Encouraging restorative behaviors in the workplace: How to motivate employees to take healthy nature based decisions during the day.

An interview study

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Abstract

This thesis explores how workplaces can encourage employees to take restorative breaks, with a focus on nature based breaks during the workday. This thesis is based in environmental psychology and examines how employees experience fatigue, recovery and contact with natural elements in a modern, screen based work environment. A qualitative research design was used, including semi structured interviews with five employees at a Dutch digital health organization. The data were analyzed using reflexive thematic analysis, allowing for a depth understanding of employees' lived experiences. The results show that restorative behaviors are not seen as separate from work, but as part of maintaining focus and wellbeing. Short breaks, such as stepping outside or moving, function as micro restorative breaks that help reset attention and reduce mental fatigue. However, these behaviors are shaped by a combination of environmental opportunities, organizational culture and individual awareness. Key barriers include ongoing tasks, subtle expectations to stay available, weather conditions and a limited perceived need to go outside. Indoor features such as daylight and plants can improve the work environment and reduce strain, but they do not fully replace the benefits of outdoor experiences. The findings also show that restorative opportunities exist across different spatial zones, ranging from looking outside to walking in the neighbourhood, with greater distance from the workplace leading to stronger mental recovery but requiring more effort and intention. This thesis concludes that encouraging restorative behavior requires both well designed environments and supportive workplace cultures. By combining theories such as Attention Restoration Theory, Stress Recovery Theory, salutogenesis and affordances, this thesis contributes to a better understanding of how restoration works in everyday digital work settings.

Keywords: restoration; workplace; health and wellbeing; environmental psychology; affordances; organizational culture; breaks; behavior.

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Abbreviations

Abbreviation	Description
ART	Attention Restoration Theory
PSD	Perceived Sensory Dimensions
SLU	Swedish University of Agricultural Sciences
SRT	Stress Recovery Theory

1. Introduction

Modern office work is increasingly screen based. Many employees spend most of the workday seated in front of computers, often with limited opportunities to move or engage with natural elements. This way of working supports efficiency and digital communication but can also lead to mental fatigue and reduced concentration (Leroy, 2009; Mark et al., 2008). These challenges have been widely discussed in research on contemporary work environments and raise questions about how everyday work routines can better support employee wellbeing.

There is growing awareness that wellbeing at work is not only an individual responsibility, but also something that workplaces can actively support through physical design and organizational practices. Research in environmental psychology shows that contact with natural environments can help people recover from stress and mental fatigue. This includes both direct contact, such as being outdoors, and indirect contact, such as views of greenery or indoor plants (Kaplan & Kaplan, 1989; Ulrich et al., 1991). Even short and everyday interactions with nature can contribute to recovery during the workday, often described as micro restorative experiences.

Research has examined how nature can be incorporated into everyday working life. For example, Petersson Troijie et al. (2021) investigated outdoor office work through an interactive research project with employees of a Swedish municipality. Their findings indicated that working outdoors could support well-being, recovery, autonomy, cognitive functioning and social relationships. However, participants also described feelings of guilt and uncertainty about whether working outdoors was appropriate. Similarly, Lygum et al. (2023) examined employees' experiences of working in outdoor green spaces. Their findings highlighted the importance of simplicity, safety, comfort and contact with nature in the physical environment. Although these studies provide important insights into the benefits and challenges of outdoor office work, taking a restorative break in nature is not necessarily the same as working outdoors.

Nature based restorative behaviors are not always supported or encouraged in practice. This thesis incorporates insights from earlier master's studies because the everyday use of nature for restorative purposes in office work is not yet extensively studied in journal articles or large scale research. A master's thesis by Ahlroth (2020), conducted at the Swedish University of Agricultural Sciences (SLU), shows that spatial qualities such as calmness, light and richness of natural elements can support wellbeing when people are able to engage with them meaningfully. Using a salutogenic affordances framework, Ahlroth highlights that physical design alone is not sufficient. Organizational culture and everyday routines must also allow for short breaks, bodily awareness and psychological

recovery during the workday.Similarly, Westlin's (2024) master's thesis from Mälardalen University explores outdoor office work and demonstrates that cultural norms strongly influence whether employees feel comfortable using outdoor environments during work hours. The study shows that beliefs about where real work should take place, often indoors and at a desk, can prevent employees from using available green spaces. Trust and autonomy were identified as key factors for enabling outdoor restorative behavior, suggesting that organizational values play a crucial role alongside environmental design.

The choice of topic for this thesis is also grounded in personal experience. I observe similar patterns in my own workplace, a young, health focused scale up where digital work is central. Spending long hours in front of a screen can make it easy to forget to take outdoor breaks or to overlook the benefits of nearby natural elements. Since the company's mission is to support health, this raises questions about how everyday work routines affect employee wellbeing and relationships with nature, even in organizations with health oriented values.

Building on insights from environmental psychology and previous research, this thesis explores how employees experience breaks, movement and contact with nature during the workday and how workplace environments either support or hinder these behaviors. This thesis draws on theories of restoration, biophilic design, affordances, and salutogenic environments and uses qualitative interviews to understand what motivates or limits nature based breaks in everyday work contexts.

By focusing on employees' lived experiences, this thesis aims to contribute to a better understanding of how everyday work environments can support potentially restorative breaks. The findings are intended to inform both workplace design and organizational practices, highlighting how environmental and cultural changes may encourage healthier and more restorative behaviors during the workday.

2. Background

This chapter presents the theoretical and research background for this thesis and is structured to move from a broader, overarching perspective to more topic specific knowledge. Its purpose is to explain the ideas and studies that help understand how workplace environments can support restorative behaviors during the workday. The chapter draws mainly on environmental psychology and research on restorative environments.

The starting point is contemporary office work, which is increasingly digital and mentally demanding. Many employees spend long hours sitting indoors and working with computers. These conditions can lead to mental fatigue and limited physical movement. To understand how restorative behaviors may occur at work, it is important first to understand these structural conditions.

The chapter then introduces central theories of restoration, such as Attention Restoration Theory (ART) and Stress Recovery Theory (SRT). These theories explain how contact with nature can help people recover from mental fatigue and stress. The concept of micro restoration is also discussed, highlighting how even short and everyday interactions with natural elements may support recovery during busy workdays.

Further, the chapter presents ideas about salutogenic environments, perceived sensory dimensions and affordances. These concepts help explain how environmental qualities and action possibilities influence wellbeing. Biophilic design is introduced as a way of integrating nature into built environments, while organizational culture is discussed as a factor that shapes whether employees feel able and comfortable taking restorative breaks.

2.1 Salutogenic environments

Salutogenic environments focus on how physical and social environments can support health and well-being. The concept of salutogenesis, introduced by Antonovsky (1996), shifts attention from factors that cause illness towards resources that help people maintain and improve their health. From this perspective, the environment can provide resources that help people manage everyday demands. In the workplace, these resources may include for example natural light and outdoor spaces. However, the presence of supportive environmental features does not automatically lead to restorative experiences. Their value also depends on how employees perceive and use them in their everyday working lives.

Ahlroth's (2020) master's thesis at SLU applies the concept of salutogenic affordances to work related environments. The study shows that qualities such as calmness, light and richness of natural elements support wellbeing when

individuals can engage with them meaningfully. Importantly, Ahlroth emphasises that physical design alone is not enough. Organizational routines, expectations and cultural norms influence whether employees perceive restorative affordances as accessible and acceptable.

2.1.1 The physical environment and biophilic design

The physical environment can influence how people experience and respond to their surroundings. One framework for understanding these environmental qualities is the Perceived Sensory Dimensions (PSD) model. In environmental psychology and landscape research, this model identifies qualities associated with restoration and stress reduction (Grahn & Stigsdotter, 2010). These include serenity, nature, refuge, prospect and space. Although the model has mainly applied to parks, these qualities may also be relevant to workplaces. For example, a view through a window may provide a sense of openness, while a quiet outdoor space may offer opportunities for calm and temporary distance from work demands.

The concept of affordances helps explain this further. Affordances refer to the action possibilities that an environment offers, as perceived by the individual (Gibson, 1979). They are relational, meaning they depend both on the physical properties of the environment and on the person's abilities. In a workplace, a garden may physically afford walking or sitting. However, if it feels socially unclear or culturally discouraged, its restorative potential may remain unused.

Biophilic design is one approach to incorporating nature into built environments to support human health and well-being (Kellert & Calabrese, 2015). Based on the biophilia hypothesis, which proposes that humans have a tendency to seek connections with nature. Biophilic design can include indoor plants or access to outdoor spaces. Research suggests that these features may positively influence mood and stress (Terrapin Bright Green, 2014; Yin et al., 2020).

However, the presence of natural elements does not necessarily result in restorative behavior. A window view or indoor plants may improve the experience of an office, but these features do not automatically encourage employees to take a break. Similarly, an outdoor space may offer opportunities for restoration without being used. Understanding restorative behavior therefor requires attention not only to the physical environment but also to how employees experience the available opportunities.

This view aligns with research in environmental psychology and nature based interventions, which shows that the quality of experience and meaningful engagement are more important than simply having natural elements present (Pálsdóttir et al., 2014).

2.1.2 Organisational culture and restorative opportunities

Restorative behaviour at work is influenced not only by the physcial environment but also by organisational culture. Organisational culture refers to the shared norms and informal rules that guide behaviour within a workplace. These influence how employees understand productivity and what they consider appropriate during the workday.

In screen-based workplaces, where work is less physically visible, being present and responsive can become important signs of commitment. Research suggests that expectations around productivity and continuous engagement can discourage employees from taking restorative breaks, even when breaks are formally permitted (Elsbach & Hargadon, 2006). Employees may hesitate to leave their desks or step outside because they do not want to appear unavailable or unproductive.

These expectations do not always take the form of explicit rules. Instead, they may be communicated through everyday practices, such as expectations of quick responses or the assumption that employees should remain available. Such norms can make restorative breaks feel like an interruption to work rather than a normal part of the workday.

Research on restorative breaks in workplace settings also highlights the importance of trust and supportive leadership. When employees feel trusted to manage their responsibilities, they may find it easier to take restorative breaks outside without worrying about negative judgement (Westlin, 2024). Conversely, the availability of outdoor spaces may have limited influence if employees do not feel that using them is accepted.

2.2 Contemporary office work

Work environments have changed a lot in recent decades. Knowledge based and digital forms of work now dominate many sectors, shaping how employees carry out tasks and interact with their surroundings. Unlike industrial or physically active jobs, contemporary office work is mostly sedentary and screen based, requiring long periods of mental focus. Understanding these working conditions is important, as they create the context in which fatigue, recovery and restorative behaviors take place during the workday.

2.2.1 Screen based work

In contemporary knowledge based workplaces, screen based tasks shape everyday routines. Employees spend much of their workday using computers and digital communication tools. Typical tasks include reading and writing texts,

analyzing information, attending online meetings and responding to a constant flow of messages and updates. These activities require strong concentration, quick thinking and the ability to handle several tasks at the same time. Unlike physically active work, which includes movement and changes of setting, digital office work is mostly sedentary and mentally demanding (Korpela et al., 2017).

Such work requires long periods of directed attention, which is the effortful mental process used to focus on tasks and block out distractions (Kaplan & Kaplan, 1989). When this type of attention is used continuously, it can become fatigued. Over time, sustained mental effort may lead to reduced concentration and mental tiredness. Although digital technologies improve efficiency and flexibility, they also increase interruptions and information overload (Mark et al., 2008). This mix of constant focus and frequent task switching can gradually drain cognitive energy.

In this situation, it becomes important to understand how employees experience and handle mental strain. Rest during the workday may not only be about feeling comfortable but may also contribute to sustaining performance and wellbeing in mentally demanding work environments.

2.2.2 Hybrid work

In addition to increased digitalization, work structures have changed further after the COVID-19 pandemic. Remote collaboration and flexible working arrangements have changed where and when work takes place. While this flexibility can increase autonomy, it also increases dependence on digital communication and constant connectivity. Research on remote and hybrid work shows that digital technologies can blur the boundaries between work and private life, leading to longer availability and less psychological detachment from work (Allen et al., 2014; Derks & Bakker, 2014).

In digitally work environments, natural transitions between tasks and spaces may become less clear. In traditional office settings, walking between meeting rooms or going outside during lunch created physical pauses in the workday. In contrast, virtual meetings and digital tasks often follow one another with little movement or change of environment. Studies indicate that remote work can increase screen time and reduce incidental movement during the day (Oakman et al., 2020).

Expectations of quick responses may also be strengthened by digital communication platforms. Visible online status indicators and instant messaging systems can influence norms around availability and engagement (Mazmanian et al., 2013). As a result, employees may feel less comfortable stepping away from their screens, even for short breaks, because doing so may appear as reduced responsiveness.

2.2.3 Sedentary behavior

In addition to cognitive demands, contemporary office work is also marked by long periods of sitting. Employees often stay seated for many hours while working on computers, usually in fixed postures and artificial indoor environments. Research on sedentary work shows that prolonged sitting is linked not only to physical health risks, but also to lower energy levels and reduced feelings of vitality (Leroy, 2009; Owen et al., 2010).

Limited physical movement can reduce variation in bodily activation and sensory input. When work mainly takes place in front of a screen and within the same space, opportunities for movement and environmental change are limited. From an environmental psychology perspective, interaction between the body and the environment plays an important role in how people experience and regulate their mental and emotional states (Gifford, 2014). A lack of movement and environmental variation may therefore contribute to feelings of stiffness and mental tiredness.

In digitally work settings, incidental movement, such as walking between offices, may decrease even further. As a result, physical transitions that previously created natural pauses in the workday may no longer occur automatically. Employees may need to actively interrupt sedentary patterns and create moments of variation themselves. Understanding how employees experience and respond to these embodied conditions is therefore important for examining restorative behavior in contemporary office environments.

2.2.4 Breaks and insufficient recovery

In cognitively demanding and sedentary work environments, breaks are one of the main opportunities for recovery during the workday. Research on work recovery shows that effective breaks include psychological detachment from work tasks or activities that are different from regular job demands (Sonnentag & Fritz, 2007; de Bloom et al., 2014).

However, in today's digital work settings, breaks are often shortened or filled with more screen based activities. Employees may check emails during lunch, scroll on their phones between meetings or continue working informally while technically on break. These kinds of pauses may not create enough mental contrast to allow real recovery. Research suggests that breaks without psychological detachment or environmental variation may have only limited restorative effects (Trougakos et al., 2008).

In digitally work cultures, break taking may also be influenced by social expectations. Employees may feel uncertain about stepping away from their desks or leaving the workplace if constant availability is expected. In this way, restorative opportunities are shaped not only by the physical environment but also by organizational routines and cultural norms.

2.3 Restoration

Research in environmental psychology shows that natural environments can support both mental and physical recovery. Restoration refers to the process through which tired cognitive and emotional resources are renewed and helping individuals regain focus (Kaplan & Kaplan, 1989; Ulrich, 1983). In contemporary knowledge based work, where employees spend long periods concentrating on digital tasks, restorative processes are especially important.

Two main theories help explain how environmental restoration works: ART and SRT. Although these theories focus on different processes, both highlight the important role of natural environments in helping people recover from cognitive fatigue and emotional strain.

2.3.1 Restoration theory

ART (Kaplan & Kaplan, 1989) explains restoration mainly from a cognitive perspective. The theory makes a distinction between directed attention and involuntary attention. Directed attention is the effortful type of attention used for work tasks and blocking out distractions. It is a limited mental resource that can become tired when used for long periods. Involuntary attention, on the other hand, is automatically drawn to interesting or pleasant stimuli without effort.

Natural environments are believed to support recovery because they engage attention in a different way. According to ART, restorative environments have four important qualities:

- Being away: a feeling of mental or physical distance from everyday demands.
- Soft fascination: stimuli that gently attract attention without effort, such as moving leaves.
- Extent: a sense of coherence and richness that makes the environment feel involving and connected.
- Compatibility: a good fit between the environment and the person’s needs or intentions.

Unlike office environments, natural settings allow directed attention to rest while involuntary attention is softly engaged. Even short exposure to nature, such as looking at trees through a window or taking a brief walk outside, may create enough mental contrast to reduce attentional fatigue. This makes ART especially relevant for understanding how short, everyday breaks can support recovery during the workday.

2.3.2 Stress Recovery Theory

SRT (Ulrich, 1983; Ulrich et al., 1991) complements the cognitive focus of ART by focusing more on emotional and physical processes. SRT suggests that humans have evolved to respond positively to natural environments that signal safety and resources. When people are exposed to non threatening natural settings, their bodies can quickly reduce stress responses, such as high blood pressure and activation of the stress system.

According to SRT, restoration happens through sensory experiences such as natural sounds, organic shapes and greenery. These elements are linked to feelings of calmness and positive emotions. Importantly, this recovery can happen quite quickly, sometimes within just a few minutes, which makes nature especially relevant for short breaks during the workday.

While ART mainly focuses on restoring attention and SRT focuses on reducing stress, both theories highlight the restorative value of nature based experiences. Together, they help explain how exposure to natural environments can counterbalance the mental and emotional demands of screen based work.

2.3.3 Contemporary work contexts

Although ART and SRT were not originally developed for office settings, they have become more relevant as work has become more sedentary and mentally demanding. In digital workplaces, employees may not have access to long periods in natural environments. Therefore, it is important to understand whether short and everyday contact with nature can still support meaningful recovery.

The concept of micro restoration has developed in response to this situation. Micro restoration refers to short and easily accessible encounters with natural elements that may still help people recover. Examples include stepping outside for a few minutes, sitting near a window, noticing greenery or being close to indoor plants (Lee et al., 2015; Shin & Kim, 2023). These experiences may not offer the deep engagement described in earlier restoration research, but they may create enough contrast from screen based work to interrupt cognitive strain.

2.4 Micro restoration

Early research on restorative environments mainly focused on larger and more engaged natural settings, such as forests. These studies showed clear cognitive and physical benefits after longer exposure to nature. However, in contemporary work contexts, employees rarely have the opportunity for extended engagement in nature during the workday. Because of this, more recent research has shifted attention toward smaller and everyday encounters with nature and their possible restorative value.

In office settings, recovery is more likely to occur through short and repeated interactions with natural elements that are part of daily routines. These brief encounters are often described as micro restorative experiences. Micro restoration refers to small moments of sensory or perceptual contrast that interrupt ongoing cognitive or emotional strain and support gradual recovery (Hartig et al., 2014). Instead of requiring long periods away from work, micro restorative experiences work through subtle shifts in attention or sensory input.

Examples include stepping outside for a few minutes, walking around the building, noticing changes in daylight through a window, interacting with indoor plants or briefly observing natural scenery. Although these actions may seem minor, they can create meaningful psychological distance from work tasks. The restorative effect may not only come from nature itself, but also from the contrast it creates compared to screen based work (Lee et al., 2015; Shin & Kim, 2023).

Restoration is not only visual or cognitive. Research on nature based interventions shows that restorative experiences are often multisensory and embodied (Pálsdóttir et al., 2014; Cerwén et al., 2016). Sensory inputs such as natural sounds, moving light, temperature changes, airflow, textures and bodily movement all shape how environments are experienced as calming or refreshing. This is especially relevant in office environments, where sensory variation is often limited and dominated by artificial light, controlled indoor climate, repetitive sounds and static sitting positions.

From this perspective, micro restoration involves more than simply looking at nature. It includes bodily engagement and sensory change that interrupt the monotony of digital work. Even small physical changes, such as standing up, stretching or walking combined with exposure to natural elements may influence both mental clarity and emotional state.

Soundscape research supports this understanding. Studies show that natural sounds, even at low intensity, can help emotional recovery and reduce stress responses (Ratcliffe, 2021). The contrast between mechanical indoor noise and softer outdoor sounds may contribute to a sense of relief. This may suggest that the restorative value of outdoor breaks is shaped by multisensory contrast, not only by visual greenery.

In contemporary digital work, micro restoration is therefore highly relevant. When employees experience ongoing cognitive strain throughout the day, short and repeated moments of sensory and attentional variation may function as adaptive regulation strategies. Instead of seeing restoration as something rare or exceptional, micro restoration frames recovery as an ongoing and integrated part of daily routines.

2.5 Relevance for the present thesis

Although there is extensive research on restorative environments, less attention has been given to how restorative behavior is negotiated within real organizational contexts. In particular, there is limited research on how employees themselves recognize fatigue, perceive environmental possibilities and navigate organizational norms when deciding whether to take nature based breaks in contemporary digital workplaces.

Taken together, research from environmental psychology, restoration theory, salutogenic design and workplace studies shows that recovery during the workday is shaped by a complex interaction between sensory experience, spatial affordances and organizational culture. Natural environments have consistently been shown to support cognitive recovery and stress reduction (Kaplan & Kaplan, 1989; Ulrich, 1983; Ulrich et al., 1991). At the same time, contemporary office environments are characterized by long periods of screen exposure, high cognitive demands and subtle productivity norms that may restrict opportunities for disengagement (Mark et al., 2008; Mazmanian et al., 2013).

While restoration theory provides evidence for the benefits of nature contact, much of this research has focused on involved settings or leisure contexts rather than everyday office environments (Hartig et al., 2014). Similarly, research on biophilic design often highlights the presence of natural elements, but pays less attention to how these elements are actually perceived and integrated into daily work routines (Kellert & Calabrese, 2015; Yin et al., 2020). Organizational research emphasizes the role of cultural norms, yet the interaction between spatial design and workplace culture remains underexplored (Elsbach & Hargadon, 2006).

This creates an interesting gap in understanding how restorative opportunities are negotiated in digitally office workplaces. It is not enough to know that nature can restore attention, it is equally important to understand how employees become aware of fatigue, how they interpret the affordances available to them and how they respond to organizational expectations when deciding whether to take a break (Gibson, 1979; Antonovsky, 1996).

By focusing on employees' lived experiences of breaks and contact with nature, this thesis builds on established theoretical frameworks while bringing them closer to the everyday realities of knowledge based work. Perspectives from different theories are combined to better understand how restoration is not only a theoretical concept, but also something that unfolds within the flow of daily work.

3. Aim and research questions

The aim of this thesis is to explore how workplace environments and conditions can encourage potentially restorative behaviors among employees, with a particular focus on what motivates or hinders employees from taking healthy, nature based breaks during the workday.

Research questions

1. What motivates employees to take restorative, nature based breaks during the workday?
2. What barriers do employees experience that prevent them from taking such breaks?
3. How do environmental and organizational factors influence employees' decisions about taking restorative breaks?

4. Method

This chapter describes the methodological approach used to explore how workplace environments influence restorative behaviors during the workday. It explains the research design, data collection and data analysis, providing transparency about how the thesis was conducted.

A qualitative research design was chosen to understand employees' experiences and perceptions. This approach aligns with environmental psychology, which focuses on the interaction between individuals and their physical and organizational environments (Braun & Clarke, 2021; Gifford, 2014).

The chapter outlines the thesis context, participant recruitment, data collection through semi structured interviews and the use of reflexive thematic analysis. It also addresses ethical considerations and the researcher's role in the research process.

4.1 Research design

This thesis adopts a qualitative research design to explore how employees experience breaks, movement and contact with nature during the workday. A qualitative approach was chosen because the aim of this thesis is to understand meanings and perceptions rather than to measure predefined variables or outcomes. This thesis draws on environmental psychology, which emphasizes the reciprocal relationship between individuals and their physical and social environments (Gifford, 2014).

This thesis takes the view that knowledge and meaning are shaped by people's experiences and social contexts, rather than existing as objective facts (Braun & Clarke, 2021). Knowledge is therefore produced through participants' accounts of their experiences and through the researcher's interpretive engagement with the data. Rather than aiming to identify a single objective truth, this thesis seeks to develop an interpretive understanding of how restorative opportunities are experienced and negotiated within a specific workplace context. The data were analyzed using reflexive thematic analysis, following the approach outlined by Braun and Clarke.

Although the analysis was primarily inductive, it was informed by existing theoretical perspectives. These theories helped guide interpretation by highlighting what to pay attention to, without determining the analysis in advance. This combination of inductive analysis and theoretical sensitivity allowed this thesis to remain grounded in participants' experiences while situating the findings within a broader environmental psychological framework.

4.2 Workplace context

This thesis was conducted within the workplace of a Dutch digital health platform that provides an online selftriage tool for individuals experiencing health complaints. The platform is accessible via both a website and a mobile application and is designed to be userfriendly and available to a broad population.

The organisation behind the platform operates within the digital health sector and is characterised by knowledge based, screen intensive work. Employees primarily engage in tasks such as software development, quality assurance, content development, data analysis and user support. Daily work routines involve prolonged periods of computer use.

Approximately 30 employees work together in one large office space on the ground floor. The desks are arranged in six islands, each containing approximately four to five desks. Desk allocation is flexible meaning that employees choose an available desk when they arrive rather than having an assigned workstation. Windows are located along the front and back sides of the office. The kitchen provides coffee and tea facilities, and three small meeting cabins are centrally located. The bathrooms are situated one hallway away from the main office. In addition to the indoor workplace, the workplace includes a balcony and a terrace.

This workplace context is particularly relevant for exploring restorative behaviors, as it combines high cognitive demands with a commitment to health and wellbeing. The organisation provides access to indoor environmental features such as daylight and views, as well as proximity to outdoor spaces, yet the extent to which these afford restorative opportunities depends on both spatial conditions and organizational norms.

The researcher is employed at the organization, which enabled access to the study context and participants. Being an insider gave the researcher a good understanding of everyday work routines and organizational culture,but also required ongoing awareness of personal assumptions and power relations. This aspect is further addressed in Section 4.9 on reflexivity and researcher positioning.

4.3 Participants and recruitment

The participants in this thesis were employees working at a Dutch digital health organization. The target group was selected because such work environments are associated with high cognitive demands and limited opportunities for movement during the workday, making them particularly relevant for exploring restorative behaviors.

A sampling strategy was used to recruit participants who were expected to be able to reflect on their everyday work routines and experiences of breaks.

Inclusion criteria required that participants had been employed at the company for at least six months, worked primarily with digital tools and were present on site at least one day per week. These criteria were applied to ensure that participants had sufficient familiarity with the workplace environment and its routines.

An invitation email (see Appendix 1) describing the purpose of the research and the voluntary nature of participation was sent to all employees. The first five individuals who expressed interest were invited to participate after providing oral informed consent. Additional respondents were placed on a reserve list in case of withdrawal or scheduling difficulties. This recruitment approach aligns with qualitative research practices that prioritize transparency and voluntary participation (O'Reilly, 2012).

The researcher had been employed at the organization for more than two and a half years at the time of the study. Consequently, the researcher already knew the participants as colleagues before the interviews took place. However, the degree of familiarity varied. Some colleagues interacted with the researcher more frequently in everyday work, while others were colleagues with whom the researcher had limited direct contact. The researcher anticipated that collegues with whom there was a closer working relationship might be more likely to participate. However, interest in the study also came from colleagues with whom the researcher had less frequent contact. There first five employees who expressed interest were invited, regardless of their existing relationship with the researcher.

The final sample consisted of five participants, referred to using anonymized identifiers (P1–P5). The group included variation in age, gender and professional role and daily work routines, contributing to a range of perspectives on taking breaks. Rather than aiming for statistical representation, the sample size was considered appropriate for a qualitative exploration of meanings and experiences (Etikan et al., 2016; Malterud et al., 2016).

In line with reflexive thematic analysis, the researcher assessed the dataset's adequacy in relation to the aim and research questions of this study. During familiarization with the five interviews, recurring patterns related to restorative practices and organizational norms become apparent. At the same time, differences between participants provided further insights into how restorative behaviour was experienced. Based on this assessment, the researcher considered the dataset sufficiently rich to address the research questions.

4.4 Data collection

Data were collected through semistructured interviews. This method was chosen because it allows participants to describe their experiences and perceptions in their own words, while ensuring that important topics stay relevant to the aim.

An interview guide was developed to support the interviews while allowing flexibility to follow participants' narratives (see Appendix 2). The guide included

open ended questions related to daily work routines, experiences of mental and physical fatigue, breaks and perceptions of indoor and outdoor environments. Organizational aspects such as meeting culture and availability were also explored. Follow up questions such as *"Can you describe that situation in more detail?"* were used to encourage richer reflections.

The interview guide was informed by a review of literature on restorative environments, biophilic design, affordances and salutogenesis, including ART (Kaplan & Kaplan, 1989) and work on therapeutic and restorative landscapes (Cooper Marcus & Sachs, 2014). These perspectives helped guide the focus of the questions without being used as fixed analytical categories.

Five individual interviews were conducted between 9 and 23 December 2025. Interviews took place in a quiet room at the workplace. Each interview lasted approximately 30–45 minutes. All interviews were conducted in Dutch, the participants' native language and were audio recorded with oral consent.

To support reflection during the interviews, a simple participatory element in the form of a printed Likert style ladder was used. Participants were invited to position themselves along the ladder in relation to perceived restorative support during the workday. This tool was used as a conversational prompt rather than as a measurement instrument and was not analyzed quantitatively. Its purpose was to facilitate reflection and discussion rather than to generate comparable scores (Braun & Clarke, 2021).

The interviews were transcribed by hand in Dutch immediately afterward and then translated into English. During transcription, any potentially identifying information was removed, and participants were assigned anonymized identifiers (P1–P5). When parts of the audio recordings were unclear or inaudible, these segments were excluded from further analysis. All data were handled confidentially and stored securely.

4.5 Theoretical concepts

Although the analysis in this thesis was primarily inductive, it was informed by several theoretical perspectives that functioned as supporting concepts. Supporting concepts provide a general sense of direction and focus without determining analytical categories in advance, allowing the analysis to remain grounded in participants' own descriptions while supporting interpretation (Braun & Clarke, 2021).

A central theoretical foundation was ART. This theory informed attention to how participants described changes in focus and cognitive relief in relation to breaks, movement and contact with nature during the workday (Kaplan & Kaplan, 1989). In addition, biophilic design theory was used to support the analysis to the role of natural elements in built environments. Moreover, the analysis was further informed by affordance theory, originally developed by Gibson (1979). This

concept supported interpretation of how different workplace spaces either enabled or constrained restorative practices such as stepping outside or taking informal breaks. Additionally, a related perspective was provided by salutogenic theory, which emphasizes factors that support health and wellbeing rather than focusing on risk or pathology (Antonovsky, 1996).

Finally, Bengtsson's (2015) four zone model of contact with nature was used as a supportive framework. These zones were used as an analytical structure to categorize how participants described restorative opportunities within and around the workplace environment, see Figure 1. The model distinguishes different zones of contact with nature, ranging from contact with nature indoors to contact with nature in the surrounding environment. In this thesis, the zones were understood in simple terms as follows. The indoor zone (zone 1) refers to contact with nature from within the workplace, for example through daylight or views from a window. The transition zone (zone 2) refers to spaces between indoors and outdoors, such as balcony or terrace. The outdoor zone (zone 3) refers to outdoor spaces where employees can experience nature more directly, such as a garden or nearby green space. And the neighbourhood zone (zone 4) refers to the wider surroundings, where contact with nature may occur during a walk or while moving through the neighbourhood. Importantly, the model was not applied as a predefined coding structure but was used during later phases of analysis.

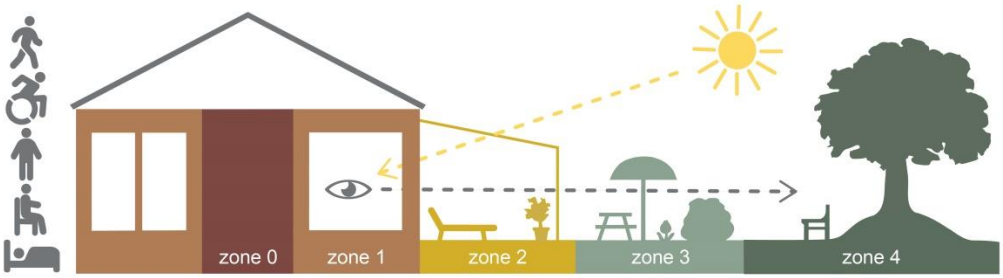


Figure 1 Illustration: Anna Bengtsson

4.6 Data analysis

The interview data were analyzed using reflexive thematic analysis, following the six phase approach described by Braun and Clarke (2021). This method was chosen because it allows for a flexible and interpretive exploration of patterns of meaning across a qualitative dataset, while acknowledging the active role of the researcher in the analytical process.

Importantly, the analysis was conducted across the dataset as a whole, rather than interview by interview. This ensured that themes were developed based on shared patterns of meaning across participants, while still allowing for variation and nuance in individual experiences. Throughout the analysis, the researcher

moved iteratively between the data, emerging themes and relevant theoretical perspectives.

4.6.1 Phase 1: Familiarization with the dataset

The analysis began with repeated and active reading of all interview transcripts to gain a broad understanding of the dataset. During this phase, attention was paid to how participants described their workday, experiences of fatigue and recovery, breaks and interactions with indoor and outdoor environments. Where necessary, audio recordings were revisited to ensure the accuracy and authenticity of the transcripts.

4.6.2 Phase 2: Initial codes

In the second phase, the entire dataset was coded in a mainly inductive way. This means that the codes were created from the participants' own words and descriptions, not from a predefined list based on theory. The goal at this stage was to stay close to how participants described their experiences of breaks and the work environment.

The codes captured important aspects of the data related to the research questions, such as feeling mentally tired, being unsure whether certain spaces could be used or experiencing pressure to stay productive. When needed, more than one code was given to the same part of the text in order to reflect the complexity of what participants were describing.

Even though the coding was mainly inductive, the research is grounded in environmental psychology. Theories about restoration, affordances and organizational culture helped guide the researcher's attention during the process. However, these theories were not used as fixed categories for coding. In other words, theory influenced what the researcher paid attention to, but it did not decide the codes. The coding process was iterative. Codes were reviewed, adjusted, merged or refined as the researcher's understanding of the data developed.

4.6.3 Phase 3: Candidate themes

In this phase, the initial codes were examined and grouped into broader patterns of shared meaning. Related codes were clustered together to form candidate themes and subthemes. The focus was on identifying patterns that captured something meaningful about how participants experienced restorative behaviors during the workday.

At this stage, themes were treated as tentative and exploratory. The researcher moved back and forth between coded data, developing themes and the full dataset to ensure that emerging themes were grounded in the data and relevant to the research aim.

4.6.4 Phase 4: Refining themes

In this phase, the candidate themes were reviewed and improved. The researcher checked whether each theme clearly represented a meaningful pattern in the data and whether the themes were different from one another.

During this stage, theoretical ideas were used as supportive lenses to help interpret the themes. For example, ideas about different levels of contact with nature helped the researcher reflect on how restorative experiences varied between indoor spaces, transition areas, nearby outdoor spaces and the wider neighbourhood. However, these ideas were not used as strict analytical categories. Instead, they helped deepen the understanding of patterns that had already emerged from the data (Braun & Clarke, 2021).

In reflexive thematic analysis, themes are always interpretive. This means they are developed through the researcher's active engagement with the data. Throughout this phase, the researcher moved back and forth between the themes and the full dataset to make sure that the interpretations remained closely connected to what participants had actually said.

4.6.5 Phase 5: Naming themes

Once the themes were refined, each theme and subtheme was named. This involved articulating the core meaning of each theme and clarifying how it related to the aim and research questions. Theme names were chosen to reflect both participants' experiential accounts and the researcher's interpretive understanding of the data.

This phase marked the transition from organizing data to developing an analytical narrative that explains how and why certain patterns of meaning are important in understanding restorative behavior in the workplace context.

4.6.6 Phase 6: Producing the results

The final phase involved writing the results section. The results present an interpretive account of each theme, supported by selected interview excerpts that illustrate key aspects of the themes. In line with reflexive thematic analysis, the focus is on meaning and interpretation rather than on quantifying responses or comparing participants.

Only the final themes are presented in the results section. Intermediate analytical materials, such as detailed coding tables and thematic maps, formed part of the analytical process and are therefore not presented as results due to privacy. However, to enhance transparency, an illustrative example of the analytical process is presented separately (see Section 4.7, *Example of the analytical process*).

4.7 Example of the analytical process

To enhance transparency and provide insight into how the analysis was conducted, this section presents an example of the analytical process. The purpose of this example is to demonstrate how interview material was transformed through analytical steps, from raw data extracts to initial codes, subthemes and overarching themes.

Table 1 presents selected data extracts from different interviews and shows how these were coded and grouped during the analysis. The example reflects the collective and iterative nature of the analytical process, as data from multiple participants were analyzed together. The table illustrates how similar meanings expressed across the dataset contributed to the development of shared patterns of meaning. Only the sub and final themes are presented and interpreted in the results section.

Table 1. Example of coding across the dataset.

Interview (P#)	Data extract	Initial code(s)	Subtheme	Theme
P1	"When I step outside for a bit, it feels like my head resets."	Mental reset through stepping outside	Breaks as cognitive reset	Value of breaks and movement
P2	"If I sit too long, my concentration just drops."	Declining concentration from prolonged sitting	Internal motivation for movement	Value of breaks and movement
P3	"Walking helps me think when I'm stuck."	Movement supports thinking	Breaks as cognitive reset	Value of breaks and movement
P4	"If it's raining or cold, I usually stay inside."	Weather discourages outdoor breaks	Weather and comfort issues	Barriers to nature based breaks
P5	"Meetings often go into lunch, so I don't really take a break."	Meetings interfere with breaks	Workload and productivity norms	Barriers to nature based breaks

In addition to illustrating the coding process, the examples also demonstrate how participants' experiences can be interpreted through relevant theoretical perspectives discussed in the theoretical framework.

For example, participant P1 described that briefly stepping outside helps them mentally reset. This experience aligns with SRT (Ulrich, 1991), which suggests

that exposure to natural environments can quickly reduce psychological stress and promote emotional recovery. Even short interactions with outdoor environments may therefore provide restorative benefits during the workday.

P4 noted that unfavorable weather conditions discourage them from going outside during breaks. From the perspective of affordance theory (Gibson, 1979), environments provide opportunities for action only when conditions allow individuals to comfortably engage with them. In this case, poor weather limits the perceived affordances of outdoor spaces, reducing the likelihood that employees use them for restorative breaks.

4.8 Reflexivity and researcher positioning

Reflexivity was an integral part of the research process, from the data collection to analysis and interpretation. Reflexive thematic analysis recognizes that the researcher plays an active role in knowledge production and that interpretations are shaped by the researcher's background and experiences (Braun & Clarke, 2021). Rather than attempting to eliminate subjectivity, this thesis acknowledges and reflects upon the researcher's position in relation to the research context.

The researcher is employed at MINDD, the organization in which the research was conducted. This insider position provided contextual knowledge of everyday work routines, organizational norms and the physical work environment, which supported sensitivity to nuances in participants' accounts. At the same time, this position required continuous reflexive awareness of potential assumptions and power relations, particularly in relation to participants' willingness to speak openly about workplace practices.

To address this, the researcher emphasized the voluntary nature of participation and clarified that interview responses would not be shared with the organization in an identifiable form. During interviews, efforts were made to adopt an open and nonjudgemental stance, allowing participants to guide the conversation and define what they experienced.

Reflexive practices were also integrated into the analytical process. Analytic notes were written throughout familiarization, coding and theme development to document emerging interpretations in understanding. These notes were used to critically reflect on how the researcher's own experiences of screen based work and interest in restorative environments may have shaped analytical choices and theme construction.

This approach aligns with reflexive thematic analysis, in which the researcher's role is understood as a resource for interpretation rather than a source of bias to be eliminated.

4.9 Pilot testing

Prior to the main data collection, pilot testing was conducted to evaluate the clarity and flow of the interview guide. The purpose of the pilot interviews was to assess whether the questions were understandable.

Two pilot interviews were conducted with individuals from the researcher's professional network who met the inclusion criteria for the research. Both pilot participants worked in office based roles, had been employed at their respective organizations for more than six months, and were present on site at least one day per week. The pilot interviews were conducted in Dutch and followed the same semi-structered format planned for the main interviews.The interviews were conducted as if they were part of the main data collection, allowing the researcher to assess the overall interview process and the flow of the questions.

At the end of each pilot interview, participants were asked to provide feedback on the interview guide. They were asked whether they had understood the questions and whether they had experienced any difficulties answering the questions. This provided an opportunity to identify potential issues with the wording and structure of the interview guide.

Feedback from the pilot interviews indicated that the whole structure of the interview guide was clear and easy to follow. One pilot participant reported that they had no difficulty responding to the questions and did not suggest changes. The second participant indicated that a more detailed verbal introduction at the beginning of the interview would be helpful to clarify expectations and make the interview situation feel more comfortable.

Based on this feedback, the opening script of the interview was revised to include a clearer explanation of the interview format and the emphasis on everyday experiences rather than right or wrong answers. No changes were made to the core interview questions.

Data generated during the pilot interviews were not included in the analysis. The pilot testing process nevertheless contributed to improving the quality and consistency of the data collection in this thesis.

4.10 Ethical considerations and trustworthiness

Ethical considerations were addressed throughout all stages of the research process. Participation in the research was voluntary and all participants were informed about the purpose of this thesis and their right to withdraw at any time without providing a reason. An invitation email outlining the aim and procedure was sent to all employees and oral informed consent was obtained from each participant prior to the interview. This approach aligns with ethical guidance for qualitative research at master's level where no sensitive personal data are collected (Swedish University of Agricultural Sciences, 2023).

To protect participants' privacy, all interviews were conducted in a quiet room at the workplace. Audio recording only started after participants had verbally confirmed their consent. During transcription, any potentially identifying information was removed, and participants were assigned anonymized identifiers (P1–P5). All data were stored securely and used solely for academic purposes.

Given that the research was conducted within the researcher's own workplace, particular attention was paid to ethical transparency and power relations. Participation was clearly communicated as independent of employment, and no managers were involved in the recruitment process. The researcher made explicit efforts to create a safe interview setting and to emphasize that there were no right or wrong answers.

The credibility of this thesis was strengthened by spending a long time working with the data, repeatedly moving between interview excerpts and developing themes. Instead of aiming to generalize the findings, this thesis seeks to provide a context specific understanding of employees' experiences in the workplace studied. Transferability is supported by giving detailed information about the study context, participants and analytical process, so that readers can judge whether the findings may be relevant to other workplace settings.

5. Results

This chapter presents the findings from the reflexive thematic analysis of the five interviews. The analysis explored how employees experience breaks and contact with nature during the workday. And how both environmental and organizational factors influence these practices.

Four main themes were developed across the dataset:
(1) Value of breaks and movement
(2) Barriers to nature based breaks
(3) Indoor environment and natural elements
(4) Affordances across spatial zones.

Taken together, the four themes represent different but interconnected dimensions of how restorative behavior emerges in the workplace (see Figure 2). Rather than functioning as isolated categories, they collectively describe a process in which employees recognise the need for recovery, negotiate organisational and social constraints, and respond to environmental cues and spatial opportunities. The subthemes within each main theme further unpack these dynamics by showing how experiences of breaks, barriers and environmental features are shaped in practice. In this way, the thematic structure reflects both the subjective experience of restoration and the contextual factors that enable or limit restorative behavior in a screen based work environment.

The following sections present each theme, supported by interview excerpts that illustrate important patterns of meaning across the dataset.



Figuur 2 Interconnection themes; Illustration: Shaniya Raghoebar

5.1 Value of breaks and movement

The theme *Value of breaks and movement* describes how employees understand breaks. In the data, breaks are not described as separate from work or as time lost from productivity. Instead, they are experienced as part of how work is sustained over time. The value of breaks is therefore described in relation to everyday experiences of mental and physical state, as well as the conditions of the work environment that shape opportunities to step away from work.

This theme is built up from three closely connected subthemes that each describe a different aspect of how breaks are experienced and talked about. *Breaks as cognitive reset* focuses on how employees describe mental fatigue as a gradual narrowing of attention, where thinking becomes repetitive and harder to control. In these descriptions, breaks are associated with interrupting this state and returning to clearer and more flexible thinking. *Social aspects of taking breaks* shows how break behavior is described as being influenced by colleagues and workplace interaction, including shared habits and informal expectations about being present and available. These factors are described as shaping when and how breaks are taken. *Internal motivation for movement* focuses on how participants describe bodily and cognitive signals such as tension or reduced concentration, which are linked to the decision to take a break.

These subthemes are related in the way they describe different conditions that are present when breaks occur. Participants describe internal signals as preceding the decision to take a break, social context as influencing whether taking a break feels possible or appropriate, and the experience of cognitive change as part of what is associated with stepping away from screen based work. Together, they show how break taking is described as connected to both internal states and workplace conditions, rather than being a single or isolated type of behavior.

5.1.1 Breaks as cognitive reset

Participants described breaks primarily as moments that interrupted a state of mental narrowing that developed during prolonged screen based work. Rather than sudden fatigue, this narrowing was experienced as a slow shift toward repetitive thinking and increasing difficulty maintaining focus. Breaks were therefore not primarily understood as recovery from exhaustion, but as a way of reversing this cognitive constriction and restoring mental clarity.

This restorative effect was closely tied to a perceived reset of attention, often triggered by a change in physical and sensory context. Stepping away from the screen, particularly by going outside or moving the body, created a sense of cognitive reorientation, where thinking felt less fixed and more open again. As one participant explained, *"When I step outside for a bit, it feels like my head resets."* This framing suggests that breaks were not experienced as empty pauses, but as active transitions between cognitive states.

A key aspect of this reset was the perceived expansion of attention. Participants contrasted the narrow, repetitive focus associated with screen work with a broader and more flexible mental state when disengaging from it. One participant captured this shift by noting, *"It's like everything widens a bit. I'm less stuck in the screen."* This indicates that breaks were experienced less as rest in a passive sense, and more as a change in the structure of attention itself.

Movement appeared to intensify this effect, with walking in particular described as useful for disrupting cognitive rigidity and enabling a shift in perspective. Across accounts, even brief breaks were considered effective, as long as they introduced sufficient contrast with ongoing work. This suggests that the mechanism of the reset was not time based, but context based. Changes in environment, bodily state and sensory input were sufficient to recalibrate attention.

Importantly, participants also described subtle bodily changes during breaks, such as altered breathing or increased physical awareness. These embodied aspects reinforced the sense that cognitive reset was not purely mental, but involved a broader psychophysiological shift.

All in all, breaks were experienced as small but functionally important interruptions that restore cognitive flexibility during sustained screen based work. Rather than optional pauses, they were embedded within work as practical mechanisms for maintaining effective attention and preventing cognitive narrowing.

5.1.2 Social aspects of taking breaks

Breaks were not only shaped by individual need but was also embedded in the social dynamics of the workplace. Participants described breaks as socially negotiated practices, where colleagues' behavior and initiative influenced when and how it felt appropriate to step away from work. Rather than being neutral pauses, breaks were understood in relation to informal expectations around presence and productivity, where staying at the desk signaled engagement with work.

Within this context, shared initiation of breaks played an important role in lowering the threshold for disengagement. When colleagues proposed a break collectively, stepping away became easier to justify, as responsibility was distributed across the group rather than placed on the individual. As one participant noted, *"If someone says, 'Let's go outside,' it feels more allowed."* This suggests that permissibility was not formally regulated, but socially produced through collective behavior, where group action normalised withdrawal from the desk.

Shared breaks also created a distinct interactional space compared to formal work communication. Walking together was typically described as informal and unstructured, often involving conversation unrelated to work tasks. Participants referred to this as, *"We just walk and talk about random things."* This highlights how breaks facilitated a shift from goal oriented workplace communication to more open ended social interaction, temporarily altering both the content and tone of engagement between colleagues.

However, social interaction was not consistently experienced as restorative. Participants also described situations in which sustained communication, such as back to back meetings, led to social overload, making withdrawal from interaction necessary. In these cases, breaks served the opposite function, reducing social input rather than increasing it. As one participant explained, *"After back to back meetings, I really need to be alone for a bit."* This indicates that breaks were not inherently social or solitary, but adjusted in response to prior interactional demands.

Solitary breaks, particularly walking alone, were described as enabling cognitive and social decompression, providing space for uninterrupted thinking and temporary disengagement from communicative demands. This flexibility

suggests that the restorative value of breaks depended on alignment with current needs rather than a fixed preference for either social or individual activity.

On the whole, restorative breaks emerged as a socially embedded practice shaped by workplace norms and interpersonal dynamics. At the same time, it functioned as a flexible mechanism for regulating both social engagement and withdrawal, allowing participants to shift between interaction and solitude depending on the demands of their workday.

5.1.3 Internal motivation for movement

Participants described break taking as partly driven by internal bodily and cognitive signals that developed during sustained screen based work. Breaks were not only triggered by external schedules or social cues, but often emerged gradually as awareness of reduced capacity increased during the workday. Fatigue was experienced less as sudden exhaustion and more as a slow decline in clarity and efficiency. This was marked by reduced focus and repetitive thinking. One participant noted, *"At some point, I just can't focus anymore."* This reflects a threshold where work becomes noticeably more effortful.

Physical sensations were also important indicators of strain. Participants described bodily discomfort, especially in the neck and shoulders, as early warning signs of fatigue. These often appeared before full awareness of mental tiredness. As one participant explained, *"My shoulders get tight, and that's usually when I realise I've been sitting too long."* This shows how the body helped signal when a break was needed.

Movement was described as a direct response to these internal cues. Participants framed breaks as a form of self regulation rather than passive reactions to tiredness. They monitored their own state and adjusted behavior to maintain functioning. This ability was also described as something that developed over time, as participants became more aware of their limits.

Breaks were consistently linked to maintaining productivity. They were not seen as interruptions, but as ways to support continued performance. One participant explained, *"It actually helps me work better afterwards."* This suggests a preventative logic, where movement helps avoid deeper fatigue.

However, participants also described a tension between awareness and action. Even when strain was recognized, work demands sometimes delayed taking a break. This shows that internal signals did not always lead to immediate behavior.

Mainly, internal motivation for movement emerged from the interaction between cognitive and physical signals during work. Breaks were experienced as responses to these signals. They helped regulate energy and physical strain throughout the day.

5.2 Barriers to nature based breaks

The theme *Barriers to nature based breaks* describes how participants explain the factors that influence whether nature based breaks are taken during the workday. In the data, stepping outside is not described as impossible or formally restricted, but as something that is influenced by everyday conditions that make it easier or more difficult to move away from work. Nature based breaks are therefore not presented as a default behavior, but as something that depends on external conditions, work demands and personal evaluations of whether a break is needed.

This theme is built up from three closely connected subthemes that each describe a different type of barrier to taking nature based breaks. *Weather and comfort thresholds* focuses on how immediate environmental conditions such as rain, wind or cold influence whether participants consider going outside. In these descriptions, comfort and physical ease are closely linked to whether outdoor breaks take place. *Workload structure and productivity norms* shows how ongoing tasks, meetings and expectations of availability shape continuous work patterns and make it more difficult to interrupt work for a break. These factors are described as creating momentum that discourages stepping away from the desk. *Limited perceived value of nature contact* focuses on how participants describe differences in how necessary or useful going outside is perceived to be, depending on situation, indoor environment and personal preference.

These subthemes are related in the way they describe different conditions that influence whether nature based breaks occur. Participants describe weather as shaping immediate feasibility, workplace norms as shaping continuity of work, and perceived value as shaping whether going outside is considered necessary at all. Together, they show how barriers to nature based breaks are described as emerging from the interaction between environmental conditions, organisational demands and individual perceptions rather than from a single fixed constraint.

5.2.1 Weather and comfort thresholds

Weather conditions were described as immediate, situational factors that influenced whether participants took outdoor breaks. Unlike workload, which was experienced as continuous, weather acted as a moment to filter shaping behavior. Rain, cold and wind were commonly associated with reduced willingness to go outside, primarily due to anticipated discomfort. One participant summarized this directly: *“If it’s raining or cold, I usually stay inside.”*

Outdoor breaks were therefore closely tied to a basic threshold of physical comfort. Participants not only considered access to outdoor space, but also whether the environment felt inviting in that moment. When conditions were perceived as grey or windy, the effort required to go outside often outweighed the

expected benefit of the break. This reflects an ongoing evaluation of effort versus reward, even when participants were aware of the positive effects of outdoor breaks.

As one participant explained, *"I know it would probably help, but sometimes it's just easier to stay inside."* This highlights the role of immediate convenience in shaping behavior, even in situations where longer term benefits are recognized.

Seasonal variation further reinforced this pattern. Participants reported taking outdoor breaks more frequently in favorable weather and less during colder or darker periods. This suggests that outdoor break practices were not stable routines, but flexible behaviors shaped by environmental conditions.

At the same time, weather was not described as a fixed barrier. Instead, it influenced the perceived effort required to take a break. In good conditions, going outside was described as almost automatic, requiring little conscious decision making. As one participant noted, *"If it's really nice outside, I don't even think about it, I just go."* In less comfortable conditions, however, the same action required more intention and motivation.

On the whole, weather shaped break taking through embodied comfort and situational ease. Outdoor breaks were more likely when environmental conditions met a threshold of physical and sensory acceptability, and less likely when those conditions increased perceived effort.

5.2.2 Workload structure and productivity norms

Workload was described as a continuous and structural influence on break taking. Unlike weather, which acted as a situational barrier, workload shaped the overall rhythm of the workday. Participants characterized their days as a steady flow of digital tasks and meetings. Within this flow, stepping away from work was not always straightforward.

Breaks were often not actively skipped but gradually absorbed into ongoing work. Meetings extending into lunch periods and tasks without clear stopping points contributed to a blurred boundary between work and break time. As one participant noted, *"Meetings often go into lunch, so I don't really take a break."* This suggests that break absence was often a by product of work continuity rather than a deliberate choice.

A key factor was task momentum. Participants described work as a sequence of connected activities, where stopping felt difficult because tasks were perceived as unfinished or still in progress. One participant explained, *"If I'm in the middle of something, it's hard to stop."* This indicates that workload was experienced not only as volume, but also as continuity that discourages interruption.

Taking a break therefore required breaking into this ongoing flow, which created a sense of friction. Participants described an internal negotiation between the perceived need for rest and the desire to complete tasks first. As one

participant stated, *"I know it would be good to go outside, but I feel like I should finish this first."* The use of *should* reflects internalized expectations rather than explicit workplace rules.

These expectations were linked to productivity norms around availability and responsiveness. Being at the desk was associated with being engaged and reachable, while stepping away could feel like temporary withdrawal from responsibility. As one participant noted, *"You don't want to be the one who is away when someone needs you."* This suggests that subtle social expectations shaped behavior even without formal restrictions.

At the same time, participants emphasised that breaks were not explicitly discouraged. Instead, continuous engagement was described as the default mode of working. One participant summarised this as, *"It's not that we're not allowed to take breaks. It's just that you keep going."* This highlights how structure and norms operate through momentum rather than rules.

Principally, workload and productivity norms shaped break taking through continuity, task momentum, and implicit expectations of presence. Breaks remained possible but required interrupting ongoing work and prioritising longer-term functioning over immediate task completion.

5.2.3 Limited perceived value of nature contact

The use of outdoor breaks was also shaped by how necessary or valuable participants perceived nature contact to be during the workday. Rather than being viewed as an essential component of break taking, going outside was often described as one option among several ways to recover from screen based work. This meant that nature based breaks were not consistently prioritized, but depended on how strongly the need for environmental change was felt.

For some participants, short indoor breaks were considered sufficient for managing fatigue. Simple actions such as standing up or stretching were often seen as adequate, particularly when the indoor environment already provided some variation. One participant noted, *"Sometimes just standing up and stretching is enough."* This suggests that the perceived function of a break could be met without leaving the workspace, reducing the necessity of outdoor exposure.

In some cases, indoor environmental features also contributed to this reduced need. Elements such as daylight or indoor plants were described as providing a degree of restoration or relief. As a result, the distinction between indoor and outdoor environments became less pronounced, and the motivation to go outside decreased rather than disappeared entirely.

Although participants generally recognised outdoor breaks as beneficial, they were not always integrated into daily routines. Going outside was often described as something that required deliberate intention rather than an automatic response.

One participant explained, *"I know it's good, but I don't always think about it."* This indicates that nature contact was not strongly embedded as a habitual part of working patterns.

As a result, outdoor breaks were more commonly taken in response to noticeable fatigue rather than as a preventive strategy. Participants described leaving the workspace when tiredness became more pronounced, while continuing to work when strain remained manageable. As one participant stated, *"If I'm really tired, then I go outside. Otherwise, I just continue."*

Participants also described a relatively weak pull towards outdoor environments. Even when accessible, these spaces were not always experienced as compelling enough to interrupt ongoing work. This suggests that availability alone was insufficient. The perceived benefit of going outside needed to clearly outweigh the convenience of staying indoors.

Mainly, limited perceived value functioned as a subtle constraint on nature-based break taking. Outdoor breaks were seen as helpful but not essential, and their use depended on the degree of need for change experienced during the workday. When indoor environments already provided some variation, or when fatigue was still mild, going outside remained optional rather than routine.

5.3 Indoor environment and natural elements

While outdoor breaks were described as restorative, participants also reflected on how the indoor work environment itself shaped their daily experience. The office was not experienced as a neutral backdrop. Instead, its spatial qualities, light, views, materials, and natural elements, influenced how demanding or supportive the workday felt.

Participants described differences in how spaces affected mood and energy, even when work tasks remained the same. Small things in the environment seemed to either increase or reduce the feeling of pressure linked to working on a screen. In this context, natural elements in the office were not seen as simple decorations, but as features that changed the environment. They affected how closed or open the workspace felt and influenced whether people needed to leave the building to recover.

At the same time, participants described variation in how strongly they responded to these elements. For some, daylight or greenery made a noticeable difference in concentration and wellbeing. For others, the indoor environment felt more neutral. This theme therefore explores how the immediate physical environment inside the workplace contributed to or constrained restorative experiences during the workday.

The theme *Indoor environment and natural elements* describes how participants experienced the physical indoor workplace and how its characteristics influenced their daily work experience. The theme focuses on how elements such

as daylight, windows, plants, and general spatial ambience were described in relation to working on screens and spending long periods indoors. In the data, the indoor environment is not described as neutral, but as something that shapes how demanding or comfortable the workday feels.

This theme is built up from three closely connected subthemes that each describe a different aspect of how the indoor environment was experienced. *Access to daylight and windows* focuses on how natural light and views outside were described as influencing energy and visual experience during the workday. *Indoor plants and aesthetics* captures how greenery and visual natural elements were described as shaping the atmosphere of the office and influencing how the space felt. *Ambience and workspace comfort* focuses on broader descriptions of the whole workspace, including layout and spatial structure, and how these were experienced in relation to comfort and movement.

These subthemes are related in the way they describe different layers of the indoor environment, from specific natural features to the general spatial experience of the workplace. Together, they show how participants described the indoor environment as a continuous background condition that shapes how screen based work is experienced throughout the day.

5.3.1 Access to daylight and windows

Access to daylight and window views was described as a subtle but consistent influence on the experience of indoor work. Unlike outdoor breaks, which were framed as active interruptions, windows shaped the work environment in a more continuous and passive way. Participants did not always describe them as directly restorative, but they linked daylight and outward views to improved mood and concentration during screen based tasks.

Sitting near a window was generally preferred and associated with a more positive workspace experience. One participant noted, *"I like sitting by the window. It gives me more energy."* This suggests that daylight contributed to a sustained sense of alertness, rather than providing a discrete moment of recovery. In this way, windows appeared to modify how demanding the workday felt over time.

Windows also influenced how participants perceived the space around them. Being able to look outside reduced the sense of enclosure that could develop during prolonged indoor work. As one participant explained, *"It feels less closed when I can look outside."* This indicates that windows functioned as a visual extension of the workspace, creating a greater sense of openness without requiring physical movement.

Participants described briefly looking outside during the workday, often for just a few seconds. These moments were not framed as formal breaks, but as small shifts in attention that occurred naturally during work. One participant

noted, *"Sometimes I just look outside for a few seconds."* Such brief visual interruptions provided variation without disrupting ongoing tasks.

The quality of the view also mattered. Natural elements such as trees or movement outside were experienced as more calming and engaging than static indoor surroundings. As one participant described, *"If I see trees or the sky, it's calming."* This suggests that not only access to windows, but also what is visible through them, shaped the experience of the environment.

In contrast, the absence of windows was associated with increased fatigue and a stronger sense of enclosure. Participants reported feeling more tired when working away from natural light for extended periods. One participant noted, *"When I sit away from the window all day, I feel more tired."* This highlights the cumulative effect of limited daylight exposure on perceived energy levels.

Windows also contributed to awareness of time and environmental change. Participants mentioned noticing shifts in light and weather throughout the day, which introduced a sense of variation into otherwise structured work routines.

On the whole, access to daylight and window views functioned as a background condition that shaped the quality of indoor work. Rather than acting as a distinct break, windows provided continuous, low effort variation that reduced feelings of enclosure and supported a more manageable work experience.

5.3.2 Indoor plants and aesthetics

Indoor plants were described as subtle but meaningful elements that shaped how the office environment was experienced. Rather than influencing work processes directly, they affected the visual and emotional tone of the workspace. Participants did not frame plants as essential for productivity, but they regularly referred to them when describing what made an environment feel more or less pleasant.

An important role of plants was to soften the structured and screen dominated character of the office. Without greenery, the environment was often experienced as sterile or impersonal. The presence of plants introduced variation and reduced this sense of rigidity. As one participant noted, *"The plants make it feel less sterile."* This suggests that plants helped counterbalance the controlled and digital workspace.

Participants also described plants as contributing to a generally more pleasant atmosphere. This effect was typically subtle but consistently mentioned. One participant explained, *"It just feels nicer when there's something green."* This indicates that the impact of plants was primarily affective, shaping how the space felt rather than how work was performed.

In contrast, the absence of greenery was associated with visual monotony. Workspaces dominated by screens, white surfaces, and artificial materials were described as repetitive and flat. As one participant put it, *"There's a lot of white*

and screens." In this context, plants provided contrast and added visual depth, breaking up the uniformity of the environment.

Plants were also described as introducing a sense of life into the workspace. This created a noticeable contrast with the digital and task focused nature of office work. One participant noted, *"It gives the room more life."* This highlights how plants functioned not only as visual elements, but also as symbolic markers of something more organic within a structured setting.

At the same time, participants did not consider indoor plants a substitute for outdoor nature. While they improved the atmosphere, they did not replace the experience of going outside. As one participant explained, *"It helps, but it's not the same as going outside."* This suggests that plants played a supportive role rather than a primary one.

Principally, indoor plants functioned as background features that shaped the emotional quality of the workspace. They softened the environment and introduced a sense of variation. Their influence was indirect but consistent, affecting how the workspace was experienced over time rather than how work was carried out.

5.3.3 Ambience and workspace comfort

Beyond specific elements such as windows or plants, participants described the general ambience of the workspace as an important background condition shaping how demanding the workday felt. The office environment was not only experienced through tasks and interactions, but also through its sensory and spatial qualities. These influenced how comfortable or constrained the workday felt over time. Rather than being consistently positive or negative, the workspace was often described as functional but visually and physically repetitive.

Participants frequently referred to the office as visually plain, which contributed to a sense of monotony during prolonged screen based work. As one participant noted, *"It's a bit empty."* Another added, *"There's a lot of grey and white."* These descriptions suggest that limited visual variation can reinforce the repetitive nature of digital work. When the environment remained visually unchanged, the workday itself was more likely to feel mentally heavy.

Lighting was another important aspect of ambience. Participants described artificial lighting as functional but sometimes tiring over longer periods. One participant stated, *"The light can feel harsh sometimes."* Others noted, *"In the afternoon, it feels more tiring."* This indicates that lighting contributed to a gradual sense of fatigue rather than immediate discomfort. Compared to natural daylight, artificial light was experienced as less dynamic, with fewer shifts in atmosphere throughout the day. This lack of variation appeared to contribute to visual strain and a reduced sense of freshness.

The physical organisation of the workspace also influenced bodily experience. Participants described prolonged sitting in fixed positions as contributing to physical stagnation. One participant noted, *"You mostly just sit in the same position."* Even when ergonomically adequate, the static structure of desk based work reinforced stillness. Over time, this contributed to an accumulation of bodily strain, often described as a sense of being stuck. As one participant explained, *"After a few hours, you just feel a bit stuck."* This feeling appeared to extend across physical and spatial dimensions of experience.

At the same time, participants emphasised that even small changes in the environment could temporarily disrupt this monotony. Minor spatial variation, such as changing seating position or location within the office, was described as enough to shift how the workday felt. One participant noted, *"If I change desks for a bit, it already feels different."* Another added, *"Just moving to another corner helps."* This suggests that micro level environmental variation can meaningfully alter the experience of sustained screen based work.

All in all, ambience functioned as a continuous background condition shaping how demanding the workday felt over time. A lack of sensory and spatial variation contributed to feelings of rigidity and gradual fatigue, while small changes in environment introduced moments of relief and renewal. In this way, ambience influenced not only perceived comfort, but also how strongly the need for breaks and movement emerged during the day.

5.4 Affordances across spatial zones

The theme *Affordances across spatial zones* describes how participants experienced opportunities for nature contact and movement as distributed across different spatial levels around the workplace. The theme focuses on how restorative opportunities were not located in a single place, but were described across a range of zones that differed in accessibility and level of engagement. In the data, these zones are treated as a continuum of movement from minimal visual contact with the outside environment to full physical separation from the workplace.

This theme is built up from four closely connected subthemes that each describe a different spatial zone. *Zone 1: indoor visual contact* focuses on experiences of looking outside through windows and exposure to daylight without leaving the desk. *Zone 2: transition spaces* captures how semi outdoor areas such as balconies or terraces were described as intermediate spaces requiring limited movement but offering partial separation from the indoor environment. *Zone 3: nearby outdoor spaces* focuses on green areas close to the workplace that required leaving the building and creating a clearer break from work. *Zone 4: neighbourhood environment* describes experiences of walking or spending time

further away from the workplace, where participants reported the strongest separation from work context.

These subthemes are related in the way they describe increasing levels of physical movement, sensory engagement and separation from the workplace environment. Together, they show how nature contact and restorative opportunities are structured across spatial zones that differ in accessibility and degree of detachment from screen based work.

5.4.1 Zone 1 Indoors

Zone 1 refers to the most immediate and low effort form of nature contact, occurring without leaving the desk. Participants described this type of engagement as passive and continuous, embedded within the flow of work rather than intentionally initiated. It did not require a formal break, yet it still shaped how the workspace was experienced over time.

An important feature of Zone 1 was brief and spontaneous visual engagement with the outside environment. Participants described occasionally looking out of the window during moments of reduced concentration or between tasks. As one participant noted, *"Sometimes I just look outside for a few seconds."* These moments were not framed as breaks, but as micro interruptions in attention that briefly shifted focus away from the screen. Even this minimal disengagement appeared to reduce visual fixation and provide a subtle sense of relief.

Window views also influenced how participants perceived the space around them. Seeing outside created a sense of openness and reduced feelings of enclosure associated with prolonged screen use. One participant explained, *"Even just seeing the sky makes it feel less closed."* This suggests that Zone 1 did not function as a restorative activity, but as a perceptual modifier of the indoor environment. It extended visual space beyond the immediate workspace and softened the boundary between inside and outside.

The quality of the view played an important role in this experience. Participants described natural elements such as trees, sky and changing light as more engaging than static surroundings. Movement in particular added variation and contributed to a calming effect. As one participant noted, *"If there are trees moving, it's more calming."* This highlights how contrast between a dynamic outdoor environment and a static indoor setting shaped the experience of this form of contact.

Daylight functioned in a similar way by influencing the overall atmosphere of the workspace. Participants described changes in natural light as affecting mood and energy throughout the day. One participant explained, *"When the sun comes in, it changes the whole feeling."* This indicates that daylight introduced temporal variation, making the environment feel less fixed and more responsive to external conditions.

At the same time, participants clearly distinguished this form of contact from being outdoors. While window views and daylight were experienced as beneficial, their effects were described as limited. As one participant stated, *"It helps, but you're still inside."* This suggests that Zone 1 primarily reduced feelings of enclosure rather than providing full cognitive or physical restoration.

The absence of this form of contact further highlighted its role. Participants reported feeling more fatigued when working without access to windows or views outside. One participant noted, *"If I sit in the middle without a view all day, I feel more drained."* This points to the cumulative impact of limited visual openness over time.

On the whole, Zone 1 functioned as a constant but subtle layer of environmental influence. It required no deliberate action, yet it shaped how demanding the workspace felt by moderating visual monotony and spatial perception. While its restorative effect was limited, it established a baseline condition that influenced the need for more active forms of nature contact.

5.4.2 Zone 2: Transition zones

Transition zones, such as balconies or terraces, occupied an intermediate position between indoor work areas and the external environment. Unlike Zone 1, they required physical movement and a brief interruption of work. At the same time, they did not fully separate participants from the workplace. As a result, these spaces were accessible but not consistently used as part of daily break routines.

A central feature of Zone 2 was uncertainty about its purpose and social meaning. Participants often questioned whether these spaces were intended for breaks or whether it was appropriate to spend time there. One participant noted, *"There is a balcony, but I'm not sure if we're supposed to use it."* This suggests that availability alone did not lead to use. Without clear norms or expectations, these spaces remained additional in everyday behavior.

This lack of clarity also meant that transition spaces were not strongly embedded in routines. Even when nearby, they were not automatically considered as break options. As one participant explained, *"It's there, but I don't really think about going there."* Compared to more habitual actions, such as briefly looking outside, using these spaces required a more deliberate decision.

The physical design of the space further influenced its use. Participants noted that a lack of seating or comfort reduced the likelihood of staying. One participant remarked, *"There's not really anywhere to sit properly."* This indicates that usability depended not only on access, but also on whether the space supported and invited pause behavior. Without such features, these areas were experienced more as passageways than as places to rest.

When used, transition spaces did create a noticeable shift in experience. Participants described a change in air, openness and sensory input when stepping outside. As one participant noted, *"If I step outside for a moment, it already feels different."* However, this shift was often described as limited. Rather than full breaks, these moments were framed as brief interruptions or short exposures to fresh air. One participant summarised this as, *"It's more like just getting some air."*

This positions Zone 2 as a lighter form of nature contact. It involved more engagement than passive indoor exposure, but less than fully leaving the building. While it reduced the effort required to go outside, it did not always create a strong sense of psychological distance from work.

Social visibility also influenced how these spaces were used. Because they were often semi public, participants sometimes felt exposed when spending time there. One participant noted, *"You're kind of visible there."* This suggests that social awareness affected whether participants felt comfortable using the space for longer breaks.

Mainly, Zone 2 provided a moderate level of engagement with the outdoor environment. It offered physical movement and environmental change with relatively low effort. However, its use depended on clear purpose, social acceptability and physical comfort. Without these, transition spaces remained underused despite their accessibility.

5.4.3 Zone 3: Nearby outdoor spaces

Nearby outdoor spaces, such as gardens or small green areas close to the workplace, required a clearer departure from the indoor environment than transition spaces. Using these areas meant leaving the building and crossing a visible boundary between work and non work space. This created a stronger sense of separation from ongoing tasks. Despite this, Zone 3 spaces were not consistently part of daily break routines and were often described as available but underused.

An important issue was the lack of routine and clarity around their use. Participants indicated that even when such spaces were nearby, they were not automatically included in everyday behavior. One participant noted, *"There's a garden space, but I don't really use it."* This suggests that the main barrier was not access, but integration into daily practice. The space existed physically, but was not embedded in how participants structured their workday.

Uncertainty about ownership and purpose further reduced use. Some participants were unsure whether these areas were intended for employees. As one participant explained, *"I'm not sure if it's meant for staff."* This lack of clarity appeared to affect perceived legitimacy. Even accessible spaces were less likely to be used if their purpose was unclear.

Social perception also played a role. Participants described these spaces as more public, which affected their comfort in using them. One participant noted, *"It feels more public than private."* This suggests that a lack of perceived privacy limited their function as restorative environments. The experience of Zone 3 was therefore shaped not only by physical design, but also by social context.

When participants did use these spaces, they described a stronger shift in experience compared to Zones 1 and 2. Physically moving further away from the building created a clearer sense of being outside. As one participant explained, *"When I walk there, I feel more outside."* This indicates that distance from the workplace contributed to a deeper sense of environmental engagement.

Zone 3 also involved more multisensory interaction. Participants described noticing elements such as air, sound and spatial openness. One participant noted, *"You notice the air, the sounds, the space."* This broader sensory engagement appeared to support a clearer mental separation from work related thinking.

However, accessing this level of engagement required deliberate action. Unlike lower zones, which involved passive contact, entering Zone 3 required a conscious decision. As one participant stated, *"You have to decide to go there."* This higher threshold reduced frequency of use, even when the potential benefits were recognised.

At the same time, participants described these breaks as more meaningful when they did occur. One participant noted, *"It feels like more of a real break."* This suggests that the act of leaving the building contributed to a stronger sense of detachment from work demands.

Principally, Zone 3 offered a more immersive form of nature contact than indoor or transition spaces. However, its use depended less on accessibility and more on behavioral integration and social comfort. While it had greater restorative potential, it required more intention and clearer framing to become a regular part of the workday.

5.4.4 Zone 4: Neighbourhood environment

The neighbourhood environment represented the most extensive form of nature contact described by participants. Unlike the previous zones, it required leaving the immediate workplace and entering a broader public setting. This included activities such as walking around the block, visiting nearby green spaces or running errands. As a result, Zone 4 involved a clear physical and psychological separation from work and was experienced as different from shorter breaks.

A defining feature of this zone was the strength of its cognitive effect. Participants described these longer breaks as producing a more noticeable mental reset. One participant noted, *"When I walk around the block, it really clears my head."* This suggests that greater distance from the workplace supported a stronger release from task related thinking.

Importantly, the restorative effect was not limited to nature in a strict sense. Everyday activities outside the workplace could produce a similar effect when they involved movement and a change of environment. As one participant explained, *"When I go to the supermarket, it already feels like a break."* This indicates that the key factor was not only exposure to nature, but the combination of leaving the work setting, moving through space and engaging with a different context.

Zone 4 required more intention than the other zones. Participants described needing to plan or consciously decide to take this type of break. One participant noted, *"You have to plan it a bit."* This higher level of effort meant that such breaks were less spontaneous and less frequent. However, this investment also contributed to a stronger sense of detachment from work.

Distance played an important role in this process. Participants described how moving further away from the workplace reduced cognitive engagement with work related concerns. One participant explained, *"Once I'm a few streets away, I don't think about work as much."* This highlights a clear link between physical distance and psychological disengagement.

The neighbourhood environment was also experienced as more dynamic and varied than the workplace. Participants referred to a richer sensory environment, including movement, sounds and social activity. As one participant noted, *"There's more happening, people, trees, sounds."* This contrast with the structured and predictable office environment appeared to support a stronger mental shift.

Participants also described an emotional dimension to this experience. Being outside the immediate work context was associated with a sense of freedom and release from expectations. One participant stated, *"It feels freer."* This suggests that Zone 4 not only reduced cognitive load, but also temporarily removed the pressure of productivity and availability.

Despite these benefits, such breaks were not part of daily routines for most participants. One participant noted, *"I don't do it every day."* This reflects the higher time and effort required to leave the workplace area. As a result, Zone 4 was experienced as highly effective but less frequent.

On the whole, the neighbourhood environment provided the strongest form of disengagement from work. It combined physical movement, environmental variation and distance to create a more complete break from cognitive and social demands. However, its use depended on available time and the willingness to step outside the structure of the workday.

6. Discussion

The aim of this thesis was to explore how workplaces can encourage potentially restorative behaviors among employees. Focusing on what motivates or hinders them from taking healthy, nature based breaks during the workday. Through an analysis of five interviews, the findings revealed that breaks are not merely an individual health choice. But a negotiated practice shaped by environmental qualities, organizational norms and embodied awareness.

This chapter interprets the findings in relation to environmental psychology, restorative environment theory, biophilic design and affordance perspectives. While the results chapter described how participants experienced breaks, movement, and spatial zones, the present chapter considers what these patterns may suggest about restorative processes in contemporary screen based workplaces.

The discussion is structured across Sections 6.1–6.8. Sections 6.1 to 6.4 interpret the main themes identified in the results. Section 6.5 outlines the contribution of this thesis to existing knowledge and practice. Section 6.6 reflects on methodological considerations and limitations, including aspects of research design, researcher positioning and data collection. Section 6.7 revisits the aim and research questions in light of the findings, and Section 6.8 concludes by identifying directions for future research.

6.1 The value of restorative behavior

The findings suggest that restorative behavior in a contemporary screen based workplace may be experienced less as a clear withdrawal from work and more as a form of ongoing regulation within work. Participants did not describe breaks as optional leisure moments, but as subtle recalibrations that enabled sustained engagement. This challenges a division between productivity and recovery. Instead, restoration emerged as embedded within performance maintenance.

Participants' descriptions of their *head resetting* or feeling *less stuck* resonate with ART (Kaplan & Kaplan, 1989), which conceptualizes directed attention as a limited cognitive resource. Prolonged digital work requires sustained and effortful concentration. Participants' accounts of rereading sentences or experiencing reduced clarity reflect common signs of attentional fatigue. The short outdoor breaks they described appear to function as attentional shifts rather than full disengagement. Even brief perceptual expansion, looking at the sky, walking outdoors, sensing air movement, may have allowed directed attention to temporarily rest while unconscious attention was gently engaged.

However, the findings also nuance restoration theory. The restorative effect did not appear to depend on prolonged engagement in natural settings. Instead,

participants emphasized short, everyday interruptions. This suggests that in digitally intensive workplaces, restoration may operate through micro contrasts rather than deeper environmental engagement. The transition itself, from screen to outdoor light, from stillness to movement, may be sufficient to alter cognitive state.

The lived experiences of participants show that their responses cannot be understood through cognition alone. Many described recognizing fatigue through bodily signals, tension, shallow breathing and restlessness. Movement was not framed as exercise for health alone, but as an immediate response to accumulated strain. This aligns partly with SRT (Ulrich, 1991), which emphasizes physiological responses to non threatening natural environments. Yet participants' experiences suggest that restoration may not only be triggered by environmental exposure but also by active bodily engagement. Walking appeared to reshape thought patterns rather than merely reduce stress responses.

Another important point involves participants' sense of agency. Restoration did not necessarily occur automatically in the presence of natural elements. Participants described learning to recognize their limits and actively choosing to move. This may indicate that restorative behavior in the workplace involves self regulation and awareness. Nature provided conditions that supported recovery, but employees still had to interpret signals and act on them. Restoration thus appears relational, shaped by the environment yet dependent on people's active responses.

The social dimension adds an important layer to existing theoretical frameworks. Traditional restoration theories center on person environment interaction, yet the findings reveal that workplace norms mediate whether restorative opportunities are taken. Shared breaks increased perceived legitimacy, while solitary walks reduced cognitive and social overload. Restoration was therefore closely linked to organizational culture and expectations about availability.

All together, these findings indicate that in screen dominated work contexts, restorative behavior serves as an adaptive mechanism. It helps maintain cognitive flexibility, supports emotional regulation and enables sustained engagement with tasks. In this way, restoration is not merely a pause from work, but an integral part of ongoing performance. Rather than being separate from productivity, restoration appears to be an important part of digital work environments. This thesis therefore supports restorative environment theory while extending it into the specific realities of contemporary knowledge work. Where micro adjustments may be more feasible than extended retreats into nature.

6.2 Barriers and organizational culture

While participants clearly articulated the value of breaks, the findings demonstrate that recognition of benefit does not automatically translate into

behavior. Barriers to nature based breaks were rarely described as explicit prohibitions. Instead, they functioned through subtle organizational expectations and bodily limits.

One important pattern concerns what might be described as task momentum. Participants frequently reported difficulty interrupting ongoing digital work, even when they recognized signs of fatigue. This aligns with research on cognitive flow and task continuity in knowledge work, where stopping midtask can feel effortful and disruptive (Mark et al., 2008). In such contexts, restoration requires not only physical movement but also psychological permission to disengage temporarily.

The findings suggest that workplace culture may play a central mediating role. Participants did not describe a culture that explicitly discouraged breaks. However, they did express an implicit expectation of continuous availability. Statements such as not wanting to be *the one who is away when someone needs you* indicate that presence functions symbolically as commitment. This reflects broader cultural constructions of productivity in digital workplaces, where responsiveness and visibility often signal engagement.

From a behavioral perspective, these dynamics resemble what Thaler and Sunstein (2008) describe as friction costs. Small obstacles that make certain behaviors less likely without formally restricting them. In this thesis, friction emerged in the form of weather inconvenience, unclear spatial design, unfinished tasks and subtle norms of presence. None of these individually prevented outdoor breaks, yet together they accumulated into resistance.

The findings also show how integration of norms into participants' behavior occurs. Participants often framed their hesitation in self regulating language, *I should finish this first*. The use of such phrasing may suggest that organizational expectations had been internalized and absorbed into personal standards. Breaks are therefore became a matter of self justification rather than rule compliance. This integration of norms is especially significant in health oriented workplaces, where employees may support restorative behavior in principle but act in line with productivity first expectations.

Weather and comfort thresholds further demonstrate that behavior is shaped by embodied evaluation. Even when participants valued outdoor exposure, cold or rain reduced spontaneity. This highlights that restoration depends on more than access. It depends on environments being experienced as inviting. This connects with research in environmental psychology showing that perceived environmental quality strongly influences use (de Jong et al., 2012).

Importantly, barriers were not experienced uniformly. Some participants described outdoor breaks as essential and prioritized them despite workload. Others perceived indoor variation as sufficient. This variation suggests that restorative behavior may be shaped by individual interpretation as well as structural conditions.

On the whole, the findings indicate that barriers to restorative behavior in workplaces are rarely structural in the formal sense. Instead, they emerge through everyday practices, micro decisions and internalised norms. Restoration is therefore not simply a matter of providing access to green space. It requires attention to cultural expectations, behavioral friction and the symbolic meaning of presence within digital work environments.

6.3 Indoor environmental qualities

The findings indicate that the indoor environment plays a subtle but important role in shaping the experience of fatigue and restoration during the workday. While outdoor breaks were described as more absorbing, indoor environmental qualities influenced the baseline intensity of screen based work. Daylight, views, plants and atmospheric variation did not eliminate the need for breaks, but they appeared to soften cognitive and sensory strain.

This aligns with biophilic design theory, which proposes that integrating natural elements into built environments supports wellbeing and cognitive functioning (Kellert & Calabrese, 2015). However, the present findings suggest that biophilic elements in office settings may function more as modulators than as replacements for outdoor involvement. Participants described daylight and greenery as making the space feel *less closed* or *less sterile*. Indicating that natural elements reduced perceptual monotony and softened the stiffness of digital work environments.

From an environmental psychology perspective, access to natural light and views may contribute to subtle attentional variation. ART (Kaplan & Kaplan, 1989) suggests that environments that allow soft fascination support cognitive recovery. In this thesis, glancing out of a window or observing trees introduced small perceptual shifts without requiring full disengagement from tasks. These micro variations may reduce the accumulation of attentional fatigue across the day.

At the same time, the findings highlight potential limits of indoor natural elements. Participants repeatedly distinguished between looking outside and being outside. This may suggest that visual connection alone does not fully replace the embodied and sensory richness of outdoor environments. Indoor greenery appeared to improve atmosphere, but did not seem to produce the same depth of reset as movement through open space.

The concept of salutogenic environments further helps interpret these findings. Salutogenesis emphasizes environmental qualities that enhance manageability and coherence (Antonovsky, 1996). In this thesis, natural light and greenery appeared to make the workspace feel more breathable and less constrained. These qualities may not produce dramatic restorative effects, but they contribute to a broad sense that the work environment is supportive rather than draining.

Importantly, the findings suggest that the mere presence of natural elements may not be sufficient. The benefits of daylight and plants appeared to depend on how people experienced them and where they were positioned. Participants said that sitting near a window felt different from sitting in the middle of the room. This shows that environmental features work in relation to how people interact with them in the space.

Thus, indoor biophilic elements seem to act as a stabilizing layer in digitally intensive workplaces. They help reduce sensory monotony and offer small moments of perceptual relief. However, they do not replace the need for physical movement and changing spaces. Restoration indoors is therefore partial and ongoing, while restoration outdoors tends to be deeper but happens less often.

These findings add to discussions about biophilic design by showing an important difference between simply being around nature and actively engaging with it. Bringing natural elements into offices may be helpful, but the results suggests that physically going outside and experiencing nature directly may still be key for more meaningful restoration.

6.4 Spatial affordances

While the previous section looked at the qualities of the indoor environment, the findings also show that opportunities for restoration are shaped by space. The four zones identified in the Results chapter show a gradient of contact with nature, ranging from simply seeing nature to being fully engaged in the neighbourhood environment. This spatial progression may suggest that restoration is not simply a binary of indoor versus outdoor, but more layered.

From an affordance perspective (Gibson, 1979), environments offer possibilities for action based on their physical features and how people perceive them. In this thesis, each zone allowed for a different type of interaction. Windows allowed people to look outside and feel a sense of openness without moving. Balconies and entrances created small transitions between inside and outside. Nearby green spaces allowed people to physically experience nature. The neighbourhood allowed for greater psychological distance from work and a stronger sense of autonomy.

However, the findings show that affordances are not automatically used. Some spaces were technically accessible but rarely used. Participants were sometimes unsure whether certain outdoor areas were meant for them. This may suggest that affordances are shaped not only by physical design but also by how legitimate or appropriate a space feels to use. A space may physically allow an action, but if its purpose is unclear or not socially supported, its restorative potential may remain unused.

The structure of the zones also shows increasing levels of effort and distance from work. Zone 1 required very little interruption to ongoing tasks, while Zone 4

involved clearly leaving the immediate workplace. Participants often described stronger mental shifts when they moved further away from their desks. This may suggest that restoration becomes stronger when the environment changes more substantially. The further someone moves from the physical and symbolic center of work, the greater the feeling of a mental reset.

Bengtsson's (2015) zones of contact model is helpful for understanding this. The model was first developed for healthcare settings and shows that people engage with outdoor environments in different ways and at different levels. In this thesis, a similar pattern appears in the workplace. Each zone offers different kinds of restorative experiences, but how often people use them in their daily routines depends on things like how easy they are to reach, how much time people have and the workplace culture.

The idea of thresholds is especially important. Going through a doorway or leaving the building was not only a physical action but also a mental shift. Participants said they felt a clearer break from their work when they moved outside the immediate workspace. This may suggest that restoration partly depends on moving from one space to another. These boundaries may help signal a change in role and attention.

At the same time, deeper experiences in nature required more intention. Zone 4 walks were described as very powerful, but they happened less often. This shows a trade off between depth and convenience. Easy options, such as looking out of a window, are simple to access but do not create a strong break from work. Activities that require more effort, such as walking around the neighbourhood, can create a stronger sense of detachment but need more planning and a feeling that it is acceptable to take the time.

These findings extend affordance theory to organizational settings by showing that workplaces contain different layers of restorative opportunities. However, whether people use these opportunities depends on several factors, how clearly a space signals its purpose, how comfortable it feels, and whether using it fits with workplace expectations about being available.

Thus, restorative behavior at work is shaped by the spaces around people. Design can create different levels of opportunities to engage with restorative environments. However, workplace culture and individual choice influence how much employees actually use these opportunities during the workday.

6.5 Contribution to knowledge and practice

This thesis contributes to environmental psychology and workplace research by providing an interpretation of restorative behavior in a modern digital work environment. Existing theories such as ART (Kaplan & Kaplan, 1989) and SRT (Ulrich, 1991) explain how nature helps people recover from mental fatigue and stress. Previous research has also investigated the benefits of indoor plants in

workplaces (Bringslimark et al., 2007) and the possibilities and challenges of incorporating nature into everyday working life (Petersson Troije et al., 2021; Lygum et al., 2023). Building on this literature, this thesis explores how restorative opportunities are experiences and used in the everyday reality of screen-based organisational work.

First, the findings suggest that restoration in digital workplaces happens through small, everyday adjustments rather than long periods in nature. Employees described brief activities,such as stepping outside, looking at trees or walking around the block, as helpful ways to reset during demanding workdays. This complements research on outdoor office work, which has identified potential benefits for recovery and cognitive functioning (Petersson Troije et al., 2021). While outdoor office work involves carrying out work activities outside, this thesis focuses on break from work.This highlights the importance of small restorative practices in workplaces where long breaks are often not possible. This thesis therefore shows that restoration can be part of the workday itself, rather than something that happens only outside of work.

Second, the research shows that barriers to restorative behavior are usually not formal rules or clear structural limits. Instead, they arise from subtle workplace norms, internal expectations to stay productive and small practical obstacles. This adds nuance to existing workplace wellbeing research by showing that simply having access to green spaces does not guarantee that people will use them. Organizational culture and the feeling that it is acceptable to take a break strongly influence whether these opportunities are actually used. This is consistent with Lygum et al. (2023), who identifies challenges related to the perceived legitimacy of working outdoors. In their study, employees sometimes felt uncertain about whether working outdoors was appropriate, even when it was supported by their organisation. Although this thesis is about restorative breaks, a similar concern may help explain why employees hesitate to step away from their desks. This suggests that supportive restorative behaviour requires a workplace culture in which taking breaks is accepted as a normal part of the working day.

Third, by bringing together ideas from affordance theory (Gibson, 1979), biophilic design (Kellert & Calabrese, 2015), and Bengtsson's (2015) zone model, this thesis offers a layered way of understanding how spatial design shapes restorative opportunities. The thesis identifies a gradual structure of spaces, ranging from simple indoor views of nature to walking through the neighbourhood. This provides a framework for analyzing how different levels of engagement with the environment influence people's cognitive and emotional experiences.

Outside its theoretical contribution, this thesis also has practical relevance. It suggests that supporting restorative behavior involves more than adding plants or giving access to outdoor spaces. Workplaces also need to consider cultural norms,

clear spatial design and easy opportunities for short movement breaks. Small changes to the environment, together with clear organizational support, may help employees develop healthier daily rhythms.

All in all, this thesis adds to research that sees the workplace as an important setting for everyday restoration. By focusing on employees' real experiences in a workplace, it offers practical insights into how restorative behavior is encouraged, limited and shaped by the design and use of space in modern knowledge work.

6.6 Methodological reflections and limitations

This section critically examines the methodological choices made in this thesis and what they mean for interpreting the findings. In qualitative research, knowledge is shaped by decisions about the context and the researcher's perspective. It is therefore important to consider how the research's approach might have affected the results. This reflection is not meant to weaken the research but to clarify its limits and reliability.

6.6.1 Research design

This thesis used a qualitative research design with reflexive thematic analysis to explore how employees experience restorative behaviors in a digital workplace. This approach allowed for a deep understanding of meanings and perceptions that would be hard to capture with quantitative methods. However, qualitative research does not aim to produce results that apply to everyone. The findings should be seen as context specific interpretations rather than universal conclusions (Maxwell, 2012).

This thesis included five participants from one organization. In reflexive thematic analysis, small samples are common because the focus is on deeply engaging with the data rather than covering a wide or representative group (Braun & Clarke, 2021; Malterud et al., 2016). However, the small sample size means the themes reflect patterns specific to this workplace. Other organizations with different cultures, leadership styles or spatial setups might show different dynamics.

Participants were recruited on a voluntary basis, which could have influenced who chose to take part. Employees with a particular interest in wellbeing or the workplace environment may have been more likely to join, which could shape the perspectives captured in the data. While this does not make the findings invalid, it may mean that participants were especially reflective about restorative behavior (Etikan et al., 2016).

The research questions guided the general direction of this thesis and informed the development of the interview guide, thereby shaping the focus of the data collection. However, they were not used as a framework for coding or theme

development. Instead, the analysis followed an inductive and reflexive thematic approach, allowing patterns of meaning to emerge from participants' accounts.

The analysis focused not on how often certain experiences happened, but on understanding how restorative practices are experienced and managed in this specific workplace. The findings should be seen as analytically transferable rather than statistically generalizable (Lincoln & Guba, 1985). Providing ideas that may apply to other knowledge intensive workplaces, while staying grounded in the context of this organization.

6.6.2 Reflection on the development of the themes

In retrospect, the broad scope of this study presented a challenge when developing the themes. The analysis explored several interconnected aspects of restorative behavior. Including employees' awareness of their need for recovery and the influence of organisational and social norms. Although these aspects were connected in the interviews, they sometimes resulted in themes that were organised around the study's main areas of interest rather than directly reflecting how participants described their experiences.

Looking back, an alternative approach could have been to organise the data initially into three or four broad domains, while allowing themes to develop inductively within each domain. This might have made it easier to develop headings that more clearly reflected participants' experiences and perspectives. However, the themes were developed through an iterative process, in which participants' accounts were interpreted in relation to the research questions and relevant theory. The final structure therefore reflects both the participants' experiences and the researcher's interpretation. This reflection highlights how analytical decisions shape the presentation of qualitative findings and how alternative ways of organising the data might have produced a different thematic structure.

6.6.3 Insider position

The research took place in the researcher's own workplace, making them an insider. This position influenced both data collection and analysis. Being familiar with the organization likely helped build trust and openness during interviews, as participants may have felt comfortable discussing daily routines and shared work experiences without needing to explain the context in detail (Asselin, 2003). At the same time, insider research has potential challenges. Participants might have adjusted their responses because of workplace relationships or worries about how their comments could be interpreted (Mercer, 2007). Even with clear explanations of confidentiality, existing connections in the workplace may have affected what people chose to say.

6.6.4 Data collection

Data were collected using semi structured interviews lasting 30 to 45 minutes. This approach let participants share their experiences in their own words, while still covering key topics consistently across all interviews. The relatively short length of the interviews may have limited the depth of the data. While participants gave clear and focused reflections, longer interviews or follow up discussions could have allowed for a better exploration of subtle habits or unconscious routines (Kvale & Brinkmann, 2015). Some elements of workplace culture are subtle and might need more time or repeated engagement to be fully revealed.

In addition, the research relied solely on interview data. Observational methods or diary studies could have complemented participants' self reports and shown how breaks actually happens in practice. Such methods may have captured discrepancies between intention and action. Or revealed environmental dynamics that participants themselves take for granted.

However, the chosen method aligns with the thesis' aim of exploring lived experience and meaning making. The interviews generated rich descriptions of how restorative behaviors are understood and negotiated, which was central to the research purpose (Guest et al., 2006). Future studies might benefit from combining qualitative interviews with observational or mixed method approaches to broaden the analytical perspective.

6.6.5 Reliance on self reports

This thesis is based on participants' self reports on experiences of breaks, movement and contact with nature. The findings therefore reflect how employees interpret and describe restorative behavior, rather than measuring objective outcomes such as stress levels or cognitive performance.

Self reports data can be influenced by memory, social desirability or personal narratives about health and productivity. Participants may describe behavior in ways that align with how they wish to see themselves, particularly in a health oriented organizational context. In addition, some restorative processes may occur automatically or unconsciously, making them difficult to articulate in an interview setting (Podsakoff et al., 2003; Fisher, 1993).

However, the purpose of this thesis was not to test causal relationships or quantify the effects of nature contact. Instead, the aim was to explore how potentially restorative behavior is experienced and understood within the workplace. From this view, people's own interpretations are not a limitation, but the main focus of the research.

Future research could complement interview based approaches with physiological measures or behavioral tracking to examine the relationship between perceived and measurable restorative outcomes. Combining people's

experiences with objective data may lead to a better understanding of how restorative practices work in everyday work settings.

6.6.6 Contextual

This thesis was carried out in a Dutch digital health organization, where employees perform screen-based work. This context is important for understanding the findings, as employees regularly work with digital tools and engage in tasks that require sustained attention. The findings showed that participants often recognized the need for a break when they experienced reduced concentration or physical tension. However, unfinished tasks and meetings sometimes made it difficult to interrupt their work. This suggests that restorative behaviour in screen-based work is influenced not only by employees' awareness of the need for recovery, but also by the structure and demands of their work.

The organization's focus on health and wellbeing is another relevant characteristic of the setting. Employees may already have some awareness of the importance of wellbeing, which could have influenced how they discussed breaks and contact with nature during the interviews (Schein, 2010). Nevertheless, participants still described postponing breaks and feeling a responsibility to remain available to colleagues. This suggests that awareness of health and wellbeing does not automatically translate into restorative behaviour. Even in a health-oriented organization, everyday work demands and informal expectation about availability may make it difficult for employees to take breaks.

The physical workplace also shaped the restorative opportunities available to participants. Access to windows and daylight allowed employees to experience nature while remaining indoors, whereas nearby outdoor areas offered opportunities to step away from their screen and change their surroundings. However, availability of these options did not necessarily mean that employees used them. This highlights the importance of considering not only whether restorative spaced exist, but also whether employees perceive them as practical and appropriate places to take a break. Workplaces with less daylight or limited access to outdoor areas may offer different opportunities for restoration (Kaplan & Kaplan, 1989).

The findings can therefore be understood in relation to the interaction between the demands of digital work and the informal expectations employees experience in the organization. These findings may also be relevant to other screen-based organizations, where employees need to maintain concentration and remain responsive to colleagues. However, the way these factors influence restorative behaviour may differ according to workplace design and organizational culture.

The value of this study lies in its analytical insights rather than in statistical generalization. It suggests that providing access to nature is not sufficient on its own. Employees need opportunities to interrupt their work and feel that taking a

break is socially acceptable. These insights may help explain restorative behaviour in other workplace settings, while the specific characteristics of each setting should be considered when assessing how the findings apply elsewhere.

6.7 Reflection on the aim and research questions

The aim of this thesis was to explore how workplaces can encourage potentially restorative behaviors among employees, with a focus on what motivates or prevents nature based breaks and how environmental and organizational factors influence these practices. The findings offer a better understanding of restorative behavior as something dynamic and context dependent, shaped by everyday digital work routines.

The first research question was about motivation. Regarding motivation, the data shows that restorative behavior is mainly driven by direct experience rather than general knowledge about health. Employees described noticing signs like reduced focus, lower clarity, physical tension or restlessness as cues to take a break. Break taking therefore appeared as a way to manage themselves in demanding mental work. Nature based breaks were not seen as a luxury or optional, but as practical ways to reset and keep performing well. This suggests that in screen based workplaces, restoration is part of productivity.

The second research question was about barriers. In relation to barriers, the findings reveal that constraints are rarely explicit or formal. Instead, they are embedded in organizational norms, task continuity, internalised expectations of availability and subtle behavioral friction. Participants did not describe being prohibited from taking breaks, yet they expressed hesitation linked to unfinished tasks or perceived visibility. This indicates that restorative behavior is socially negotiated and culturally mediated. Barriers operate not only through spatial limitations, but through meanings attached to presence and commitment.

The third research question looked at how environmental and organizational factors influence decisions to take breaks. The data shows that these factors work together rather than separately. Indoor natural features, like daylight, helped reduce the intensity of digital work, but they could not fully replace being outside. Different types of spaces offered different levels of engagement, ranging from simply seeing nature to fully experiencing the surrounding environment. However, whether people actually used these opportunities depended on workplace culture and personal choice. This means that design alone was not enough to ensure people took restorative breaks.

On the whole, this thesis fulfils its aim by showing that restorative behavior in contemporary workplaces is shaped by a complex interplay between physical environment, organizational culture and embodied awareness. Encouraging nature based breaks therefore requires more than providing access to green spaces. It

involves addressing symbolic norms, behavioral friction and the qualities of spaces.

6.8 Future research

The findings of this thesis suggest several directions for future research on restorative behavior in today's workplaces.

First, future studies could look beyond a single organization. Comparing different types of workplaces, such as large companies, public institutions, could help show how workplace culture affects restorative practices. These comparisons could also reveal whether the subtle productivity norms found in this thesis are common in digital knowledge work in general, or more specific to smaller organizations.

Second, longitudinal research could explore how restorative behavior develops over time. This thesis captures employees' reflections at one point in time, but break habits may change with workload fluctuations or organizational restructuring. Diary studies or repeated interviews could provide better insight into how restorative routines evolve and how awareness of fatigue influences behavior across longer periods.

Third, combining qualitative methods with physiological or cognitive measures would strengthen understanding of the relationship between perceived and measurable restoration. While participants reported clearer thinking and reduced strain after outdoor breaks, future research could examine whether these subjective experiences correspond to changes in stress indicators or attention performance.

Fourth, experimental studies could investigate how subtle design adjustments influence behavior. For example, research could examine whether making transition spaces more inviting or increasing visibility of outdoor areas leads to increased nature based engagement. Such studies would contribute practical knowledge for workplace design and organizational policy.

Finally, further theoretical development is needed regarding micro restorative practices in digital work environments. Existing restoration theories were developed primarily in relation to more engaged natural settings. Future research could explore how restoration operates under conditions of high cognitive demand and limited time, where short environmental contrasts may play a particularly important role.

All in all, this research suggests that restorative behavior in contemporary workplaces is shaped by the interaction between spatial affordances, organizational norms and embodied awareness. Continued research in this area is essential as digital work becomes increasingly dominant and the need for sustainable cognitive recovery grows.

7. Conclusion

This thesis aimed to understand how workplaces can encourage employees to take potentially restorative breaks, focusing on their motivations, the barriers they face and how environmental and organizational factors play a role in nature based breaks during the workday. In a time when digital work is becoming more common and screen based tasks require continuous mental effort, it is important to understand how employees recover during the day.

The findings show that restorative behavior in modern knowledge work is not seen as separate from productivity, but as part of it. Employees described short breaks, movement and time in nature as practical ways to reset. Moreover, it helps them to stay focused and emotionally balanced. Restoration came across as a way of managing oneself, driven by physical feelings of tiredness rather than general ideas about health.

At the same time, restorative practices were influenced by subtle workplace norms and small behavioral barriers. These barriers were usually not obvious or formal. Instead, they came from internal expectations, such as feeling the need to stay available and be visibly present. This suggests that simply having access to green spaces is not enough to encourage restorative behavior. Workplace culture and the feeling that it is acceptable to take breaks are just as important.

The physical environment also played a complex role. Indoor natural features like daylight and plants helped reduce sensory dullness and mental strain, but they did not replace the experience of being outside. Different spaces offered different levels of engagement, ranging from simply seeing nature to fully being in it. The results suggest that the more people stepped away from their desk and into a different environment, the stronger the restorative effect may be. However, going further away also required more effort and intention.

All together, this thesis shows that restorative behavior in digital workplaces is shaped by the interaction between physical space, workplace culture and individual choice. Encouraging nature based breaks therefore requires a combined approach that considers both the design of the environment and the shared norms within the organization. As digital work continues to grow, the question is not only how to improve efficiency, but also how to support people’s mental and emotional capacity in these environments. This thesis adds to that discussion by showing the importance of everyday restorative practices and the conditions that make them possible.

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Appendix 1 Information letter

Information letter in Dutch

Hoi geweldige collega's,

Zoals sommige van jullie weten werk ik voor mijn master aan een onderzoek over hoe we tijdens de werkdag vaker gezonde mini breaks kunnen nemen, denk aan: even naar buiten wandelen, uit het raam staren zonder schuldgevoel, planten aaien (optioneel) of gewoon een momentje frisse lucht.

Voor dit onderzoek heb ik 5 collega's nodig die het leuk vinden om 30-45 minuten met mij te praten over:

- Hoeveel jullie achter je scherm zitten (waarschijnlijk: veel 😈)
- Hoe jullie pauzes eruitzien
- Hoe jullie de natuur op kantoor ervaren (ja, ook die plant die heroïsch blijft overleven)
- Wat jullie helpt of juist tegenhoudt om even naar buiten te gaan

Het interview is anoniem, vrijwillig en bevat nul theoretische toetsvragen, beloofd. Daarnaast is deelname een uitstekende manier om:

- je werkdag te onderbreken
- een goede daad te verrichten
- en mij te redden van data droogte

Ik zou de interviews heel graag deze week en volgende week willen inplannen, zodat ik daarna meteen verder kan met de analyse. Dus als je mee wilt doen, laat het me snel weten door op deze mail te reageren, dan plannen we een moment dat voor jou goed past.

Dankjewel alvast!

Met vriendelijke groet,
Shaniya Raghoebar

Information letter in English

Hi amazing colleagues,

As some of you know, I'm working on my master's research about how we can take healthy mini breaks more often during the workday. Think of it as: going for a quick walk outside, staring out the window without guilt, petting plants (optional) or just enjoying a moment of fresh air.

For this research, I need 5 colleagues who would like to spend 30–45 minutes talking with me about:

- How much time you spend in front of your screen (probably: a lot 😅)
- What your breaks usually look like
- How you experience nature at the office (yes, even that heroic plant that keeps surviving)
- What helps or prevents you from stepping outside for a bit

The interview is anonymous, voluntary and contains zero theoretical test questions, I promise. Additionally, participating is a great way to:

- Take a break from your workday
- Do a good deed
- And save me from data drought

I would love to schedule the interviews this week or next, so I can immediately continue with the analysis afterward. If you'd like to participate, please let me know by replying to this email, and we'll find a time that works for you.

Thank you in advance!

Best regards,
Shaniya Raghoebar

Appendix 2 Interview guide

Introduction interview in Dutch

Bedankt dat je de tijd neemt om deel te nemen aan dit interview. Dit gesprek maakt deel uit van mijn masteronderzoek aan de Swedish University of Agricultural Sciences. Het doel is te begrijpen hoe werknemers hun werkplek ervaren en hoe de omgeving korte, herstellende pauzes ondersteunt of juist beperkt. Met herstellende pauzes bedoel ik kleine momenten om op te laden, zoals bij een raam zitten, even naar buiten gaan of simpelweg daglicht en groen om je heen opmerken.

Ik ben benieuwd naar jouw persoonlijke ervaringen en hoe jij vindt dat de werkplek dit soort pauzes aanmoedigt of juist belemmert. Er zijn geen goede of foute antwoorden, alles wat je vertelt is waardevol.

Voordat we starten met opnemen, deelname is volledig vrijwillig. Je kunt vragen overslaan of het interview op elk moment stoppen. Alles wat je zegt blijft vertrouwelijk en je naam zal niet worden gebruikt. De audio opname start pas nadat je hebt bevestigd dat je comfortabel bent om verder te gaan.

Heb je nog vragen voordat we beginnen?

1. Alledaagse ervaringen

- Kun je een normale werkdag voor jezelf beschrijven?
- Neem je pauzes gedurende de dag? Wat doe je dan meestal?
- Zijn er dingen in je werkplek die je opmerkt tijdens de dag? Zo ja, kun je dit beschrijven?
    - Bijvoorbeeld daglicht, planten of uitzicht naar buiten? Hoe merk je dat op?
- Zijn deze dingen belangrijk voor je? Op welke manier?

Optioneel:

Is er een plek waar je het liefst naartoe gaat tijdens pauzes? Zo ja, kun je die beschrijven?

Zoek je bewust naar natuur of groene elementen? Zo ja, op welke manier?

2. Belemmeringen en motivatoren

- Zijn er dingen die het makkelijker of juist moeilijker maken om korte pauzes te nemen? Zo ja, kun je dat beschrijven?

- Voel je je aangemoedigd of juist ontmoedigd om naar buiten te gaan of naar de natuur te kijken? Zo ja, kun je dat beschrijven?
    - Als je niet naar buiten gaat, voel je je omgeving dan toch ondersteunend voor je welzijn? Waarom wel of niet?
- Speelt de werkcultuur hier een rol in? Hoe?
- Zou je graag meer mogelijkheden willen om contact met natuur te hebben? Zo ja, kun je dat beschrijven?

Optioneel:

Voel je je ooit schuldig of terughoudend om even weg te stappen van je bureau? Zo ja, kun je dat beschrijven?

Zijn er hulpmiddelen, gewoonten of plekken die je helpen een pauze te nemen? Zo ja, op welke manier?

3. Mogelijkheden (Bengtsson's 4 zones)

- Zone 1: Binnen: Kun je vanaf je bureau een raam zien? Hoe?
- Zone 2: Overgangszones: Gebruik je balkons, patio's of plekken net buiten het gebouw? Zo ja, kun je die beschrijven?
- Zone 3: Werkplekomgeving: Gebruik je een tuin, binnenplaats of andere buitenruimte verbonden aan het gebouw? Hoe?
- Zone 4: Ruimere omgeving: Bezoek je tijdens werkuren groene ruimtes in de buurt? Zo ja, kun je dat beschrijven?

Optioneel:

Hoe tevreden ben je met je huidige werkomgeving (Likertschaal)? Kun je dat beschrijven?

Vind je deze aspecten belangrijk tijdens de werkdag? Zo ja, op welke manier?

Zijn de ruimtes toegankelijk en prettig? Wat maakt ze dat wel of niet?

Wat zou het makkelijker of uitnodigender maken om ze te gebruiken? Kun je dat beschrijven?

Afsluiting interview

Dankjewel dat je je ervaringen met mij hebt gedeeld. Voordat we afronden, is er nog iets dat je wilt toevoegen wat we nog niet hebben besproken, maar wat je belangrijk vindt voor je werkdag of de omgeving om je heen?

Als je later nog iets wilt delen of vragen hebt, kun je me altijd via e-mail bereiken. Nogmaals, dank voor je tijd en waardevolle bijdrage.

Introduction interview in English

Thank you very much for taking the time to participate in this interview. This conversation is part of a research project I'm conducting for my master's thesis at the Swedish University of Agricultural Sciences. The goal of the project is to explore how employees experience their work environment, specifically, how the physical and social setting supports or limits short, restorative breaks during the workday. By restorative breaks, I mean small moments that help you recharge, like sitting by a window or stepping outside or simply noticing daylight or greenery in your surroundings.

I'm interested in both your personal experiences and your perspective on how the workspace either encourages or discourages those kinds of breaks. There are no right or wrong answers, what matters is your point of view. Feel free to share whatever feels relevant.

Before we begin recording, I want to remind you that your participation is voluntary. You can skip any questions or stop the interview at any time. Everything you say will be kept confidential, and your name will not be included in the research. To avoid recording personal information like names, I'll start the audio recording after this introduction, once you've confirmed that you're comfortable to continue.

Do you have any questions before we begin?

1. Everyday experiences

- Can you describe a typical workday for you?
- Do you take breaks during the day? What do you usually do?
- Are there certain aspects of your workspace that you tend to notice or pay attention to during the day? If so, can you describe?
    - For example, do you notice things like daylight, indoor plants, or views outside? If so, in what way?
- Are these things important to you? If so, in what way?

Optional probes:

Is there a place you prefer to go during breaks? If so, can you describe?
Do you seek out natural elements on purpose? If so, in what way?

2. Barriers and motivators

- Are there things that make it easier or harder for you to take short breaks? If so, can you describe?

- Do you feel encouraged (or discouraged) to go outside or look at nature during work hours? If so, can you describe?
    - If you don't go outside during the workday, do you still feel your environment supports your wellbeing? Why or why not?
- Are there ways in which the work culture plays a role in this? If so, in what way?
- Would you want more opportunities for nature contact? If so, can you describe?

Optional probes:

Do you ever feel guilty or hesitant to step away from your desk? If so, can you describe?

Are there tools, habits, or spaces that help you take a break? If so, in what way?

3. Affordances (Based on Bengtsson's 4 zones)

- Zone 1: Indoors: Are you able to see a window from your desk? If so, in what way?
- Zone 2: Transition zones: Are there places like balconies, patios, or spots just outside the building that you use? If so, can you describe?
- Zone 3: Nearby outdoor spaces: Is there a garden, courtyard, or nearby outdoor space connected to your building that you use? If so, in what way?
- Zone 4: Wider surroundings: Do you visit green spaces near the office during work hours? If so, can you describe?

Optional probes:

How satisfied are you with your current work environment (Likert scale)? Can you describe?

Do you feel that this aspect of your environment is important to you during the workday? If so, in what way?

Are these spaces accessible and pleasant to use? Can you describe what makes them feel that way (or not)?

What would make them easier to use or more inviting? Can you describe?

Ending interview

Thank you so much for sharing your thoughts with me today. I really appreciate the time you've taken. Before we finish, is there anything else you'd like to add, something we haven't talked about but you feel is important when it comes to your workday or the environment around you?

If you have any questions later or think of something you want to share afterwards, feel free to contact me by email. And again, thank you for your valuable contribution.

Appendix 3 Poster

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Encouraging Restorative Behaviors in the Workplace

A qualitative interview study in a digital work environment

INTRODUCTION

Modern office work is increasingly screen based, leading to mental fatigue, reduced concentration, and limited physical movement (Leroy, 2009; Mark et al., 2008). Environmental psychology suggests that contact with nature supports recovery (Kaplan & Kaplan, 1989; Ulrich et al., 1991), yet nature based breaks are not consistently integrated into daily work routines.

AIM & RESEARCH QUESTIONS

To explore how workplace environments and conditions can encourage restorative behaviors, with a focus on nature based breaks.

What motivates employees to take restorative, nature based breaks? What barriers prevent these behaviors? How do environmental and organizational factors influence break taking?

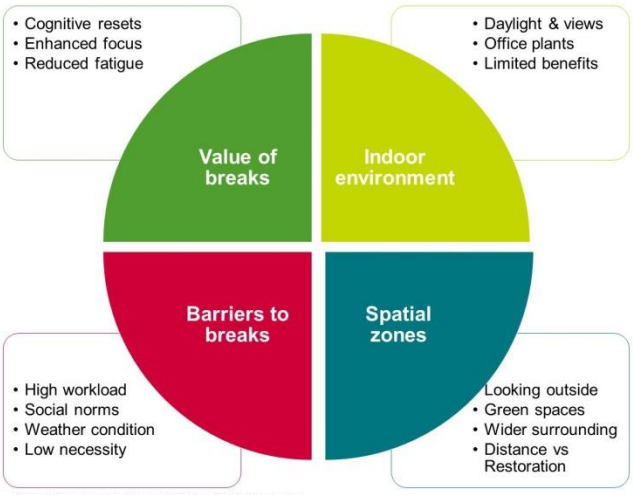


Figure 1 Interconnection themes; Illustration: Shaniya Raghoebar

METHODS

- Qualitative study
- Semi structured interviews
- Dutch digital health company
- Reflexive Thematic Analysis

RESULTS

Results from five interviews identified four main themes, each comprising subthemes (see Figure 1).

DISCUSSION

Restorative behavior is not separate from work but part of sustaining performance. However, it depends on a combination of:

- *Environmental design*
- *Organizational culture*
- *Individual awareness*

Even when opportunities exist, they are not always used due to subtle social and structural barriers.

CONCLUSION

Restorative behavior in digital workplaces is shaped by the interaction between physical space, workplace culture and individual choice, meaning that encouraging nature based breaks requires attention to both environmental design and organizational norms.

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