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Sustainable coworking: the member perspective

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Abstract

Purpose – Sustainability is regarded as a core value that the coworking movement aspires to. However, most sustainability efforts focus on the providers' perspective while neglecting the coworking members' role. Therefore, this paper aims to explore sustainable coworking from the members perspective by focusing on sustainable behaviors.

Design/methodology/approach – This study uses a flexible pattern matching approach. Theoretical patterns are identified using literature on coworking space and sustainable behavior while matching them with the empirical data. Data were collected from three different coworking spaces in Sweden through interviews and observations.

Findings – Based on the theoretical patterns, three constructs for sustainable coworking were identified, namely, productive behavior, prosocial behavior and responsible space sharing behavior. Through the empirical data, the constructs were further concretized to understand their different aspects. The findings uncovered a new layer of complexity where members can show the same behavior and be perceived differently.

Originality/value – This study offers a more holistic understanding of sustainable coworking by highlighting the members' role and identifying different member perceptions on sustainable coworking behaviors.

Keywords Coworking spaces, Sustainable behavior, Productive behavior, Prosocial behavior, Responsible space sharing behavior, Sustainable coworking behavior

Paper type Research paper

Introduction

A relatively new workplace phenomenon where knowledge workers unite in a shared space is known as coworking spaces. Coworking spaces are "subscription-based workspaces in which individuals and teams from different companies work in a shared, communal space" (Howell, 2022: p. 1). This allows for cost savings and convenience by using common infrastructures, such as receptionist services, utilities and equipment. Coworking spaces are

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not only about providing a shared space but also about establishing a community (Spinuzzi, 2012), and they can help members maintain a healthy work-life balance by providing a separation between work and home life (Orel, 2019a). They are therefore especially attractive for remote workers and small firms to avoid the feeling of social isolation.

The popularity of coworking spaces has grown dramatically during the last decade. According to the latest Global Coworking Survey, it is estimated that the number of coworking spaces has increased from 160 in 2008 to almost 19,000 at the end of 2018, and the trend does not seem to stop any time soon (Deskmag, 2019). Giant companies such as Amazon, Google and Microsoft are already embracing coworking spaces to improve collaboration and broaden their innovation pipelines (Bouncken and Reuschl, 2018).

Advocates of coworking spaces often claim that sustainability is regarded as one of the core values that the coworking movement aspires to Spreitzer *et al.* (2015). Research on sustainability in coworking spaces is still in its infancy, and despite being a core value, recent reviews on coworking spaces barely mention the topic (Gandini, 2015; Howell, 2022; Kraus *et al.*, 2022). A previous study identified a lack of consensus on what sustainability in a coworking space entails (Oswald and Zhao, 2020). Regarding sustainability, the coworking literature has mainly focused on sharing economy (Bouncken and Reuschl, 2018), sustainable mobility (Lejoux *et al.*, 2019), sustainable business models (Bouncken *et al.*, 2023; Oswald and Zhao, 2020), sustainable identity (Bouncken *et al.*, 2022) and certain factors that can make the coworking business more sustainable, such as renewable energy sources, waste management systems and eco-friendly building materials (Bouncken *et al.*, 2023). Like these studies, most contemporary research on workplace sustainability is focused on top-level strategy, and by having this focus, sustainable workplace research has mostly neglected processes at the member level (Afsar and Umrani, 2019; Davis and Challenger, 2013; Lülfs and Hahn, 2014).

Members are the heart of comprehensive corporate sustainability activities (Lülfs and Hahn, 2013), and the effectiveness of organizational sustainability-oriented policies highly depends on individuals' strong contributions and support (Lamm *et al.*, 2015). Coworking providers play the strategic part in creating a sustainable coworking space (Bouncken *et al.*, 2020). A recent study shows that if a coworking space propagates sustainability logics in their business models, the coworking members are more likely to possess sustainability values (Bouncken *et al.*, 2023). The same study mentions that sustainable coworking businesses do:

> [. . .] consciously behave to reduce their carbon footprint by using eco-friendly building materials, renewable energy sources, energy-saving office equipment, and waste reduction, and emphasize social values nested in the explicit mission (Bouncken *et al.*, 2023, p.1),

But the behavior of the members themselves also plays a critical role (Jahanshahi *et al.*, 2021). For example, the coworking provider can act sustainably by purchasing renewable energy for the space, but some members may use it wastefully. In this case, those members counteract the sustainability efforts facilitated by the provider. Unfortunately, in the current coworking literature, research on the member's role in supporting sustainability in coworking spaces is scarce to nonexistent. We therefore look into other literature on sustainable behavior and use it as our theoretical lens (Corral-Verdugo *et al.*, 2021; Juárez-Nájera *et al.*, 2010; Tapia-Fonllem *et al.*, 2013).

Since the role of the coworking member in creating sustainable coworking spaces has not been previously researched, the purpose of this paper is to explore sustainable coworking from the members perspective by focusing on sustainable behaviors. Using a flexible pattern matching approach, we adopt and adapt sustainable behavior literature into a

Swedish coworking space context with a specific focus on individual-purposed and group-purposed coworking spaces (Orel and Bennis, 2021). This study not only extends the coworking literature on sustainability by highlighting the members' perspective but also enhances the sustainable behavior literature by contextualizing the sustainable behaviors to coworking spaces.

Theoretical background

The overall sustainability performance of coworking spaces is the outcome of a complex set of decisions and behavior by groups and individuals within and outside of coworking spaces. To explain corporate sustainability, contemporary research on coworking often focuses on its overall adoption at the corporate level (Lülfs and Hahn, 2013). The areas that these research streams have neglected are the individual processes at the level of the individual coworking members (Lülfs and Hahn, 2014). Human behavior plays a vital part in the sustainability issues that coworking faces. This implies that it becomes necessary to focus on member's behavior concerning sustainability (Corral-Verdugo *et al.*, 2011; Oskamp, 2000). Habits such as wastefulness, contamination and consumerism should be replaced by sustainable behaviors. Since the literature on sustainable behavior in coworking spaces is practically nonexistent, we therefore investigate another stream of literature that researches behavior in general, use it as our lens and adapt it to a coworking setting by identifying theoretical patterns in the coworking literature.

Sustainable behavior

Juárez-Nájera *et al.* (2010: p. 687) define sustainable behavior as:

> [. . .] a set of effective, and anticipated actions aimed at accepting responsibility for conservation and preservation of physical and cultural resources. These resources include integrity of animal and plant species, as well as individual and social well-being, and safety of present and future human generations.

This definition emphasizes that sustainable behavior encompasses both social and environmental dimensions.

Previous research suggests that sustainable behavior possesses at least four interconnected constructs, namely, pro-ecological, frugal, altruistic and equitable behaviors (Corral-Verdugo, 2012; Tapia-Fonllem *et al.*, 2013). Pro-ecological behaviors include actions aimed at avoiding harm to and/or safeguarding the environment, such as recycling and reducing energy consumption. Frugal behaviors concern responsible use of resources to avoid excessive consumerism and waste. The altruistic dimension consists of prosocial behaviors, i.e. behaviors that are intended to benefit others without expecting anything in return, such as donating and volunteering. Lastly, equitable behavior is made up of actions that promote respect and the avoidance of discrimination. These four constructs can be further compiled into pro-environmental behaviors (pro-ecological and frugal) and prosocial behaviors (altruistic and equitable) (Corral-Verdugo *et al.*, 2021). Furthermore, a more recent study showed that a fifth type of behavior, self-caring behavior, can function as a good indicator for sustainable behavior as well (Corral-Verdugo *et al.*, 2021). The same study shows that sustainable behavior can be reduced to a three-factor model organized around three perspectives that include behaviors directed towards oneself (self-caring behaviors), other people (prosocial behaviors) and the environment (pro-environmental behaviors) that was inspired by a model first developed by Schultz (2001). This means that a sustainable person would practice daily actions with the simultaneous goal of benefiting their own interest, the interest of others and the interest of the environment.

A closer look at the five sustainable behavior constructs (pro-ecological, frugal, altruistic, equitable and self-caring behavior) reveals that they encompass a wide range of aspects such as eating healthy, helping elders over the street, donating blood and recycling bottles (Corral-Verdugo *et al.*, 2021). This shows that the constructs of sustainable behavior are primarily focused on human behavior in general and may not be directly applicable in a workplace context. There are differences between sustainable behaviors in private life compared to those of work life, which, according to Lülfs and Hahn (2014), are characterized by two major considerations. The first consideration is that, other than in private life, there are usually no direct financial incentives for the individual to behave sustainably. For example, saving water or switching off the lights when at work benefits the organization but does not directly benefit the individual monetarily. The second consideration is that sustainable behaviors in organizations are not only influenced by individual values, beliefs and norms but also by contextual factors such as organizational culture, hierarchy and peer pressure. Furthermore, the role of communal interaction and shared commitment to sustainability is slightly different between a coworking space and a traditional workplace, which may prove important in influencing sustainable behaviors.

Most studies based in the workplace either focus on pro-environmental or organizational citizenship behavior and rarely have a holistic point of view of what sustainable behavior contains (e.g. Davis and Challenger, 2013; Lülfs and Hahn, 2014). Hillman (2011) mentions in the Coworking Manifesto a broad concept of sustainability as follows "Sustainability, in my mind, is about making sure that whatever you're doing can be done for as long as it needs to be done," which can mean that the economic pillar of sustainability should not be overlooked. We therefore recognize that displaying sustainable behaviors in private life or the traditional workplace and displaying sustainable behaviors while working in a coworking space may not necessarily be the same. To account for this, we saw a need to adapt the theoretical framework of sustainable behavior (Corral-Verdugo *et al.*, 2021; Tapia-Fonllem *et al.*, 2013) to a coworking space setting, i.e. *sustainable coworking behavior*.

Sustainable coworking behavior

Coworking is considered by many researchers to be an activity falling under the umbrella of the sharing economy (e.g. Bouncken and Reuschl, 2018). The sharing economy is observable in coworking spaces and is said to enhance capacity utilization by reducing resource and energy use and creating a more sustainable system (Oswald and Zhao, 2020). Previous research has identified that coworking spaces can be classified into four categories, with individual, group, creator and startup-purposed at the forefront (Orel and Bennis, 2021). Each coworking category targets a certain type of individual and has different emphasis on community, social support, business success and so forth, indicating that coworking members have different perceptions of what it means to be a sustainable coworking member. As pointed out by Rådman *et al.* (2022), there are different profiles coexisting in coworking spaces, and their needs might create tensions between the coworking members belonging to distinct profiles. However, in this section, we investigate the coworking literature and identify three theoretical patterns related to the general theory of sustainable behavior that seem to fit virtually any type of coworking members.

Productive behavior. When analyzing preferences and motivations among coworking members, Appel-Meulenbroek *et al.* (2020) found that most coworkers mentioned efficiency-focused motivations as their main motivations for becoming a coworking member. These types of needs for coworking members were also identified by Rådman *et al.* (2022). In a recent exploratory study, Howell (2022) provided three primary benefits of working in a coworking space, which were efficiency, flexibility and legitimacy. Howell (2022) also

discussed the risk for loss of productivity while working in a coworking space. Jakonen *et al.* (2017) mentioned that many coworking members' primary goal during their day is to work and fulfill their duty, thereby spending little time seeking encounters with other users. This was also concluded by Reuschke *et al.* (2021), who mention that learning routines to get things done and remain efficient emerged as the key economic benefit for coworking members – rather than collaboration and innovation. Furthermore, productivity and income growth were also hypothesized by Clifton *et al.* (2022) as some of the main outcomes of being a coworking member.

The strong focus on efficiency makes sense because if coworking members cannot sustain their business financially, it does not matter if their carbon footprint is zero, or if they thrive socially, as their business will have a difficult time to exist for a long time, making it an unsustainable alternative. From the coworking literature, it is evident that many members work in a coworking space to increase their level of productivity (Bueno *et al.*, 2018; Orel, 2019b) and to gain a competitive advantage to reach individual or the organization's goals or objectives. With respect to the coworking context, we thereby consider "productive behaviors" as a more suitable construct than self-care (as proposed in the sustainable behavior theory), considering that this is the reason for working, as in the word "coworking" itself. Productive behavior is defined as "the behavior of an organization's members that positively contributes to achieving the organization's goals and objectives" (Park, 2020: p. 4).

Prosocial behavior. People join a coworking space because they want to be part of a community (Spreitzer *et al.*, 2015; Wright *et al.*, 2022), to have the opportunity to network with others (Rese *et al.*, 2022) and to have social (Merkel, 2015) and work-related interactions (Fuzi, 2015). Furthermore, Waters-Lynch and Potts (2017) mentioned that one of the main reasons to become a coworking member is the possibility of collaborating with other members when ideas, resources and necessary information are lacking. Another advantage of coworking spaces is, according to Bacevice and Spreitzer (2023), that they give an opportunity for members to convey a legitimate professional identity to others. There seems to be a consensus in the coworking literature that the social aspect of working in the same space as other coworking members and finding the right vibe is considered crucial (Endrissat and Leclercq-Vandelannoitte, 2021).

Several studies have investigated social aspects such as community in coworking spaces but have not explicitly linked them to sustainability (e.g. Blagoev *et al.*, 2019; Garrett *et al.*, 2017; Spinuzzi *et al.*, 2019). One exception is Ferguson (2013) who wrote:

> Sustainability in a coworking community is about supporting, nourishing, about "buoying up" our fellow coworkers. It's about giving, about contributing, for it is through these actions that the community itself – made up of individual people – is sustained.

To cover most social aspects, the concept of "prosocial behavior" is considered important for sustainable coworking behavior, which was already mentioned by Corral-Verdugo *et al.* (2021). In this paper, we refer to prosocial behaviors as acts that promote or protect the welfare of individuals, groups or organizations (Brief and Motowidlo, 1986).

Responsible space sharing behavior. Coworking spaces are often regarded as typical cases of the sharing economy put into practice (Durante and Turvani, 2018). The different work arrangements in a coworking space compared to a traditional office space imply a shift, or outsourcing, of responsibilities from the corporate to the individual actor (Healy *et al.*, 2017). Since coworking members take part in the sharing economy, they do not own their personal working environment and should therefore have a different sense of responsibility compared to working from home or in a traditional office.

To responsibly share the coworking environment, one must take care of both the working environment and make conscious choices that are friendly to the natural environment. This shows that responsible space sharing is different from the definition of pro-environmental behaviors, i.e. acts that benefit the natural environment and omissions of acts that harm it (Lange and Dewitte, 2019). Therefore, we contextualize pro-environmental behaviors of the general sustainable behavior theory, to "responsible space sharing behavior." Responsible space sharing behavior is a term coined by us that describes acts that benefit the work environment and omissions of acts that harm it. Compared to pro-environmental behaviors, responsible space sharing behaviors focus more on the work environment than the natural environment. The adaptation from sustainable behaviors' theory in general to sustainable behavior in coworking is presented in Table 1.

With this contextualization, we mean that a sustainable coworking member is someone that would simultaneously achieve the goals and objectives for the organization that they represent, benefit other individuals inside the coworking space and responsibly share the coworking space.

Methodology

To emphasize both the theoretical and the empirical context in which coworking occurs to explore sustainable coworking behavior, this study is based on a qualitative research approach using flexible pattern matching.

Flexible pattern matching involves the iterative matching between theoretical patterns derived from literature and observed patterns emerging from empirical data (Sinkovics, 2018). Recently, there has been an emerging body of work in this category that builds on a literature review to define the initial theoretical patterns that are then matched to the empirical data (Sinkovics *et al.*, 2014; Sinkovics *et al.*, 2019). Further theory development is then triggered by mismatches between theoretical patterns and observed patterns or by the emergence of unexpected observed patterns (Bouncken *et al.*, 2021a).

In this study, the flexible pattern matching was performed in several stages, as suggested by Bouncken *et al.* (2021b). We reviewed the coworking literature and literature on sustainable behavior and identified theoretical patterns of what may constitute sustainable behaviors in the coworking context. This enabled us to have a firm grounding in the related literature and helped to shape the empirical data collection plan. To gather empirical data, we conducted a multiple-case study involving three different coworking spaces in Gothenburg, Sweden. The reason why a multiple-case study was conducted was not that we intended to compare the cases but rather to collect diverse data to understand sustainable coworking behavior on a more general level (Eisenhardt and Graebner, 2007). The upcoming sections explain how the multiple-case study was conducted by describing the research sites, data collection plan and data analysis. The empirical data were systematically coded and compared with the emerging theoretical patterns (see Table 1).

Table 1.
Adaptation of sustainable coworking behavior based on patterns found in coworking literature

Classification	Sustainable behavior in general	Sustainable behavior in coworking
Oneself	Self-caring behavior	Productive behavior
Other people	Prosocial behavior	Prosocial behavior
Environment	Pro-environmental behavior	Responsible space sharing behavior

Source: Authors

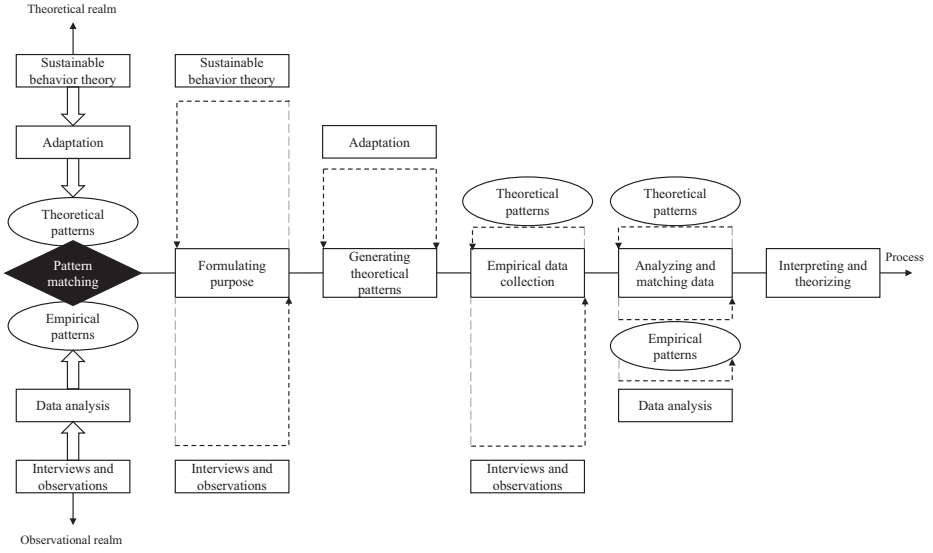
Finally, we interpreted the findings. Below, the empirical study is discussed in more detail. For a more graphical representation of the method, see Figure 1.

Research sites

Gothenburg is a city where coworking is still a relatively new concept and there are not many coworking spaces to study. The cases were selected on two criteria. First, they had a high variation in their type of members including self-employed individuals, start-up companies and organizational employees. Second, one of the authors had access to these three coworking spaces for more than a year, which gave the opportunity of a large data collection using in-depth interviews, observations, spontaneous conversations with members and hosts, and access to their digital communication channels. All three coworking spaces target individuals, teams and companies; they can thereby be categorized as a mix between individual-purposed and group-purposed coworking spaces (Orel and Bennis, 2021).

One of the coworking spaces is a modern coworking space located at the campus of a large Swedish university in Gothenburg. They are owned by a Swedish public organization and have a strong focus on the built environment. Besides this focus, they also include environmental sustainability as a key factor in their business model. Currently, they have approximately 70 active members, and, compared to the other coworking spaces in this study, the membership fee is slightly lower, attracting more entrepreneurs and smaller companies. Like most coworking spaces, they offer common services such as meeting rooms, flex space, private offices, Wi-Fi and coffee machines (Spinuzzi, 2012). On top of this, with an extended membership, members can also gain access to a makerspace, gym and studio.

The next coworking space is in the city center of Gothenburg and is owned by one of Sweden's largest real estate companies. Compared to the first case, the atmosphere feels



Source: Authors

Figure 1.
Iteration between theoretical and observational realm in conducting flexible-pattern-matching research

more luxurious and gives a business-like feeling, and the price of being a member is consequentially higher. This coworking space is the largest in this study, with three floors and more than 500 active members. They offer tailored solutions, including private offices for organizations with up to 50 memberships.

The last coworking space is also located in Gothenburg's city center inside a shopping mall and is owned by another one of Sweden's largest real estate companies. Out of the three, this space is the newest and smallest in terms of area. The number of members was few in the beginning of this study but rapidly increased throughout the study. Currently, there are approximately 50 members. In comparison to the other spaces, this space focuses more on the atmosphere including, for example, sound, smell, lighting and décor.

Data collection

Interviews. The main source of empirical data came from 30 interviews with coworking members of the studied coworking spaces to understand how they perceive sustainable behavior. Interviews are especially attractive since they provide flexibility and enable the researcher to receive an in-depth understanding of the subject from the interviewee's perspective (Bryman and Bell, 2011). The participants consisted of a wide range of self-employed individuals and employees of both smaller and larger companies who have been members for 1 month and up to four years. The participants were sampled in two ways: either they were recommended by the coworking hosts or they were spontaneously asked to participate in an interview as they happened to be available in the coworking space. The full list of participants is shown in Table 2. The wide range of participants helped us comprehend a broader view of sustainable coworking behavior rather than a specific one from, for example, self-employed coworking members or new members.

The data were collected through semi-structured interviews, in the local language, that were a mix of face-to-face and online interviews, depending on the preference of the respondent. Interviews were approximately 45 min, and an interview guideline was followed that focused on elaborating on three constructs that emerged from reviewing the literature. The three theoretical patterns that emerged gave us a theoretical background to formulate questions for the interview guide; otherwise, we recognized that the questions would be too open, and there was a risk that most participants hear the word sustainability and immediately connect it to environmentally friendly actions. In short, the interviews were open and yet directed. The interview protocol included questions such as "Please describe a productive day that you have experienced in the coworking space." and "What does responsible sharing of a space mean to you?". The questions were purposely phrased as generic to avoid directing the participant in any direction, helping us gain a broad understanding of each construct. Since prosociality is a more unfamiliar term than productivity and responsibility, we broke it down based on relevant literature (e.g. Bolino and Grant, 2016) and asked the participants about more comprehensible activities such as helping, volunteering and socialization. After each interview, the findings were compared to existing and relevant theory to constantly ensure that the gathered data were relevant (Suddaby, 2006), and iterative updates to the interview protocol were made. All the interviews were recorded to reduce the risk for oblivion, and the respondents had the option to read the takeaways to ensure that they had been correctly interpreted.

Observations. Next to interviews, observations were held, which allowed us to directly observe behavior instead of only having an inferred explanation of the behavior (Bryman and Bell, 2011). This helped us interpret the interview results better and enabled us to see if the intentions mentioned in the interviews occurred in reality. During a period of 15 months, one of the researchers who had access to the studied coworking spaces performed the observations.

No.	Age	Gender	Occupation	Member since	Membership	Interview
1	35–44	Female	Customer success manager	1.5 years	Private office	Face to face
2	55–64	Male	Chief executive officer	2 years	Private office	Face to face
3	45–54	Male	Project leader	1 month	Private office	Face to face
4	55–64	Male	Chief digital officer	4 years	Private office	Face to face
5	45–54	Female	Civil servant	4 years	Private office	Online
6	45–54	Female	HR manager	1 month	Private office	Face to face
7	35–44	Male	Recruiter	4 months	Flex	Face to face
8	35–44	Male	Chief project manager	1 week	Flex	Face to face
9	35–44	Male	Software consultant	1.5 years	Private office	Face to face
10	25–34	Female	Business developer	2 months	Flex	Face to face
11	25–34	Male	Business developer	1.5 years	Flex	Face to face
12	35–44	Female	Community manager	1 year	Flex	Face to face
13	35–44	Male	Consultant	2 months	Private office	Online
14	35–44	Female	Community manager	1 year	Private office	Face to face
15	55–64	Male	Advisor	3.5 years	Private office	Face to face
16	25–34	Female	Service delivery manager	3 years	Private office	Face to face
17	55–64	Male	Media entrepreneur	3 years	Private office	Online
18	55–64	Male	System developer	4 years	Flex	Face to face
19	35–44	Male	Consultant	2 months	Private office	Online
20	55–64	Female	Program manager	4 years	Private office	Face to face
21	35–44	Female	Appointment booker	6 months	Flex	Face to face
22	25–34	Male	Business developer	6 months	Flex	Online
23	55–64	Male	Project leader	2 years	Private office	Face to face
24	45–54	Male	Consultant	1 year	Flex	Face to face
25	45–54	Female	Regional manager	2 years	Private office	Face to face
26	55–64	Female	Management consultant	3 years	Flex	Face to face
27	35–44	Female	Senior consultant	2 months	Flex	Face to face
28	25–34	Male	Chief executive officer	6 months	Private office	Face to face
29	35–44	Male	Chief executive officer	1 month	Flex	Face to face
30	25–34	Male	Software developer	1 year	Private office	Face to face

Source: Authors

Table 2. Descriptive data of interview participants

Visits to the coworking spaces were sporadic, sometimes several days in a week and sometimes only a few days throughout a month. The visits always occurred during normal office hours to ensure that the observed behavior was representative of a common workday.

Throughout the study, over 1,000 h were spent in total, aligning with Guba and Lincoln (1994) recommendation to spend a lot of time in the research context to increase trustworthiness. The researcher worked in the open areas as any other coworking member and conducted observations to gain a deeper understanding of the coworking experience. These observations were performed in different areas, such as close to the coffee machine, in the lounge and in the focus areas. On the one hand, we realize that these more sporadic observations come with a risk of observing only certain behavior in the coworking spaces. On the other hand, such an unstructured approach helped to detach the observer from the group, which can reduce observer's bias (Flick, 2009). The unstructured observations also helped verify reality since the members did not know when the researcher would visit the space. The observations in the different areas gave rich insights into the complexities of the members' behavior by allowing the researcher to observe interactions between members in different settings as well as members working individually or communicating in phone or video calls.

The researcher also participated in several coworking events organized by the providers or members, such as member-breakfasts and lunches, seminars and company presentations, where more structured observations were conducted. Compared to the less structured observations, these more structured observations were particularly beneficial since they provide a more consistent and in-depth understanding of the coworking members by forming relationships between the observer and the observed members. One backside of these observations is that the active role of the observer makes the observations more likely to be influenced by the observer's presence (Flick, 2009). However, by using two types of observations and collecting rich amount of qualitative data, we believe that the identified aspects of the findings can be considered representative (Guba and Lincoln, 1994). The total observed time was estimated based on three categories: events, half day and full day which were represented by 1 h, 4 h and 8 h. In total, 78 full days, 91 half days and 21 organized events were observed.

To enrich the observations and to remember situations and scenarios, field notes were written after seeing or hearing something that was perceived as interesting. As suggested by Clancey (2006), the field notes were structured as a project diary where the interesting observations were noted and given a time stamp.

Data analysis

To analyze the interview data, all records from the interviews were transcribed and thematically coded in the qualitative analysis software NVivo in several steps. This systematic approach helped us to gain more qualitative rigor when generating aspects of the three constructs (Linneberg and Korsgaard, 2019). First, we conducted an initial data coding of the transcripts, where valuable quotes were highlighted to maintain their integrity. Second, all the highlighted quotes were collected to form a comprehensive compendium of so-called 1st order data. Third, the 1st order data were clustered around themes such as distraction, interruption, focus and disturbance to form 2nd order data. Fourth, the 2nd order data were distilled into aspects. Finally, the interesting quotes (1st order), themes (2nd order) and aspects were assembled into a data structure. A small part of the data structure functioning as an example of how the data were handled is presented in Table 3.

1st order data	2nd order data	Aggregate dimension
"At home, I get more distracted than here"	Avoid distraction	Remain focused
"When working from home there are more distractions that makes it harder to focus on work"		
"It is important for me to not be interrupted to remain productive"	Avoid interruption	
"If I feel risk for interruption, I move to another location"		
"I try to hide and avoid people to focus on my work"	Focus on work	
"Being in the zone and holding focus for a long time is important to be productive"		
"Disturbance kills my productivity"	Avoid disturbance	
"1–2 days each week you should be at home and focus on work. That is not what the coworking space is specialized at"		

Source: Authors

Table 3. Example of data structure obtained after the analysis

Findings

From the collected empirical data, it was possible to identify a variety of aspects related to productive, prosocial and responsible space sharing behavior that coworking members perceive as sustainable coworking behavior. In the following sections, we offer empirical evidence from the data collection that points to the constructs of our adaptation of sustainable behavior based on the theoretical patterns found in the coworking literature.

Aspects of productive behavior

Regarding productive behavior, the results showed that it consisted of four aspects where *remain focused* is one of them. For example, one member described the importance of avoiding interruption with the following quote: "It is important for me to not be interrupted to remain productive" (3). Another example was provided by a self-employed consultant who said: "being in the zone and holding focus for a long time is important to be productive" (9). Some evidence of the requirement for remaining focused was observed during visits in the coworking spaces. A clear example of this was observed when a member answered a telephone call while in an open office area, and two other members quickly went away to their private office, looking irritated and slammed the door. Another observed example that emphasized the need for focus was that members tend to constantly sit scattered across the coworking space. This desire for space to avoid disturbing and avoid being disturbed was mentioned during several interviews and many members worried about the future since more people are expected to become members.

The next aspect related to productive behavior, *be efficient*, is a tangible element and can be referred to as the conventional definition that views productivity as the ratio of outputs to inputs (Drucker, 1999). This aspect illustrates that, in general, coworkers want to be streamlined and complete their tasks as efficiently as possible. All studied coworking spaces include a reception with staff that helps the coworking members, and the appreciation of this was described by one of the participants as:

> The coworking space helps me to free up time by having access to the reception. I can ask them to book a room and when the customer arrives, they can guide him or her to my office (21).

Furthermore, the interviews revealed that being a coworking member made it possible to avoid some tasks and instead be as efficient as possible and focus on core activities. One participant explained this as not having to do boring tasks with the following quote:

> Compared to any alternative, the coworking space makes me save a lot of time and be more efficient. I do not have to do boring tasks such as ordering coffee, printer service, unloading the dishwasher etc. (2).

To ensure that the coworking members can be efficient and have satisfying work experiences in the coworking space, it seems like the provider plays a significant role. By willingly helping with "boring tasks" that are not related to the core activities, the provider can influence the efficiency for the member.

Meet targets is the third identified aspect, and it shows that effectively progressing through the daily plan and accomplishing one's goals is also considered an aspect of productive behavior. For example, a civil servant described that she uses post-it notes with a check list of daily and weekly tasks and measures her productivity depending on the number of checkmarks. A chief project manager also used a check list and perceived that he was productive when the goals on this list were completed. Simply put, this member said: "To do what is planned is to be productive" (11).

The last identified aspect of productive behavior concerns the ability to *generate new ideas*. Creativity is where knowledge workers clearly separate from manual workers, and from the conventional definition, creativity would rather be depicted as counterproductive (Drucker, 1999). However, being creative and having new ideas was perceived as essential by some of the participants to be innovative and do things differently or do the same things better. For example:

> As a software consultant, I do not always write code, I also need to solve difficult problems that emerge during coding which requires a lot of problem solving and creative thinking (9).

Aspects of prosocial behavior. Prosocial behaviors included empirical data that we translated into six aspects. One identified aspect related to prosocial behavior was *share resources*. Some participants talked about the importance of doing small favors, such as sharing a computer- or phone charger with others. For example, a software developer mentioned that "if someone asks me for a charger, I gladly share it if I do not need it myself" (10). Several participants also talked about sharing office materials such as pencils, calculators and books. The willingness to share was especially well presented when the coworking spaces were crowded and several coworkers started to ask other coworkers if they wanted to share the desk with them.

The next two aspects, *provide instrumental support and provide emotional support* go hand in hand. When talking about prosociality, the immediate reaction of several coworkers was related to either help, assist or support. Helping was often perceived as job-related matters such as helping with computer-related problems, acting as a sounding board or reviewing work in progress. A service delivery manager explained how she gladly helped another coworker:

> For example, once there was a person that came into our office and had some issues with her computer. She was supposed to lead a lecture within a short time span. It was a simple issue and, of course, we assisted (16).

An advisor expressed the benefit of working in a coworking space as: "We have managed to build a cluster of companies with similar interest where we all work tightly and always have help nearby" (15).

In addition to showing instrumental support, helping with personal matters is also known as emotional support. For example, one participant shared a story where she was experiencing a detrimental amount of stress and described it as: "Recently, I suffered a mental breakdown and being comforted by my colleagues helped me a lot" (16).

Many participants were talking about their appreciation for planned events such as wine testing, breakfasts, presentations and afterwork and how they are an integral part of coworking. This led us to a fourth and fifth aspects of prosocial behavior, *volunteer for additional tasks and suggest improvements*. Simply working in a coworking space seems to be considered futile for some members, who emphasize that creating a community requires sacrifice from volunteer individuals. By going the extra mile and doing things outside their professional role, coworkers perceive themselves as prosocial. This illustrates the importance of putting others before oneself by volunteering to create a living community. One of the members emphasized this by saying "I am one of few who was interested and participated in all company presentations. I attended them more out of kindness rather than genuine interest of the subjects" (9). In addition to this, the coworking space was sometimes compared to a traditional office. This quote:

> I would like to see more enthusiasm. When you are in a traditional office, people usually suggest improvements, but here, we somehow expect the personnel to come up with suggestions (18)

Illustrates the need for improvements.

Engage socially was perceived as an aspect of prosocial behavior and underlined the importance of creating bonds and friendship with other coworkers. The importance of socializing with other members was recurring in the interviews. Besides repeatedly mentioning socialization, some members realized that spontaneous interactions do not happen automatically and emphasized that it requires some sort of engagement from the individual. For example, an human resources (HR) manager underlined the importance of being socially engaged as "If you are waiting for coffee with someone else, say hi, be interested. If you are at a social event, try to contribute. Being engaged is important" (6).

Aspects of responsible space sharing behavior

We found that responsible space sharing behavior contains five aspects. Some participants talked about the need to *be environmentally responsible.* These participants had a holistic perspective on responsibility and saw it as their duty to protect the environment. To illustrate this, three examples that were mentioned by three different coworkers are provided. The first example was mentioned by a senior consultant "I always switch the light off in the meeting room but not everyone is doing this" (27), the second by a chief project manager: "I try to avoid the elevator since it is better for my health and the environment" (8) and the third by a community manager: "I love the food in the restaurant downstairs, and I like their focus of not wasting food. It oozes a care for the environment" (12). It is evident that some coworkers believe that it is important to not only care about oneself and other coworkers but also to show concern for the natural environment.

A more zoomed-in perspective of the environmental responsibility, which we call *care for the work environment* was mentioned by almost every coworker. Members mentioned that they take on the role of a coworker and that comes with the duty of showing care for the work environment to be perceived as responsible while sharing. To illustrate what is meant by this, a quote by a member who works as an HR manager is provided:

> The main part of responsibility in the shared space concerns simple respect. If you see someone close to you, then you can talk less loudly, if you are in a telephone booth, do not occupy it for too long, clean up after yourself to avoid a messy environment etc. (6).

This gave us a hint of the importance of being responsible for the work environment. What it means to show care for the work environment is not completely covered by the empirical data, but what we can say is that it is conceived as important and sustainable to be aware and care of your surroundings while working in a coworking space.

The next two aspects, *be legally responsible* and *be morally responsible* are related to following the rules, policies and social norms. On the one hand, many participants mentioned that one should adapt and comply with the rules when sharing the coworking space to make the work environment bearable for everyone. For example, a business developer phrased responsible sharing like this: "To me, responsibility concerns that you conform to the rules and norms that exist" (22). On the other hand, members also spoke about complying with the moral code and social norms, or the invisible rules, as they were sometimes called. One example was provided where the participant heard another coworker talking on the phone while a telephone booth was available a couple of meters away. He phrased his frustration as: "You are allowed to talk on the phone in the open space, but should you? Norms are important" (11). He thought it was irresponsible since it is common sense to use the telephone booth, but there were no rules that indicated a prohibition against talking on the phone in the open space.

The final aspect that was identified as related to responsible space sharing behavior is *confronting irresponsible behavior*. Confronting irresponsible behavior is a behavior that rests on the concepts of courage and justice. If someone in the coworking space happened to share the space irresponsibly, several coworkers claimed that it is their responsibility to confront the unacceptable behavior:

> If someone is irresponsible, it is your responsibility to confront them and strive for order in the shared space. However, you cannot expect everyone to conform to your personal preferences (29).

A full list of identified aspects of sustainable coworking behavior is summarized in Table 4.

Discussion

Since individuals are the heart of comprehensive corporate sustainability activities (Lülfs and Hahn, 2013) and the effectiveness of organizational sustainability-oriented policies

Theoretical pattern	Aspect	Descriptive quote
Productive behaviors	Remain focused	"I try to hide and avoid people to focus on my work"
	Be efficient	"Compared to any alternative, the coworking space makes me save a lot of time and be more efficient"
	Meet targets	"To do what is planned is to be productive"
	Generate new ideas	"There are two sides of productivity, one where you sit down and focus, and one, just as important, where you are creative and generate new ideas"
Prosocial behaviors	Share resources	"I have most office material in my private office. If someone asks, then I can share"
	Provide instrumental support	We have managed to build a cluster of companies with similar interest where we all work tightly and always have help nearby
	Provide emotional support	"Recently, I suffered a mental breakdown and being comforted by my colleagues helped me a lot"
	Volunteer for additional tasks	"I try to do more than just work here. For example, I ran a small campaign of the benefits with coworking hoping that someone would join this place"
	Suggest improvements	"Since we work here, we know best what we want, and we should communicate this to make the experience better for everyone"
	Engage socially	"If this space is supposed to cherish networking, socialization, collaboration etc. then it is everyone's responsibility to do their part. The social culture does not come by itself, and it requires effort"
Responsible space sharing behaviors	Be environmentally responsible	"I could have chosen any alternative but one of the reasons why I stay here is because they seem to act more environmentally responsible"
	Care for the work environment	"Keep everything clean and welcoming. For example, if you happen to spill some liquid, wipe it up"
	Be legally responsible	"If you don't follow the rules, you are irresponsible"
	Be morally responsible	"It is not enough to follow the rules, there are also invisible rules to comply to"
	Confront irresponsible behavior	"If someone is irresponsible, it is your responsibility to confront them and ensure order in the shared space"

Source: Authors

Table 4.
Summary of identified aspects of sustainable coworking behavior

highly depends on individuals' strong contributions and support (Lamm *et al.*, 2015), this study has emphasized the role of the coworking member in creating sustainable coworking. Unfortunately, in the current coworking literature, research focusing on the members' perspective on supporting sustainability in a coworking space is scarce to nonexistent.

By using the theory of generic sustainable behaviors (Corral-Verdugo *et al.*, 2021; Schultz, 2001; Tapia-Fonllem *et al.*, 2013), we had a theoretical foundation that we adapted to the coworking space context. By exploring the coworking literature and identifying theoretical patterns, our adaptation of the framework includes productive behaviors, prosocial behaviors and responsible space sharing behaviors as relevant constructs to describe sustainable coworking behavior from the member's perspective. Unlike previous studies on sustainable coworking (e.g. Bouncken *et al.*, 2023; Bouncken *et al.*, 2022; Oswald and Zhao, 2020), this study provides new insights from a more holistic perspective, incorporating all three pillars (economic, social and environmental) of the commonly used triple bottom line (Elkington, 1997).

With our adaptation, we consider a sustainable coworking member as someone that would simultaneously (1) achieve the goals and objectives for the organization that they represent, (2) benefit other individuals inside the coworking space and (3) responsibly share the coworking space. These three constructs may not be exhaustive, and other relevant constructs could function as an applicable proxy for sustainable coworking behavior, such as self-care that was mentioned by Corral-Verdugo (2021). However, with the use of the flexible pattern matching approach, these three constructs were perceived as the most dominating themes in the coworking literature.

By conducting a case study and collecting empirical data through interviews and observations, we provide evidence that productive behavior should be regarded as a sustainable behavior, which has not been considered as such in previous research on sustainable behavior (Corral-Verdugo *et al.*, 2021; Tapia-Fonllem *et al.*, 2013). Productive behaviors are important for every coworking member to ensure that their own work generates value or that their business can generate profit, i.e. that their business is sustained. The case study also provides evidence that responsible space sharing can be regarded as a sustainable coworking behavior, which has not been considered in previous research on sustainable behavior. However, Lülfs and Hahn (2014) consider social norm, moral and awareness of consequences as determinants of sustainable behavior in companies, which can be referred to as our identified aspects of moral and legal responsibility. Furthermore, the case study confirms the importance of prosocial behavior in sustainable coworking behavior, which was also considered as important for sustainable behavior in general (Corral-Verdugo *et al.*, 2021; Tapia-Fonllem *et al.*, 2013).

With the empirical data, we were able to concretize the constructs and break them down into 15 different aspects of sustainable coworking behavior. Since few studies have investigated these constructs (e.g. Bueno *et al.*, 2018), the concretization helped us get a more distinct view of what they actually mean. However, when looking at the identified aspects, it is possible to see that some of them are likely difficult to perform simultaneously, such as remaining focused and engaging socially.

As pointed out by Rådman *et al.* (2022), Orel and Bennis (2021) and Endrissat and Leclercq-Vandelannoitte (2021), there are different profiles coexisting in coworking spaces, and their needs might create tensions between the coworking members belonging to distinct profiles. Since all the studied coworking spaces can be categorized as a mix of individual-purposed and group-purposed (Orel and Bennis, 2021), it is not possible for us to say if the categorization has an influence on sustainable coworking behaviors. However, while the constructs adapted from the sustainable behavior theoretical framework fit for coworking,

the data show that the perception of sustainable behavior diverges for different coworking members who belong to a company and members who belong to a start-up company or are self-employed. Bouncken and Tiberius (2023) discuss that differences between company employees, freelancers and entrepreneurs who coexist in a shared space can be explained by heterogenous institutional logics and that the heterogeneity can hurt value co-creation. For example, a coworking member who follows social logics (e.g. looking for a sense of community) may experience friction with another member who follows business logics (e.g. using the space's facilities for improving their business). Our empirical data align with this view, indicating that there are tensions between productive behaviors and prosocial behaviors. However, the empirical data also show that there are different perceptions within the three constructs. This means that members who follow business logics may experience friction with other members who also follow business logics. These different groups and their distinct perception of how to show sustainable coworking behavior introduce a new layer of complexity where a coworking member can behave in a certain way and be perceived as sustainable or unsustainable by other peers, depending on the peers' perception of what sustainable coworking behavior entails. We discuss these perceptions in more detail below.

Different perception of sustainable coworking behavior

Focus vs. generate new ideas. With respect to productive behavior, we observed that some members prioritize more on remaining focused and being task-oriented to reach their goals or objectives, whereas others prioritize generating new ideas and focus on brainstorming or problem solving. These different views of productive behavior can cause issues in the shared space since the task-oriented members tend to prefer a silent place, whereas creating new ideas may require interactions.

However, the empirical data reveal that there are two sides to productivity: one that prioritizes focus and one, just as important, where creativity and generating new ideas are in the center. Both are challenging to perform in an open space. This is where it becomes tricky when providing a shared space, as on the one hand, some coworking members want to be productive by remaining focused and silent, and on the other hand, some want to be talkative and generate new ideas. Workplace productivity is a complex concept that has been a long-standing subject of research without a universal consensus on its definition or assessment (Bortoluzzi *et al.*, 2018). For example, talking with coworkers may seem to be less productive in the sense that it means that one is not actively working on a certain task, but it could also spark valuable ideas as well as more subtly benefiting the organization by enhancing interpersonal relations and the sharing of information (Koopmans *et al.*, 2011). We also acknowledge the difficulty of determining what it means to show productive behaviors for coworking members.

There are several articles that discuss the tension between being productive and being social (e.g. Rådman *et al.*, 2022). For example, this type of tension was identified by Endrissat and Leclercq-Vandelannoitte (2021), where practices such as "hiding behind laptops" or "not looking up from the screen when someone enters the room" help coworkers get things done, but at the same time, those practices disconnect them from physical and social proximity, which can hurt their sense of community. Our findings highlight that the different perceptions of productivity for coworking members can potentially create tension between remaining focused and generating new ideas, which is especially apparent in coworking spaces since many members are working in creative sectors (Rese *et al.*, 2022). This means that coworking providers should create work environments that allow coworking members to be task-oriented, creative and social.

Socially reactive vs. socially proactive. Two contrasting perceptions of what prosocial behavior in a coworking space entails were identified based on the empirical data. One perception expects the coworking space to include a social atmosphere where they can fit in and that an 'external force' will connect them with other members. These members tend to view that social engagement is something done outside one's professional role and should therefore be classified as a prosocial behavior. We refer to this group as socially reactive since the empirical data suggest that they are more inclined to be prosocial when someone else asks them instead of taking the initiative themselves.

The contrasting group of members pivots more towards viewing the coworking space as a social hub. They intend to go to the coworking space to primarily socialize and become energized. Compared to the socially reactive group, these members are more socially proactive and are thereby expressly trying to show prosocial behaviors such as volunteering for additional tasks, engaging socially and showing emotional support to create a sense of community rather than just belonging to it. Since both groups coexist in coworking spaces, it is challenging for the coworking provider to know if they are needed to create a social atmosphere or if the social initiatives should come from the coworking members. The literatures on coworking often mention that one of the main reasons to become a coworking member is to feel a sense of community (e.g. Blagoev *et al.*, 2019; Garrett *et al.*, 2017; Spinuzzi *et al.*, 2019) However, the current literature tends to overlook that there are two contrasting ways of achieving the sense of belonging, that is, by being socially reactive or socially proactive.

Follow rules vs. own judgment. The empirical data unfold two different ways of understanding responsible space sharing, which can presumably cause some tension. First, one group tends to focus the responsibility more on legal responsibility. They spoke about the need to follow the outspoken rules, policies and signs to be considered responsible. Generally, they tend to put the coworking provider in charge of what is acceptable and what is not. They mean that as long as no rules are broken, one should not be considered irresponsible.

On the contrary, there is a group of coworking members that are more focused on moral responsibility. They perceive that the rules cannot be generalized to all situations and that one should rather make decisions based on their own judgment. For example, a member who is annoyed perceives another member talking on the phone as irresponsible since he or she is disturbing, but the one talking on the phone is considered responsible since there are no rules prohibiting talking on the phone, and thereby the annoyed member is perceived as too sensitive.

Those different points of views have been discussed in research on responsibility, for example, by Bergsteiner and Avery (2003) and Holdorf and Greenwald (2018), where they describe how all choices are influenced by legal and ethical constraints from the external world, such as laws, rules and policies, and by internal moral constraints. They further describe that the choice one makes depends on the consequences of one's action. By better understanding this internal conflict, coworking providers can customize their coworking spaces in a way that helps the coworking members to act more sustainably.

Conceptual model

To conclude the discussion, Figure 2 shows a visualization of sustainable coworking behavior and the three constructs. This model can be used to further emphasize to coworking providers that it is advantageous for coworking providers to supply a coworking space that offers areas to focus and talkative zones where it is possible to perform more creative work. It also shows that in certain cases the member requires the coworking

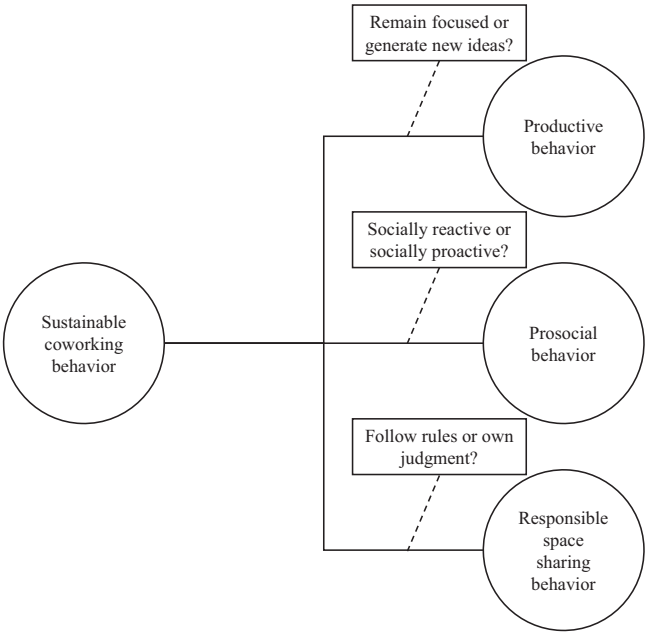


Figure 2.
Conceptual model of sustainable coworking behavior

Source: Authors

providers help to create a sense of community and in other cases, the coworkers themselves are motivated to create the community themselves. The model also highlights that the coworking provider should identify how the coworking members perceive responsible space sharing, as some are more inclined to follow the written rules while some believe that it is more of a matter of mutual respect based on their own judgment.

Since we did not explore the relationship between the identified theoretical patterns, our conceptual model is not intended to explain how productive behavior, prosocial behavior and responsible space sharing behavior influence each other. Our exploration of sustainable coworking provides an increased understanding of the coworking member's role in terms of their behavior, which can complement the coworking provider's sustainability efforts. As mentioned by Bouncken *et al.* (2023), the sustainability efforts of coworking members are different in coworking spaces that openly pursue sustainability targets, as indicated in their narratives, in contrast to spaces that do not have clear sustainability manifestos. Our conceptual model shows that sustainable coworking is perceived differently between members, which adds to the complexity of how to create a sustainable coworking space.

Conclusion

Human behavior plays a vital part in the sustainability issues that coworking faces. This implies that it becomes necessary to focus on coworking member's behavior to achieve sustainable coworking. Therefore, the purpose of this paper was to explore sustainable coworking from the members perspective by focusing on sustainable behaviors. To emphasize both the theoretical and the empirical context where coworking occurs, this study was based on a qualitative research approach using flexible pattern matching. By analyzing and matching empirical patterns and theoretical patterns, we were able to conclude this

study with a conceptual model that describes sustainable coworking behavior. Our findings illustrate that three constructs, productive behaviors, prosocial behaviors and responsible space sharing behavior, can be considered as sustainable coworking behaviors. We also uncovered 15 aspects of sustainable coworking behavior by concretizing the three constructs using a case study where three Swedish coworking spaces located in Gothenburg were studied. The findings uncovered a new layer of complexity where members can show the same behavior and be perceived differently from a sustainable behavior perspective. Ultimately, this research can potentially contribute to a start of changing the way that coworking providers think of sustainable coworking, where the coworking member's behavior is taken into account.

Our study is not without limitations. During the study, a major challenge was the COVID-19 pandemic. When the entire business model of coworking spaces is based on people staying there, not at home, a global pandemic is close to a worst-case scenario. During some of the observations, the spaces were relatively empty, and the observed behavior during these specific sessions may not represent what happens in the post-pandemic world. The pandemic also made it challenging for the provider to arrange events such as breakfasts making the number of observed events fewer than expected. However, since this study is based on both interview and observation data, we believe that the findings are trustworthy. Since it was hard to foresee the number of people in the coworking space, the unstructured observations helped us capture many different scenarios with many and few members present. It is also worth mentioning that Sweden never introduced any rules regarding lockdown like other countries during the pandemic.

By using the approach of flexible pattern matching, the identified theoretical patterns emerged from the coworking literature. An alternative road could be to use another qualitative research method, such as grounded theory, and thoroughly explore what coworking members perceive as sustainable coworking. However, we recognize that the word sustainability is heavily connected to environmental sustainability, and we were interested in having a more holistic perspective. We thereby recognize that our approach can be considered reductive since productive behavior, prosocial behavior and responsible space sharing behavior are all based on the literature and influenced by the triple bottom line, but we saw a risk of being even more reductive and only focusing on environmental issues if a different approach had been used.

The coworking spaces that we have investigated consist of both private offices and open areas, and we understand that the dynamic would probably be different if there were no private offices like many other coworking spaces have. Furthermore, all data are gathered from interviews with members and observations in the Swedish coworking spaces. This means that there is potential for national bias due to selection of participants. For example, in 2023, Sweden was ranked second in the UN sustainable development report (Sachs *et al.*, 2023) and first in the global sustainable competitiveness index (Solability, 2022), indicating that, compared to other countries, citizens of Sweden may have a higher awareness of sustainability-related issues.

Regarding future work, it would be relevant to see similar studies in other countries and different coworking contexts where the culture is different. It would also be interesting to look deeper into contextual factors such as professional role, age, gender and coworking categorization to investigate if they have an impact on what is considered to be sustainable coworking behavior. We also see a need for developing our conceptual model by, for example, investigating the relationships between or within each construct. The conceptual model's validity could also be tested by performing different types of experiments and introducing interventions such as nudges in coworking spaces.

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