factors	Category
1	Job Satisfaction	OF
2	Distractions from Children, Pets, Or Bell	HCF
3	Sharing A Space with Young Children	HCF
4	Number of People Who Presence in The House, Especially School Age Children or Toddlers	HCF
5	The Total Number of Occupants in the Home	HCF
6	Working in An Unsuitable Room	HCF
7	Work environment	JCF
8	Work stress	JCF
9	Being fully engaged in work	IF
10	Physical and emotional fatigue caused by video conferencing	IF
11	Mental and emotional conditions	IF
12	Sleep quality and quantity	IF
13	Feeling isolated	IF
14	Job security	PsyCF-PWE
15	Work comfort	PsyCF-PWE
16	Psychological attention and mental health	PsyCF-PWE
17	Work tranquility & minimal distraction	PsyCF-PWE
18	Mindfulness and concentration conditions	PsyCF-PWE
19	Conducive work atmosphere	PsyCF-PWE
20	Adjusting to cultural context	PsyCF-PWE
21	Technology Infrastructure	TF
22	Hardware	TF
23	Internet network infrastructure	TF
24	Computer	TF

Table 6
Indirect relationship factors

- OF = Organizational Factors
- HCF = Household Characteristic Factors
- JCF = Job Characteristic Factors
- OF= Organizational Factors
- HCF= Household Characteristic Factors
- JCF= Job Characteristic Factors
- IF = Individual Factors
- PsyCF-PWE = Psychological Comfort Factors of The Physical Work Environment
- TF = Technology Factor

The table shows that FO has one IR, HCF has Five IRs, JCF has two IRs, IF has six IRs, PsyCF-PWE has six IRs, and TF has four IRs. The data is dominated by household characteristics factors (HCF), individual factors (IF), and psychological workspace factors (PsyCF-PWE). It also shows that productivity and mindfulness factors have some similarities, proving that they are related.

Conclusions

The findings of this study highlight the important role of workspace design in enhancing productivity and mindfulness in the context of WFH. Addressing DR and IR factors such as functional needs, physical and psychological comfort, biophilic and natural elements, and privacy to prevent workspace distractions can mitigate stress and enhance focus, mindfulness, and work outcomes.

DR factors can be applied directly to the workspace, while IR factors can be applied through research, interpretation, analysis, or consideration before application. Applying these factors to workspace design can help practitioners create environments that effectively balance productivity and mindfulness for remote workers.

During the search for this study, several inconsistent factors were found, such as "feeling lonely." In the literature, this variable has become increasingly rare in the last year. This is likely because people choose WFH, not because of emergencies or lockdowns like COVID-19. There is also the possibility of people getting used to the WFH pattern. So, paying attention to privacy and distraction factors is better than paying attention to loneliness.

Because this study is conducted only based on 77 literature reviews, other factors outside the categories explored may still complement or expand it by reviewing other literature or testing the user. It is recommended that future research should validate the findings through empirical methods such as simulations, surveys, or interviews and integrate them with other literature reviews to get more comprehensive results.

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