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Sustainability in coworking spaces: A study on the coworking member's perspective

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Sustainability in coworking space: A study on the coworking member's perspective

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Gothenburg, Sweden 2024

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Abstract

The sharing economy is a trend that enables people to better utilize underused resources. Coworking spaces are a relatively new concept that falls under the umbrella of the sharing economy and are often regarded as the new model of work. A coworking space is a subscription-based workspace where individuals and teams from different companies work in a shared communal space. As the popularity of coworking increases, researchers have started to focus more on sustainable coworking spaces. Sustainable coworking spaces are still in their infancy and have mostly incorporated the corporate level (i.e., coworking provider) perspective while neglecting the individual level (i.e., coworking members) perspective. Coworking members play an important role when it comes to creating more sustainable coworking spaces as a complement to the provider's efforts. Since there is an absence of literature that includes the coworking member's role in creating sustainable coworking spaces, the purpose of this thesis is to attain new knowledge of sustainability in coworking spaces with a specific focus on the coworking member's perspective.

This thesis builds on three scientific papers. The first paper conceptualizes what sustainable coworking behavior is. It defines it as behavior that simultaneously achieves the goals and objectives for the represented organization, benefits other individuals inside the coworking space, and responsibly shares the coworking space. The second paper focuses on developing a new scale for assessing sustainable coworking behavior. The third paper highlights the drivers of sustainable coworking behavior and specifically investigates the relationship between psychological ownership and sustainable coworking behavior. The findings add to the emerging field of coworking spaces through its unique focus on the perspective of the coworking member. From a practical point of view, this thesis can support the way coworking providers manage sustainable coworking spaces where the coworking member's behavior is considered.

Keywords: Coworking spaces, Sustainable coworking, Member perspective, Sustainable behavior, Scale development

List of Appended Papers

Paper I: Sustainable coworking: The member perspective

Daniel Magnusson, Hendry Raharjo & Petra Bosch-Sijtsema

This article has undergone several reviews and is published in the journal 'Journal of Corporate Real Estate'. The co-authors were part of all stages and helped both with the structure of the paper and revised some of the texts. An earlier version of the paper was presented at the third TWR conference and is available in the proceedings. Daniel Magnusson was the main author of this paper and planned, analyzed, and wrote the majority of the paper. Daniel also took the main responsibility for the revision process.

Paper II: Measuring sustainable coworking behavior: A scale development study

Daniel Magnusson, Hendry Raharjo & Petra Bosch-Sijtsema

This article is a working paper and is intended to be submitted to a peer-reviewed journal. Daniel Magnusson is the main author of this article and has drafted most of the manuscript. The manuscript has been continuously reviewed by both co-authors. The quantitative data analysis was performed jointly with Hendry Raharjo.

Paper III: What affects sustainable coworking? A psychological ownership perspective

Daniel Magnusson, Nika Dastoornikoo, Hendry Raharjo & Petra Bosch-Sijtsema

This paper is planned to be submitted as a conference article for the fourth TWR conference which will take place during the summer of 2024. So far, the abstract has been accepted. This paper is also not final, and the result of this paper relies on the outcomes from the second paper. The idea of this paper was developed from a master thesis done by Nika Dastoornikoo and supervised by Hendry Raharjo.

Acknowledgements

This licentiate thesis marks the halfway point of my doctoral studies. When I started this journey, I thought a PhD would be quite lonely and I would mostly sit at my desk conducting research. Obviously, I did not see this as particularly boring but what doing a PhD actually meant was so much more. So far, I have met a bunch of people that have made my journey utterly joyful, and I want to express my sincere gratitude to them.

First, I have had the honor to collaborate with my main supervisor Hendry Raharjo. Hendry, you have an eternal passion for research that is rarely seen, and it is incredibly contagious. Together we have sat down uncountable hours discussing my research and, without you, this thesis would not have been possible. Additionally, my co-supervisor, Petra Bosch-Sijtsema, has supported me a lot throughout my research journey and provided me with great feedback to become a better researcher. Petra has not only been my co-supervisor, but she is also co-author of all papers in this thesis. Thank you both very much for the supervision.

Second, being a PhD student is a challenging and stressful task, but it becomes easier with colleagues like those at the department of Technology Management and Economics. I would like to especially thank my dear friends Juan Pablo Castrellon, Dominika Klopotek, and Carolin Behrens for making every day at the office delightful and keeping up my spirit. Everyone would wish to surround themselves with people like you.

Third, my family and close friends are proud of my academic achievements and have constantly been supportive of my choice of becoming a PhD student at Chalmers. They also remind me of the importance of work-life balance to avoid being completely consumed by my doctoral life. However, no matter how many times I try to tell them, they will probably never completely know what I am working with. Anyway, I sincerely appreciate all their support.

Finally, I also want to thank the community managers of several coworking spaces throughout Gothenburg who have been involved in my research. Without your support, the data collection would look very different, and my research would have to take an alternative route. I am looking forward to more collaboration and conducting even more research in coworking spaces.

Daniel Magnusson, Uddevalla, 2024

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Introduction

The introductory chapter presents a background focusing on problematizing the lack of research on the role of the coworking member in the sustainability work of coworking spaces. Next, the chapter includes the purpose and research questions of the thesis which are derived from the background. In the end of the chapter, an outline of the thesis is provided.

Background

Digitalization and servitization are continuously transforming society. Within these trends, the rise of the collaborative and sharing economy is now accompanied by a debate regarding the range of their potential benefits in terms of economic growth and sustainable development (Dabbous & Tarhini, 2021). The sharing economy is a contested concept to the degree that a variety of concepts are used to refer to it such as collaborative consumption (Hamari et al., 2015), gig economy (Ravenelle, 2017), and platform economy (Kenney & Zysman, 2016). Examples of services that can be referred to the sharing economy are scooter sharing systems, carpools, shared homestays, and ride-hailing services.

Coworking spaces are also considered by many researchers to be an activity falling under the umbrella of the sharing economy (Bouncken & Reuschl, 2018). Coworking spaces are a relatively new workplace phenomena where knowledge workers unite in a shared space. Coworking spaces can be defined as *"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. Besides cost savings, coworking holds considerable promise such as flexible lease contracts (Appel-Meulenbroek et al., 2021), thriving communities (Spreitzer et al., 2015), and enhanced chance for collaboration (Orel & Alonso Almeida, 2019). To further emphasize what a coworking space entails, Figure 1 presents a visual representation.

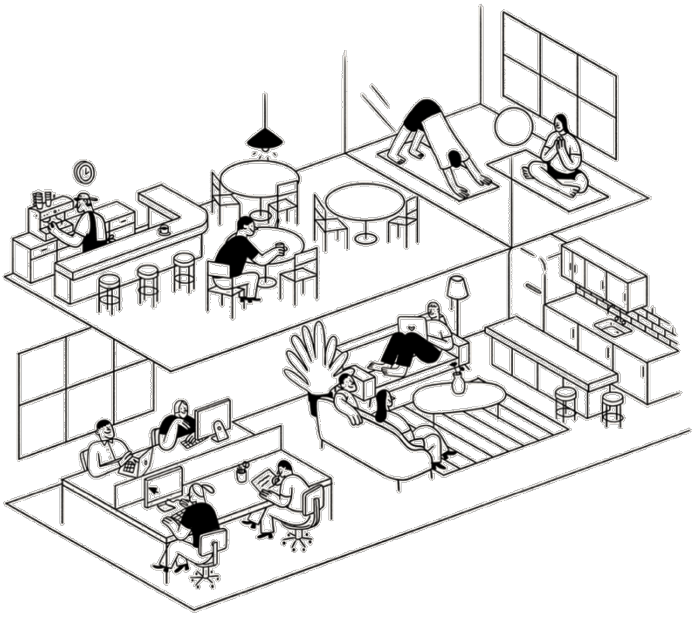

Figure 1. Visualization of a coworking space. Artwork by The Hoxton.

The first coworking space, the Spiral Muse Coworking group, started in San Francisco in 2005 and since then, the number of coworking spaces have rapidly increased (Spinuzzi, 2012). According to the latest published Global Coworking Survey, it is estimated that the number of coworking members has increased from 545 000 in 2015 to almost 1 700 000 at the end of 2018 (Deskmag, 2019). The same survey also forecasts that the number of members worldwide will increase steadily during the upcoming years and there is no sign of it becoming less popular anytime soon.

According to Bouncken & Reuschl (2018), coworking spaces have two main actors: the coworking provider and the coworking user. The coworking provider can include a coworking-space firm, a public institution, a university, or a company which runs the coworking space. The coworking provider's main goal is to supply a space that creates a satisfactory customer experience for the coworking user. To avoid confusion in this thesis, the coworking user is referred to as the coworking member. Coworking members are the primary customers of the coworking space. They often consist of a diverse group with different backgrounds and typically include entrepreneurs, freelancers, remote workers, and other independent or nontraditional workers who do not have their own dedicated office space (Gandini, 2015; Leclercq-Vandelannoitte & Isaac, 2016; Spinuzzi, 2012).

Promoters of coworking spaces often claim that sustainability is regarded as one of the coworking movement's core values (Spreitzer et al., 2015). Sustainability (also referred to as sustainable

development) is commonly defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987). Despite being a core value, research on sustainability in coworking spaces is still immature. For example, in recent reviews of coworking spaces (Gandini, 2015; Howell, 2022; Kraus et al., 2022), sustainability is hardly mentioned. As the popularity of coworking spaces is increasing, the concept of sustainable coworking spaces is slowly approaching the spotlight. It appears that few studies have investigated aspects of sustainability in coworking spaces, but they are generally based on the coworking providers' point of view. For example, Oswald & Zhao (2020) focus on sustainable business models that coworking providers can pursue, Carton et al. (2023) study how spatial practices in coworking spaces legitimize sustainability values, and Bouncken et al. (2023) investigate the effects of sustainability narratives in coworking spaces. Like these studies, most research on sustainability in workplaces is focused on top-level strategy. Lülfs and Hahn (2013) refer to this as an overall adoption of sustainability at *corporate* level.

However, sustainable workplace research has mostly neglected processes at the *individual* level (Afsar & Umrani, 2019; Davis & Challenger, 2013; Lülfs & Hahn, 2014). According to Daily et al. (2009), satisfactory performance at corporate level depends on contributions by individuals. Lamm et al. (2015) also mention that the effectiveness of organizational sustainability-oriented policies primarily depends on the support and contributions of the individuals. Furthermore, Oskamp (2000) highlights that focusing on human behavior is key for a sustainable future. In line with the complementing roles of the corporate and individual level, Grönroos and Voima (2013) have created a model that is referred to as value creation spheres. The model emphasizes the service eco-system between a firm (i.e., the coworking provider) and its customers (i.e., the coworking members) and how they create value together. In the model, the firm belongs to the provider sphere and is responsible for producing resources that the customer can use. In this way, the firm facilitates customers' value creation (Grönroos, 2011). By contrast, in the customer sphere, the customer creates value independently of the firm and no value is co-created. The final sphere, the joint sphere, is where the provider sphere and customer sphere overlap, and direct interaction happens. Value co-creation can only happen in the joint sphere.

Incorporating the individual level becomes especially relevant in shared services such as coworking since the coworking members are *both* using the coworking space as a customer and possibly having an effect on the customer experience for other members. For example, if a person becomes a member to break social isolation and becomes dissatisfied with the coworking service because other members are more focused on work rather than socializing. In this scenario, the less

socializing and interactive members hurt the experience for the new member while the provider has little power. This example illustrates the complexity of the service eco-system and value-creation process in a coworking space. Figure 2 visualizes and highlight the joint sphere between coworking members which is positioned outside the provider sphere. This means that the coworking member's behavior can be either instrumental or detrimental to the coworking provider's and other coworking member's efforts in creating sustainable coworking spaces.

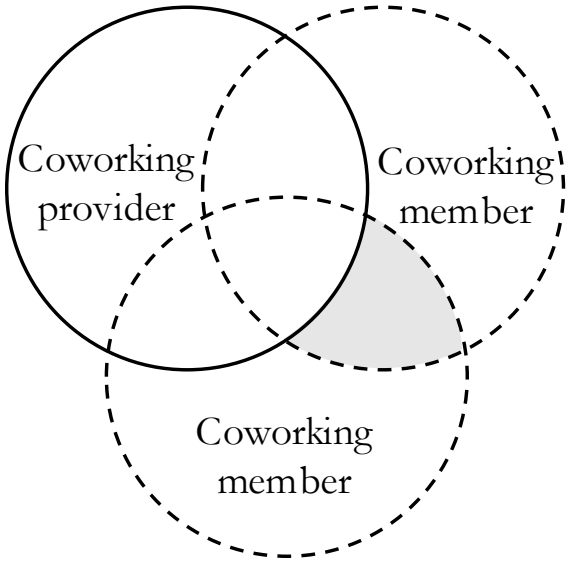

Figure 2. Example of value-creation spheres in a coworking setting.

Purpose

Based on the background, the unit of analysis for this thesis is the coworking member as an individual. Currently, there is an absence of literature focusing on the coworking members' perspective who presumably play a role in creating sustainable coworking spaces. Therefore, the purpose of this thesis is to attain new knowledge of sustainability in coworking spaces with a specific focus on the coworking member's perspective. By fulfilling the purpose, this thesis can yield theoretical and managerial implications such as expanding the current understanding of sustainable coworking spaces with the coworking members' point of view and emphasizing the importance of incorporating the coworking member in creating sustainable coworking spaces in the future.

Research questions

To fulfil the purpose of this research, three research questions are defined. Since little is known about sustainable coworking on the member's level, the first research question serves as an exploratory question. The first research question sets the stage for the upcoming questions by investigating what sustainable coworking entails from the member's perspective.

RQ1: What is sustainable coworking from the member's perspective?

With the guidance from answering RQ1, it is possible to operationalize and further understand sustainable coworking by developing relevant measurements. According to Spector (1992), a measurement cannot be developed to assess a concept unless the nature of that concept is clearly described. This provides a good reason for why RQ1 should be answered first. A quote commonly attributed to W. E. Deming is "*if you can't measure it, you can't manage it*". This quote emphasizes the importance of being able to measure the sustainable coworking concept (despite its fame, the quote seems to be a myth, but it still has a valid point). The measurement can help to evaluate the perception of how sustainable one coworking member is. Therefore, the next question is formulated as:

RQ2: How can sustainable coworking, from the member's perspective, be measured?

When sustainable coworking has been conceptualized (RQ1) and determined how it can be measured (RQ2), it is possible to conduct research to investigate what drives it. Presumably there are a lot of antecedents of sustainable coworking, but this thesis only concentrates on one: psychological ownership (see Frame of References for more details on psychological ownership). Psychological ownership has been found to positively influence individual behavior in other settings such as traditional workplaces and third places (Joo, 2020; Van Dyne & Pierce, 2004). Coworking spaces are inherently different compared to traditional workplaces and third places. Based on Oldenburg and Brissett's (1982) categorization of places, the first place is the home, second place is the workplace, and the third place can be described as out of the home and the office where people use to convene and socialize in a free, informal manner such as libraries, churches, and cafeterias. Morisson (2019) suggests that coworking spaces are neither second or third places, but a new way of working and sharing knowledge. Considering the unique context of coworking spaces, it is currently not known how psychological ownership of a coworking space affects coworking members. Therefore, the third and final research question is:

RQ3: Does psychological ownership of the coworking space influence sustainable coworking?

Structure of the thesis

The remainder of this thesis is outlined as follows. After the introduction, including a description of the purpose and research questions, the frame of reference is depicted, which primarily deepens the understanding of the frameworks and theories used in this thesis. This is followed by the methodology chapter, which outlines the overarching research approach, research designs and methods used. Additionally, the methodology chapter includes a discussion on research quality and ethics. The subsequent chapter provides brief descriptions of the appended papers. Next comes the discussions chapter, which addresses the research questions, followed by a conclusion including contributions and directions for future research. The three papers used as the basis for this thesis are appended at the end.

Frame of reference

This chapter begins by presenting a more detailed description of what coworking entails. The subsequent section focuses on describing what sustainable behavior is. Next, the chapter includes a description of psychological ownership and ends with a summary of how the frame relates to the research questions.

Coworking

This section first presents the current knowledge of sustainable coworking spaces and demonstrates the neglect of the coworking members' role. Next, the section shifts focus to the coworking member and attempts to portray who they are and why they want to be members of coworking spaces.

Sustainable coworking spaces

According to Bouncken & Reuschl (2018), coworking spaces fall under the concept of the sharing economy which means that coworking spaces enhance the capacity utilization and are beneficial for environmental sustainability. In general, services that can be connected to the sharing economy tend to be viewed as environmentally sustainable as they are considered more resource efficient. Another advantage of coworking spaces is that they have the ability to change the way people travel to work. Lejoux et al. (2017) identified coworking spaces as a potential solution for having more sustainable mobility in the future. Coworking spaces can also be perceived as optimal workplaces for supporting work-life balance (Orel, 2019). Furthermore, Gerdenitsch et al. (2016) found evidence that social support from coworking spaces have positive effects on the well-being of independent workers who would otherwise suffer from social isolation.

To analyze how to retain entrepreneurs in coworking spaces, Seo et al. (2017) conducted research on entrepreneurial sustainability in coworking spaces. They identified several success factors for coworking providers to achieve entrepreneurial sustainability for their members. For example, coworking providers should prioritize creating thriving communities, facilitating relationships, having a competitive price plan, and focusing on the interior design of the coworking space.

According to Oswald and Zhao (2020), it is important for coworking providers to consider their business model and their identity in regards of sustainability. They identified four different perspectives on what a sustainable coworking space is. Overall, the results highlight that it is important for coworking providers to focus on portraying themselves as environmentally friendly and creating thriving communities. In line with these findings, Bouncken et al. (2023), found that

coworking providers who expose sustainability in their manifestos, communities, and physical space are more likely to attract coworking members who are aware of sustainability issues. For example, the awareness and motivation of the coworking provider toward sustainability issues can greatly influence the community's view on sustainability. Another example is that the coworking provider can design a physical space that is eco-friendly by using sustainable materials, using energy efficient infrastructure, and reducing waste which might inspire the members to also be eco-friendly. Similar findings were made by Bouncken et al. (2022) who investigated how to create sustainable and ecological transformations in coworking spaces. They conclude that there are mainly five factors for this: socio-materiality (physical space), shared affiliations (physical space) social cocreation (community), green programs (community/manifesto), and green narratives (manifesto).

Overall, the current literature on sustainable coworking spaces seems to have some things in common. First, the literature focuses on issues that coworking spaces, as a concept, can potentially address such as improved resource utilization, more efficient transportation, and increased well-being of office workers. Second, the literature centers around factors that the coworking provider should focus on to create more sustainable coworking spaces. The contemporary research on sustainable coworking spaces seems to overlook what the coworking members can do to create sustainable coworking spaces.

Coworking members

Coworking members are customers of coworking spaces who experience the benefits that they provide. According to Howell (2022), there are three main benefits of working in a coworking space. The benefits are efficiency, flexibility, and legitimacy. Findings by Appel-Meulenbroek et al. (2021) also show that efficiency and flexibility are two of the primary motivations for becoming a coworking member. Coworking members can efficiently manage their workday by, for example, being in proximity to other members who can possibly help, being supported by coworking hosts, and having short travels to work. Concerning flexibility, coworking members tend to have short and flexible lease-contracts enabling them to quickly expand or scale down their business to meet the current demand (Spinuzzi, 2012). Regarding legitimacy, coworking spaces can help coworking members to appear more legitimate and professional (Howell, 2022). Rather than sitting in a home office, garage, or coffee shop, coworking members can host potential customers in a more professional setting. Therefore, it is important for coworking members to be able to convey a legitimate and professional identity (Bacevice & Spreitzer, 2023). In general, it seems like many coworking members' primary goal during the workday is to increase their level of efficiency and to

gain a competitive advantage (Bueno et al., 2018; Jakonen et al., 2017; Orel, 2019 Reuschke et al., 2021). Due to a high emphasis on efficiency, flexibility, and legitimacy in coworking spaces, Clifton et al. (2022) proposed productivity and income growth as the main outcomes of being a coworking member. The heavy focus on performance is logical because if a coworking member does not complete the work-related duties, it is not possible for them to financially sustain their business.

By contrast, there also seems to be a consensus in the coworking literature that the social aspect of working in coworking space is crucial (Endrissat & Leclerq-Vandelannoitte, 2021). According to Spretizer et al. (2015), people tend to join a coworking space because they want to experience a sense of community. Communities in coworking spaces provide a response to feelings of social isolation and insecurities which are especially common among self-employed people such as entrepreneurs, freelancers, remote workers (Gerdenitsch et al., 2016; Wright et al., 2022). To counteract social isolation, coworking members therefore often seek social interactions (Merkel, 2015). Besides social interactions, coworking members find the vibe or buzz of the coworking space as important to keep them motivated and energized (Bacevice & Spreitzer, 2023; Howell, 2022).

Besides the sense of community, coworking spaces also offer unprecedented opportunities for networking and collaboration just by being in physical proximity to other coworking members. For example, Waters-Lynch and Potts (2017) found 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. In line with the search for collaboration, Howell (2022) mention that coworking members, especially entrepreneurs, lack experience and knowledge to navigate the complexities of starting a new venture and therefore rely on the coworking community to provide solutions. Another example is given by Rese et al., (2022) who found that networking and establishing connections are important for coworking members and can act as a driver for creative performance among coworking members.

In summary, various reasons exist why people join a coworking space, and the members have different needs to be fulfilled. In an attempt to identify the needs for the coworking members, Rådman et al. (2022) empirically identified 21 needs and sorted them into five different categories. The categories are social needs, business networking, knowledge exchange, productivity, and physical well-being. How to fulfil the needs in a sustainable way has not been discussed and may require the coworking member to display sustainable behaviors.

Sustainable behavior

To create sustainable coworking spaces, it is important that the coworking members, on an individual level, display sustainable behaviors. Juárez-Nájera et al. (2010: p. 687) refer to 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.*".

Previous research has found that sustainable behaviors include at least five interconnected constructs. The five constructs are self-caring behaviors, altruistic behaviors, equitable behaviors, frugal behaviors, and pro-ecological behaviors (Corral-Verdugo, 2012; Corral-Verdugo et al., 2021; Tapia-Fonllem et al., 2013). Self-caring behaviors involve participation in activities that promote healthy functioning. Altruistic behaviors consist of prosocial behaviors (i.e., intent to benefit others) without the expectation of reciprocity. Equitable behaviors include actions that promote respect, fairness, and avoidance of discrimination. Frugal behaviors refer to actions characterized by responsible use of resources. Pro-ecological behaviors are actions directly intended to protect the natural environment. Furthermore, Corral-Verdugo et al. (2021) show 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 (altruistic and equitable behaviors), and the environment (frugal and pro-ecological behaviors) that is based on Schultz's (2001) view of environmental concern. Figure 3 illustrates a model of sustainable behaviors. This boils down to the fact that a sustainable person practices daily actions, with the simultaneous goal of benefiting their own interest, the interest of others, and the interest of the environment.

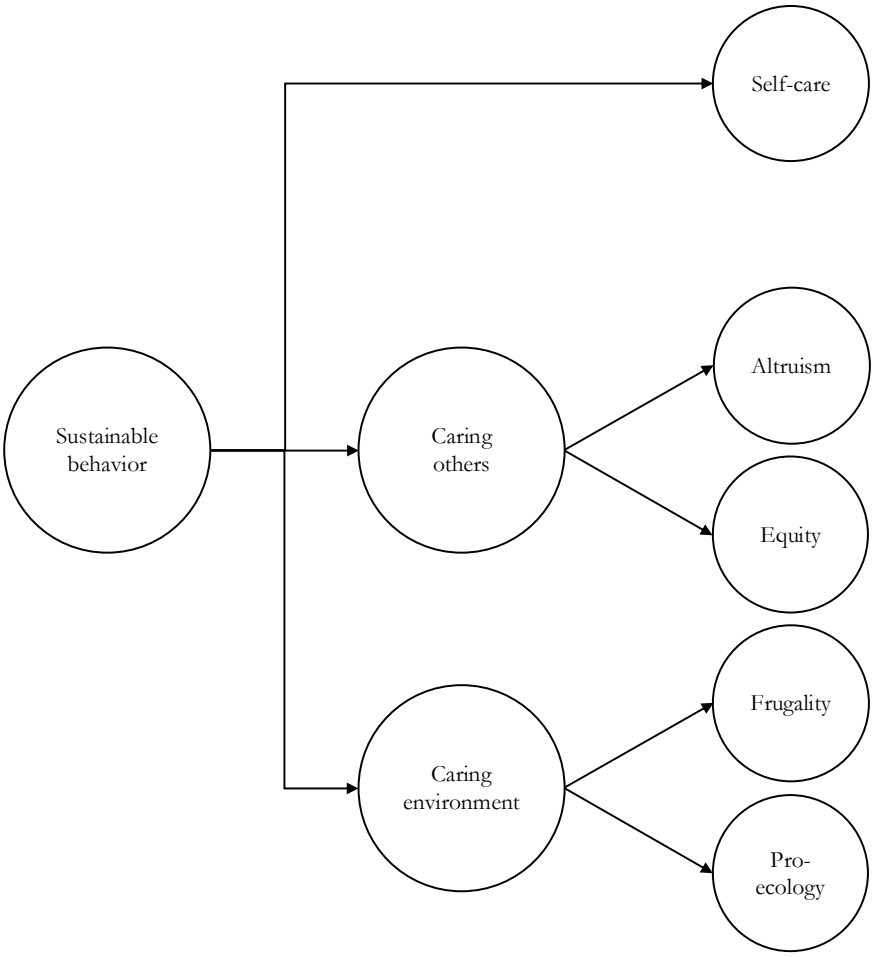

Figure 3. Model of sustainable behavior (Corral-Verdugo, 2021).

When analyzing the five constructs (self-care, altruism, equity, frugality, and pro-ecology) of sustainable behavior, it seems like they are primarily aimed to measure sustainable behavior in general life. For example, physical activity is an indicator of self-care that is usually connected to life outside of work, helping elders crossing the street and donating blood are indicators of altruism that does not usually occur during working hours, and buying products in refillable packages, which is an indicator of pro-ecological behavior, happens while shopping. Based on these indicators, it is evident that the view on sustainable behaviors by Corral-Verdugo et al. (2021) is primarily focused on general life and may therefore not be applicable in a coworking space context. Lülfs and Hahn (2014) call this individual sustainability in the private sphere.

Similar to this observation, Lülfs and Hahn (2014) also realized that a majority of studies in the fields sustainable and environmental psychology tend to focus on individual sustainability in the private sphere. They found that sustainability in the private sphere and sustainability in the business sphere (i.e., individual sustainability within organizations) has two main differences. First, acting sustainable in the private sphere usually has direct financial gains (e.g., conserving energy, or

recycling) while in the business sphere being sustainable usually benefits the organizations rather than directly benefitting the individual. Second, sustainable behaviors in the business sphere are heavily influenced by contextual factors such as organizational culture and organizational structure whereas sustainable behaviors in the private sphere are mainly influenced by personal values, beliefs, and norms. To account for the unique context of coworking spaces, there is a need for adapting the theoretical framework of sustainable behavior (Corral-Verdugo et al., 2021; Tapia-Fonllem et al., 2013) to a coworking space setting.

Psychological ownership

To understand what drives sustainable behavior, it is necessary to first know what drives certain behavior in general. There are several models that try to predict what drives certain behavior, such as the technology acceptance model (TAM) (Davis, 1989) and theory of planned behavior (TPB) (Ajzen, 1991). One thing that these models have in common is that attitude seems to be a predecessor to behavior. O'Driscoll et al. (2006) explain that forming close psychological connections with important entities such as the job can develop positive work attitudes. Pierce et al. (2001) refer to these connections as psychological ownership and mention that the positive work attitude is developed because the connections satisfy three basic needs: efficacy, self-identity, and having a place to dwell. Since psychological ownership seems to have a positive influence on work attitude which may positively affect sustainable behaviors, the concept becomes especially relevant to explore in a coworking setting.

In recent years, there has been an expansion of research linking psychological ownership with a plethora of desirable behaviors (Avey et al., 2009; Dawkins et al., 2017). Psychological ownership is often defined as "*a state in which individuals feel as though the target of ownership (material or immaterial in nature) or a piece of it is 'theirs' (i.e., 'it is MINE')"* (Pierce et al., 2001 p. 299). A descriptive example of psychological ownership is a person's favorite place in a café. The person does not own the place but feels that it is theirs. According to Pierce et al. (2001), the core of psychological ownership lies in the feeling of possessiveness and of being psychologically tied to an object. Pierce et al. (2003) proposed that psychological ownership towards an organization can be positively and negatively associated with individual attitudes and behaviors. They theorize that psychological ownership has a positive influence on citizenship behavior, personal sacrifice, experienced responsibility, and stewardship. In contrast, the presumed negative sides of psychological ownership are territoriality, deviance behavior, and resistance to change.

In line with these proposals, several studies have empirically investigated how individual psychological ownership towards an organization influences human behaviors. For example, prior studies have established positive associations among psychological ownership and prosocial behaviors such as organizational citizenship behavior, voice behavior, and helping behavior (e.g., Bernhard & O'Driscoll, 2011; Park et al., 2013; Ramos et al., 2014; Van Dyne & Pierce, 2004; Vandewalle et al., 1995). Furthermore, Zhang et al. (2021) found that employees with high levels of psychological ownership tend to perform well in organizations and Joo (2020) found that increased psychological ownership toward third places (i.e., library or café) typically lead to more sustainable businesses and increased customer loyalty. Overall, previous research provides adequate evidence that psychological ownership towards an organization, has many positive effects on employees' behavior. However, since coworking spaces are neither a traditional workplace nor a third place (Morrison, 2019), it is currently not known how psychological ownership affect coworking members.

Summary of frame of reference

Figure 4 provides an overview of how the frame of reference relates to the research question. Previous research on coworking members has mainly focused on describing the members in terms of needs, motivations, and preferences but not on how to behave in a coworking space. To create sustainable coworking spaces, it is relevant to understand what sustainable behaviors are in general and understand it from the coworking member's perspective (RQ1). When it is known what sustainable coworking behavior is on a conceptual level, to answer RQ2, the concept should be translated into measurable and quantifiable items which requires a sound understanding of scale development processes. Finally, to understand the connection between psychological ownership and sustainable coworking (RQ3), a firm understanding of the psychological ownership concept is needed.

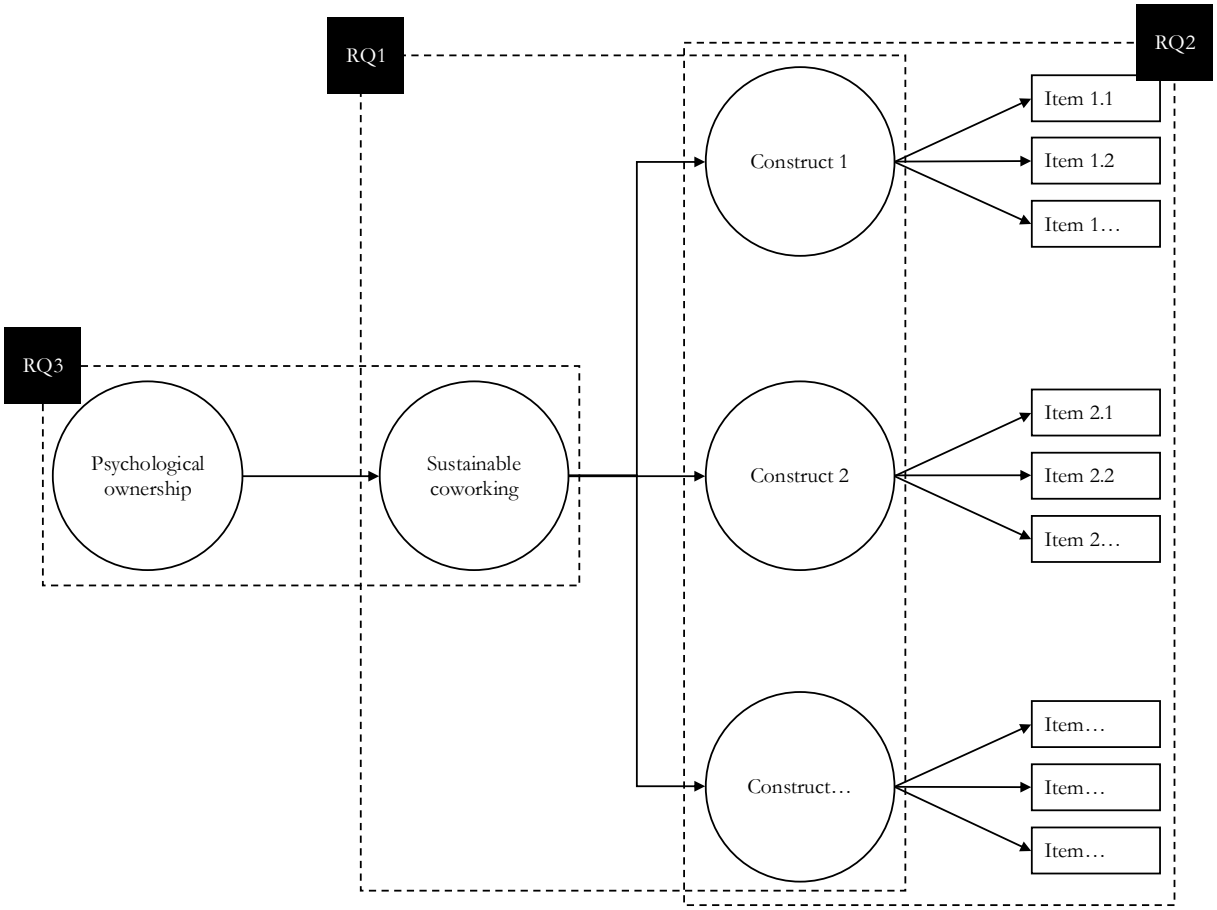

Figure 4. Overview of research questions.

Research methodology

This chapter describes the methodological approach of the research conducted for this thesis. It begins with a general overview of the research approach before presenting the research designs, methods, and analyses used to address the research questions. Lastly, research quality and ethical considerations are discussed.

Research approach

This thesis is composed of three different papers referred to as Paper I, Paper II, and Paper III. Table 1 includes an overview of the research approach employed and describes how each paper relates to the research questions, which research design was used, and how the data were collected and analyzed. There are two major approaches for how research can be conducted, they are known as qualitative and quantitative research (Bell et al., 2022). In this thesis, both qualitative and quantitative approaches have been used. A qualitative approach was used in Paper I and a quantitative approach was used in Paper II and Paper III.

Table 1. Overview of research methodology to answer each RQ.

RQ	Paper	Approach	Design	Data collection	Data analysis
1	I	Qualitative	Multiple-case study design	Interviews, Observations	Flexible pattern matching
2	II	Quantitative	Cross-sectional design (Scale development)	Questionnaire	ESEM
3	III	Quantitative	Cross-sectional design	Questionnaire	ESEM

Qualitative research is valued for its ability to provide a deep and nuanced understanding of complex phenomena (Hennink et al., 2020). Unlike quantitative research, which focuses on numerical data and statistical analysis, qualitative research employs methods to explore the richness of human experiences and social contexts (Flick, 2018). This approach allows researchers to uncover and interpret the meaning behind behaviors, attitudes, and perceptions. Qualitative research is particularly effective in studying subjective aspects, cultural influences, and the dynamics of social interactions. It enables researchers to capture the intricacies of real-life situations and generate insights that might be overlooked in quantitative studies (Maxwell, 2013). The idea of qualitative research fits well with the first research question, RQ1, since it is aimed to explore and understand what sustainable coworking is.

Quantitative research is highly regarded for its ability to provide objective, numerical data that allows for systematic analysis and generalization (Bell et al., 2022). By employing structured surveys, experiments, and statistical methods, quantitative research enables researchers to measure and quantify relationships between variables, establish patterns, and draw statistically significant conclusions (Bell et al., 2022). The numerical precision of quantitative data allows for testing of hypotheses and the formulation of precise predictions. This type of research is particularly valuable when seeking to identify relationships and patterns that can be expressed in numerical terms. As RQ2 focuses on assessments of sustainable coworking and RQ3 centers around the relationship between psychological ownership and sustainable coworking, it seems logical to have a quantitative approach during that stage of the research.

Research design

Two different research designs supported the processes of data collection: a multiple-case study and a cross-sectional design. In the upcoming sections, each research design used is thoroughly explained.

Multiple-case study

A case study normally takes a holistic perspective of a real-life problem and enables the researcher to study a contemporary phenomenon in depth (Yin 2014). Yin (2014, pp. 16) defines the scope of a case study as "*an empirical inquiry that investigates a contemporary phenomenon ('the case') in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident*". This quotation resembles the type of scope that could be used to answer RQ1. The selected method in Paper I was therefore a case study, since this was considered the best corresponding method for the particular problem where the aim was to understand what sustainable coworking is from the member's perspective.

Case studies generally focus on a particular question studied in its natural settings and therefore enable the researcher to facilitate the understanding of complex problems (Denscombe, 2017). The depth of analysis in a case study helps the researcher understand complex problems, but the findings can be questioned for to what degree they are generalizable to different settings and other circumstances (Denscombe, 2017). To counteract the issue of generalizability and provide a stronger base for theory building, several cases were included, i.e., a multiple-case study (Yin, 2014). Multiple-case studies are especially common when the interest lies in comparing the cases but, in this thesis, the reason was to collect diverse data to understand sustainable coworking on a more general level while also gaining more analytical power (Eisenhardt & Graebner, 2007).

In total, three coworking spaces located in Gothenburg were included. The cases were conveniently selected based on two criteria. First, the author of this thesis had full-time access to the three coworking spaces, allowing for rich data collection. Second, together, these three coworking spaces had a good mix of self-employed individuals, start-up companies, and larger companies as members, and offer both private offices and seating in an open office layout. This allowed for data collection on a wide variety of different types of coworking members. Table 2 presents the coworking spaces included in the multiple-case study and provides some information to portray a better understanding of each site.

Table 2. Information about cases included (as of year 2022).

Case	No. of members	Location	Price range	Type of member	Membership types	Other
1	~70	University campus	Mid	Self-employees, start-ups	Flexible space, private office	Focus on sustainability
2	> 500	City center	Mid-high	Start-ups, large companies	Lounge, flexible space, private office	Largest, have three different floors
3	< 50	City center	Mid-high	Self-employees, Start-ups, large companies	Flexible space, private office	High emphasis on mood and atmosphere

Cross-sectional design

According to Bell et al. (2022, p. 59), a cross-sectional design entails "*the collection of data on more than one case and at a single point in time in order to collect a body of quantitative and quantifiable data in connection with two or more variables, which are then examined to detect patterns of association*". Unlike experimental designs, cross-sectional designs do not involve the manipulation of variables but rather focus on observing and measuring the degree of association or correlation between them. Such a design was useful to provide answers for RQ2 and RQ3. To answer RQ3, the primary goal is to investigate whether changes in psychological ownership are systematically related to changes in sustainable coworking behavior. However, before exploring hypothesized relationships between psychological ownership and sustainable coworking behavior, a way to assess and quantify these two constructs is required (Bell et al., 2022). By understanding how to assess and quantify sustainable coworking behavior, an answer to RQ2 can be provided.

To assess or measure constructs, survey design is a crucial aspect of cross-sectional designs, involving the planning and structuring of a survey instrument to collect data from a sample of individuals or entities (Bell et al., 2022). The goal of a survey is to gather accurate and relevant information to address specific research questions or objectives. Surveys are especially suitable for scale development studies that most often use questionnaire data as primary data (Devellis & Thorpe, 2022).

Data collection and analysis

Multiple sources of empirical data were gathered and analyzed to support this thesis. These data collection techniques and analysis methods can be divided into qualitative data methods and quantitative data methods. Each method is explained below.

Qualitative data methods

Interviews

Interviews are especially attractive since they provide flexibility and enable researchers to receive an in-depth understanding of the subject from the interviewee's perspective (Bell et al., 2022). The main source of qualitative data came from semi-structured interviews with blended closed- and open-ended questions (Adams, 2015). Other potential options were focused and problem-centered interviews but the flexibility, yet structured way of the semi-structured interview was deemed superior to capture the participants insights (Flick, 2018). Interviews were in the local language, approximately 45 minutes, and an interview guide was followed which focused on elaborating on sustainable behaviors in coworking spaces. The interview guide contained open questions such "Please describe a productive day that you have experienced in the coworking space" and "What does responsible sharing of a space mean to you?". An alternative would be to directly ask "What is sustainable coworking to you?" but the word sustainability tends to be primarily linked to environmental aspects of sustainability and neglecting the social and economic perspectives.

The participants were coworking members of the three studied coworking spaces and the aim of the interviews was to gain an understanding of how they perceive sustainable coworking. The participants consisted of a wide range of self-employed individuals and employees of both start-up companies and larger companies who had been members for 1 month and up to 4 years. Some participants worked in private offices while some only had access to the flexible space. The interviewees also consisted of a diverse group including women and men working in different sectors belonging to various age groups. The wide range of participants made it possible to grasp

a broad view of sustainable coworking rather than a specific one from, for example, self-employed coworking members or new members. The full list of participants is shown in Table 3.

Table 3. List of participants.

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

To analyze the interview data, all records from the interviews were transcribed and thematically coded in the qualitative analysis software NVivo. The coding process followed recommendations of Gioia et al. (2012) and happened in four steps. First, an initial data coding was conducted where valuable quotes from the transcripts were highlighted. Second, the highlighted quotes were compiled into a compendium. This is referred to as first order data. Third, patterns in the first order data were analyzed and they were clustered around common themes. The themes are referred to as second order data. Fourth, the second order data were aggregated into dimensions. Together, the first order data, second order data, and aggregated dimensions formed a data structure. Using a systematic coding process helped to gain more qualitative rigor (Linneberg & Korsgaard, 2019).

Observations

As a complement to the interviews, observations were held, which allowed for direct observation of the coworking members' behavior instead of only having an inferred explanation of it (Bell et al. 2022). This helped to understand and interpret what was mentioned in the interviews on a deeper level. Two types of observations were conducted, one type was more structured than the other.

The less structured observations included sporadic visits to the coworking space. Unlike structured observations, these observations do not follow an approach of strictly observing predetermined behaviors, instead there are no predetermined notions as to the behaviors that might be observed (Mulhall, 2003). The observer (i.e., the author) worked in the coworking space as any other coworking member and carefully observed what happened. These observations occurred in different areas such as the lounge and other social areas, around the coffee machine, and in the silent zone. All these observations occurred during normal office hours (i.e., 07:00 – 18:00) to ensure that the observed behavior was representative of a common workday in the coworking space. An example of such observations was 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 example was that members tend to constantly sit scattered across the coworking space. These observations gave hints about the need for focus and not wanting to disturb other members. To reduce the risk of oblivion, field notes were continuously written after seeing or hearing something that was perceived as interesting by the observer (Clancey, 2006).

The more structured observations happened when the observer participated in recurring events organized in the coworking space. Examples of such events were member-breakfasts, community lunches, seminars, and company presentations. Compared to the less structured observations, these observations were particularly beneficial since the events occurred consistently and observations could be compared between each event. During the events, it was possible to see, for example, that the popularity of organized events differed drastically between coworking spaces and the willingness to socialize was strong among the people who actually joined the events. The observations also shed light on coworking members' tendency to socialize within their own organizations rather than talking to other members. A potential backside of these observations is that the active role of the observer might influence the behavior and cause bias through the Hawthorne effect (Flick, 2018).

According to Hair et al. (2019), one cannot overlook that observations are strongly related to individual characteristics of the observer such as imperfections in perception, emotional attitude,

and cognitive stereotypes. To counteract these risks and the Hawthorne effect, more than 1000 hours were spent in the coworking spaces, aligning with Guba and Lincoln's (1994) recommendation to spend a lot of time in the research context to increase trustworthiness. Furthermore, by using two types of observations and collecting rich amounts of qualitative data, the collected observational data was considered more representative of a coworking member's normal working day.

Flexible pattern matching

Flexible pattern matching includes iterative matching between theoretical patterns derived from literature and observed patterns emerging from empirical data (Sinkovics, 2018). In this thesis, the flexible pattern matching was performed in several stages as suggested by Bouncken et al. (2021a). First, coworking literature and literature on sustainable behavior were reviewed to identify theoretical patterns of what sustainable behavior in coworking spaces may constitute. Second, the empirical patterns from the multiple-case study were systematically coded and compared to the emerging theoretical patterns. Finally, the findings were interpreted. Figure 5 provides a graphical representation of the flexible pattern matching process.

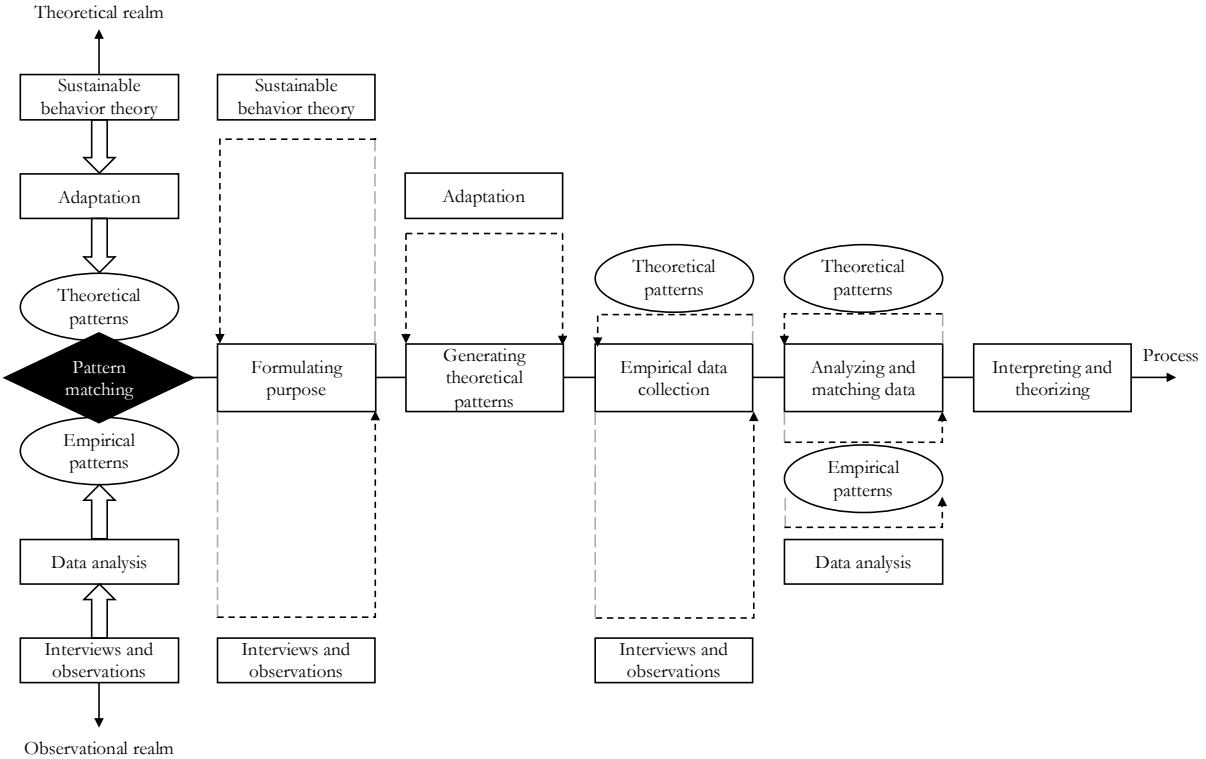

Figure 5. Flexible pattern matching.

Quantitative data methods

Scale development

According to Hinkin (1995), there are two basic approaches for developing scales: inductive or deductive approaches. The inductive approach is particularly useful when little theory can be used to clearly understand the studied constructs. The lack of theory makes it necessary to generate items or underlying constructs by asking a sample of respondents to provide descriptions relevant to the studied constructs. By contrast, the deductive approach requires a comprehensive review of related literature and a clear awareness of what the studied construct entails. Since sustainable coworking was conceptualized and understood based on the outcome of Paper I, the deductive approach was used to develop the scale for assessing sustainable coworking *behavior*. The scale development is based on a standard process (Churchill, 1979) which is visually represented in Figure 6.

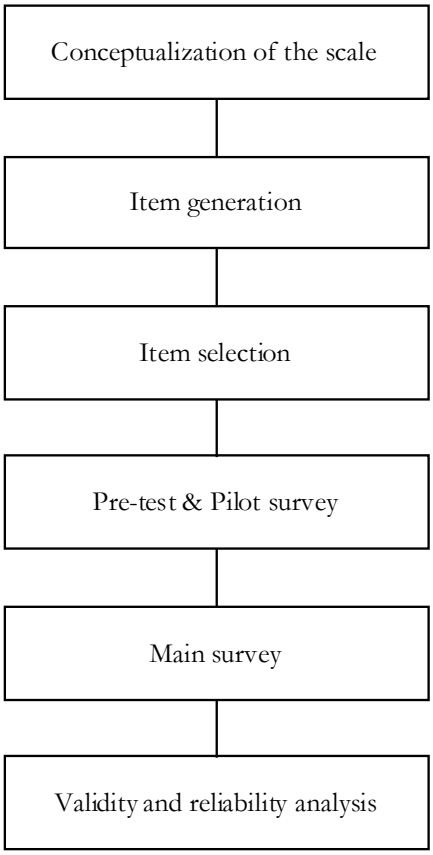

Figure 6. Survey development process.

Based on the conceptualization of sustainable coworking, the item generation process started. The initial item pool contained items from other literature, such as prosocial behavior (e.g., Podsakoff et al. 1990), pro-environmental behaviors (e.g., Robertson & Barling, 2013), and compassion (e.g., Pommier et al., 2020). Following Churchill's (1979) process, the initial pool was screened by

community managers, pre-tested and pilot tested to gain face validity and content validity, which is necessary for a rigorous measurement instrument. When the main survey had undergone all the testing, it was sent out to coworking members throughout Gothenburg. Since the scale developed for assessing sustainable coworking behavior borrowed questions from other contexts, most of them required rephrasing. To ensure that the new scale was valid and reliable, it was necessary to conduct further analysis.

Questionnaire

The final questionnaire was divided into three sections. In the first part, respondents were asked to provide some demographic information such as gender, age-group, which coworking space they belong to, and how long they had been a member. The second section in the questionnaire included an assessment of sustainable coworking behavior based on the conceptualization of sustainable coworking from Paper I and the initial steps from scale development process. These two parts of the questionnaire were used for Paper II. The third section included measurements of psychological ownership and was used, together with the first two parts, for Paper III. Van Dyne and Pierce (2004) have developed and validated a 7-item measure of psychological ownership, which has been recognized as the primary method of measuring psychological ownership (see Table 4). Out of these seven, four were deemed fitting for a coworking space setting and selected to be used in the survey. These four items were then rephrased to fit a coworking context. The respondents indicated their frequency or agreeableness with all items using a five-point Likert scale ranging from Never/Fully disagree (1), Seldom/Disagree (2), Sometimes/ Neutral (3), Often/Agree (4), Always/Fully agree (5). An option to answer 'Don't know' was also included as an option.

Table 4. Psychological ownership items (Van Dyne & Pierce, 2004).

Number	Item
1	This is MY organization (*)
2	I sense that this organization is OUR company
3	I feel a very high degree of personal ownership for this organization (*)
4	I sense that this is MY company
5	This is OUR company (*)
6	Most of the people that work for this organization feel as though they own the company
7	It is hard for me to think about this organization as MINE (*)

Note: The items marked with (*) were selected.

The questionnaire was sent out to members connected to a coworking provider who offers access to eight different coworking spaces located in Gothenburg. This specific coworking provider was purposely selected since it is one of the largest providers in the Gothenburg area and was willing to distribute the questionnaire. The main questionnaire was distributed via e-mail. In an attempt to increase the response rate, a monetary lottery incentive was added where the respondents had a small chance to win a voucher worth 100€ (Kalantar & Talley., 2009). A drawback of monetary incentives is that they might yield some bias with higher percentage of lower socioeconomic respondents, especially in vulnerable populations (Knoll et al., 2012). No questions were asked about socioeconomic background to control for this.

Exploratory structural equation modelling

Historically, the most common way of establishing validity and reliability when developing scales is the use of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). However, research has also shown that these analysis methods tend to give poor results when analyzing multidimensional constructs (Marsh et al., 2009). From the conceptualization of sustainable coworking, the evidence indicates that it is a multidimensional construct. To circumvent the restrictive assumptions of EFA and CFA, a relatively new analysis method known as exploratory structural equation modelling (ESEM) has emerged (Asparouhov & Muthén, 2009; Marsh et al., 2014; Morin et al., 2013). Furthermore, recent research provides an alternative to these models with the introduction of a so-called bifactor representation (Howard et al., 2018). To conduct proper analysis when working with ESEM and bifactor models, guidelines provided by Alamer (2022), Swami et al. (2023), and Cheung et al. (2023) were followed. The analyses were conducted in the software Mplus version 7.4.

To illustrate how CFA, ESEM, bifactor CFA, and bifactor ESEM differ, a visual example of the analysis methods is provided in Figure 7. All example models include three correlated factors (S1 to S3), each measured by a series of three items (X1 to X3; X4 to X6; X7 to X9). These factors are referred to as specific factors. The bifactor models also include a general factor (G) connected to all items. The large circles including labels represent latent variables, the squares represent the items, the smaller circles represent the items' uniqueness, the straight full arrows represent the main factor loadings, the curved full double-headed arrows represent covariances/correlations, the dashed straight single-headed arrows represent cross-loadings, and the curved dashed double-headed arrows represent the factor variance.

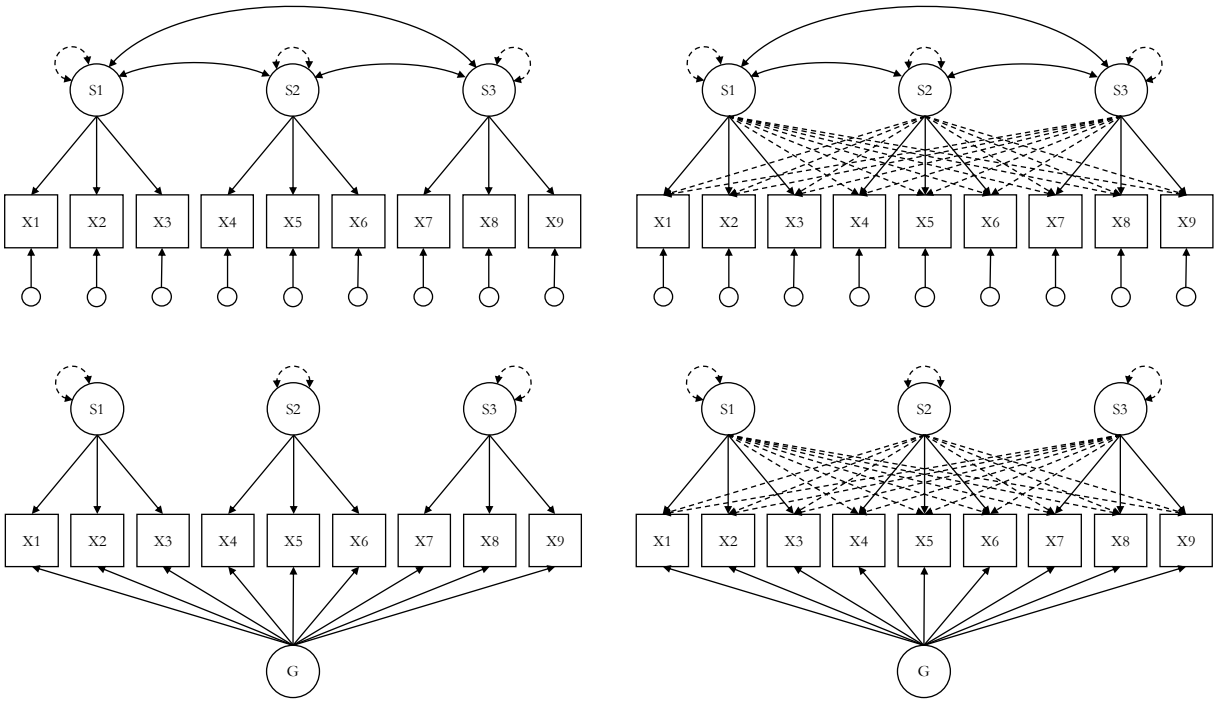

Figure 7. Visual example of CFA (top left), ESEM (top right), bifactor CFA (bottom left) and bifactor ESEM (bottom right).

In this thesis, the ESEM technique was used on two different occasions. First, based on the questionnaire data, ESEM was used to conduct the validity and reliability analysis for the scale development process. Second, also based on the questionnaire data, ESEM was used to investigate the relationships between psychological ownership and sustainable coworking behavior. The investigated relationships were based on the current understanding of psychological ownership and sustainable coworking behavior (consisting of prosocial behavior, responsible space sharing behavior, and productive behavior). The relationships are visualized in a proposed research model (see Figure 8) which served as a foundation for the following four hypotheses:

H1: Psychological ownership of a coworking space is positively associated with coworking members' prosocial behaviors.

H2: Psychological ownership of a coworking space is positively associated with coworking members' responsible space sharing behaviors.

H3: Psychological ownership of a coworking space is positively associated with coworking members' productive behaviors.

H4: Psychological ownership of a coworking space is positively associated with sustainable coworking behavior.

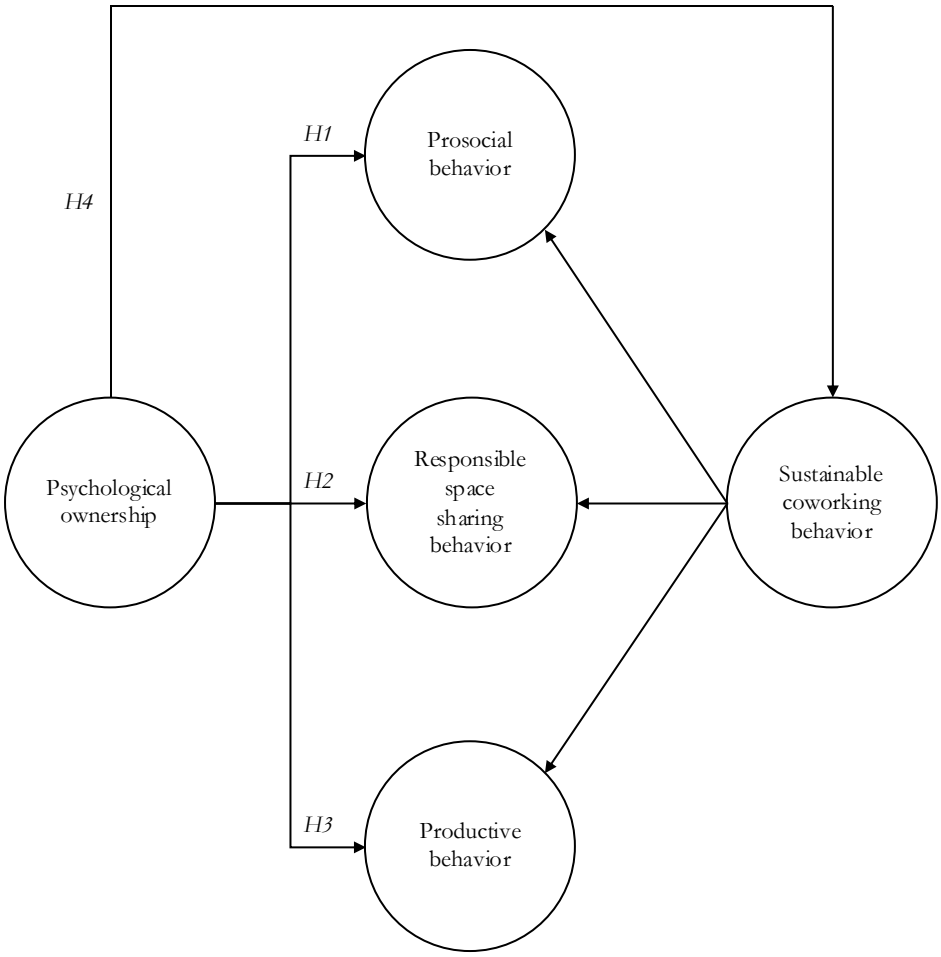

Figure 8. Proposed research model.

Overview of research designs and methods

The research designs and methods were conducted in a serial fashion. The multiple-case study helped answer RQ1 and conceptualize sustainable coworking. The conceptualization acted as the starting point for the cross-sectional design and enabled the development of a valid and reliable scale for assessing sustainable coworking behavior. This provided an answer to RQ2. When it was possible to assess sustainable coworking behavior, it was also possible to test hypotheses of how it correlates with other supposed drivers, such as psychological ownership. By analyzing the relationship between the two constructs, RQ3 was given an answer. An overview of the research designs used in this thesis is available in Figure 9.

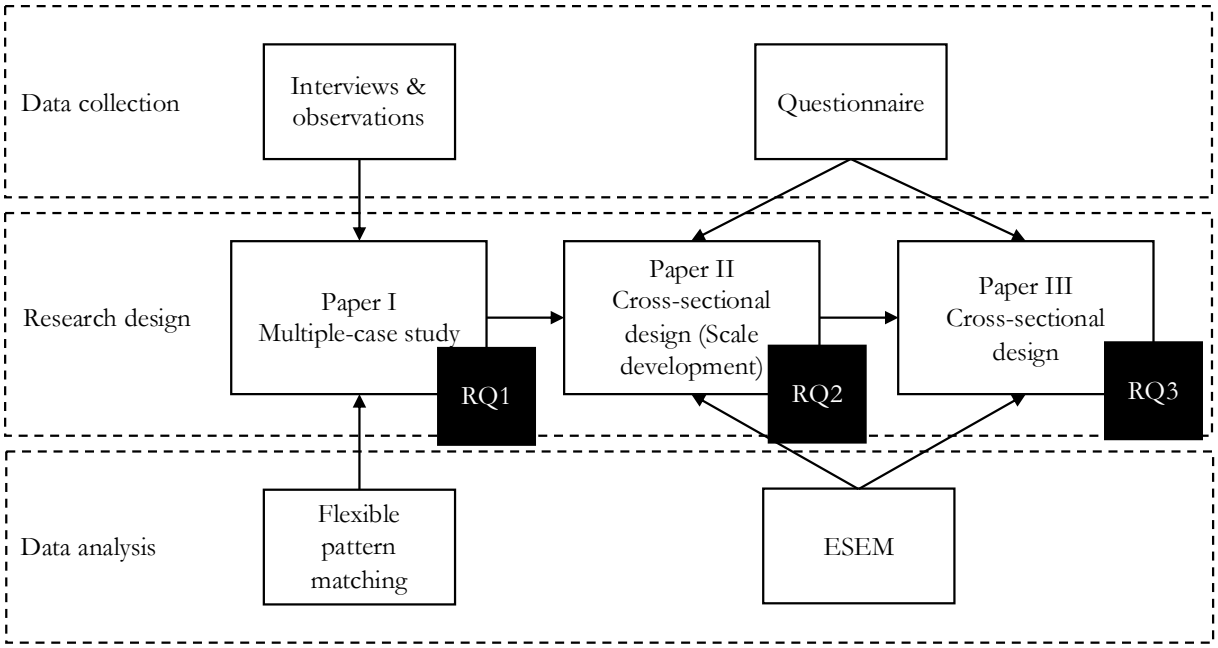

Figure 9. Overview of research designs and methods.

Research quality

There are several ways of assessing the quality of conducted research. For the purpose of this thesis, which uses both qualitative and quantitative research methods, Bell et al (2022) suggest looking at four criteria: reliability, validity, replicability and generalizability.

Reliability

Reliability refers to whether the results of a study are repeatable (Bell et al., 2022). This thesis has undergone a structured scale development process in order to ensure that assessments of all measurements are internally reliable. To assess reliability of the developed scale for sustainable coworking behavior, McDonald's (1970) model-based composite reliability (omega) was calculated. Omega was derived from the findings of the ESEM analysis (Morin et al. 2020; Tóth-Király et al. 2017). Compared to classical estimates of reliability (e.g., Cronbach's alpha), omega has the advantage of considering the relational strength between the items and the latent factors, as well as item-specific measurement errors (Dunn et al. 2014; McNeish, 2017; Sijtsma, 2009). Meanwhile, ensuring reliability in the qualitative approach was possible by, for example, consistently following the interview protocol, recording the interviews to avoid overlooking information, and structuring field notes as a project diary.

Validity

Since this thesis is mainly based on quantitative research, the primary focus for validity has been measurement validity, also known as construct validity. Construct validity refers to the issue of

whether or not an indicator that is devised to gauge a concept really measures that concept (Bell et al., 2022). To establish construct validity in this thesis, several types of validity were assessed. Face validity (i.e., the extent to which a test appears to measure what it is intended to measure (Hardesty, & Bearden, 2004)) was achieved via the pre-test and pilot testing. With the help from the conceptualization in Paper I, what sustainable coworking entails was established which provided a foundation for content validity (i.e., the extent to which a measure represents all facets of a given construct (Almanasreh et al., 2019)). Furthermore, convergent validity (i.e., the degree to which two measures that theoretically should be related, are in fact related) and discriminant validity (i.e., the degree to which two measures that are not supposed to be related are actually unrelated) were established via ESEM analysis by closely analyzing parameter estimates and model fit indices (Alamer & Marsh, 2022).

Replicability

Quantitative researchers in the social sciences often regard replication, or more precisely the ability to replicate, as an important ingredient of their activity (Bell et al., 2022). To ensure that this thesis possesses a sufficient level of replicability, all methods are described in a step-by-step manner. The thesis also relies on best-practices and recommendations that provide guidelines of how to report and conduct rigorous research (e.g., Alamer, 2022; Cheung et al., 2023; Gioia et al., 2012). When conducting the research, efforts have been made to avoid bias and subjectivity, while trying to be as transparent and objective as possible during interpretations.

Generalizability

Researchers are usually concerned to be able to say that the findings can be generalized beyond the confines of the particular context in which the research was conducted (Bell et al., 2022). This thesis has two primary data collection methods, the interviews, and the questionnaire. First, all participants in the interviews consisted of a diverse group of people. Second, the respondents of the questionnaire also represent a mixed group of coworking members. Despite trying to gather diverse data to have a representative sample, the sample size of the questionnaire is currently relatively low (n=69), which has its drawbacks on generalizability. Furthermore, all data are collected from coworking members in Gothenburg, located in Sweden that might have some national bias. For example, Sweden ranked number one in the Global Sustainable Competitiveness Index during 2023 (Solability, 2023), and presumably have a high awareness of sustainability questions compared to other countries.

Ethical considerations

Similar to research quality, Diener and Crandall (1978) discuss four ethical considerations that should be thought about when conducting social research. The four ethical considerations are: harm to participants, lack of informed consent, invasion of privacy, and deception.

Several actions have been taken to embrace ethical research. To ensure that all participants in the interview were correctly interpreted, all participants were informed that they have the opportunity to look at the transcriptions. All participants were also anonymized to avoid that any quote can be directly assigned to them and used against them. In line with this reasoning, all coworking providers in this thesis have also been anonymized. After the transcriptions were done and all required anonymization was completed, the recordings were recognized as redundant and were deleted. If not deleted, there is a slight risk that the recordings fall into the wrong hands.

In the questionnaire, the introductions clearly provide a confidentiality statement that states all respondents will remain anonymous. However, if the respondent wanted a chance to win a voucher worth 100€, serving as an incentive for more answers, they had to enter a contactable e-mail address. Before submitting an e-mail, the respondents were informed about potentially losing anonymity. The respondents also had a chance to opt out from the questionnaire in the beginning by answering if they really wanted to participate in the study. After receiving the data, all anonymized data were saved in spreadsheets and no IP-addresses were collected to further ensure anonymity. Ultimately, this thesis tries to avoid any type of deception. All raw data, anonymized, are available as supplementary material upon request.

Appended papers

The thesis includes three papers. This chapter summarizes each of these papers by presenting the purpose, methodology, findings, and contributions.

Paper I

Title: Sustainable coworking: the member perspective

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.

Methodology: 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 also uncovered a new layer of complexity where two members can show the same behavior and one of them is perceived as sustainable while the other is perceived as unsustainable.

Contribution: This study offers a more holistic understanding of sustainable coworking by highlighting the members' role and identifying different member perceptions on sustainable coworking. This article expands both literature on coworking by emphasizing sustainable coworking members and literature on sustainable behavior by contextualizing the concept to a new context. The extended understanding can be used by academics to delve deeper into the individual level of other shared services as well and improve the comprehension of such service eco-systems. The conceptualization can potentially act as a beginning for assessing sustainable coworking behavior. The findings can also be used by practitioners to start incorporating their members in their decision-making and try to somehow influence their behavior to become more sustainable and thereby creating sustainable coworking spaces in the future.

Paper II

Title: Measuring sustainable coworking behavior: A scale development study

Purpose: Research on member's behavior in supporting sustainability in a coworking space is scarce to non-existent. The absence of literature makes it difficult to determine whether one coworking member is behaving sustainably or not. Therefore, the purpose of this study is to develop an original, reliable, and valid measuring scale for sustainable coworking behavior (SCB).

Methodology: This paper follows a standard scale development process. Data were collected with a questionnaire from 69 coworking members in Gothenburg, Sweden. The data were analyzed using exploratory structural equation modelling (ESEM), a state-of-the-art statistical technique that is ideal for assessing multidimensional constructs.

Findings: Overall, this study finds empirical support for SCB being a reliable and valid scale consisting of three specific factors, namely, productive behavior, prosocial behavior, and responsible space sharing behavior, and a general factor. The final scale consists of 47 items.

Contribution: This is the first study to provide a comprehensive, psychometrically sound, and operationally valid measure of sustainability from the members' perspective in coworking spaces. The findings push the understanding of sustainable coworking spaces forward. Academics may use the scale as a measure for future studies and practitioners can use it to assess how sustainable their members are. The study also enables to quantitively determine antecedents and outcomes of sustainable coworking behavior.

Paper III

Title: What affects sustainable coworking? A psychological ownership perspective

Purpose: Previous research suggests that efforts from both the coworking provider and coworking member are necessary to achieve sustainable coworking. A sustainable coworking member is someone that simultaneously achieves the goals and objectives for the organization that they represent, benefits other individuals inside the coworking space, and responsibly shares the coworking space. To have more sustainable coworking spaces, it becomes interesting to investigate what drives coworking members to display sustainable behaviors. Therefore, this paper aims to explore the relationship between psychological ownership and sustainable behaviors in coworking spaces.

Methodology: By formulating and testing several hypotheses, this study attempts to reveal the influence of psychological ownership on sustainable coworking behavior. Data were collected by conducting a survey that was sent to members of coworking spaces in Sweden. The quantitative data were then analyzed with an exploratory structural equation model (ESEM).

Findings: The preliminary findings indicate that there is a positive relationship between psychological ownership of the coworking space and sustainable coworking behavior. Especially on behaviors that can be referred to as prosocial behaviors and responsible space sharing behaviors.

Contribution: From a managerial perspective, this paper highlights how the feeling of ownership can help coworking members behave more sustainably and support coworking providers in their sustainability work. From an academic perspective, this study is among the first to incorporate the psychological ownership concept in coworking spaces. Overall, the study show that psychological ownership is relevant and should be embraced in coworking settings to create sustainable coworking spaces. However, the article also shows that psychological ownership explains a relatively small amount of the variance in sustainable coworking behavior and there are presumably more potential drivers that can be investigated.

Discussion

This chapter discusses the results of the research conducted for this thesis and relates them to the research purpose and research questions. The purpose of this thesis was to attain new knowledge of sustainability in coworking spaces with a specific focus on the coworking member's perspective. Answers to the three research questions were needed to achieve that purpose and are addressed in the following three sections.

Sustainable coworking from the member's perspective (RQ1)

By using sustainable behaviors (Corral-Verdugo et al., 2021; Schultz, 2001; Tapia-Fonllem et al., 2013) as a basis for understanding sustainable coworking, this thesis had a theoretical foundation that could be adapted to the coworking space context. By analyzing the coworking literature, it was possible to gain a theoretical understanding of coworking members' general motivations, preferences, and needs (Appel-Meulenbroek et al., 2021; Howell, 2022; Rådman et al., 2022). Based on this, sustainable behaviors were adapted to sustainable *coworking* behaviors. The adaptation is presented in Table 5. With the adaptation, sustainable coworking behavior occurs when a coworking member portrays behavior that simultaneously (1) achieves the goals and objectives for the represented organization, (2) benefits other individuals inside the coworking space, and (3) responsibly shares the coworking space.

Table 5. Adaptation of sustainable behaviors to sustainable coworking behaviors.

Classification	Sustainable behavior	Sustainable coworking behavior
One-self	Self-caring behaviors	Productive behaviors
Other people	Altruistic behaviors Equitable behaviors	Prosocial behaviors
Environment	Frugal behaviors Pro-ecological behaviors	Responsible space sharing behaviors

From the multiple case-study, the empirical data provided a more concrete understanding of what coworking members perceive as sustainable coworking behaviors. With the flexible pattern matching process, evidence that there are 15 different underlying dimensions of sustainable coworking behavior were provided. Four related to productive behaviors, six related to prosocial behaviors, and five related to responsible space sharing behaviors. However, a closer look at all the dimensions introduces a new layer of complexity where two members can show the same behavior and one of them is perceived as sustainable while the other is perceived as unsustainable. Several

researchers have identified that coworking members come with different profiles that coexist in the same coworking space (Endrissat & Leclerq-Vadelannoitte, 2021; Orel & Bennis, 2021; Rådman et al., 2022). These different profiles seem to have different perceptions of what it means to portray sustainable coworking behavior.

The collected empirical data highlight three different perceptions of sustainable coworking behavior. Regarding productive behavior, the empirical data show that certain individuals prioritize remaining focused and adhering to tasks to achieve their professional goals or objectives, while other members prioritize generating new ideas and engaging in problem-solving activities. Two contrasting perceptions of prosocial behaviors were also identified. One group of coworking members, which is referred to as socially reactive, tend to show prosocial behaviors upon request. The contrasting group, the socially proactive, view the coworking space as a social hub and try to always be prosocial. The data uncover two different views of responsible space sharing as well. One group tends to strictly follow the outspoken rules, policies, and instructions in the coworking space and thereby consider themselves responsible. The other group focuses more on moral responsibility. They perceive that rules cannot be generalized to all situations and that one should rather make decisions based on their own judgement.

In an attempt to incorporate all the complexities of sustainable coworking behavior and provide an answer to RQ1: What is sustainable coworking from the member's perspective, a conceptual model was developed. The conceptual model is available in Figure 10 and includes the three constructs adapted from sustainable behaviors, i.e., productive behaviors, prosocial behaviors, and responsible space sharing as underlying constructs. The model also includes the empirically found 15 dimensions that can be connected to the underlying constructs. Finally, the model includes the different perceptions of sustainable coworking behavior.

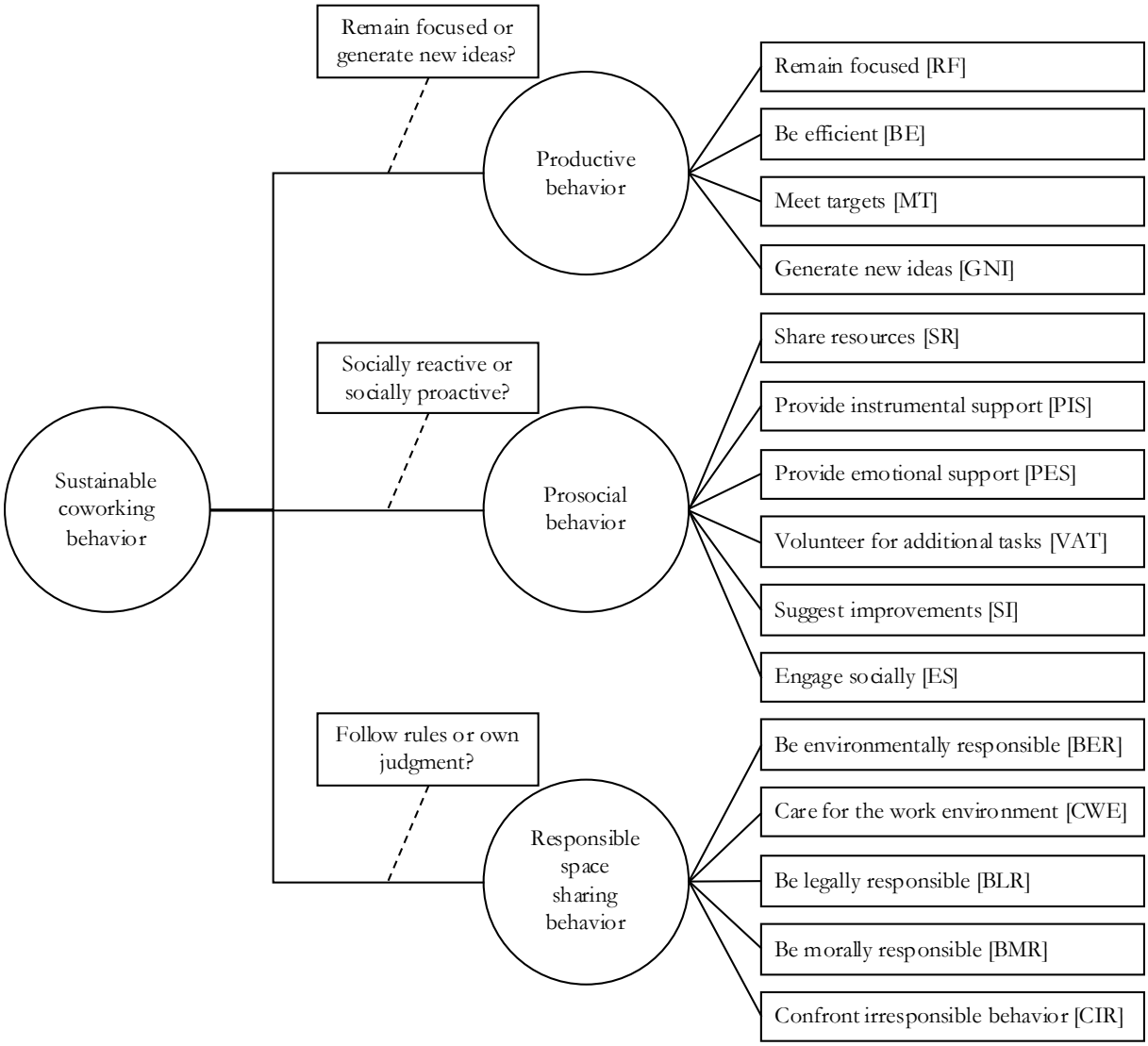

Figure 10. Conceptual model of sustainable coworking behavior.

Measuring sustainable coworking (RQ2)

By following a standard scale development process (Churchill, 1979), this thesis attempts to develop a comprehensive, psychometrically sound, and operationally valid measure of sustainable coworking from the members' perspective. The scale was tested to assess its validity and reliability. The initial scale consisting of 47 items is presented in Table 6.

Table 6. Initial scale for sustainable coworking behavior.

No.	Dimension	Item
1	RF1	In my coworking space, I can work without interruption
2	RF2	In my coworking space, I can work without being noticed
3	RF3	In my coworking space, I can concentrate while I work
4	BE1	In my coworking space, I can perform work of high quality
5	BE2	In my coworking space, I can complete tasks efficiently
6	BE3	In my coworking space, I can focus on core activities
7	MT1	In my coworking space, I meet formal short-term targets at my job
8	MT2	In my coworking space, I meet formal long-term targets at my job
9	MT3	In my coworking space, I progress towards formal targets of my job
10	GNI1	In my coworking space, I can create new ideas
11	GNI2	In my coworking space, I can think outside the box
12	GNI3	In my coworking space, I can become inspired
13	SR1	I keep other members updated with important information
14	SR2	I share experiences that may help other members avoid risks and trouble
15	SR3	I share my possessions with other members
16	PIS1	I willingly help other members who have work-related problems
17	PIS2	I help other members who have heavy workloads
18	PIS3	I help other members who have been absent
19	PES1	If I see another member going through a difficult time, I try to be caring towards that person
20	PES2	I like to be there for other members in times of difficulty
21	PES3	I take time to listen to other members' problems and worries
22	VAT1	I voluntarily arrange things not required for my work
23	VAT2	I attend functions not required for my work
24	VAT3	I say positive things about this coworking space to others
25	SI1	I make constructive suggestions to this coworking space on how to improve its service
26	SI2	If I notice a problem, I inform the coworking host(s) even if it does not affect me
27	SI3	If an employee of this coworking space gives me good service, I let them know
28	ES1	I share content with other members on the coworking space's online platforms
29	ES2	I take a personal interest in other members
30	ES3	I introduce new members to each other
31	ES4	I orient new members
32	BER1	I use the coworking space's utensils sparingly
33	BER2	I recycle my trash
34	BER3	I discuss environmental issues with other members
35	CWE1	I try to help keep this coworking space clean
36	CWE2	I conserve and protect the property of this coworking space
37	CWE3	I am aware of how much noise I make in this coworking space
38	CWE4	I am aware if I invade other members' workspace
39	BLR1	I obey this coworking space's rules and policies even when no one is watching
40	BLR2	I protect my sensitive information from being used by other members
41	BLR3	I carefully observe the rules and policies of this coworking space
42	BMR1	I am mindful of how my behavior affects other members' job
43	BMR2	I adhere to informal rules devised to maintain order
44	BMR3	I try to avoid creating problems for other members
45	CIR1	I speak up and encourage other members to get involved in issues that affect the community
46	CIR2	I challenge other members If I think something is done wrong
47	CIR3	I tell the coworking host(s) if I see something that is done wrong

The validity and reliability assessment of the scale were based on 69 responses from coworking members in Gothenburg. In total, four different models were tested, CFA, ESEM, bifactor CFA, and bifactor ESEM. All models were analyzed in the software Mplus version 7.4 using a weighted least square estimator (WLSMV) and an oblique target rotation method. When analyzing the model fit, it is possible to see that bifactor ESEM provides the best fit among four different model that were tested. To be acceptable, comparative fit index (CFI) should be above 0.9, Tucker-Lewis index (TLI) should also be above 0.9, and root mean square error of approximation (RMSEA) should be less than 0.08 (Hu & Bentler, 1999). See Table 7 for all reported values of all four tested models.

Table 7. Goodness-of-fit indices.

Model	χ^2	***p***	***df***	**CFI**	**TLI**	**RMSEA**	**90 % CI for RMSEA**
CFA	1471	<0.001	1031	0.772	0.761	0.079	[0.069, 0.088]
ESEM	1098	<0.001	943	0.920	0.908	0.049	[0.034, 0.061]
Bifactor CFA	1198	<0.001	987	0.891	0.880	0.056	[0.043, 0.067]
Bifactor ESEM	1006	0.007	899	0.945	0.933	0.042	[0.023, 0.055]

An acceptable model fit is crucial, but validity should not be solely based on fit indices. Examination of parameter estimates (e.g., factor loadings, cross-loadings, and interfactor correlations) may reveal additional valuable information (Marsh et al. 2004; Morin et al. 2016). ESEM and CFA are different and therefore the assessment of validity is different too (Morin et al., 2020). Discriminant validity of ESEM is established when items load well onto their target and do not cross-load substantially on other factors (Alamer & Marsh, 2022). For ESEM, high loadings are usually considered satisfactory if they are 0.3 or higher (Alamer, 2022). Discriminant validity can be further supported if ESEM shows modest factor correlations compared to inflated correlations in the CFA. To establish convergent validity of ESEM, Alamer and Marsh (2022) recommend analyzing the size of target loadings. The target loadings should be significant and stronger than their cross-loadings. For bifactor ESEM, the target loading to the specific factor or the general factor should be significant and stronger than other cross-loadings (Morin et al., 2020).

To assess the validity of the scale, the standardized target loadings and cross-loadings of the CFA and ESEM were initially observed (see Table 8). Table 8 include all target loadings and cross-loadings for each model. To separate the target loadings and cross-loadings for both the ESEM models, the target loadings are marked in bolded text. For example, in the CFA, the item RF1 (in my coworking space, I can work without interruption (see Table 6)) loads 0.607 on the specific factor (SF) productive behavior (PROD) and have no cross-loadings since those are not allowed

in CFA. In the bifactor ESEM, the item RF1 have a target loading of 0.730 towards PROD, cross-loads 0.114 to prosocial behavior (PROS), and -0.056 to responsible space sharing behavior (RESP) while also loading towards the general factor (GF) of -0.418. Based on the assessment of parameter estimates, it is problematic to justify CFA and ESEM as good models for SCB and neither of these models were therefore retained. According to Alamer (2022,), if the ESEM performs better than the CFA, the next step is to focus on the bifactor ESEM and there is no need for further inspection of the bifactor CFA.

By inspecting the parameter estimates of the bifactor ESEM, several noteworthy observations can be made. First, items with low and non-significant loadings such as VAT1 and BER3 are subjects for potential elimination. ES1 may also be subject for elimination as it loads weakly on its specific factor and the general factor. Second, items related to GNI, PIS, and PES seem to cross-load strongly to the general factor. This can act as a reason for incorporating more constructs such as 'creativity' and 'support' into the model. Third, SI2, SI3, and CIR2 cross-load significantly higher towards other specific factors. This finding indicates that these items can potentially be reassigned to another specific factor. To summarize, the inspection of parameter estimates reveals that, in general, the validity of the bifactor model seems good but it can be further improved.

To assess reliability, McDonald's (1970) model-based composite reliability (omega) was calculated. A common threshold for omega is 0.7, but reliability estimates for bifactor models tend to be smaller and values of 0.5 or more can be acceptable (Morin et al., 2020). Omega (ω) for each construct and model are presented in Table 8. All models seem to include constructs with reliable items.

Overall, the model fit and reliability of the bifactor ESEM are acceptable, but the validity shows some weakness and can be improved. As mentioned in the list of appended papers, Paper II is still a work in progress and there are still improvements that can be made to the initial scale. In its current form, this thesis has developed a scale for assessing sustainable coworking which serves as an answer for RQ2: How can sustainable coworking behavior be assessed?

Table 8. Standardized factor loadings.

	CFA	**ESEM**			**Bifactor CFA**		**Bifactor ESEM**			
	SF	PROD	PROS	RESP	SF	GF	PROD	PROS	RESP	GF
RF1	.607	**.766**	-.386	-.050	.791	.112	**.730**	.114	-.056	**-.418**
RF2	.676	**.937**	-.253	-.318	.914	.046	**.928**	-.004	-.315	**-.257**
RF3	.634	**.818**	-.185	-.189	.777	.151	**.804**	.039	-.191	**-.188**
BE1	.730	**.726**	-.003	.058	.582	.477	**.739**	.026	.039	**.060**

BE2	.769	**.825**	-.108	.001	.737	.388	**.837**	-.004	-.011	**-.044**
BE3	.734	**.686**	-.141	.168	.618	.459	**.663**	.231	.135	**-.153**
MT1	.803	**.812**	-.028	.123	.686	.532	**.811**	-.143	.150	**.115**
MT2	.765	**.683**	.164	.078	.470	.582	**.669**	-.122	.114	**.300**
MT3	.870	**.770**	.231	.077	.481	.699	**.748**	-.127	.115	**.378**
GNI1	.751	**.497**	.491	.089	.085	.779	**.473**	-.087	.114	**.631**
GNI2	.701	**.453**	.634	.025	.021	.796	**.425**	.040	.035	**.718**
GNI3	.552	**.219**	.315	.350	-.021	.670	**.201**	.131	.337	**.376**
ω	*.928*	*.918*			*.830*		*.913*			
SR1	.661	.203	**.638**	-.080	.562	.343	.158	**.413**	-.142	**.512**
SR2	.687	.178	**.657**	.063	.587	.356	-.047	**.620**	-.026	**.452**
SR3	.694	-.013	**.590**	.160	.503	.450	.060	**.441**	.093	**.477**
PIS1	.714	.182	**.772**	-.099	.778	.151	-.028	**.130**	-.130	**.775**
PIS2	.627	-.074	**.723**	-.101	.753	.036	-.129	**-.075**	-.073	**.777**
PIS3	.647	.071	**.775**	-.223	.807	-.019	-.070	**-.130**	-.218	**.839**
PES1	.889	.059	**.862**	.037	.770	.452	.096	**.391**	-.032	**.792**
PES2	.828	-.039	**.736**	.277	.638	.516	-.008	**.333**	.214	**.717**
PES3	.813	.136	**.804**	.048	.709	.411	-.016	**.568**	-.041	**.633**
VAT1	.142	-.150	**.317**	-.267	.358	-.153	-.077	**.147**	-.283	**.230**
VAT2	.498	.172	**.551**	-.070	.506	.186	.036	**.084**	-.090	**.571**
VAT3	.586	.116	**.509**	.105	.400	.406	.085	**.451**	.025	**.383**
SI1	.280	.115	**.331**	-.013	.295	.080	-.118	**.316**	-.059	**.212**
SI2	.478	-.048	**.112**	.435	-.066	.644	.138	**.399**	.404	**.039**
SI3	.474	-.032	**.129**	.522	-.017	.586	.055	**.297**	.475	**.114**
ES1	.099	.106	**.421**	-.638	.464	-.325	.065	**.285**	-.649	**.211**
ES2	.436	-.056	**.507**	-.079	.488	.088	-.073	**.341**	-.134	**.379**
ES3	.627	.053	**.669**	-.033	.621	.222	-.116	**.546**	-.093	**.475**
ES4	.703	.064	**.589**	.329	.433	.574	-.022	**.509**	.251	**.473**
ω	*.909*		*.904*		*.875*			*.693*		
BER1	.420	.024	-.047	**.353**	.404	.241	.127	-.120	**.355**	**.079**
BER2	.398	.197	.076	**.414**	.350	.262	-.044	-.020	**.401**	**.171**
BER3	.131	.005	.365	**-.170**	-.134	.145	.041	.188	**-.199**	**.290**
CWE1	.472	.095	.028	**.406**	.315	.320	.030	.282	**.371**	**-.015**
CWE2	.896	-.057	-.071	**.806**	.622	.639	.217	-.035	**.790**	**.106**
CWE3	.534	-.169	.064	**.360**	.235	.408	.149	.246	**.323**	**.048**
CWE4	.613	-.142	.029	**.636**	.502	.416	.042	-.152	**.617**	**.240**
BLR1	.918	.113	-.061	**.820**	.653	.653	.203	-.007	**.794**	**.111**
BLR2	.759	.002	-.094	**.884**	.737	.445	-.042	-.161	**.886**	**.137**
BLR3	.675	.032	.082	**.591**	.502	.463	.107	-.032	**.568**	**.234**
BMR1	.700	-.060	.176*	**.636**	.345	.598	-058	.093	**.611**	**.281**
BMR2	.321	.026	-.150	**.450**	.486	.132	-.018	.205	**.469**	**.009**
BMR3	.494	.106	-.188	**.522**	.415	.339	.123	.025	**.526**	**-.111**
CIR1	.512	-.082	.250	**.512**	.205	.433	-.180	.251	**.479**	**.240**
CIR2	.415	.205	.470	**-.009**	-.312	.515	.123	.486	**-.078**	**.311**
CIR3	.682	.075	-.002	**.671**	.308	.606	.024	.474	**.649**	**-.097**
ω	*.885*			*.850*	*.711*				*.837*	

Influence of psychological ownership on sustainable coworking (RQ3)

From the collected questionnaire data, it was possible to provide an answer to RQ3: How does psychological ownership influence sustainable coworking behavior. In total, 69 questionnaires were

completed by coworking members in Gothenburg which acted as the base for testing the formulated hypotheses previously presented in the research methodology section. Since the best model fit was given by a bifactor ESEM in the scale development process, a bifactor ESEM model was immediately used to test the model hypotheses. The overall acceptable model fit indices for the bifactor ESEM are available in Table 9 and results of the hypothesis testing are available in Figure 11.

Table 9. Fit indices for tested structural model.

Fit index	Results	Acceptable values
χ^2	1224	
Degree of freedom (*df*)	1085	
Comparative fit index (*CFI*)	0.931	≥0.9
Tucker-Lewis index (*TLI*)	0.919	≥0.9
Root mean square error of approximation (RMSEA)	0.043 [0.028 – 0.055]	≤0.08

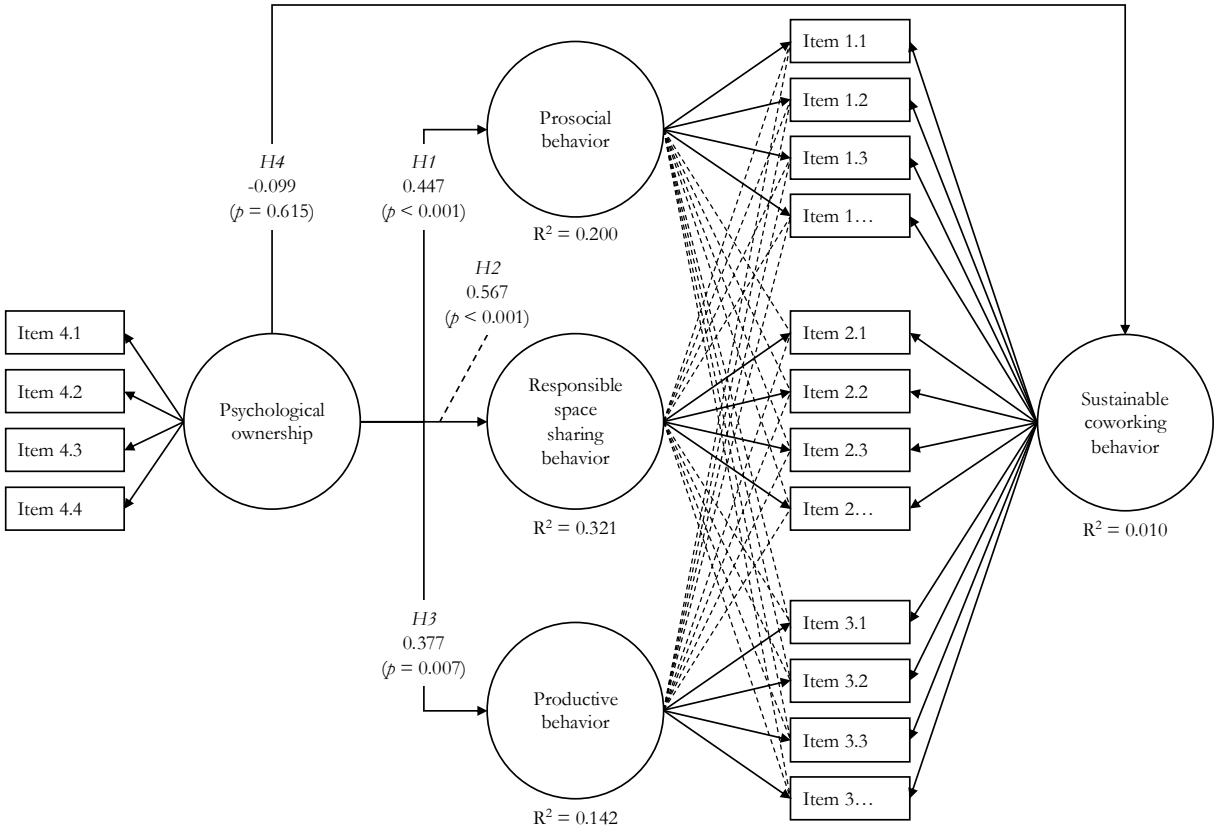

Figure 11. Results from structural model.

The structural model can significantly confirm that psychological ownership seems to have a positive effect on prosocial behavior (H1), responsible space sharing behavior (H2) and productive behaviors (H3). This confirms the theoretical reasoning that psychological ownership is associated with many desirable behaviors and adds sustainable coworking behavior to the list (Pierce et al., 2003). The results also show that psychological ownership has the highest influence on responsible space sharing which also aligns well with prior research. The last hypothesis, H4 is not supported as the p-value is considerably higher than the commonly suggested threshold of 0.05. Overall, the estimates of R^2 show that psychological ownership explains 32% of the variation in responsible space sharing behavior, 20% in prosocial behavior, and 14% in productive behavior. In this thesis, productive behaviors, prosocial behaviors, and responsible space sharing behaviors are considered to be underlying constructs of sustainable coworking behavior. Therefore, based on the structural model, it is possible to say that psychological ownership has a positive influence on sustainable coworking behavior.

New knowledge of sustainability in coworking spaces

Overall, this thesis has successfully answered the purpose by answering all three research questions. Previously, it was acknowledged that most contemporary research on workplaces were focused on the corporate level while neglecting the individual level (Afsar & Umrani, 2019; Davis & Challenger, 2013; Lülfs & Hahn, 2014). Since coworking spaces have a relatively complex value creation process (Grönroos & Voima, 2013) between the coworking provider and the coworking members, it was deemed necessary to conduct research that focuses on the coworking member (i.e., the individual level). With this thesis, new knowledge has been attained that highlights the importance of the coworking members' role in creating sustainable coworking spaces. The knowledge mainly revolves around three areas, conceptualization of sustainable behavior in coworking spaces, measurement of sustainable coworking behavior, and the influence of psychological ownership on sustainable coworking behavior.

First, by providing a conceptual model of sustainable coworking behavior this thesis unveils what it means to be a sustainable coworking member. The conceptual model uses an adapted version of the concept of sustainable behaviors (Corral-Verdugo et al., 2021; Tapia-Fonllem et al., 2013) that is referred to as sustainable coworking behavior that is more suitable for a coworking context. It thereby expands the current knowledge of what it means to act sustainably in a new setting. Sustainable coworking behavior is defined as behavior that simultaneously (1) achieves the goals and objectives for the represented organization, (2) benefits other individuals inside the coworking space, and (3) responsibly shares the coworking space. The conceptual model also sheds light on

the complexity of sustainable coworking behavior where the findings show that it depends on several different perceptions of how to be a sustainable coworking member. This new understanding further illustrates the challenge of creating value in the coworking service eco-system and ultimately creating sustainable coworking spaces.

Second, this thesis provides a deeper understanding of how sustainable coworking behavior can be quantified and measured. The development of a measurement scale was possible by borrowing and reformulating items that fit well with the conceptualization of sustainable coworking behavior such as prosocial behavior (e.g., Podsakoff et al. 1990), pro-environmental behaviors (e.g., Robertson & Barling, 2013), and compassion (e.g., Pommier et al., 2020). With the new multidimensional 47-items scale, new knowledge of how to assess sustainable coworking behavior has been attained which can be used to further understand how to sustainably develop coworking spaces.

Third, this thesis portrays what drives sustainable coworking behavior and identified a positive relationship with psychological ownership. The structural model results show that attitude serves as an antecedent of behavior as suggested by earlier well-established models such as TAM (Davis, 1989) and TPB (Ajzen, 1991). This relationship had been proven in other contexts such as traditional workplaces (Zhang et al., 2021) and third places (Joo, 2020) but, from this thesis, new knowledge has been attained about certain effects of psychological ownerships in a coworking setting. Overall, this newly attained knowledge has several contributions that can be used by both scholars and practitioners which are presented in the next chapter.

Concluding remarks

This chapter wraps up the thesis with a conclusion including contributions and directions for future research.

Contributions

By answering the three research questions and thereby fulfilling this purpose this thesis provides several contributions. From a theoretical point of view, research conducted in this thesis has focused on the coworking member (i.e., the individual level) rather than the coworking provider (i.e., the corporate level). In a coworking context, this is a novel idea, and it advances the understanding of sustainability in coworking spaces. It is evident that the coworking member plays a role when creating sustainable coworking spaces that should not be neglected.

Another theoretical contribution from this thesis is the contextualization of sustainable behaviors from a general setting to a coworking setting. Furthermore, this research provides a brand-new scale for scholars to start assessing sustainable coworking behavior which was not possible to do before. Specifically, it shows the prominence of comparing different structural equation modelling techniques and the advantages of using bifactor ESEM when analyzing multidimensional constructs. One final theoretical contribution relates to psychological ownership. The emerging construct of psychological ownership has been analyzed in traditional offices and third places such as libraries and cafés, but not in a coworking space. Based on the findings it seems that even in coworking spaces, psychological ownership has a certain positive influence on various behavior.

From a practical perspective, 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. This thesis also sheds light on different perceptions of sustainable coworking behaviors which is useful for coworking providers to further understand their customers. On top of this, coworking providers now have access to an initial tool that can be used to assess sustainable coworking behavior. Additionally, this thesis provides evidence for a positive relationship between psychological ownership and sustainable coworking behavior. Focusing on psychological ownership in coworking spaces is a relatively new idea, but now is the time for coworking providers to start incorporating it in their strategies. Overall, the practical contributions highlight the importance of being customer-oriented to have successful coworking spaces and the practical contributions also emphasize the importance of keeping everyone inside the coworking space committed (Bergman et al., 2022).

Future research

As mentioned throughout the thesis, this research has several limitations such as a small sample size for the questionnaire and potential national bias since all data were gathered in Gothenburg, Sweden. However, these limitations can motivate further attempts to delve more deeply into coworking spaces.

In terms of scope, this research has only focused on coworking members as users of the coworking space. However, there are other users of the coworking space such as receptionists, community managers, and clients of coworking members. These people may also play a role in the sustainability efforts in creating sustainable coworking spaces. It would be interesting to incorporate their perspectives in the conceptual model and further understand their role. Another potential segue for this research could be to position it in areas such as service management or value-creation and further understand sustainable coworking spaces by shifting focus to the unique service eco-system of coworking spaces.

It would also be relevant to see comparable studies in other countries where national and organizational culture is different. Comparable studies can also be conducted in other categories of coworking spaces to better comprehend the generalizability of sustainable coworking behaviors. More contextual factors such as coworking profile, gender, age, and professional could also be relevant to analyze and potentially develop the conceptual model.

To determine if the correlational relationship between psychological ownership is true or not, it will require real-world experiments which are also known as field experiments (Gerber & Green, 2012). The usage of experiments is advised by Bouncken et al. (2021b) who emphasize that there is no one-size-fits-all when dealing with coworking spaces and therefore advocate providers to continuously invoke experimentation in coworking spaces to help members achieve their objective.

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