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HAUPTBEITRÄGE – THEMENTEIL

Enhancing knowledge workers' well-Being and productivity: a mindful co-working design approach

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Abstract
Knowledge workers, whose optimal performance necessitates periods of deep, uninterrupted focus, are confronted with significant challenges in today's work environment. Their roles demand not only uninterrupted focus but also active collaboration and communication with their peers, often through the very digital tools that disrupt their focus. Drawing on Self-Determination Theory, we propose Mindful Co-Working Design (MCD) as an innovative intervention that integrates mindfulness into co-working spaces, along with a set of individual strategies (i.e., managing interruptions, taking regular breaks, and goal setting), to mitigate the negative impacts of these challenges. This study evaluated the feasibility and effectiveness of MCD using mixed methods, including quantitative online surveys and qualitative experience reports, with 91 participants (part-time students working alongside their studies) in teams of two to five, randomly assigned to either a mindful co-working condition ($n = 44$) or a co-working only condition ($n = 47$). Quantitative results indicated significant improvements in job satisfaction and positive affect, alongside reductions in negative affect and perceived stress in both conditions. Interestingly, while no significant differences emerged between conditions for positive outcomes, the MCD condition was more effective in reducing negative outcomes. Qualitative findings, based on inductive coding of 40 experience reports, further supported these results. Participants reported that MCD diminished stress, enhanced well-being, improved concentration and goal accomplishment, and promoted respectful interactions. These findings highlight the value of MCD in addressing the dual demands of deep work and collaboration, offering actionable strategies for organizations aiming to support the well-being and productivity of knowledge workers.

Keywords Knowledge Workers · Work Design · Mindfulness · Co-Working · Well-being · Productivity

Knowledge workers are employed because of their knowledge of a subject matter, rather than their ability to perform manual labor (Serrat 2017). They are characterized by their high levels of expertise, education, skills, or experience (Serrat 2017; Weekes and Eskridge 2020) and the use of information technology as an integral part of their work process (Pyöriä 2005, 2006), which enables them to perform cognitively demanding tasks. Unlike other occupational groups, knowledge workers' productivity hinges on sustained focus, creativity, and effective decision-making, often requiring extended periods of deep work—intense, uninterrupted engagement with cognitively challenging tasks (Newport 2016). However, these complex tasks are usually not individual; instead, they are typically performed in collaboration with others in teams or networks (Pyöriä 2005, 2006). This paradoxical demand—to maintain an intense focus on complex tasks while actively collaborating and communicating with peers—places knowledge workers at a challenging crossroad.

The contemporary work environment, transformed by the accelerated digitalization since the COVID-19 pandemic (Kniffin et al. 2020; Kuzior et al. 2022), exacerbates this paradoxical demand. Ubiquitous connectivity through digital communication tools such as email, mobile phones, and platforms like Zoom or Microsoft Teams has fostered an "always-online" culture, often resulting in unrealistic performance expectations (Perlow 2012). This "always-on" culture is perpetuated by a "cycle of responsiveness" where teammates, superiors, and subordinates continue to make

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more requests, and conscientious employees feel compelled to respond to these increases in demands, while the expectations of each other continue to rise (Perlow 2012). Over time, these dynamics amplify stress, anger, overload, exhaustion, and the risk of burnout (Barley et al. 2011; Butts et al. 2015; Chesley 2014; Maier et al. 2015). While these challenges are not exclusive to knowledge workers, balancing the need for collaboration and communication with the ability to engage in uninterrupted deep work makes knowledge workers' work design particularly vulnerable to disruption.

The constant influx of new information and coworker interruptions hinder the ability to maintain concentration. On average, knowledge workers experience around 13 interruptions a day, each lasting 15–20 min (Züger et al. 2019), leading to significant work fragmentation and economic consequences (Spira and Feintuch 2005). Furthermore, the growing shift toward hybrid and shared office spaces (Clifton et al. 2022; Gandini 2015) introduces new dynamics that can either enhance or hinder productivity, depending on how these environments are designed. Effective co-working design must balance the competing demands of individual deep work and collaboration, offering solutions that support both focus and connectivity.

Several strategies have been proposed to address these challenges, including reducing interruptions (Züger et al. 2019), implementing goal-setting practices (i.e., identify one's goals and potential obstacles they may encounter, Rogers et al. 2015), and encouraging regular breaks (i.e., take a 5–15 min break to promote sustained concentration and stave off mental fatigue, Lyubykh et al. 2022). These strategies can be understood through the lens of the Self-Determination Theory (SDT; Ryan and Deci 2002, 2017), emphasizing how meeting the basic psychological needs for autonomy, competence, and relatedness fosters intrinsic motivation and well-being. For example, goal setting satisfies the need for autonomy by enabling individuals to set goals that best suit their individual preferences and rhythms. It also enhances competence by providing a structured path for mastery.

However, these strategies often operate in isolation, failing to account for the synergistic potential of an integrated method. For example, the Pomodoro Technique (Cirillo 2018) combines two key elements—focused work intervals and scheduled breaks—into a cohesive strategy that has gained popularity among professionals for enhancing productivity. Yet, such integrated approaches remain rare, and knowledge workers are seldom taught systematic strategies for managing interruptions and maintaining focus in increasingly demanding work environments. Without such training, workers often lack the tools to navigate distractions effectively, leaving them vulnerable to cognitive overload and stress.

Moreover, existing strategies often overlook the interactive dynamics among co-workers, which is unexpected given the importance of collaboration and communication in contemporary work environments (Cross et al. 2016). This oversight highlights another critical gap in both research and practice: the need for a comprehensive intervention that addresses not only the individual challenges but also the unique social dimensions faced by knowledge workers in a co-working setting.

Therefore, the current study seeks to fill this gap by introducing and evaluating a new intervention, namely Mindful Co-working Design (MCD), which integrates mindfulness into a co-working design along with the above-mentioned individual strategies of managing interruptions, goal setting, and taking regular breaks. MCD offers a cohesive framework that aims to optimize individual deep work while fostering group interactions, making it a robust response to the multifaceted demands of modern knowledge workers.

1 From work design to co-work design

The concept of work design, detailing the organization of tasks, activities, responsibilities, and the dynamics between workers (Parker 2014), has evolved significantly since its origins in the Industrial Revolution. Early research, as introduced by Taylor (1911), focused on job simplification to boost productivity and cost-effectiveness, often disregarding the skill development and job satisfaction of workers, which adversely impacted their well-being (Parker et al. 2001; van Veldhoven et al. 2020). The narrative, however, gradually progressed towards the idea of enriching jobs with autonomy and variety, thus promoting motivation and imbuing work with meaning (Hackman and Oldham 1976; Karasek 1979). This theme is still dominant in contemporary work design research (Bakker and Demerouti 2017), which suggests that actively modifying motivational, social, and contextual aspects of the work design can significantly enhance employee well-being and productivity.

Despite this development, work design has remained largely individual-centric (Parker 2014; Parker et al. 2001), which is not in line with the essential role that teamwork and the dynamic of co-worker interactions play in today's work environment (Cross et al. 2016). While co-worker interactions can facilitate the basic need for relatedness (Ryan and Deci 2000, 2002), they often come with challenges, such as disruptions and increased workloads stemming from both physical interactions and the pervasive use of digital communication tools. This challenge is particularly evident in the growing trend towards co-working in shared offices (Clifton et al. 2022; Gandini 2015), where the open nature of these environments fosters spontaneous, unplanned conversations and interruptions. Additionally, the omnipres-

ence of digital communication tools in shared spaces amplifies the "cycle of responsiveness" (Perlow 2012), making it harder for workers to reach a balance between focused individual work and collaborative demands. To address this, there is a clear need for a co-working design that acknowledges and regulates these social dimensions. MCD steps into this space with a team-centric strategy that integrates mindfulness to consciously navigate the use of social resources and interactions such as agreeing on deep work sessions in silence and shared breaks. This approach is particularly pertinent when knowledge workers intentionally gather to co-work in a shared workspace, thereby mindfully investing time in their collective endeavors.

2 Mindfulness

Mindfulness is defined as an attentive and aware state in which individuals actively observe each moment as it unfolds (Brown and Ryan 2003; Shapiro et al. 2006), has rapidly emerged as a focal point of research within the psychological sciences over the last three decades. In particular, the last decade has seen significant interest in applying mindfulness in the workplace (SeeVonderlin et al. 2020 for a meta-analysis). Findings suggest that mindfulness reduces stress (Aikens et al. 2014; Pang and Ruch 2019; Rudaz et al. 2017), burnout (Anderson et al. 1999; Luken and Sammons 2016) and mental distress (Grégoire and Lachance 2015), and increases job satisfaction (Hülsheger et al. 2013; Pang and Ruch 2019), resilience, social interactions at work (Glomb et al. 2011), flow at work (i.e., the total immersion in a work activity, Bakker 2008; Hohnemann et al. 2024), and work performance (Shao and Skarlicki 2009). By being attentive to and aware of what is taking place in the present, mindfulness provides employees with a source of intrinsic motivation that lies within the person, allowing them to connect with their inner values and priorities (Schultz and Ryan 2015). This connection potentially reduces their dependence on transformational leadership to sustain their intrinsic motivation and extra-role performance (Kroon et al. 2017).

Although mindfulness has predominantly been explored at the individual level, its application in interpersonal and team contexts remains under-researched (Khoury et al. 2022; Pratscher et al. 2019; Yu and Zellmer-Bruhn 2018). In co-working designs, mindfulness operates on both individual and interpersonal levels, offering a dual benefit. Individual mindfulness regulates and sustains attention over extended periods (commonly referred to as focused attention) and fosters essential elements of self-awareness and self-compassion (Condon 2017). Focused attention, as cultivated through individual mindfulness, refers to the practice of intentionally directing one's awareness to a specific task or present moment and gently returning to it when distractions occur. It is a cognitive skill that minimizes internal and external interruptions. In contrast, deep work extends beyond focused attention by encompassing prolonged, uninterrupted engagement with cognitively demanding tasks in an environment conducive to sustained concentration, ultimately yielding high-value outcomes (Newport 2016). While focused attention supports deep work, the latter involves a more comprehensive approach to time and task management. By cultivating focused attention, knowledge workers can calmly notice when their minds wander and simply return their attention to the current task, reducing their exposure to internal and external distractions and interruptions and enabling them to maximize their deep work.

Interpersonal mindfulness (Khoury et al. 2022; Pratscher et al. 2019; Yu and Zellmer-Bruhn 2018), on the other hand, extends these benefits to the group level. It involves shared attentiveness, mutual awareness, and adaptive responsiveness among co-workers. This shared attentiveness and awareness enhances group dynamics by fostering empathy towards oneself and others, making it particularly beneficial in co-working environments where collaboration and communication are critical (Condon 2017; Dell'Aversana and Miglioretti 2024).

3 The potential mechanism—A SDT perspective

Based on the Self-Determination Theory (SDT; Ryan and Deci 2002, 2017), we propose that MCD enhances knowledge workers' well-being and productivity. SDT outlines three universal basic psychological needs: autonomy (i.e., being able to self-determine one's behavior), competence (i.e., being able to effectively interact with one's environment and to express one's capacities), and relatedness (i.e., feeling close to others and integrated in one's social environment). The satisfaction of these needs predicts individuals' well-being (e.g., job satisfaction, positive affect and negative affect, vitality, or somatic symptoms) and productivity (e.g., quantity or quality of performance or profitability) in work contexts (Deci et al. 2017). For instance, service-oriented lawyers, whose motivation aligns with self-determined goals, report higher levels of positive affect and lower levels of negative affect compared to income-focused lawyers, despite earning less (Sheldon and Krieger 2014). Likewise, employees with high autonomous motivation experience lower stress levels under demanding work conditions compared to those with low autonomous motivation (Trépanier et al. 2013). Managerial support for autonomy has also been shown to be a crucial factor in fulfilling em-

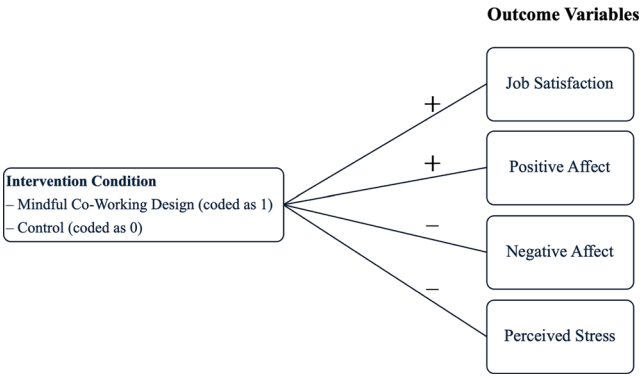

Fig. 1 Graphical Representation of the Hypotheses

ployees' psychological needs, thereby boosting productivity (Baard et al. 2004).

Previous research has also demonstrated strong positive correlations between mindfulness and the fulfillment of these three psychological needs (Chang et al. 2015, 2018), suggesting that mindfulness plays a pivotal role in bridging individual and interpersonal dimensions of co-working. In line with SDT, MCD satisfies the need for autonomy through the emphasis on personal initiative in what workers do during the focused sessions, allowing them to set their own goals that best suit their individual preferences and rhythms. Mindfulness enhances this process by fostering present-moment awareness, enabling individuals to reflect on their goals and ensure alignment with personal values (Schultz and Ryan 2015). In addition, the non-judgmental and non-reactive features of mindfulness allow individuals to realize that they are not totally driven by habitual and controlled behavioral patterns. Therefore, individuals are able to self-determine how they would like to react (Chang et al. 2015). The need for competence is satisfied by creating an environment that prioritizes focus and deep work, enabling participants to tackle tasks effectively and achieve mastery over their challenges. Mindfulness contributes to this process by sustained attention and concentration, allowing individuals to immerse themselves in tasks and achieve deep work without an anxious mindset that focuses on the evaluation and judgment of their performance (Chang et al. 2015; Schultz and Ryan 2015). Lastly, the need for relatedness is fulfilled by the co-working aspect of the design, which incorporates mindful social interactions during breaks and collaborative goal-setting activities. Mindfulness contributes to better social interactions and relatedness by allowing individuals to move beyond a self-centered state and become aware of the relationship between their self and the outside world (Chang et al. 2015; Schultz and Ryan 2015).

The SDT offers a comprehensive theoretical framework that explains how these strategies collectively support knowledge workers in managing individual deep work and collective collaboration and communication demands effectively.

4 The present study

Anchored in Self-Determination Theory, the present study aims to evaluate the effectiveness of a new intervention (MCD) on employee well-being and productivity using a mixed-methods design, which combines both quantitative (pre- and post-intervention surveys) and qualitative (structured experience reports) approaches. Specifically, we first examine its influence on job satisfaction, affect (both positive and negative), and stress reduction to determine its viability as a workplace intervention through a quantitative lens. Figure 1 provides a graphical representation of the hypotheses.

Hypothesis 1 Participants engaging in either a mindful co-working or co-working-only condition will experience an increase in a) job satisfaction, b) positive affect, and a reduced level of c) negative affect and d) perceived stress compared to their baseline.

Hypothesis 2 Participants in the mindful co-working condition, relative to those in the co-working-only condition, will demonstrate a larger increase in a) job satisfaction, b) positive affect, and a stronger reduction of c) negative affect, and d) perceived stress between baseline and post-participation in the co-working half-day.

In addition to these quantitative hypotheses, we explore participants' qualitative reports to gain deeper insights into their experiences with both types of interventions.

This study advances mindfulness research within the SDT framework by exploring how MCD support workplace well-being and productivity. Our research provides actionable insights into workplace design strategies, helping organizations implement evidence-based interventions that effectively balance deep work and collaboration.

5 Methods

5.1 Study design

The study used a partially mixed, sequential, dominant status design (Leech and Onwuegbuzie 2009) to evaluate the feasibility and impact of the intervention, with the quantitative component serving as the dominant method. Quantitative data were collected at two time points—before (pre-intervention) and after (post-intervention)—using surveys administered via Qualtrics. Following the intervention, participants submitted structured experience reports, which pro-

vided rich qualitative data on their individual and team-level experiences during the co-working sessions. The sequential nature of the design allowed quantitative data to be analyzed first, identifying measurable changes in outcomes, while the qualitative findings provided deeper insights and contextualized the observed effects. Although the study was not pre-registered, the integration of these methods offered a robust and comprehensive evaluation of both the feasibility and nuanced impacts of the intervention. All procedures performed in this study were following the ethical standards of the Bern University of Applied Sciences.

5.2 Participants and procedures

Participants were second-year master's students at the Bern University of Applied Sciences, the majority of whom were Swiss or EU nationals (70%). They worked part-time (at least three days a week) in various industries, including finance, public administration, wholesale and retail trades, insurance, consulting, transport, health care, and energy, representing a small but diverse sample of knowledge workers. Their work experience ranged from 1–3 years (55%), 3–5 years (20%), 5–7 years (13%), and more than 7 years (10%). In terms of educational background, participants were primarily from Business Administration (53%), with additional representation from Business Information Systems (10%), IT/Technology (13%), and other fields (23%). One participant did not disclose their work experience or educational background.

The participants were tasked with inviting 1–3 of their co-workers to participate in a co-working field study as part of a graded assignment for the "People and Collaboration" module during the autumn semester of 2023. This involved dedicating a half-day to co-working in a tranquil co-working space in a team of two to four people, focusing on deep work. Out of 40 enrolled students, nine could not secure co-workers due to various reasons (e.g., working in fully virtual teams). These students were grouped with peers from the same module who faced similar challenges, forming two student-only teams: one with 4 students and the other with 5 students. Additionally, survey data from five students and their co-workers were excluded from the analysis due to issues such as misunderstandings of the instructions, which resulted in either failing to complete the survey or completing both pre- and post-surveys simultaneously. The final quantitative sample consisted of 28 co-working teams, including two student-only teams, with a total of 35 students and their co-workers, resulting in 91 participants (M_{age} = 33.3, SD_{age} = 9.6, 55.7% males). The qualitative data sample consisted of all 40 students, who submitted structured experience reports as part of the assignment. Each student was instructed to write a 2–4 pages report (excluding references, tables, and illustrations) reflecting on their experience. The reports followed a structured format consisting of three main sections: 1) a brief introduction, 2) a description of their own and their colleagues' experiences during the co-working half-day, and 3) a critical reflection on why or why not the co-working half-day worked.

To ensure confidentiality in the quantitative data collection, participants' identities were pseudonymized by assigning each participant a unique code. These codes were stored separately, ensuring that the data was analyzed anonymously and that no conclusions could be drawn about individual participants. However, in the qualitative experience reports, participant identification could be recognizable as these reports reflected their and their coworkers' personal experiences. To investigate the unique contribution of mindfulness, the current study used an active control group, where the mindfulness component was separated from the other individual strategies.

For the qualitative data collection, 40 enrolled students were randomly assigned to one of two conditions: 1) mindful co-working (n = 20) and 2) co-working only (n = 20). For the quantitative data collection, additional participants were included from the students' co-workers, resulting in a total of 91 participants distributed as follows: 1) mindful co-working (n = 44) and 2) co-working only (n = 47). The two conditions shared similarities, with participants in the mindful co-working condition (condition 1) receiving a brief mindful check-in/check-out session (Stahl and Goldstein 2019), each involving a 5-minute guided meditation. These meditations followed instructions adapted from "*The Breathing Space*" by Jon Kabat-Zinn (AudioBuddha 2022) and could be facilitated by the participants themselves or through provided audio or video resources. This exercise fosters a state of focused attention and self-awareness, creating a mental "reset" that helps participants disengage from external distractions and enter the co-working half-day with greater clarity (Schultz and Ryan 2015). In contrast, participants in the co-working-only condition (condition 2) engaged in the check-in and check-out sessions without meditation. The check-in session consisted of a brief round of introductions or small talk led by the facilitator while the check-out session was combined with the wrap-up, during which participants reflected on and shared their experiences of the co-working half-day in a group discussion. All participants were instructed to complete pre- and post-tests, while the students of the module were asked to write an experience report as part of their graded assignment. A sample schedule for the co-working half-day in each condition is outlined in Table 1.

As shown in Table 1, the mindful co-working half-day (condition 1) started with a brief meditation at the check-in to help participants focus and clear their minds at the beginning of the day. This was followed by a goal-setting session, where participants were asked to identify their goals for the

Table 1 A Sample Schedule of the Co-working Half-Day for Each Condition

Time	Mindful Co-working Condition	Co-working-only Condition
8:30	Survey pre-test (5′)	Survey pre-test (5′)
8:35	Intro (5′)	Intro (5′)
8:40	Check-in *Meditation* (5′)	Check-in Session (5′)
8:45	Goal Setting (15′)	Goal Setting (15′)
9:00	Deep Work Session 1(45′)	Deep Work Session 1(45′)
9:45	Break 1 (15′)	Break 1 (15′)
10:00	Deep Work Session 2 (45′)	Deep Work Session 2 (45′)
10:45	Break 2 (15′)	Break 2 (15′)
11:00	Deep Work Session 3 (45′)	Deep Work Session 3 (45′)
11:45	Check-out *Meditation* (5′)	Check-out Session (5′)
11:50	Wrap up (10′)	Wrap up (10′)
12:00	Survey—post-test (5′)	Survey—post-test (5′)
12:05	Lunch (optional)—THE END	Lunch (optional)—THE END

Note. Prior to the experiment, all students were provided with comprehensive guidelines that outlined the scheduling of the day and the facilitation of the mindful co-working half-day

day and potential obstacles they may encounter. They were also prompted to reflect on the attitude they would need to overcome those obstacles.

Subsequently, the first deep work session began and lasted for 45 min. Participants were encouraged to work without interruption during this period, using the timeboxing technique (Zao-Sanders 2024) to stay on task. This focused period was followed by a 15-minute break to allow participants to recharge and interact with their co-workers. The pattern repeated with two additional 45-minute deep work sessions and another 15-minute break in between. Silence was maintained in the deep work phases to avoid disruptions, with meetings being deferred. The breaks were designated for social interaction and collegial engagement. At the end of the 3rd deep work session, participants engaged in a mindful check-out to help participants wind down and reflect on their accomplishments. Then in the wrap-up session, participants reflected on their progress and discussed the challenges they had faced throughout the day. The mindful co-working half-day concluded here if there was no joint lunch planned, which was optional. In contrast, participants in the co-working-only condition (condition 2) engaged in the check-in and check-out without meditation, but the rest was the same as condition 1.

Prior to the experiment, all students of the module were provided with comprehensive guidelines detailing the scheduling and the facilitation of the mindful co-working half-day. This included instructions for leading the guided meditation and the goal-setting session (with accompanying PowerPoint slides), incorporating breaks (with a mindful bell sound), and administering the survey at both the start and conclusion of the half-day. By following these guidelines, students were adequately prepared to facilitate the field study with their co-working team.

5.3 Quantitative measures

To capture momentary fluctuations in job satisfaction, well-being, and stress before and after the co-working session, the following instruments were employed.

Momentary job satisfaction Participants' momentary job satisfaction was assessed using a three-item version of the State Job Satisfaction Scale (Brayfield and Rothe 1951; Ilies and Judge 2004). The scale was administered with momentary time instructions (e.g., "At the moment, I am fairly satisfied with my job.") and ratings were obtained on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. In its original scale development paper (Ilies and Judge 2004), the scale demonstrated strong internal reliability (Cronbach's $\alpha = 0.93$) and robust validity, correlating with overall job satisfaction measures ($r = 0.59$) and maintaining significant discriminant validity even after controlling for momentary mood (partial $r = 0.36$). In the current study, reliability was also satisfactory, with Cronbach's $\alpha = 0.88$ pre-intervention and $\alpha = 0.91$ post-intervention.

Momentary well-being The abbreviated measure (six items) of the Positive and Negative Affect Schedule (PANAS) was utilized to measure participants' momentary positive and negative affect (Watson et al. 1988). The version used the items 'happy', 'enthusiastic', and 'content' for positive affects (PA), and 'upset', 'bored' and 'sad' for negative affects (NA). The participants were asked to report on their experiences of these affective states in the previous 30 min. Responses are recorded on 5-point Likert-type scale from *very slightly or not at all* to *very much.* The PANAS demonstrated strong psychometric properties in previous studies (Crawford and Henry 2004), with high internal consistency (Cronbach's α ranging from 0.89 to 0.90 for PA and 0.85 to 0.87 for NA) and robust construct validity, confirming its two-factor structure of PA and NA. The scale also exhibited discriminant validity, with PA strongly negatively associated with depression and NA linked to both anxiety and depression (Crawford and Henry 2004). The reliability of the scale in the current study was rather low, with Cronbach's $\alpha = 0.68$ (PA) and 0.54 (NA) before the intervention, and 0.68 (PA) and 0.67 (NA) afterward. Consequently, we opted to use individual items from the PANAS rather than the PA and NA subscales in the subsequent analysis.

Momentary perceived stress Participants' momentary stress levels were assessed using the Experience Sampling Perceived Stress Scale (EMA-PSS; Murray et al. 2023). This version of the Perceived Stress Scale (PSS) was adapted from the full traditional survey version of the PSS (Cohen 1988). Adaptations included the selection of only four items from the PSS and the rephrasing of the items stem to refer to the previous 30 min. In the current study, a single item was used '*In the last 30 min, I felt ... nervous and stressed*'. Responses were recorded on a five-point Likert-type scale from *very slightly or not at all* to *very much*. This response scale was used to be consistent with the PANAS measure (Watson et al. 1988) used in the present study. Due to the strong need to minimize the burden of the participants, it can be advantageous to use harmonized response scales for different measures wherever possible. The EMA-PSS demonstrated a strong internal consistency reliability, with an omega (ω) coefficient of 0.83 at the within-person level and 0.96 at the between-person level, along with robust validity, through significant correlations with related constructs such as trait stress, anxiety, and depression (Murray et al. 2023).

5.4 Qualitative reports and evaluation

The qualitative data for this study was derived from the students' experience reports they submitted within two weeks of the co-working half-day, each spanning two to nine pages (average length: 5.1 pages, including title page, illustrations, and references). The section describing their own and their colleagues' experiences during the co-working half-day, along with the critical reflection on why or why not the co-working half-day worked, were the parts used for coding.

The qualitative analysis followed the Gioia Methodology for inductive research (Gioia et al. 2013), which involves three key steps. First, *developing a data structure* begins with first-order analysis, where the informants' own terms and codes are used to create a detailed and descriptive set of categories. These first-order categories are then refined into second-order themes and then distilled into aggregate dimensions, resulting in a hierarchical representation of the data. Second, *grounding a model in the data* uses the structured categories and themes to construct a visual representation (known as the data structure), illustrating key relationships among concepts. Third, *presenting findings in a convincing narrative* integrates theory and data through abduction, providing novel insights while maintaining analytical rigor and clarity. These three steps allow for a systematic transformation of raw qualitative data into meaningful concepts. The primary goal of this methodology was to generate novel insights, theories, or conceptual frameworks emerging organically from the data (Creswell and Clark 2017; Gioia et al. 2013). Given our focus on understanding participants' experiences with the interventions, the Gioia Method was particularly useful for ensuring transparency in data analysis.

We followed these three steps in our qualitative analysis and carried out the coding using MAXQDA software. The first step, developing a data structure, is detailed here in the method section, while the second step, grounding a model in the data, and the third step, presenting findings in a compelling narrative, are described in the results section. Initially, the experience reports were read thoroughly, and sentences or statements of interest were coded. Codes were either a summary of the text segment or a direct excerpt. For instance, the segment "*The absence of the typical midday energy slump was particularly noteworthy ...*" was coded as "*absence of midday energy slump*" while "*... increased productivity ...*" was coded as "*increased productivity*". This phase aimed to compile all relevant text segments into 1st order concepts. The codes provided an overview, allowing for further evaluation without re-examining the original text. Abbreviations such as "cwd" for co-working design and "dw" for deep work were used. A total of 1074 individual codes were generated.

The subsequent phase involved developing 2nd order themes from the 1st order concepts. For example, the codes "*high internal satisfaction*" and "*work was more meaningful and enjoyable*" were grouped under the theme of well-being. Following this categorization, the main themes identified were *well-being, productivity, co-working, mindfulness, challenges*, and *feedback*. Codes that did not align with these themes were categorized as "*others*". Some codes reflected multiple underlying themes, such as "*cwd fostered productivity and well-being*", leading to their duplication and inclusion in the respective themes. To refine the structure within each theme, codes were re-evaluated and assigned to more detailed sub-themes. For instance, "*high internal satisfaction*" was categorized under the sub-theme "*impact on satisfaction*", while "*work was more meaningful and enjoyable*" fell under "*impact on work experience*", both within the overarching theme of *well-being*. This process was repeated for each theme until all codes were organized into coherent sub-themes. Depending on the theme, one to three levels of sub-themes were developed.

To address the research questions effectively, these 2nd order themes were partially reorganized and grouped into aggregated dimensions. The final aggregated dimensions included: *well-being, productivity, group dynamic*s, and *feedback and challenges*. Additionally, fourteen 1st order themes that were disconnected and did not align with these other 2nd order themes were grouped into a separate dimension labeled "others". The first-order coding was conducted by only one coder, while the second-order themes and aggregate dimensions were developed by two coders,

Table 2 Descriptive Data for the Outcome Variables and Within- and Between-Condition Effect Sizes

	Pre			Post			Condition * Time	Time	Within-condition effect sizes
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*F*	Cohen's *d*
Job Satisfaction							1.47	9.00**	–
Mindful Co-working	44	4.71	1.29	42	5.13	1.39			0.31
Co-working-only	47	5.21	0.98	45	5.43	0.80			0.25
Positive Affect									
Happiness							0.21	11.87***	–
Mindful Co-working	44	3.20	1.03	42	3.62	0.85			0.44
Co-working-only	46	3.37	0.83	45	3.62	0.75			0.32
Enthusiasm							0.53	14.19***	–
Mindful Co-working	44	2.95	1.12	42	3.55	1.17			0.52
Co-working-only	46	3.09	0.92	45	3.49	1.04			0.41
Content							0.27	16.05***	–
Mindful Co-working	44	3.20	0.73	42	3.64	1.10			0.43
Co-working-only	47	3.30	0.93	45	3.82	0.83			0.59
Negative Affect									
Upsetness							4.42*	12.52***	–
Mindful Co-working	44	1.82	1.11	42	1.29	0.74			–0.56
Co-working-only	47	1.68	0.98	45	1.56	0.99			–0.12
Boredom							1.59	8.75**	–
Mindful Co-working	44	1.82	1.11	42	1.36	0.62			–0.51
Co-working-only	46	1.59	0.83	45	1.40	0.62			–0.26
Sadness							0.00	19.63***	–
Mindful Co-working	44	1.59	0.97	42	1.19	0.71			–0.47
Co-working-only	47	1.83	1.07	45	1.47	0.76			–0.39
Perceived Stress							3.03*	27.78***	–
Mindful Co-working	44	2.57	1.09	41	1.63	0.99			–0.90
Co-working-only	47	2.38	1.21	45	1.91	1.16			–0.40

Note. *M* = Mean; *SD* = Standard Deviation
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, one-tailed

who collaboratively identified themes and dimensions. In cases of disagreement, the coders engaged in discussions to resolve disputes and ensure consistency.

6 Results

6.1 Quantitative findings

We tested the differences in the outcome variables at baseline as well as the demographics between the two conditions. No significant differences were detected across the two conditions in terms of age, gender, job satisfaction, well-being, and perceived stress, suggesting the randomization created initially equivalent groups. In total, four participants (4.6%) did not complete the posttest, but no differences were found based on completion status for baseline levels of all variables.

Linear mixed models with condition as a fixed factor and time as a repeated factor (pre–post) were conducted separately for each of the dependent outcome measures. The results are displayed in Table 2. As shown in Table 2, there was no significant Condition × Time interactions for job satisfaction ($F = 1.47$, $p = 0.115$). However, a main effect for Time ($F = 9.00$, $p = 0.002$) was present. This indicated that the two conditions did not differ in the change of job

satisfaction after the co-working half-day. Within-condition comparisons revealed small effect sizes for both the mindful co-working condition (Cohen's $d = 0.31$) and the co-working-only condition (Cohen's $d = 0.25$). Similarly, there was no significant Condition × Time interactions for all three positive affects: happiness ($F = 0.21$, $p = 0.323$), enthusiasm ($F = 0.53$, $p = 0.235$), and content ($F = 0.27$, $p = 0.303$). Nevertheless, all of them presented a main effect for Time ($F =$ 11.87, 14.19, and 16.05, respectively, all $p < 0.001$). Within-condition comparisons revealed medium effect sizes for both the mindful co-working condition (Cohen's $d = 0.44$, 0.52, and 0.43, respectively) and the co-working-only condition (Cohen's $d = 0.32$, 0.41, and 0.59, respectively).

In contrast, significant Condition × Time interactions were found for negative affect—upsetness ($F = 4.42$, $p =$ 0.019)—along with a main effect for Time ($F = 12.52$, $p <$ 0.001), while the other two negative affects—boredom ($F =$ 1.59, $p = 0.105$) and sadness ($F = 0.00$, $p = 0.490$)—showed no significant interaction effects yet a main effect for Time ($F = 8.75$, $p = 0.002$ and $F = 19.63$, $p < 0.001$, respectively). Within-condition comparisons revealed a medium effect size for the mindful co-working condition (Cohen's $d =$ –0.56, –0.51, –0.47, respectively) and a small effect size for the co-working-only condition (Cohen's $d =$ –0.12, –0.26, –0.39, respectively). Notably, significant Condition × Time interactions were also observed for participants' perceived stress ($F = 3.03$, $p = 0.042$), along with a main effect for Time ($F = 27.78$, $p < 0.001$). Within-condition comparisons revealed a large effect size for the mindful co-working condition (Cohen's $d =$ –0.90) and a small effect size for the co-working-only condition (Cohen's $d =$ –0.40).

Hypothesis 1 proposed that participants engaging in either the mindful co-working or co-working-only condition would experience an increase in (a) job satisfaction, (b) positive affect, and a reduction in (c) negative affect and (d) perceived stress compared to their baseline after the co-working session. Our results showed a main effect for Time in increasing job satisfaction and positive affect, as well as in reducing negative affect and perceived stress, thereby supporting Hypothesis 1.

Hypothesis 2 proposed that participants in the mindful co-working condition, relative to those in the co-working-only condition, would demonstrate a greater increase in (a) job satisfaction, (b) positive affect, and a greater reduction in (c) negative affect and (d) perceived stress between baseline and post-participation in the co-working session. While no significant Condition × Time interactions were observed for job satisfaction and positive affect, significant Condition × Time interactions were found for upsetness and perceived stress. These findings do not support Hypotheses 2a and 2b but provide partial support for Hypothesis 2c and full support for Hypothesis 2d.

6.2 Qualitative findings

A total of 1074 individual codes were generated. The code frequencies for each condition are presented in Table 3. From the qualitative reports, three primary themes emerged for both conditions: 1) well-being, 2) productivity, and 3) group dynamics. Figure 2 to Figure 4 below illustrate the progression from 1st order themes (with selected representative examples) to 2nd order themes, and finally to the aggregated dimensions, which are summarized by highlighting commonalities and expectations. Detailed coding structures can be found in the supplementary material for further reference.

Well-being As depicted in Fig. 2, participants reported significant enhancements in their well-being, which were reflected in the positive emotions expressed in their experience reports. Many were surprised by the amount of satisfaction, calmness, motivation, happiness, joy, energy, fulfillment and accomplishment they experienced during and after the co-working half-day. Participants also noted a reduction in stress and a diminished sense of being overwhelmed by tasks. Some attributed these feelings to the amount of work they managed to accomplish, noting that the interventions prevented exhaustion and helped avoid the typical afternoon energy slump, providing sustained energy throughout the day. Additionally, participants in the mindful co-working especially mentioned that the mindfulness practices had a beneficial effect. They stated that the check-in meditation helped relax both mind and body, mentally preparing them for the upcoming deep work sessions; the check-out meditation further reinforced the positive feelings experienced during the structured co-working design and facilitated the transition back to their everyday lives. This is shown (see Table 3) by the higher frequency of mentions of relaxation and calmness (31 mentions in the mindful co-working condition versus 6 in the co-working-only condition) and stress reduction (6 mentions in the mindful co-working condition versus 3 in the co-working-only condition).

Productivity As depicted in Fig. 3, participants reported enhanced productivity, which emerged through several key 2nd order themes in their experience reports. These themes collectively reflect the positive impact of the co-working half-day on participants' work efficiency and output. Participants noted a direct increase in productivity, an improvement in their ability to focus or enter a flow state, the achievement or overachievement of goals, a boost in productivity due to peer pressure, and an overall increase in motivation to work. One participant noted that due to the focused attention, he was able to complete a task in 90 min that would typically require a half to a full workday.

Table 3 Code Frequencies of Each Condition

	Mindful Co-working Condition ($n = 20$)	Co-working-only Condition ($n = 20$)	Total
Well-being	89	48	137
Positive Affect	83	45	128
Satisfied	6	8	14
Relaxed and calm	31	6	37
Motivated	13	11	24
Happy and enjoy	22	10	32
Energized	9	6	15
Fulfilled & accomplished	2	4	6
Stress	6	3	9
Productivity	157	148	305
Flow and focus	73	60	133
Direct mention of high productivity	51	38	89
Goal achievement	26	33	59
Peer pressure	3	16	19
Motivation	4	1	5
Group Dynamic	78	44	122
Atmosphere	42	21	63
Interaction	29	14	43
Support	6	7	13
Feedback	1	2	3
Feedback & Challenges	272	224	496
Other	8	6	14
Sum	604	470	1074

Many participants stated that they met or exceeded their goals, completing tasks more efficiently and effectively. Some participants found it easier to focus when surrounded by similarly focused co-workers, benefiting from positive peer pressure and a shared team spirit in pursuing common goals. Moreover, achieving goals led to a continuous cycle of satisfaction and motivation, further boosting productivity. Both conditions demonstrated a high frequency of productivity-related codes (see Table 3), but their pathways to productivity appeared to differ. In the mindful co-working condition, productivity was more strongly associated with flow and focus, as evidenced by 73 mentions compared to 60 in the co-working-only condition. Conversely, the co-working-only condition seemed to benefit more from positive peer pressure, with 16 mentions compared to just 3 in the mindful co-working condition.

Group dynamics As illustrated in Fig. 4, participants observed significant improvements in group dynamics during the co-working sessions, as evidenced by several key 2nd order themes. These included an overall enhancement in the atmosphere, more effective interactions among colleagues, a stronger sense of peer support, and the benefit of constructive feedback. Adhering to a consistent schedule across the team improved psychological safety and cultivated a shared sense of enjoyment. Participants felt these elements were crucial in developing a more cohesive and supportive team. The practice of sharing goals enhanced mutual understanding and fostered unity, accountability, and camaraderie. Additionally, shared breaks were perceived as vital in strengthening connections, and providing opportunities for interaction outside of work tasks, which helped reduce distractions and fostered a sense of relatedness among colleagues. During these breaks, participants also appreciated receiving valuable feedback from their peers. The mindful co-working condition appeared to cultivate a stronger sense of group cohesion and support among participants, as reflected in the qualitative coding frequencies (see Table 3). Specifically, there were 42 mentions of (positive) atmospheres and 29 mentions of (positive) interactions, compared to 21 and 14 mentions, respectively, in the co-working-only condition.

Feedback and challenges Most participants reported positive outcomes from the co-working half-day, regardless of the condition they were assigned to. Many expressed a desire to repeat the experience and integrate aspects of the co-working half-day into their regular work routines, indicating a sustained interest in adopting these practices. However, some challenges and areas for potential improvement were also identified.

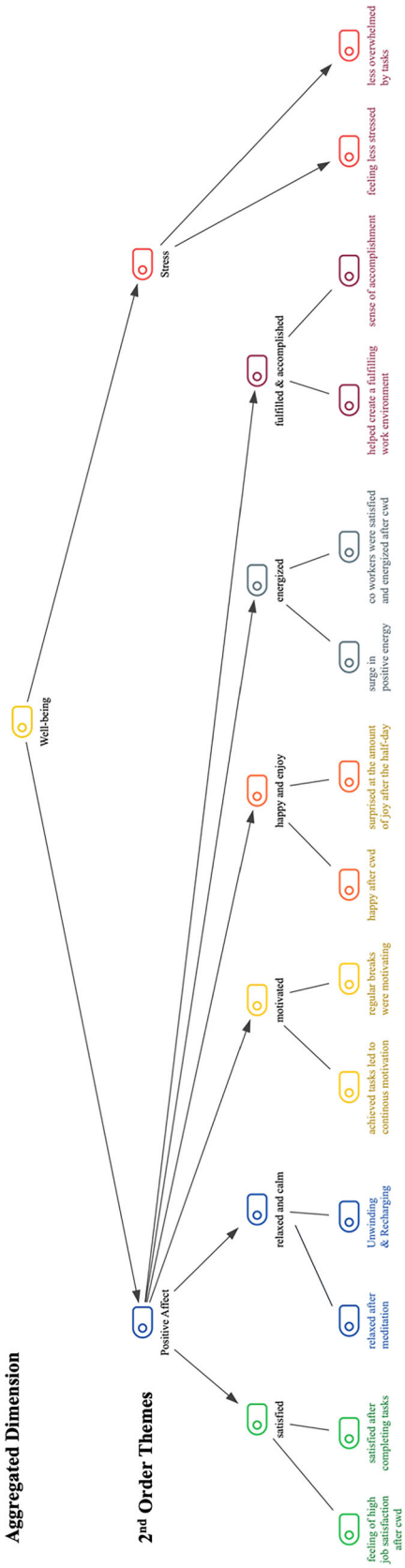

Fig. 2 Visualization of the Aggregated Dimensions—Well-Being. Note. The figure shows the results of the qualitative analysis of the students' experience reports

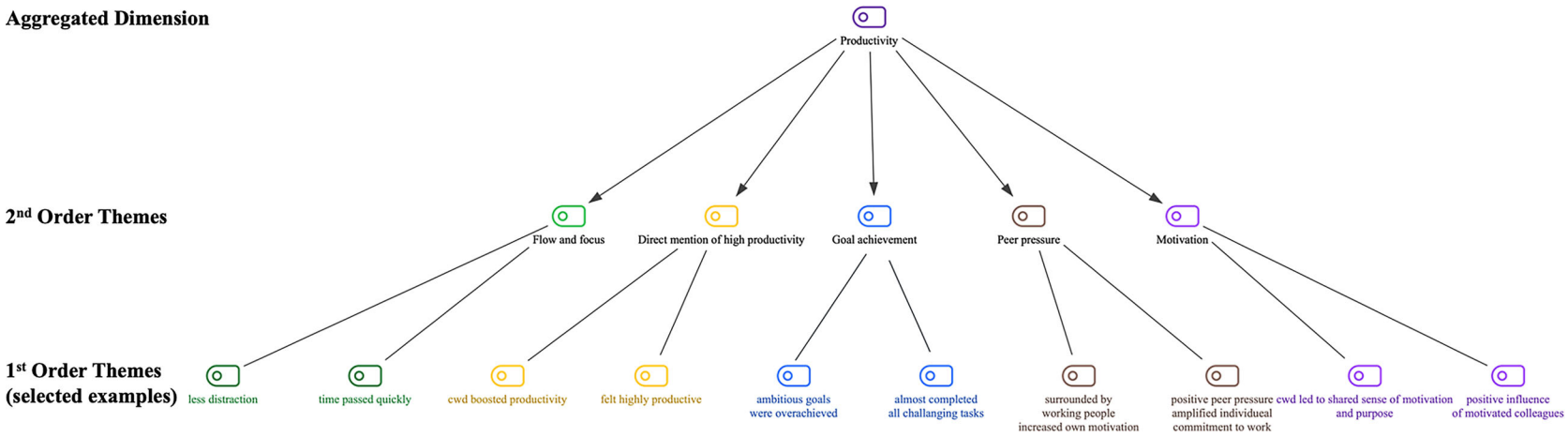

Fig. 3 Visualization of the aggregated dimensions—productivity. Note. The figure shows the results of the qualitative analysis of the students' experience reports

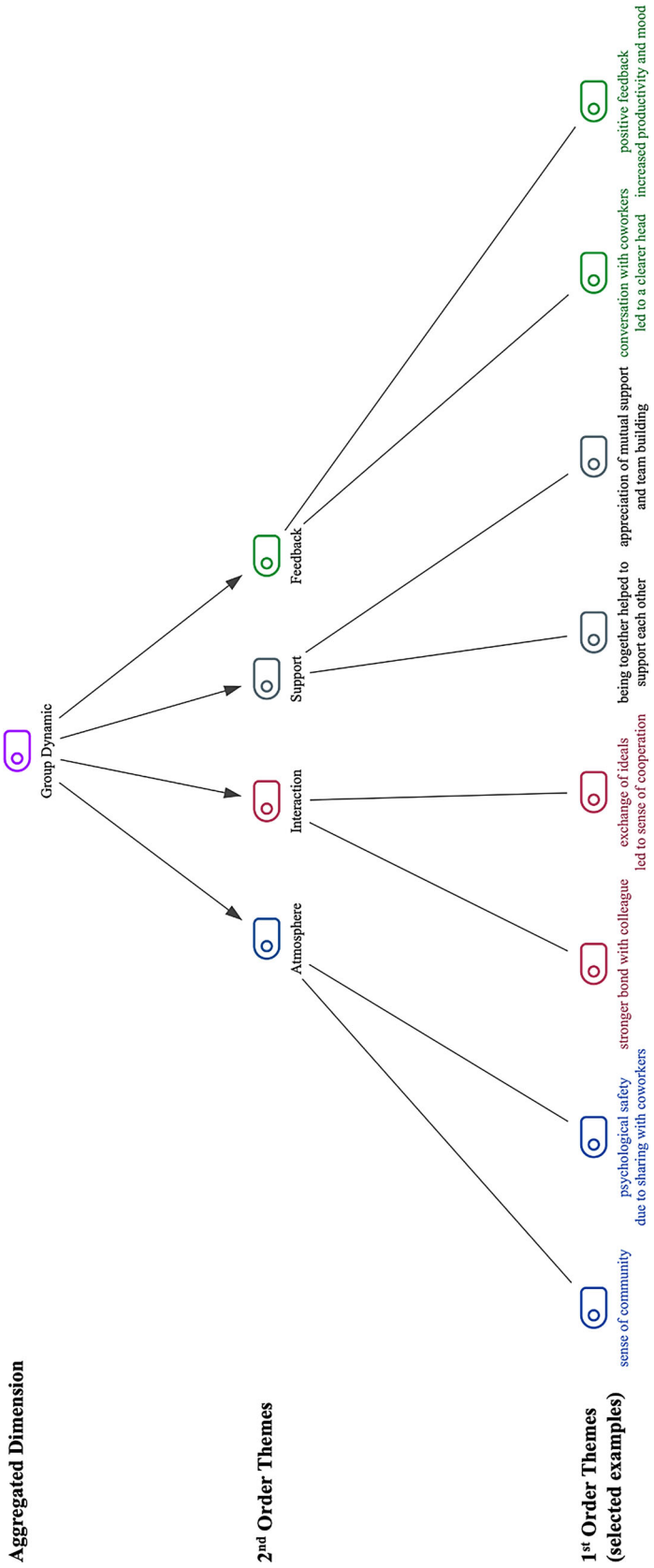

Fig. 4 Visualization of the aggregated dimensions—group dynamics. Note. The figure shows the results of the qualitative analysis of the students' experience reports

There were mixed opinions regarding certain aspects of the MCD. For instance, some participants found the 15-minute break excessively long ($n = 3$), while others felt that the 45-minute deep work session was too short ($n = 4$). Conversely, one participant thought the deep work session was overly long ("*deep work should not develop into a jail*"), suggesting a need for fine-tuning the schedule to better accommodate individual preferences.

Participants also highlighted practical challenges related to the work environment. The lack of necessary infrastructure in the meeting room, such as dual monitors or comfortable chairs, negatively impacted their performance. Additionally, the fixed schedule of the co-working session was criticized, with participants expressing a desire for greater flexibility and adaptability ($n = 10$). Some participants struggled with the timing of the deep work sessions and breaks, particularly when they did not set a timer, and a few viewed the breaks as interruptions to their focused work. Distractions, both internal (e.g., hunger or difficulty maintaining focus) and external (e.g., people entering the room or incoming calls), further impacted concentration and productivity.

Another significant challenge was to integrate the structured co-working session into existing work routines. Time constraints and frequent meetings were cited as barriers to implementing regular deep work sessions. Some participants feared that the co-working design would not be accepted by management due to the perceived excessive breaks, which may not align with the company's traditional work structure. Moreover, the nature of certain jobs was not conducive to deep work, particularly those requiring constant communication via email, chat, or phone, leading to delays in task completion and decreased productivity.

7 Discussion

The findings of this study provide valuable insights into the feasibility and effectiveness of MCD as a novel intervention aimed at enhancing the well-being and productivity of knowledge workers in a co-working environment. Through a combination of quantitative and qualitative data, this study sheds light on the multifaceted impact of integrating mindfulness practices with co-working design.

7.1 Enhancing job satisfaction and positive affect

The quantitative results indicate that both the mindful co-working condition and the co-working-only condition led to significant improvements in job satisfaction and positive affect. The absence of a significant difference between the two conditions suggests that the act of co-working itself (together interrupt reduction, regular breaks, and goal setting), regardless of the inclusion of mindfulness practices, may contribute to these positive outcomes. This aligns with our qualitative findings, where participants in both conditions frequently mentioned experiencing satisfaction, enjoyment, and motivation during the co-working half day. This is also consistent with existing literature which suggests that our co-working-only condition, by promoting focused attention, social interaction, and shared goals, can enhance job satisfaction and positive emotions among workers (Bouncken and Reuschl 2018; Demirkol 2021; Newport 2016). Although the magnitude of improvements in job satisfaction and positive affect did not differ significantly between the two conditions, the mechanisms driving these outcomes varied. The co-working-only condition relied more on external motivators such as positive peer pressures while the mindful co-working condition relied more on internal motivators, including self-awareness and emotional regulation, benefits specifically elicited through the check-in and check-out mindfulness practices. These practices helped participants feel calmer and more focused, further enhancing their positive emotional state and contributing to a more reflective and self-driven approach to their tasks. This distinction in mechanisms extends our study beyond previous research by highlighting how mindfulness uniquely enhances intrinsic motivation within a co-working setting. Furthermore, unlike prior studies that have focused on longer, structured mindfulness-based programs (typically spanning at least eight weeks), our findings demonstrate that even a brief half-day co-working intervention can generate measurable, real-time improvements in job satisfaction and positive affect.

7.2 Reducing negative affect and perceived stress

The study's most notable findings pertain to the reduction in negative affect 'upsetness' and perceived stress, where the MCD demonstrated a clear advantage over the co-working-only condition. Participants in the MCD condition experienced a greater decrease in upsetness and perceived stress, with medium to large effect sizes, compared to their counterparts. These findings partially support Hypothesis 2 and align with previous research indicating that mindfulness practices can effectively mitigate negative emotions and stress (Chiesa and Serretti 2009; Hülsheger et al. 2013). The significant Condition × Time interaction for both upsetness and perceived stress suggests that the mindful elements of MCD—such as guided meditation and reflective check-ins—played a crucial role in alleviating these psychological burdens. This aligns well with the qualitative findings, which show more frequent mention of "relaxed and calm" and "stress reduction" in the mindful co-working condition.

Similar to the positive outcomes, our findings suggest that integrating mindfulness into work routines through short interventions can provide immediate benefits. This is

particularly important in the context of knowledge workers, where the demand for sustained concentration and deep work is high, and the risk of stress and emotional exhaustion is prevalent (Maier et al. 2015). By incorporating mindfulness into the co-working design, workers may be better equipped to manage the cognitive and emotional challenges associated with their tasks, leading to improved mental well-being.

7.3 The synergistic potential of mindful co-working design

The qualitative findings further support the quantitative data, revealing that most participants found the co-working half-day beneficial in three key areas: 1) it aided in diminishing stress and enhancing well-being; 2) it facilitated engagement in deep work, leading to improved concentration and goal accomplishment; and 3) it promoted considerate and respectful exchanges with colleagues. Table 3 illustrates that while both the mindful co-working condition and the co-working-only condition showed benefits across these themes, the frequency of mentions was higher in the mindful co-working condition. For instance, participants in the MCD condition reported significantly more mentions of relaxation and calmness (31 vs. 6) and positive group atmosphere (42 vs. 21), highlighting the impact of mindfulness practices in fostering emotional regulation and supportive group dynamics.

The themes of well-being, productivity, and group dynamics that emerged from the qualitative analysis highlight the synergistic potential of integrating mindfulness with co-working design. Participants noted that the mindfulness practices, such as check-in and check-out meditations, played a critical role in helping them transition into and out of deep work sessions. These practices not only enhanced focus but also promoted empathy and cooperation among co-workers, as evidenced by the higher mentions of interaction (29 vs. 14) and group cohesion-related codes in the MCD condition. These findings suggest that MCD creates a more enriched co-working experience, supporting both individual well-being and collective collaboration.

This triangulation of quantitative and qualitative findings strengthens the study's overall conclusions. The qualitative insights highlight the importance of addressing the social and emotional dimensions of work design, particularly in collaborative environments where teamwork is essential. By integrating mindfulness into co-working, the MCD approach appears to foster a more holistic work experience, balancing individual well-being with collective productivity. This aligns with contemporary theories of work design, which emphasize the integration of motivational, social, and contextual factors to optimize outcomes for both individuals and organizations (Bakker and Demerouti 2017; Parker 2014).

7.4 Theoretical and research implications

The findings of this study advance the broader literature on work design (Parker 2014; Parker et al. 2001) by illustrating how mindfulness can be integrated into co-working designs to effectively address the dual demands of knowledge workers. Through the lens of Self-Determination Theory, the study demonstrates how MCD fulfills the psychological needs of autonomy, competence, and relatedness. These insights contribute to a deeper theoretical understanding of how mindfulness practices can enhance co-working designs and provide a framework for optimizing knowledge workers' well-being and productivity.

Future research could build on these findings by exploring the underlying mechanisms of MCD's effectiveness in greater depth. For example, autonomy, competence, and relatedness could be included as mediators to clarify how these psychological needs interact with the intervention to influence well-being and productivity outcomes. Additionally, examining potential moderators, such as personality traits, team composition, or task complexity, could provide insight into the boundary conditions that affect MCD's efficacy. Incorporating control variables, such as baseline mindfulness levels or prior experience with meditations, could also refine the interpretation of results.

Conducting follow-up assessments would allow researchers to investigate the sustainability of MCD's effects over time. The qualitative findings suggest that participants might independently continue to apply MCD practices after the intervention concludes. Future studies should evaluate whether these practices persist and contribute to long-term benefits, both at individual and organizational levels.

7.5 Implications for practice

The findings of this study have several practical implications for organizations aiming to boost the well-being and productivity of their knowledge workers. The positive outcomes observed in both the mindful co-working and co-working-only conditions suggest that simply providing structured co-working opportunities can be beneficial. Organizations should consider creating environments that facilitate such structured co-working sessions as a starting point. To maximize the benefits of co-working, organizations should consider integrating mindfulness practices into these sessions. This could include incorporating brief meditation sessions, reflective check-ins, and structured breaks designed to encourage mindful social interaction. Such practices can help workers manage stress, im-

prove focus, and foster a sense of community within the workplace.

However, implementing MCD in organizational settings may face challenges due to managerial restrictions, such as concerns about disrupting workflows or allocating time for non-traditional interventions. To address these challenges, organizations could start with pilot programs in smaller teams or departments. Successful pilot results such as the current study could help build managerial buy-in and pave the way for broader adoption. In addition, tailoring MCD to align with specific organizational goals and constraints is also critical. For example, allowing teams' flexibility in how they implement MCD—such as adjusting the duration and structure of sessions to fit their workflow—could further ease adoption. Moreover, hybrid and remote teams could benefit from virtual adaptations of MCD, ensuring accessibility across diverse work settings. Future research could explore barriers and facilitators of MCD implementation to support its practical application in different organizational contexts.

7.6 Limitations and future studies

While this study provides valuable insights into the feasibility and effectiveness of the MCD, it is not without limitations. The relatively small sample size, despite its diversity, poses a challenge to the generalizability of the findings to the broader population of knowledge workers. Additionally, one-third of the quantitative sample and the entire qualitative sample consisted of part-time students, who may be more accustomed to working in groups compared to other populations. Students often engage in group work as part of their academic training, which might influence their perception and adaptation to co-working sessions. This familiarity with group work could have contributed to a more favorable reception of the intervention and may not fully generalize to other professional environments.

Another notable limitation pertains to the adaptation of the measurements used in the current study. Although PANAS has demonstrated strong psychometric properties in previous studies, the internal consistency of the abbreviated PANAS used in this study was relatively low. Consequently, we analyzed individual items rather than aggregated subscales. This decision aligns with the recommendation to prioritize validity over internal consistency when adapting scales for new contexts (Heggestad et al. 2019). However, this adaptation poses challenges for interpreting results related to overall positive and negative affect, as the reduced number of items may limit the construct coverage and diminish the scale's ability to capture broader emotional states. Similarly, the PSS adaptation used in this study followed the EMA version developed by Murray et al. (2023), which has demonstrated strong reliability and validity in previous research. However, additional adaptations, including the selection of only one item and the use of a response scale aligned with PANAS, were made to reduce participant burden and maintain consistency. While these adaptations aimed to enhance feasibility, they introduced a trade-off that may have limited the scale's content validity and ability to capture the full complexity of perceived stress (Heggestad et al. 2019).

A further limitation includes the short duration of the intervention, which consisted of a single half-day session. This brief intervention may not fully capture the potential long-term benefits and sustainability of MCD. Consequently, future studies should aim to replicate these findings in larger and more diverse samples, including full-time professionals across different sectors. Moreover, extending the duration of the intervention would allow for a more comprehensive assessment of MCD's impact over time, providing greater insight into its effectiveness and potential long-term benefits.

To enhance the rigor of future research, modifications to the MCD framework may be necessary to cater to the diverse needs and work contexts of participants. Future studies could also incorporate a passive control group, which would help establish a clearer cause-and-effect relationship between MCD and its beneficial outcomes. Exploring ways to maintain construct validity when adapting scales for new contexts, such as retaining more items or validating the selected adaptations in similar populations, would also strengthen future research. Additionally, employing multiple methods to assess affective states and stress, such as physiological measures or peer evaluations, could mitigate reliance on self-report data and enhance the robustness of findings.

8 Conclusion

In summary, the application of MCD offers promising strategies for organizations seeking to address the challenges of modern work environments. By fostering structured co-working opportunities and integrating mindfulness practices, organizations can not only improve employee well-being and productivity but also realize broader organizational benefits, making MCD a valuable tool in the contemporary workplace.

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