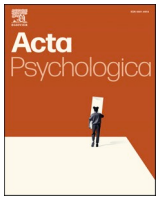
Breathe-well grounded theory: Self-discovery and personal growth in knowledge workers through well-being practices

Acta Psychologica 265 (2026) 106736

Contents lists available at ScienceDirect

Acta Psychologica

journal homepage: www.elsevier.com/locate/actpsy



Breathe-well grounded theory: Self-discovery and personal growth in knowledge workers through well-being practices

Cristina Martinez Montes [a,*], Birgit Penzenstadler [a,b]

[a] Chalmers University of Technology and University of Gothenburg, Gothenburg, Sweden
[b] Lappenranta University of Technology, Lappeenranta, Finland

ARTICLE INFO

Keywords:
Well-being
Resilience
Stress
Knowledge workers
Depression
Burnout

ABSTRACT

Knowledge workers often face high stress due to deadlines and overcommitment, which negatively impacts their well-being. They have specific characteristics and challenges, such as a tendency to work in isolation or in intense team environments, sleep deprivation, and making decisions under pressure.

Objective: To support preventive measures, this study provides a comprehensive, systematic understanding of the factors contributing to the well-being of knowledge workers in light of a specific intervention.

Method: We designed, implemented and evaluated a programme using breathwork to reduce stress, improve well-being and foster resilience. We conducted 43 semi-structured interviews and analysed them via Constructive Grounded Theory.

Results: We propose the Breathe-well Grounded Theory with key concepts, principles, elements, dimensions, and interconnections that shape the lives and work experiences of knowledge workers, particularly in light of the applied breathwork intervention.

Conclusion: We discuss our results in relation to well-known general theories on well-being. We conclude that breathwork interventions have a positive impact on the well-being of knowledge workers. We offer theoretical, research and practical implications that help knowledge workers improve their general well-being.

1. Introduction

Knowledge workers run modern organisations, driving innovation, critical thinking, and decision-making. However, as organisational dependence on their expertise grows, so too do the demands placed on them. These demands often result in elevated levels of stress, burnout, and mental health issues such as depression (Rees et al., 2015; Weijing & Hongchun, 2011). Sustaining well-being and resilience in this population is therefore essential not only for personal health but also for organisational performance and innovation (Rees et al., 2015).

Knowledge workers are professionals whose core duties involve processing information, creating knowledge, and solving complex problems (Davenport, 2005; Work, 2018). While intellectually rewarding, such work exposes individuals to high cognitive and emotional demands, particularly when challenges exceed coping capacity. Stress arises when perceived demands exceed available resources (Lazarus, 1986; Restrepo & Lemos, 2021). Chronic exposure to stress can lead to burnout and depression (Maslach, 1998; WHO, 2021).

While mindfulness-based interventions have demonstrated consistent benefits in reducing stress and enhancing well-being (Jayawardene et al., 2017; Leka & Jain, 2010). Yet, research has largely centred on healthcare, education, and hospitality, leaving knowledge workers (particularly those in Information and Communication Technology, ICT, contexts) underexplored (Dinesh et al., 2022).

Existing models, such as the ICT paradoxes model (Day et al., 2019) and Büchi's (2024) framework on digital well-being, explain the complex interaction between technology, organisational support, and well-being. Similarly, technostress research shows that technological demands can heighten psychological strain and reduce job satisfaction (Hwang & Cha, 2018). Despite these insights, a lack of theory-driven research remains, examining how mindfulness-based practices can help knowledge workers cultivate resilience in the face of these unique challenges.

To address this gap, this study introduces the Breathe-well Grounded Theory: Self-discovery and Personal Growth through Well-being Practices. It explains how mindfulness enables knowledge workers to develop resilience, promote self-awareness, and support sustainable well-being, and was developed from a mindfulness-based intervention

* Corresponding author at: Department of Computer Sciences, Chalmers University, Horselgongen 5, 41756, Gothenburg, Sweden.
E-mail address: montesc@chalmers.se (C.M. Montes).

https://doi.org/10.1016/j.actpsy.2026.106736
Received 30 April 2025; Received in revised form 16 February 2026; Accepted 23 March 2026
Available online 31 March 2026

conducted in three iterations, making the theory evidence-based and grounded in real-world practice.

This study answers the following research question:

RQ. How do mindfulness-based practices influence knowledge workers to enhance their well-being and resilience?

Grounded in lived experiences, it offers a new understanding of how mindfulness practices helped build resilience and provides practical insights for organisations seeking to promote healthy, balanced, and sustainable work cultures.

2. Background

This study draws on three interrelated constructs to understand how current challenges, including high cognitive demands, stress, and burnout, affect the health and professional effectiveness of knowledge workers. Resilience is the capacity to adapt to stress. Well-being is the broader outcome of psychological and social functioning, and mindfulness is a concrete practice shown to enhance both resilience and well-being. Together, these constructs guide the design and implementation of targeted interventions that foster sustainable health and performance in digital work environments.

2.1. Resilience

Resilience has been the subject of extensive research, leading to various definitions, models, and theories. Much of this research has focused on individuals who are required to confront potentially traumatic events (Fletcher & Sarkar, 2012), with resilience theories primarily rooted in clinical populations (Mancini & Bonanno, 2009). However, these theories are often context-specific, making their findings challenging to apply to individuals who face high cognitive demands, as opposed to those who have been exposed to trauma. Understanding how to increase resilience in particular populations is crucial for fostering healthy coping strategies and minimising unhealthy coping and stress responses. For this research, we adopted the definition of resilience by Herrman et al. (2011) as the ability to maintain or regain mental health despite adversity, characterised by positive adaptation.

While resilience describes how individuals respond to adversity, well-being captures the broader state of psychological balance and life satisfaction. Resilient responses often sustain or restore well-being, while well-being provides resources that enable resilient coping.

2.2. Well-being

Well-being involves cognitive, affective, and behavioural factors shaped by hedonic (pleasure) and eudaimonic (purpose) perspectives (Deci & Ryan, 2008) and includes social dimensions such as relationships and belonging (Galderisi et al., 2015; Thieme et al., 2015). Well-being is a dynamic state that changes over time and is viewed as a continuum rather than a binary state (Wong et al., 2023). Among the different proposals for measuring well-being, Subjective well-being (SWB) is among the most well-known.

SWB captures how individuals perceive and evaluate their lives with an affective component (the balance of positive and negative emotions) and a cognitive component (life satisfaction) (Das et al., 2020; Diener et al., 2009). According to Diener's Adaptation Theory, people have relatively stable well-being set points that may shift under certain conditions, allowing interventions to have lasting effects.

Finally, Todres and Galvin's "Dwelling-Mobility" model (2010) frames well-being as a balance between dwelling (feeling at home) and mobility (openness to new possibilities), carrying a feeling of rootedness and flow, peace and possibility.

2.3. Mindfulness

It is defined as the practice of being open and attentive to the present moment and one's experiences (Brown et al., 2007); for example, we used breathwork, journaling and meditation.

Breathwork refers to the conscious regulation of one's breathing to promote physical, mental, and emotional well-being (*Oxford University Press*, n.d.). Some practices are deeply rooted in old cultural and spiritual traditions (Beauchamp et al., 2025). Pranayama, for example, originating from yoga, translates to "prana" (vital force) and "ayama" (control or extension) (Vivekananda, 2021, p. 38; Beauchamp et al., 2025), and a pranayama exercise mimicking a physiological sigh was used in the intervention of this study.

We also used **Journaling** in the intervention. It signifies a practice of daily writing and reflection (Bender, 2000). Rather than merely recording the day's events, journaling invites personal reflection, allowing for a more profound and meaningful connection between thoughts and the world (Baldwin, 2007). Journaling reflects the secular concept of mindfulness "paying attention on purpose, in the present moment, and non-judgmentally" (Williams et al., 2007, p. 47) and traditional views emphasising the impermanent yet sacred aspects of self and reality (Sellman & Buttarazzi, 2020).

These practices complement each other by engaging different yet connected aspects of mindfulness. **Breathwork** regulates the body's stress response. It promotes relaxation and focus by calming the autonomic nervous system (Fincham et al., 2023; Zaccaro et al., 2018). **Journaling** activates the reflective and cognitive side of mindfulness. It enhances self-awareness, facilitates emotional processing, and helps create meaning from everyday experiences (Baikie & Wilhelm, 2005; Pennebaker & Beall, 1986; Smyth, 1998).

Both techniques are practical and low-cost, fit easily into knowledge workers' routines, and are suitable for remote and technology-heavy settings.

3. Previous research on well-being

Well-being has been extensively studied across disciplines such as psychology, economics, philosophy, public health, and human ecology. Each discipline offers different theoretical frameworks that explain how various factors influence people's well-being. Das et al. (2020) have classified these theories into emotional, personal orientation, evaluative, fulfilment and engagement theories. They conclude that well-being literature lacks a coherent theoretical and methodological framework. Since the theories overlap and sometimes contradict (Das et al., 2020), our study proposes an evidence-based theory to address the limited understanding of well-being in knowledge workers. Existing frameworks rarely consider the cognitive demands and digital stressors characteristic of this population. We show how mindfulness-based practices (particularly breathwork) can foster resilience and enhance well-being in technology-intensive work environments.

3.1. Well-being in digital contexts

Digital well-being refers to individuals' emotional well-being, satisfaction in various life domains (e.g., relationships or work), and overall life satisfaction amid the abundance of digital media options (Büchi, 2024). Büchi (2024) proposed a sociological framework that links digital media use to well-being:

1. Digital practices are shaped by an individual's social environment and the technological context in which they operate.
2. Digital behaviours can simultaneously produce positive and negative outcomes.
3. The balance and accumulation of these effects influence overall well-being.

Büchi argues that digital media should be viewed neither as harmful nor entirely beneficial but as an integral force shaping human communication and, consequently, well-being. For knowledge workers who experience constant digital engagement and cognitive overload, strategies that counter these negative effects are crucial. Breathwork offers one such approach, enhancing emotional regulation, focus, and resilience in technology-intensive environments.

3.2. Stress frameworks in ICT: paradoxes and technostress

ICT can act as a resource and a stressor, depending on organisational context and individual differences. The autonomy paradox illustrates this tension: while digital tools enable flexibility in remote work and task completion, they also blur the boundaries between work and life. Flexibility may foster engagement and satisfaction, yet constant connectivity can hinder psychological detachment and rest (Day et al., 2019; Mazmanian et al., 2013). Similarly, the social connectivity paradox highlights ICT's dual social role. Digital media can strengthen communication and reduce isolation (Dewett & Jones, 2001), but persistent notifications and requests may create feelings of intrusion and disrupt concentration (Leonardi et al., 2010). The productivity paradox further reflects this duality, as ICTs enhance efficiency and collaboration while simultaneously increasing task interruptions that undermine work completion (Barber & Santuzzi, 2015; O'Driscoll et al., 2010).

These paradoxes link closely to the concept of technostress, first introduced by Brod to describe individuals' difficulties in coping with ICT use (Ayyagari et al., 2011). Later defined as "the stress caused by an individual's attempts to deal with constantly evolving ICTs and the changing physical, social, and cognitive responses demanded by their use" (Hwang & Cha, 2018, p. 283). Technostress is now recognised as a significant predictor of job stress, with negative implications for productivity, health, and well-being (American Psychological Association, 2018).

Ayyagari et al. (2011) expanded this understanding by proposing a model that links technology characteristics to stress outcomes. Stress arises when mismatches occur between individuals' abilities and environmental demands or between personal resources and organisational expectations. As ICTs continue to evolve, these mismatches intensify.

These frameworks primarily describe sources and symptoms of stress rather than the processes individuals use to recover, adapt, and sustain well-being. Little is known about how knowledge workers cultivate resilience or regulate stress in technology-intensive environments.

3.3. Mindfulness-based interventions in ICT contexts

Mindfulness-based interventions have been shown to improve physical and mental health, reducing stress, anxiety, depression, chronic pain, and inflammation (Tang et al., 2025). Bernardez et al. (2020) found that software engineering students who practised mindfulness for several weeks showed improved performance in conceptual modelling tasks. In this case, the participants were not workers, unlike in our study. Montes and Penzenstadler (2025) used yoga asana in a mindfulness intervention in a software company, whereas ours used breathwork and journaling. Similarly, Volobuev et al. (2021) observed no clear effects of a brief ten-minute mindfulness exercise on programming performance. Den Heijer et al. (2017) found that a brief three-minute mindfulness practice during agile stand-ups improved the effectiveness of meetings in software teams. The results of this study are promising. We used a longer practice but at a more spaced pace. Further, Romano et al. (2025) used a Mindfulness-Based Stress Reduction program with software developers and reported participants' improvement. They raised the important challenge of integrating mindfulness-based practices in the work context. Our study addresses this challenge by proposing a simple breathing practice and measuring its impact. We propose workplace interventions and the implementation of personal practices.

3.4. Research gap and rationale

Despite extensive research on well-being across various disciplines and the emergence of frameworks addressing digital well-being, ICT paradoxes, and technostress, a gap remains, as existing theories often focus on general populations. To date, no theory directly considers the specific challenges faced by knowledge workers in ICT-intensive environments. These professionals deal with high cognitive demands, rapid technological change, and constant connectivity (Graziotin et al., 2018; Tulili et al., 2022; Wong et al., 2023). A theory tailored to their context is needed to explain how they can build resilience and maintain well-being. This study responds to that need by examining breathwork and mindfulness as strategies for managing technostress and sustaining productivity (Ayyagari et al., 2011; Ralph et al., 2020).

4. Method

This research follows a qualitative research paradigm. We aimed to understand the participants' experiences during a well-being course. We designed, implemented and evaluated the Rise 2 Flow online course. Then, we collected exit interviews from three iterations and developed a theory following constructivist grounded theory (CGT) guidelines. We also utilised psychometric instruments to assess the course's impact. We published the quantitative results of the first two rounds of Rise 2 Flow in an Empirical Research journal (Penzenstadler et al., 2022). The full methodology is explained in the coming subsections.

4.1. Design

We employed CGT by Charmaz (2006), a research method primarily used in psychology, education, and nursing. The pragmatist roots of constructivist grounded theory make it a valuable method for pursuing critical qualitative inquiry. Pragmatism offers approaches to thinking about critical qualitative inquiry, while CGT provides strategies for implementing them. CGT encourages the asking of emergent critical questions throughout the inquiry and relies on developing and maintaining methodological self-awareness (Charmaz, 2017). We recognise and align with the active role of the researcher in the construction of research results with participants.

We chose to interview participants in an intervention programme designed and implemented in three iterations in a quasi-experimental research design to investigate the effects of breathwork practices on stress management and overall well-being among knowledge workers. As participants actively reflected on their well-being and deliberately improved it over time, they gained deeper insights into what helped and what posed challenges to their well-being. While that makes our resulting theory less generalisable, the increased insights outweigh the limitations.

4.2. Recruitment

Participants were selected by purposive sampling. They were gathered from various academic networks, mailing lists, the authors' network, social media platforms, online spaces, research communities (LIMITS, ICT4S), and sizable Slack workspaces, among other personal and online networks. Participants had to be knowledge workers (based on the definition given in the introduction) to meet the inclusion criterion. The sample included software developers, IT researchers, consultants, practitioners, academics, and students from the IT sector, aged 19 to 58. Participants joined from Argentina, Austria, Bangladesh, Brazil, Canada, Costa Rica, Denmark, Ecuador, Finland, France, Germany, India, Iran, Ireland, Italy, the Netherlands, Mexico, Poland, Portugal, Saudi Arabia, Spain, Sweden, Switzerland, the UK, the US, and Venezuela.

The first round of R2F included 87 participants and 14 interviews. A further 14 interviews stem from the 101 participants from the second

round. Finally, in the third round, we interviewed 15 participants out of 49 sign-ups, resulting in a total of 43 interviews in our dataset.

4.3. Intervention

Rise 2 Flow (R2F) aimed to increase well-being and build mental and emotional resilience. A trained facilitator ran the programme. Each week was structured around a self-development theme. At the start of the week, participants received a topic and a set of reflective questions, intended to inspire personal reflection and guide the group discussion. Over the 12-week iteration, we covered topics including time management, physical energy, presence, recovery, confidence, decision-making, listening, feedback, negotiation, creativity, prevention, and connection (R2F1, September to December 2020, and R2F3, September to December 2021). Only the first eight themes from the list above were used in the second round (R2F2), which lasted eight weeks from January to March 2021 due to organisational constraints.

In the weekly 75-min live session, following a brief presentation on the week's topic, participants had the opportunity to share their thoughts and ask the group questions. The breathing exercise followed the joint introspection. The exercise uses a three-part breath with a double inhale and a slow exhale, mimicking a physiological sigh, and is practised in three rounds of 7 min each, separated by brief relaxation breaks, followed by a 20-min relaxation to allow the nervous system to fully reset. After the breathing exercise, participants were given time to ask questions. The sessions were conducted using Zoom.

Participants could access supplementary materials on the programme website, including a guided meditation, a short video, a reflective workbook, and the presentation slides. The topics chosen were those that would be most pertinent in connection with resilience and well-being at work, and were based on substantial education about self-development. Participants could access recordings of the live sessions if they were absent or wanted to practise further.

4.4. Data collection

A total of 43 individual, semi-structured interviews were conducted in three rounds with participants who consented to be interviewed after completing a programme iteration. Participants' informed consent was obtained before the interviews. The interview was piloted before collecting data. The three rounds represent the CGT data analysis process, influencing future data collection to reach saturation. Consequently, the aspects addressed in each interview round complemented those explored in the previous round. The second author conducted all interviews to ensure consistency in data collection. The interviews were divided into three parts: initial open-ended, intermediate, and ending questions, as suggested by Charmaz (Charmaz, 2014). The questions were tailored to explore participants' experiences, inviting them to describe and reflect on them (Charmaz, 2006).

The interview questions included demographic inquiries, followed by two general guiding question blocks. The first delved into participants' experiences, perceived benefits, and challenges. The second focused on their perspectives concerning the program's structure, process, and the tools utilised for data collection throughout the course. The final question offered for the participant to disclose anything else they found relevant. The average duration of each interview session was approximately thirty minutes. The interviews were transcribed in a denaturalised manner, removing involuntary vocalisations to focus entirely on the content (Oliver et al., 2005). These transcripts served as the primary data source for analysis. Participants were also asked to keep a journal to reflect on their well-being, their experience with the course, and highlights of their days.

For each iteration of the programme, we collected quantitative data through an entry survey, an exit survey, and a weekly survey. The entry and exit survey was formed using the following psychometric instruments: the Scale of Positive and Negative Experience (SPANE), a Self-Efficacy instrument, the Perceived Productivity Questionnaire (HPQ), the Mindfulness Attention Awareness Scale (MAAS), the Psychological Well-Being scale (PWB) and the Positive Thinking Scale (PTS). The weekly survey was the 5-item World Health Organisation Well-Being Index (WHO-5). After the first two iterations of the programme, we analysed the quantitative data and published the results (Penzenstadler et al., 2022). We also did interviews for each iteration. We ran one more round of the programme to reach qualitative data saturation through one more round of interviews. The data from the three iterations are used in this paper. As a token of appreciation, a donation was made to a charity chosen by each interview participant.

4.5. Data analysis

We followed the CGT approach outlined by Charmaz (Charmaz, 2006). After the interviews were transcribed, the three coders (the two authors plus a research assistant) started reading the interviews to become familiar with the information. Subsequently, we proceeded with initial coding, focused coding, theoretical coding, and categorising.

The data were coded line by line and later compared, discussed, and agreed upon by the two authors. Then, the analysis progressed to focused codes to develop core categories and sub-categories. We performed theoretical coding to identify relationships among categories to construct our theory. During the iterative process, we constantly compared data, codes and categories, allowing us to identify theoretical questions and missing data. Memo writing served as a reflection strategy during data collection, sorting, and analysis. The Breathe-well theory model emerged from this multistage coding process. Continuous discussions at every step among the two authors were conducted to reach agreement and to facilitate researcher reflexivity and enhanced theoretical sensitivity.

4.6. Reflexivity

Within the CGT methodology, researchers' reflexivity assumes a crucial role, given its nature as a co-constructive process (Charmaz, 2014). The first author, who led the data analysis, earned a bachelor's degree in psychology and a master's in social work. She has worked for several years with resilience-building programs in various populations and has experience in qualitative data analysis with a constructivist point of view. The second author holds a PhD in Software Engineering. She has been a yoga teacher since 2015 (level 500-RYT) with additional certifications in breathwork (pranayama), an Embodied Mindfulness Coach, Reiki level II practitioner, and NET (narrative exposure therapy) facilitator.

This combination of backgrounds influenced the research process in multifaceted ways. The first author deeply understands psychological processes and social dynamics, particularly in the context of resilience. Her professional experiences working directly with diverse populations added layers of insight and sensitivity to the research process. Meanwhile, the second author's academic expertise in Software Engineering and immersion in mindfulness practices and therapeutic modalities contributed to a holistic research approach.

Both authors approached every step in the research process with a commitment to self-awareness and critical reflection. The authors continually reflected on their biases and assumptions. By acknowledging their positions and engaging in dialogue to navigate these influences, they sought to enhance the credibility of the findings and represent participants' experiences with integrity and sensitivity.

4.7. Rigour

We adopted the four criteria of rigour suggested by Charmaz, credibility, originality, resonance, and usefulness, to assure quality (Charmaz, 2014).

Credibility: We conducted continuous data comparisons, accounting

for social contexts. Similarly, we established logical connections between data and analysis by providing clear explanations and relevant examples for each theme.

Originality: We used open-ended questions with our participants to allow them to express their thoughts, experiences, and perspectives freely, and invited them to drive the conversations. Additionally, we critically reviewed our findings and compared them with existing literature.

Resonance: Participants had the opportunity to confirm whether the interpretations made during the interview were correct. This was aimed at enhancing credibility as well. Furthermore, this study achieved theoretical saturation by effectively explaining participants' personal growth in the breathwork course, thereby ensuring resonance.

Usefulness: Lastly, our theory has important implications when developing targeted interventions to prevent and decrease stress and anxiety among knowledge workers, meaning that it is useful.

4.8. Ethical considerations

We obtained written informed consent from each interviewee. Participants were informed in detail about the study's objectives, methods, potential risks, and advantages before each interview. They were informed of their freedom to discontinue the study at any time without suffering any repercussions.

All personally identifying information was treated in absolute confidence to safeguard participants' privacy. Each participant received a special code as a unique identifier. All information gathered, including transcripts and audio recordings, was anonymised and safely kept. The information was only accessible to approved researchers.

We followed the recommendations of our university's ethical research guidelines. Our country's ethics bureau approved the research: Ethics Review Authority, DNR 2022–03237-01, approval date: 2022-09-23.

5. Results

The Breathe-well theory presents a conceptual framework for understanding well-being among knowledge workers. It is informed by participants' experiences and reflections on nurturing well-being through breathwork. The theory underlines key components that contribute to resilience, personal growth, and self-awareness. This theory comprises distinct yet interconnected components that contribute to personal development and enhanced well-being. The central tenet of this theory lies in the idea that breathwork practices catalyse emotional exploration, consciousness expansion, enhanced awareness and self-discovery, leading to a deeper connection to oneself and strong resilience. The main categories in the theory are: **Intentional Actions, Consciousness Expansion, Emotional Exploration, Self-Reflection and Discovery, States of Awareness and Continuous Journey and Challenges.**

Fig. 1 illustrates the different concepts. The following paragraphs provide a descriptive explanation of the Breathe-well Grounded theory.

5.1. Category 1: Intentional action

This concept describes the interconnectedness of intentional

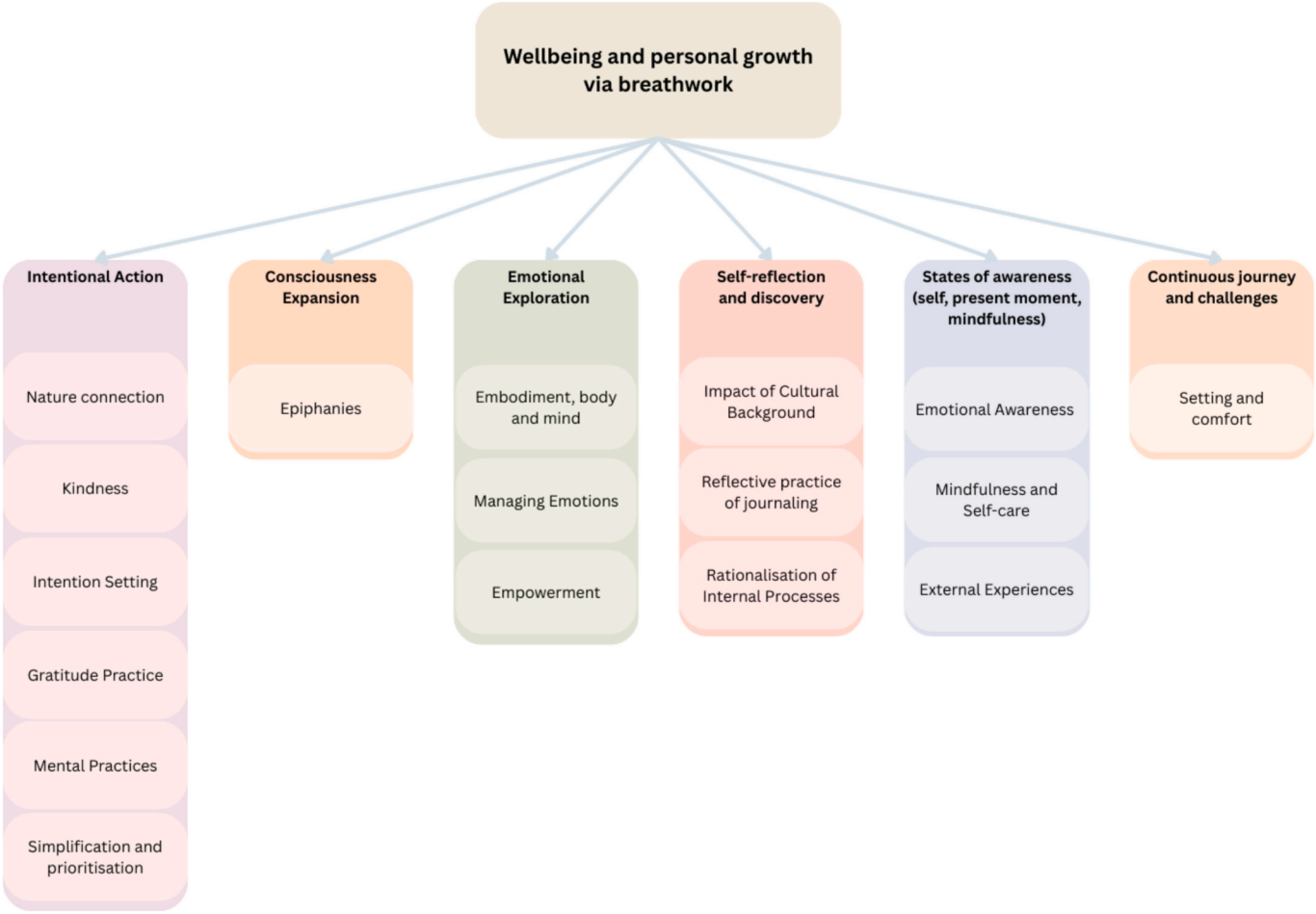


Fig. 1. Breathe-well Grounded Theory overview of concepts. The main categories are in bold font at the top of the elements, while their corresponding subcategories are below.

practices and their contribution to an overall sense of agency. Over time, consistent practice leads to mastery of these well-being tools. Participants saw intentional actions as a way to foster well-being through deliberate practices and mindful choices. They also mentioned it as a powerful practice that gives a sense of purpose and direction. `Common sense activities,' like managing time and aligning one's calendar with true priorities, can greatly support well-being. Since common sense is not always common practice, participants sometimes needed reminders about these tools. For example, effective time management and living according to actual priorities are familiar to everyone. However, regularly taking the time to question and assess whether there is room for improvement is essential for maintaining well-being.

5.1.1. Mental practices

Deliberate practices of thinking in new ways about a specific topic help individuals structure their actions through analytical and imaginative processes. While engaging in these practices, participants are encouraged to practice self-reflection, cultivate awareness, mindfulness, and introspection.

"*As I learned to let the thoughts go, I learned to control the negative thoughts in a way. In my personality, because of my life, it was a very constant behaviour, with almost obsessive behaviour, thinking about something over and over – before I could easily go three days, and the thought kept coming back. Now it is easier to say thank you, thought, you are not serving anymore, you can go.*" - P30.

At the same time, other factors involved are techniques such as visualization, positive affirmations, and cognitive restructuring to challenge negative thought patterns and promote positive thinking.

5.1.2. Gratitude practice

The intentional practice of gratitude encouraged participants to counteract negativity by actively focusing on and appreciating the positive aspects of their lives. Participants reported that the benefits of practising gratitude were increased happiness, well-being, and appreciation for relationships and resources, leading to an enhanced perspective and mindset. The quotes below show these impressions.

"*The main thing is how I want to show up for myself. Now when I wake up and feel dread, I remind myself that I want to be happy and grateful.*" - P19.

The quote illustrates how the participant mitigates negatively labelled emotions, such as feeling dread, by practising gratitude. By focusing on what they are grateful for, participants can redirect their attention away from what they do not desire and towards the positive aspects of their lives.

"*Emphasising being grateful has been incredibly helpful, that I have a partner with a solid relationship, housing, etc."* - P3.

The participant's sense of appreciation was driven by their increased awareness of the resources and valuable relationships in their life, as well as their gratitude for them.

5.1.3. Intention setting

The practice of intention setting led participants to feel a sense of purpose and direction. It substantially affected how they approached everyday interactions and, consequently, the outcomes of those interactions. The practice of intention setting also allowed them to navigate well-being practices similarly, thereby increasing their sense of agency and mastery of the breathwork practice.

When carrying out this practice, the participants had to consciously and deliberately identify and articulate their desires for a specific time or situation. When setting intentions, people actively direct their energy and focus towards that intention. These intentions serve as a guide for thoughts, emotions, and actions, influencing perception and the results obtained. In that sense, setting intentions can influence attitudes and well-being.

In their quote, this participant highlights the impact and importance of setting intentions:

"*The distinct aspect is when you tell us to set an intention, because otherwise it feels uncharted. I can now guide my level two (awareness and consciousness).*" - P3.

5.1.4. Simplification and prioritisation

Life can become overwhelming for many reasons in professional and private life, and it can be tremendously helpful to take a step back, reflect on one's priorities, and simplify accordingly. One participant emphasised the impact and importance of this practice as follows:

"*Life is full of emergencies, and so it is important to have our priorities. So sometimes, even when I sit in traffic at a red light, I take the time to look at the trees and grass, and it is really good for me. I felt it changed something in me, and recently my decision was to live with less, to live more simply, and I realised I want to have some fun and live with less, so let's plan to reduce, so that our stuff demands less of us. It is a cycle. I really want simplicity, which is one of my goals for 2021, to simplify my life. And with your lessons I started giving more attention to the things that I knew were more important to me, and now I do that.*" - P24.

This excerpt suggests that the interviewee's ability to prioritise their needs over constant "emergencies" allowed them to identify what was truly important. By focusing on simple things and practising nature awareness, they consciously chose to simplify their life.

5.1.5. Nature connection

Nature was an essential part in fostering a more fulfilling life for our participants. Several participants reported positive changes in their general well-being, cognitive processes, and creative inspiration from spending time in nature. Nature served as a positive inspiration, primarily enhancing interviewees' mental clarity during their walks. As shown in the quote below, it also stimulates creativity, particularly in the workplace.

"*I think when you are in nature as well, you're just a lot of the, let's say, good ideas that I have for my work sometimes when it's when I'm walking.*" - P13.

Similarly, contact with nature held a profound spiritual significance for other participants. The interaction with the elements, the wind and the sea, had a sacred quality, as it allowed them to release negativity and experience a sense of liberation and catharsis.

"*I'm very drawn to nature. I'm lucky to live near the sea, I can walk there. Those moments are sacred to me. Me and the wind and the sea. The wind takes all the negativity out of me.*" - P7.

The interviews stressed the profound connection between nature and well-being. Similarly, this connection opened up the possibility of appreciating simplicity and finding joy in the present moment.

5.1.6. Kindness

Practising kindness towards oneself and others positively changed the participants' lives. These changes occurred across various areas, including thought patterns, internal dialogues, interpersonal relationships, and physical and mental health.

Participants shared that they practised kindness towards their thoughts and emotions. One participant mentioned that they reminded themselves to allow unwanted thoughts and anxious moments to pass without judgment, creating a sense of trust and acceptance. Similarly, another participant shared how kindness played a role in improving their interactions with others, as shown in the quote below.

"*I think I got kinder with people because I listened better and was more present with them. It's hard for me because of my ADHD sometimes I zone out but I have become better at that.*" —P34.

This quote reflects how this participant improved their listening ability by being more present and attentive. Despite facing challenges due to ADHD, they deliberately stayed engaged, which resulted in better connections and a deeper understanding in their relationships. Participants discovered a significant source of strength and resilience through engaging in kindness practices towards themselves and others and embracing empathy and compassion in their interactions.

In summary, intentional, mindful actions such as gratitude,

intention setting, simplification, connection with nature, and kindness help individuals cultivate agency and well-being. Through consistent, deliberate practices, participants developed greater self-awareness, purpose, and alignment between their values and daily lives.

5.2. Category 2: Consciousness expansion

During the practice, participants experienced varying states of consciousness, ranging from deep relaxation to sensations reminiscent of sleep. Distinguishing between a semi-active, relaxed state and genuine deep sleep can be challenging for participants and facilitators.

These states of reduced arousal often opened space for reflection, allowing participants to observe their inner experiences with greater clarity. Many described gaining a deeper understanding of how their minds worked and influenced their experiences. Recognising that thoughts do not define them enabled a lighter, less attached way of relating to those thoughts. As a result, participants developed metacognitive awareness, the ability to notice their thinking patterns and observe thoughts without becoming entangled in them.

As participants deepened their understanding of the influence of their minds on their experiences, they simultaneously explored the concept of the stretch zone. The concept of the stretch zone refers to the area beyond the comfort zone, where growth and flow can be experienced in a state of comfort. Participants perceive the stretch zone as a place that triggers the flow state, where they can engage in activities with heightened focus and enjoyment. They developed a positive attitude towards the stretch zone and viewed it as a catalyst for personal growth and optimal performance.

"*I feel I am more open in taking chances, and I can move out of my comfort zone more. I feel safer stepping out of my comfort zone – emotionally, mentally and physically. (Even when it comes to stress-eating, but also about not working on weekends. I am ok with the feeling uncomfortable that is aligned with that.) I feel more comfortable staying outside of my comfort zone – in the stretch zone, which is what triggers the flow state. So in terms of mindfulness, I have been pushed more towards the stretch zone, thanks to the breathing.*" - P3.

This quote shows how the interviewee explores and explains their experience outside the comfort zone. It also illustrates how breathing exercises helped the participant to enter the stretch zone.

5.2.1. Epiphanies

Participants' experiences also included epiphanies and sudden insights. These moments of clarity and understanding were often described as breakthroughs or "aha" moments, where participants suddenly realised or understood themselves or their situation.

"*I realised I take care of my dog (walk, feed well, water, clean, socialise), but I don't do that for myself, so I started with that. I wrote a note on the cover of my notebook for every day: drink water, move, walk dog – no matter how much work I have.*" - P34.

The quote illustrates how this participant realised their nurturing behaviour towards their dog and its contrast with self-care practices. It underscores their tendency to prioritise others' well-being over their own. The participant's focused daily behaviours and note-taking reflect an intentional self-care routine that extends beyond physical care to include emotional well-being. This newly discovered insight is crucial, as it significantly impacts the participant's mental health and overall self-care strategy.

In summary, participants deepened self-awareness and growth by observing their thoughts with detachment, stepping beyond their comfort zones, and experiencing personal insights that inspired positive behavioural change.

5.3. Category 3: Emotional exploration

Our participants' emotional exploration journey involved understanding, managing, and harnessing their emotions for personal growth and empowerment. It is a complex process that includes exploring emotional states, raising awareness and resolving the interaction of feelings, thoughts, and bodily sensations. Furthermore, this journey also implied recognising emotions and thoughts as messengers. Even if those thoughts carried a negative label, participants chose to let them pass without attempting to suppress or react to them. They could observe their emotional states while engaging in active analysis, thereby cultivating their emotional consciousness.

"*I'm an avoider of hard emotions, everything is rustling, and first time that I'm able to deal with it and willing to approach it. Scary but exciting.*" - P39.

The quote above exemplifies how this participant embraces emotions that might have been avoided, stepping into the discomfort of addressing them and having the openness to deal with them. Additionally, this quote illustrates the multifaceted nature of emotional exploration. The participant transitioned from avoidance to a sense of excitement and newfound courage. The emotional exploration certainly is challenging to navigate. However, engaging in it can help catalyse self-awareness, resilience, and a deeper connection with one's internal world.

5.3.1. Managing emotions

A crucial part of the journey of emotional exploration is to manage emotions. The first step is to become aware of one's emotions. The second step is to acknowledge them, as they serve as a feedback mechanism of our psyche. The third step is to choose how to respond to them. It is a process that involves transitioning from reactive responses to intentional, conscious engagement. During the interviews, participants expressed moving from avoiding or suppressing negative emotions and feelings to developing effective emotional regulation strategies. In essence, managing emotions is a process that involves understanding, accepting, and responding in ways that allow for development.

"*I have a lot of intense emotional reactions, and I do feel like I recover faster, especially when its arguments with close people or getting stressed because of uncertainty.*" - P27.

This participant sums it up in their quote. They managed to navigate intense emotional reactions and experienced a rapid recovery afterwards. Further, they are also capable of recognising their progress and changes.

5.3.2. Embodiment, body and mind

Participants noted becoming more aware of their capacity to influence their experience. They did so by regulating their body and energy through the breath. They also learned to recognise physical signals as early indicators of stress, prompting them to take a break or take action.

With increased awareness of their breath's influence, participants could also navigate the ups and downs of emotions with greater agency. Recognising physical signals, such as increased heart rate or irritability, can help identify negative emotions, thoughts, and other signs of stress. Furthermore, this increased sensitivity empowered them to make conscious choices that support their well-being. It gave participants tools to respond intentionally to emerging emotions and reduce stress. Participants' experiences demonstrated that this awareness enabled them to navigate their emotions with greater sensitivity and control.

"*For me, the main impact of the breathing exercise was more of the emotional impact of what I felt in the body like a I would always it will always come down and it will always refresh and in invigorated me afterwards*" - P2.

This participant clearly exemplifies the relationship between breath, body, and emotion. Their experience exposes how breathing with awareness affects their emotions and physical well-being. The feeling of calming down and refreshment underscores the connection previously mentioned.

5.3.3. Empowerment

It is one of the results of the newfound emotional understanding, processing and regulation. Participants mentioned feeling empowered by the ability to navigate and transform challenging emotional states. They developed a sense of inner strength and agency by consciously

enhancing their ability to understand and respond to emotional stimuli.

During the interviews, participants could relate their better management of emotions to positive feelings.

"*When it comes to the meetings, like being able to handle the meetings when I'm really nervous, I feel like it has given a lot of effect. Because I was like the super nervous shaking, like feeling like my heart was like pounding 190, but it's been a lot better since I learned a lot about this.*" —P14.

This quote illustrates how the participants' improved emotional management positively impacted their professional environment. It also exemplifies their journey from a previously vulnerable state to a sense of empowerment.

The participants' empowerment extended beyond the professional field, into other areas of their lives. When asked about changes during the course, one participant recognised their journey to empowerment through setting boundaries and prioritising their well-being.

These results indicate how enhancing their ability to manage emotions positively impacts resilience, confidence, and a sense of control, ultimately leading to empowerment. In parallel, participants who employ deliberate techniques and practices have developed a sense of inner strength and agency.

In summary, by learning to observe, understand, and regulate their emotions, through awareness of bodily signals, breath, and conscious responses, participants transformed reactivity into agency. This emotional exploration fostered resilience, self-awareness, and empowerment, enabling them to set boundaries and act with greater confidence and control.

5.4. Category 4: Self-reflection and discovery

The facet of self-reflection emerges as an intricate and dynamic component. It appeared with a dual function, on one side as a side effect of becoming more conscious. On the other hand, it is a tool for better understanding the inner workings. The most commonly used supporting tool is reflective journaling.

5.4.1. Reflective Practice of Journaling

Journaling as a reflective practice enabled individuals to explore and connect with their more profound thoughts and emotions. Among participants, it triggered different kinds of feelings. For some, it was a way of being aware of what they were grateful for during the day or the positive things they were experiencing. For some, it was a trigger for awareness of many negative thoughts. The latter avoided journaling as much as they could. However, in the interviews, they were aware of why they avoided it. They reflected on the underlying reasons, as well as the emotions and thoughts they were trying to avoid by not writing the journal. Nevertheless, those who persisted in journaling could gain meaningful insights, engage in contemplation, and experience valuable self-discovery.

"*The daily was impossible for me, but I kept up with the weekly. I avoided the daily submissions a bit because I realised that most of the time I was writing negative stuff because it was a reflection of my stuff of the time.- P29.*

This quote highlights the journal's role as a reflection of the interviewee's state of mind. It also explores the connection between journaling and emotional well-being. The participant's avoidance of journaling indicates a deliberate attempt to control their exposure to potentially negative thoughts and emotions related to daily reflections.

The interviewee may perceive the journal as a window that gives them a view of their emotions and experiences. That view creates distance from those thoughts, which helps them reflect and introspect.

5.4.2. Rationalisation of internal processes

Participants described a dynamic process of rationalising their inner experiences by critically examining their thoughts, feelings, habits, and behaviours. This was nuanced by their cultural background and personal experiences. For participants, this involved recognising, understanding, and processing their ideas, with some using them as catalysts for positive change.

Through this process, participants gained access to deeper layers of their inner selves, thereby enhancing their self-awareness and emotional intelligence. This, in turn, created opportunities for more profound changes that could positively influence their overall well-being.

Some participants reflected on the link between work and personal happiness. A temporary dip in well-being often prompted deeper reflection. Through introspection, they identified factors that influenced their emotional state and questioned what they needed to feel happier. During the course, participants rated their day on a scale of 1 to 10, with no further guidance on how to interpret the score. This gave them a way to "measure" their well-being and helped them reflect on it. By examining their perceptions of happiness and its underlying factors, they became more aware of what triggered contentment. This self-awareness of thoughts, beliefs, and patterns made it easier for them to consciously influence their well-being.

5.4.3. Impact of cultural background

The cultural background influenced participants' perceptions and expressions of their emotions and thoughts. Personal experiences and cultural norms interacted to shape how participants viewed and navigated their inner world. According to the interviews, this interaction frequently gave rise to complex emotional dynamics.

Participants in a country of residence different from their country of origin perceived a difference between their inclinations and cultural expectations. Particularly in emotional expression, participants identified cultural biases. They wanted to fully experience, process, and express emotions while feeling restricted by the cultural limitations of their current society.

"*In an ideal world I want to fully feel all of them so they can be processed. I have a cultural bias on the amount of emotion I feel and express. What is my threshold for emotional and mental stability? Perhaps it is negative but perhaps it is good – none of the experiences have deprived me from happiness or sadness, and there is more to unlock.*" - P3.

This quote illustrates the interviewee's interest in exploration and self-reflection. It also accentuates the importance of processing emotions. The interviewee wants to feel and process their emotions. They recognise the value of experiencing and acknowledging emotions rather than avoiding them. They note that culture influences how they feel and express emotions. By questioning their threshold for emotional and mental stability, they demonstrate active self-evaluation. This introspective inquiry reflects curiosity about their emotional boundaries and how these affect their overall well-being.

In summary, through reflective practices such as journaling and introspection, participants deepened their self-awareness and understanding of their emotions, thoughts, and behaviours. This self-reflection fostered personal insight, emotional intelligence, and growth.

5.5. Category 5: States of awareness (Mindfulness and present moment)

Throughout the interview series, several distinct states of awareness became apparent. Those states are potentially interleaved or overlapping, as evidenced by their exploration.

5.5.1. Emotional awareness

The first one that was mentioned is emotional awareness. Participants were more aware of their emotions on a given day, both on a positive and a negative scale. For example, whether they were stressed by long video conference calls or joyful at small events, like a singing bird on the rooftop. Emotional awareness served participants in two ways. It enabled emotional exploration, helping them gain a deeper understanding of themselves. It also supported emotional management by allowing individuals to choose new responses or practice self-care.

5.5.2. Mindfulness and self-care

The practices in this program (breathwork and reflective journaling)

trained and enhanced a state of mindfulness. Participants were more present in the moment, rather than constantly ruminating about the past or worrying about the future. Giving full attention to the present moment increases the capacity to notice small things. This could be something beautiful in the environment, like a flower, a song playing in the background, or the taste of a good cup of tea. It also increases awareness of where care is lacking, both for external things (like dishes left unfinished in a rush) and for oneself.

Participants reached a turning point when they realised that self-care and making time for themselves were not luxuries but necessities. They recognised that taking care of their well-being was not only a need but also a powerful tool for developing inner strength when facing everyday challenges. While time with loved ones can be rewarding, individual practice has a certain quality that opens new perspectives or restores a sense of individual "enoughness".

Similarly, they realised that mindfulness helped them stay grounded in the present, even amid external turbulence. This insight was crucial for effectively applying the technique. One participant expressed how they link empowerment with self-care practices:

"When you take more care with you.,with yourself, then you are empowered, you feel more empowered." P21.

This quote reflects the connection between self-care and empowerment. By dedicating time to themselves and prioritising self-care, this participant experienced a greater sense of personal empowerment. Taking care of oneself is an intentional choice to invest in emotional, physical, and mental health.

5.5.3. External experiences

External factors, daily life, and global changes inevitably influence everyone's life. The participants were aware of the influence of these factors. However, it was impossible for them or for us to differentiate the impact of that influence from the program's effects. What is clear is that the experience had an impact on the participants' general well-being, especially given the world's ongoing pandemic at the time.

The course served as a focal point for some participants, enabling them to adopt broader perspectives while navigating life's challenges.

One participant expressed that external factors, particularly family responsibilities, work demands, and the evolving pandemic-related restrictions, significantly impacted their well-being during the same period.

"*Of course the overall effect of the modules should be measurable through the surveys. But then, at least in my case I noticed that during the 12 weeks my well-being was heavily influenced by outside factors, which did not remain the same during the 12 weeks: in my case mainly work and family-load going up and down substantially – and of course, for all of us there were different levels of C19-measures imposed by authorities.*" - P17.

Our data is not well-suited to determine the direct impact of external circumstances during the breathing course, as we did not ask participants about them. However, their influence on participants' wellness development is evident.

In summary, participants developed greater emotional awareness and mindfulness, learning to stay present, practice self-care, and find empowerment through intentional attention to their well-being.

5.6. Category 6: Continuous journey and challenges

Building and improving well-being through breathwork is a continuous journey rather than a transient intervention. It requires practice and dedication to sustain and improve the benefits. It also entails consistency to make it a habit, incorporating it into daily or weekly routines and lifestyles. During this journey, the challenges and complexities are central to the process of exploration, self-discovery, and development. Participants may face resistance, discomfort, plateaus, and even setbacks as they embark on their journey towards more well-being. These challenges also provide opportunities to confront limitations and push beyond the comfort zone, becoming more resilient and leading to personal growth.

"*But now I teach that to my children. There are still ups and downs but I wouldn't know where I am today if it wasn't for the practices. And it is a commitment, because if you don't it is so easy to skip it, especially as soon as you feel better. You have to force yourself, it is like brushing your teeth, it is mundane, so I had to tell myself yesterday evening and remind myself, of my commitment. And now I just concentrate on the physical feeling of whatever is happening.*" P35.

This participant's reflection illustrates the impact of consistency and commitment to the practice. In parallel, it also shows the struggle to maintain it as an ongoing practice and make it part of a routine. The quote also emphasises how easy it is to stop and neglect the practice when they start to feel better.

5.6.1. Setting and comfort

The conscious effort to create a comfortable setting for the sessions, such as using a blanket, was an important aspect of the experience. During the interviews, participants consistently emphasised the importance of restorative environments and the value of disconnecting from technology. Similarly, they also reported better sleep as a benefit.

The core role of the environment is well identified in retreats, for example, since the host creates a setting that eases exploration and relaxation. However, participants will be more self-directed in creating such an environment when the practice is done at home.

"If I feel mind is really busy, it is harder to do silent meditation, so I do guided and shorter." P6.

This participant recognises that when their mind is hectic, silent meditation can feel more difficult. In such situations, they prefer shorter guided meditations that are shorter in duration. This approach helps them manage a busy mind more effectively. It provides structure and support, instead of requiring complete silence, which can feel overwhelming. Guided meditation serves as a practical tool to adapt to the fluctuating state of their mind. It also offers an accessible way to stay engaged with their meditation practice.

In summary, sustaining well-being through breathwork is an ongoing practice that demands consistency, adaptability, and commitment. Participants learned to integrate it into their daily lives, adjust their approach when challenges arose, and create supportive environments.

6. Discussion

Our discussion focuses on key differences with current literature and situates its purpose within the contemporary employment landscape to emphasise the relevance of its approach.

6.1. Comparison with other well-being theories

Our findings confirm the most widely accepted and cited general well-being theories, namely Diener's (2009) Adaptation Theory and Todres and Galvin's Dwelling Mobility (2010). Diener's observation that set points can change for some individuals after certain life events or interventions is supported by our interview findings. In the limitations below, we acknowledge that participants who did not experience such change may have opted out of the interviews. This would also support Diener's second point that the same events or interventions do not affect everyone's well-being of everyone.

Todres and Galvin's (2010) existential theory of well-being as *dwelling–mobility* aligns closely with our Breathe-well theory. Participants' engagement with breathwork facilitated a grounded presence (dwelling) and an energised openness to future possibilities (mobility).

For instance, in relation to *dwelling*, participants' increased awareness of their thoughts, emotions, and bodily sensations fostered a sense of being 'at home' in the moment. Practices like gratitude, nature connection, and simplification all contributed to this grounded sense of presence. At the same time, linked to *mobility*, participants showed the ability to observe and detach from their thoughts. Similarly, intention-

setting, empowerment, managing emotions, and kindness towards self and others enabled movement, growth, and emotional expansion. In this way, the Breathe-well theory offers an embodied illustration of how well-being is fostered through the dynamic between acceptance and aspiration. Furthermore, the concept of the stretch zone explicitly reflects mobility, where participants step beyond their comfort zones to foster personal growth and achieve a state of flow.

In the field of digital well-being, the constant use of digital media affects individuals' emotions, domain satisfaction, and overall life satisfaction. Our proposed theory offers a holistic perspective to counteract the potential negative effects of technology on well-being.

Acknowledging the complex impact of ICTs, our theory integrates well-being practices with breathing interventions. It equips knowledge workers with tools to navigate the dual role of technology in their lives. This integration aligns with the sociological framework of digital well-being. It stresses the importance of maintaining well-being amid the abundance of digital media options (Büchi, 2024).

Furthermore, the holistic perspective of the Breathe-well Grounded Theory can help manage ICT paradoxes. Its emphasis on continuous self-discovery resonates with the need to adapt to the demands posed by ICTs. For example, integrating breathing interventions provides a practical strategy to manage interruptions and improve concentration. This addresses the paradox of social connectivity, which oscillates between better communication and intrusive interruptions.

The theory also tackles the productivity paradox. It equips knowledge workers with tools to regulate physiological and cognitive responses, optimising efficiency and reducing task interruptions.

Regarding technostress (Ayyagari et al., 2011), the theory recognises that breathing techniques can counteract its negative effects. Expanding awareness and promoting wellness practices help mitigate the impact of technostress on productivity, health, and job satisfaction.

While the Breathe-well theory aligns with established frameworks such as Diener's and Todres & Galvin's, it also extends the current literature in several ways. First, it is **population-specific,** developed from and for knowledge workers facing digital overload and cognitive strain. Second, it conceptualises well-being as a **dynamic, process-based phenomenon**: a continuous cycle of intentional action, emotional exploration, and consciousness expansion rather than a fixed state. Third, it introduces an **embodied dimension** that is rarely captured in previous workplace models. By positioning the breath as a physiological and symbolic regulator of awareness, our theory bridges cognitive mindfulness with bodily regulation. It integrates the affective, cognitive, and physical layers of resilience.

Regarding the intervention angle, most workplace programmes, such as *Mindfulness-Based Stress Reduction* (MBSR) and *Mindfulness-Based Cognitive Therapy* (MBCT) have consistently shown reductions in stress, emotional exhaustion, and burnout (Bartlett et al., 2019; Good et al., 2016; Hülsheger et al., 2013). However, most of these interventions conceptualise mindfulness primarily as a **cognitive-attentional skill** cultivated through meditation. The Breathe-well theory expands this understanding by emphasising embodied mindfulness. In this approach, breath regulation synchronises physiological calm with reflective awareness. This embodied mechanism offers an alternative pathway to emotional regulation, one that complements rather than replaces cognitive attention training. Moreover, our theory emphasises that well-being is a **continuous, self-regulatory journey,** nuanced by intentional practice, self-reflection, and emotional exploration, as long-term processes. In contrast, traditional workplace mindfulness programs often focus their measure on short-term outcomes. Finally, our theory extends the literature to the digital labour field by explicitly targeting technostress, which is particularly increasing due to the use of AI.

6.2. Theoretical and research implications

The Breathe-well Grounded Theory extends existing well-being models by adding an **embodied dimension** to mindfulness and resilience. It shows that physiological regulation through breathwork interacts with emotional and cognitive processes. This link complements subjective well-being theories (Diener et al., 2009) and dwelling–mobility theory (Todres & Galvin, 2010). It demonstrates that well-being is not only a mental state but a **bodily process** that shapes awareness and behaviour.

This theory also refines current understandings of **mindfulness in the workplace**. Classical approaches such as MBSR (Kabat-Zinn, 2021) and MBCT view mindfulness as attention and non-judgmental awareness. The Breathe-well theory adds **intentional bodily awareness** as an active driver of reflection, emotion regulation, and resilience. It explains how bodily calm can precede cognitive clarity and self-understanding.

For research, this theory clarifies and opens conceptual questions. First, existing models should be updated to include **embodiment** as a theoretical component of resilience and well-being. This shift calls for integrated models that connect physiology, cognition, and emotion. Second, the study exposes a gap in current research: most mindfulness theories are derived from healthcare or education, while knowledge work under digital stress remains underexplored. Third, it invites **interdisciplinary collaboration** between occupational psychology, cognitive science, and human–computer interaction to explore how self-regulation unfolds in technology-mediated environments.

6.3. Implications for practice

Organisations can integrate brief, structured breathwork practices into daily or weekly routines. For example, before meetings, during transitions, or at the beginning or end of workdays. These micro-practices can reduce technostress, improve focus, and restore cognitive resources.

The study shows that *intentional actions* and *reflective journaling* foster self-awareness and emotional regulation. Workplaces could introduce **reflective digital tools or prompts** (e.g., gratitude journaling apps, check-in dashboards) that promote micro-moments of mindfulness and help workers monitor their emotional states.

Managers and team leads can be trained to recognise stress patterns and introduce **mindfulness micro-interventions** that combine breathwork, awareness pauses, and intention-setting during team rituals (e.g., retrospectives, sprint planning, or stand-ups).

Our theory emphasises *intentionality* and *agency* as central to well-being. Organisations should encourage **self-managed time, autonomy, and simplified workflows**, allowing employees to align work practices with personal rhythms and values.

At a policy level, well-being initiatives should move beyond reactive stress management to **proactive cultivation of emotional literacy and mindfulness**. Embedding these principles into HR frameworks, professional development, and leadership training can normalise psychological well-being as an aspect of professional competence.

6.4. Limitations of the study

In this section, we identify and address considerations that underscore the need for cautious interpretation and further research to ensure the robustness and applicability of the theory.

The intervention combined group conversations on self-development topics, breathing practice, restorative meditation, and reflective journaling, making it unclear which element had the strongest influence. This can compromise the **internal validity.** We acknowledge that the results arise from the combination of practices and propose that the benefit of the whole exceeds that of the individual parts. As a qualitative, constructivist grounded theory study, the findings have **limited generalisability**. The **reliance on self-reported** interview data may introduce bias, as participants may present themselves in a positive light or omit negative experiences, thereby affecting data accuracy and theory development. Moreover, the sample includes only those willing to share their experiences, potentially excluding individuals who perceived

no change, thereby limiting representativeness. Given the researcher's active role in CGT, **bias** may affect data coding and interpretation, as preconceived assumptions can shape the analysis. To mitigate this, we maintained continuous reflexivity and open discussions within the research team (the first and second author and a research assistant).

7. Conclusion

In this article, we propose the Breathe-well Grounded Theory. It explains the continuous journey of knowledge workers to improve their well-being and enhance resilience via a breathwork intervention. This is the first study to investigate the impact of mindfulness-based interventions, specifically breathwork, on the stress levels of knowledge workers. We collected our data using a quasi-experimental design. We implemented and evaluated an intervention program across three iterations. We then conducted 43 post-intervention interviews.

The theory illustrates the relationships between the key components that contribute to resilience, personal growth, and self-awareness. We provided evidence that supports that engaging in well-being practices, specifically breathwork, motivates emotional exploration, consciousness expansion, greater awareness, and self-discovery. This practice also contributes to a stronger sense of self and increased resilience.

In future work, this theory can be expanded to include an analysis of knowledge workers who do not practice any well-being tools. Furthermore, it may be interesting to compare these findings with an interview study involving participants from other well-being practices, such as different types of meditation or yoga. This could reveal whether additional concepts emerge.

CRediT authorship contribution statement

Cristina Martinez Montes: Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Birgit Penzenstadler:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used Grammarly in order to revise grammar, clarity and punctuation in the text. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors would like to thank Robert Feldt for helpful feedback on an earlier version of this manuscript. We also thank Marko Mojsov for contributing to the interview coding.

Data availability

The data that has been used is confidential.

References

American Psychological Association. (2018). Technostress. *In APA Dictionary of Psychology*. https://dictionary.apa.org/technostress.

Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly, 35*(4), 831–858. https://doi.org/10.2307/41409963

Baikie, K. A., & Wilhelm, K. (2005). Emotional and physical health benefits of expressive writing. *Advances in Psychiatric Treatment, 11*(5), 338–346. https://doi.org/10.1192/apt.11.5.338

Baldwin, C. (2007). *Life's companion: Journal writing as a spiritual companion* (1st ed.). Bantam Doubleday Dell.

Barber, L. K., & Santuzzi, A. M. (2015). Please respond ASAP: Workplace telepressure and employee recovery. *Journal of Occupational Health Psychology, 20*(2), 172–189. https://doi.org/10.1037/a0038278

Bartlett, L., Martin, A., Neil, A. L., Memish, K., Otahal, P., Kilpatrick, M., & Sanderson, K. (2019). A systematic review and meta-analysis of workplace mindfulness training randomized controlled trials. *Journal of Occupational Health Psychology, 24*(1), 108–126. https://doi.org/10.1037/ocp0000146

Beauchamp, F. E., Bispo, E., Galinha, I. C., & Kemp, A. H. (2025). Breathwork and holistic wellbeing: A protocol for a scoping review. *PLoS One, 20*(9), Article e0333360. https://doi.org/10.1371/journal.pone.0333360

Bender, S. (2000). *A year in the life: Journaling for self-discovery* (1st ed.). Writer's Digest Books.

Bernardez, B., Durán, A., Parejo, J. A., Juristo, N., & Ruiz-Cortés, A. (2020). Effects of mindfulness on conceptual modeling performance: A series of experiments. *IEEE Transactions on Software Engineering, 48*(2), 432–452. https://doi.org/10.1109/TSE.2020.2991699

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211–237. https://doi.org/10.1080/10478400701598298

Büchi, M. (2024). Digital well-being theory and research. *New Media & Society, 26*(1), 172–189. https://doi.org/10.1177/14614448211056851

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage.

Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Sage.

Charmaz, K. (2017). The power of constructivist grounded theory for critical inquiry. *Qualitative Inquiry, 23*(1), 34–45. https://doi.org/10.1177/1077800416657105

Das, K. V., Jones-Harrell, C., Fan, Y., Ramaswami, A., Orlove, B., & Botchwey, N. (2020). Understanding subjective well-being: Perspectives from psychology and public health. *Public Health Reviews, 41*(1). https://doi.org/10.1186/s40985-020-00142-5. Article 1.

Davenport, T. H. (2005). *Thinking for a living: How to get better performance and results from knowledge workers*. Harvard Business Press.

Day, A., Barber, L., & Tonet, J. (2019). Information communication technology and employee well-being: Understanding the iParadox triad at work. In *The Cambridge handbook of technology and employee behavior* (pp. 580–607). Cambridge University Press. https://doi.org/10.1017/9781108649636.022.

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*, 1–11. https://doi.org/10.1007/s10902-006-9018-1

den Heijer, P., Koole, W., & Stettina, C. J. (2017, April). Don't forget to breathe: A controlled trial of mindfulness practices in agile project teams. In *proceedings of the international conference on agile software development* (pp. 103–118). Springer. https://doi.org/10.1007/978-3-319-57633-6_7.

Dewett, T., & Jones, G. R. (2001). The role of information technology in the organization: A review, model, and assessment. *Journal of Management, 27*(3), 313–346. https://doi.org/10.1177/014920630102700306

Diener, E. (2009). *The science of well-being: The collected works of Ed Diener* (Vol. 37). Springer. https://doi.org/10.1007/978-90-481-2350-6

Diener, E., Lucas, R. E., & Scollon, C. N. (2009). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. In E. Diener (Ed.), *The science of well-being: The collected works of Ed Diener (pp. 103–118)*. Springer. https://doi.org/10.1007/978-90-481-2350-6_5.

Dinesh, T. K., Shetty, A., Dhyani, V. S., & TS, S., & Dsouza, K. J.. (2022). Effectiveness of mindfulness-based interventions on well-being and work-related stress in the financial sector: A systematic review and meta-analysis protocol. *Systematic Reviews, 11(1), Article 79*. https://doi.org/10.1186/s13643-022-01956-x

Fincham, G. W., Strauss, C., Montero-Marin, J., & Cavanagh, K. (2023). Effect of breathwork on stress and mental health: A meta-analysis of randomised-controlled trials. *Scientific Reports, 13*(1). https://doi.org/10.1038/s41598-022-27247-y. Article 432.

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise, 13*(5), 669–678. https://doi.org/10.1016/j.psychsport.2012.04.007

Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of mental health. *World Psychiatry, 14*(2), 231–233. https://doi.org/10.1002/wps.20231

Good, D. J., Lyddy, C. J., Glomb, T. M., Bono, J. E., Brown, K. W., Duffy, M. K., & Lazar, S. W. (2016). Contemplating mindfulness at work: An integrative review.

Journal of Management, 42(1), 114–142. https://doi.org/10.1177/0149206315617003
Graziotin, D., Fagerholm, F., Wang, X., & Abrahamsson, P. (2018). What happens when software developers are unhappy. *Journal of Systems and Software, 140*, 32–47. https://doi.org/10.1016/j.jss.2018.02.041
Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is resilience? *The Canadian Journal of Psychiatry, 56*(5), 258–265. https://doi.org/10.1177/070674371105600504
Hülsheger, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology, 98*(2), 310–325. https://doi.org/10.1037/a0031313
Hwang, I., & Cha, O. (2018). Examining technostress creators and role stress as potential threats to employees' information security compliance. *Computers in Human Behavior, 81*, 282–293. https://doi.org/10.1016/j.chb.2017.12.022
Jayawardene, W. P., Lohrmann, D. K., Erbe, R. G., & Torabi, M. R. (2017). Effects of preventive online mindfulness interventions on stress and mindfulness: A meta-analysis of randomized controlled trials. *Preventive Medicine Reports, 5*, 150–159. https://doi.org/10.1016/j.pmedr.2016.11.013
Kabat-Zinn, J. (2021). Meditation is not what you think. *Mindfulness, 12*(3), 784–787. https://doi.org/10.1007/s12671-020-01578-1
Lazarus, R. S. (1986). *Estrés y procesos cognitivos [Stress and cognitive processes]*. Martínez Roca.
Leka, S., & Jain, A. (2010). *& World Health Organization. An overview*. World Health Organization: Health impact of psychosocial hazards at work. https://iris.who.int/handle/10665/44428.
Leonardi, P. M., Treem, J. W., & Jackson, M. H. (2010). The connectivity paradox: Using technology to decrease and increase perceptions of distance in distributed work arrangements. *Journal of Applied Communication Research, 38*(1), 85–105. https://doi.org/10.1080/00909880903483599
Mancini, A. D., & Bonanno, G. A. (2009). Predictors and parameters of resilience to loss: Toward an individual differences model. *Journal of Personality, 77*(6), 1805–1832. https://doi.org/10.1111/j.1467-6494.2009.00601.x
Maslach, C. (1998). A multidimensional theory of burnout. In C. L. Cooper (Ed.), *Theories of organizational stress* (p. 68). Oxford University Press. https://doi.org/10.1093/oso/9780198522799.003.0004.
Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. *Organization Science, 24*(5), 1337–1357. https://doi.org/10.1287/orsc.1120.0806
Montes, C. M., & Penzenstadler, B. (2025). Evaluating the impact of a yoga-based intervention on software engineers' well-being. In *In 2024 10th international conference on ICT for sustainability (ICT4S)* (pp. 272–281). IEEE. https://doi.org/10.1145/3756681.3756950.
O'Driscoll, M. P., Brough, P., Timms, C., & Sawang, S. (2010). Engagement with information and communication technology and psychological well-being. In *New developments in theoretical and conceptual approaches to job stress* (pp. 269–316). Emerald. https://doi.org/10.1108/S1479-3555(2010)0000008010.
Oliver, D. G., Serovich, J. M., & Mason, T. L. (2005). Constraints and opportunities with interview transcription: Toward reflection in qualitative research. *Social Forces, 84*(2), 1273–1289. https://doi.org/10.1353/sof.2006.0023
Oxford University Press. (n.d.). Breathwork. In Oxford English dictionary. doi:https://doi.org/10.1093/OED/7589420841.
Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95*(3), 274–281. https://doi.org/10.1037/0021-843X.95.3.274
Penzenstadler, B., Torkar, R., & Martinez Montes, C. (2022). Take a deep breath: Benefits of neuroplasticity practices for software developers and computer workers in a family of experiments. *Empirical Software Engineering, 27*(4), 1–64. https://doi.org/10.1007/s10664-022-10148-z
Ralph, P., Baltes, S., Adisaputri, G., Torkar, R., Kovalenko, V., Kalinowski, M., Novielli, N., Yoo, S., Devroey, X., & Tan, X. (2020). Pandemic programming: How COVID-19 affects software developers and how their organizations can help. *Empirical Software Engineering, 25*(6), 4927–4961. https://doi.org/10.1007/s10664-020-09875-y
Rees, C. S., Breen, L. J., Cusack, L., & Hegney, D. (2015). Understanding individual resilience in the workplace: The international collaboration of workforce resilience model. *Frontiers in Psychology, 6, Article 73*. https://doi.org/10.3389/fpsyg.2015.00073
Restrepo, J., & Lemos, M. (2021). Addressing psychosocial work-related stress interventions: A systematic review. *Work, 70*(1), 53–62. https://doi.org/10.3233/WOR-213577
Romano, S., Conforti, A., Guidetti, G., Viotti, S., Ceschin, R., & Scanniello, G. (2025). MBSR at work: Perspectives from an instructor and software developers. In *proceedings of the 29th international conference on evaluation and assessment in software engineering* (pp. 814–817). https://doi.org/10.1145/3756681.3757006
Sellman, E. M., & Buttarazzi, G. F. (2020). Adding lemon juice to poison—Raising critical questions about the oxymoronic nature of mindfulness in education and its future direction. *British Journal of Educational Studies, 68*(1), 61–78. https://doi.org/10.1080/00071005.2019.1581128
Smyth, J. M. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology, 66*(1), 174. https://doi.org/10.1037/0022-006X.66.1.174
Tang, Y. Y., Patterson, J. S., Tang, R., Chi, J., Ho, N. B. P., Sears, D. D., & Gu, H. (2025). Metabolomic profiles impacted by brief mindfulness intervention with contributions to improved health. *Scientific Reports, 15*(1). https://doi.org/10.1038/s41598-025-12067-7. Article 27022.
Thieme, A., Wallace, J., Meyer, T. D., & Olivier, P. (2015). Designing for mental wellbeing: Towards a more holistic approach in the treatment and prevention of mental illness. In *proceedings of the British HCI conference 2015* (pp. 1–10). https://doi.org/10.1145/2783446.2783586
Todres, L., & Galvin, K. (2010). Dwelling-mobility: An existential theory of well-being. *International Journal of Qualitative Studies on Health and Well-Being, 5*(3). https://doi.org/10.3402/qhw.v5i3.5444. Article 5444.
Tulili, T. R., Capiluppi, A., & Rastogi, A. (2022). Burnout in software engineering: A systematic mapping study. *Information and Software Technology, 145, Article 107116*. https://doi.org/10.1016/j.infsof.2022.107116
Vivekananda, S. (2021). Patanjali yoga sutras. *Sristhi Publishers &* (Distributors).
Volobuev, V., Turischeva, P., Gainutdinov, A., Sahibgareev, R., Mazzara, M., & Farina, M. (2021, August). Effects of mindfulness meditation on software developers' performance. In *proceedings of the international conference on nonlinearity, information and robotics (NIR)* (pp. 1–6). IEEE. https://doi.org/10.1109/NIR52917.2021.9666104.
Weijing, C., & Hongchun, Y. (2011). Analysis of the predictive indicators of knowledge workers' job burnout: A perspective of organization. In *proceedings of MSIE 2011* (pp. 171–173). https://doi.org/10.1109/MSIE.2011.5707689
Williams, J. M. G., Teasdale, J. D., Segal, Z. V., & Kabat-Zinn, J. (2007). *The mindful way through depression*. Guilford Press.
Wong, N., Jackson, V., Van Der Hoek, A., Ahmed, I., Schueller, S. M., & Reddy, M. (2023). Mental wellbeing at work: Perspectives of software engineers. In *proceedings of the 2023 CHI conference on human factors in computing systems* (pp. 1–15). ACM. https://doi.org/10.1145/3544548.3581528.
Work, K. (2018). *Knowledge work (ers) in the digital age* (p. 125). In *Knowledge management: Value creation through organizational learning* (pp.
World Health Organization. (2021). September 13. *Depression*. https://www.who.int/news-room/fact-sheets/detail/depression.
Zaccaro, A., Piarulli, A., Laurino, M., Garbella, E., Menicucci, D., Neri, B., & Gemignani, A. (2018). How breath-control can change your life: A systematic review on psycho-physiological correlates of slow breathing. *Frontiers in Human Neuroscience, 12, Article 409421*. https://doi.org/10.3389/fnhum.2018.00353