What affects sustainable coworking behavior:
A psychological ownership perspective

Master's thesis in Quality and Operations Management

NIKA DASTOORNIKOO

DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS
DIVISON OF SERVICE MANAGEMENT AND LOGISTICS

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NIKA DASTOORNIKOO

Department of Technology
Management and Economics *Division of Service Management and Logistic*
Chalmers University of Technology
Gothenburg, Sweden 2022

A literature review study

NIKA DASTOORNIKOO

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Supervisors: Hendry Raharjo, Technology Management and Economics

Examiner: Hendry Raharjo, Technology Management and Economics

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Department of Technology Management and Economics
Division of Service Management and Logistics

Chalmers University of Technology

SE-412 96 Gothenburg Sweden

Telephone +46 (0)31-772 1000

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NIKA DASTOORNIKOO
Department of Technology Management and Economics
Chalmers University of Technology

Summary

Coworking spaces, especially after the pandemic, have been widely welcomed. Along with this, the issue of sustainability and sustainable behavior has become an increasingly important issue. The aim of this study is to identify the factors that can affect the sustainable behavior of coworking members. Previous studies in coworking spaces have paid attention to the role of design and furniture, or the owner, in creating and maintaining sustainability in these spaces. In line with Magnusson et al. (2022), this study assumes that: 1) members can significantly contribute to creating sustainability in the coworking space and 2) sustainable coworking behavior (SCB) should include all three aspects: self, others, and the planet. This study aimed to identify potential, influential factors in coworking spaces. The theory of psychological ownership (PO) was employed to achieve this goal. This particular theoretical framework was chosen due to its alignment with the sharing economy concept, a prominent feature of coworking spaces. Additionally, from a psychological perspective, PO has been shown to influence human behavior, including sustainable behavior. As such, it is deemed a suitable lens to explore factors affecting behavior in coworking spaces.By reviewing the literature, it was shown that this theory could be a good candidate for explaining all three aspects of the sustainable behavior of members in the coworking space - productivity (self), prosociality (others), and responsibility (planet). Finally, a contextualized scale is proposed to help measure members' psychological ownership in the coworking space.

Keywords

Coworking Space- Psychological ownership- Sustainable coworking behavior- Productivity- Prosociality- Responsibility- Scale contextualization

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1 Introduction

1.1 Problem statement

Coworking spaces as flexible office concepts (Cabral & van Winden, 2022) of the last decade will be serious competitors to the traditional office as an environment where work is done (Rådman et al., 2022). According to Howell (2022), coworking spaces is a "... *subscription-based workspaces in which individuals and teams from different companies work in a shared, communal space*", and believes that the community aspect is one of the key characteristics that differentiate coworking from other types of entrepreneurship support organizations: "*The community helps founders solve problems, give feedback and new ideas, or just simply provide friends and social support when times get tough. Results also suggest this may be especially true for less-advantaged entrepreneurs.*" Bouncken et al. (2023) reported these places as nested in a local environment that "*provide socio-economic dynamics and micro-ecosystems, and the local community's sustainability readiness influences a coworking space's decision of whether to pursue sustainability pathways*." Coworking spaces can be considered a new organizational form and an innovation in the business model. Because in addition to a place for working, it offers solutions that are only possible due to the gathering of a community of specialists (Howell, 2022), including sharing a form of social support or cooperation (Kraus et al., 2022).

In 2008, there were only about 160 coworking spaces worldwide (Deskmag, 2019); in 2022, there are more than 28,000 registered coworking spaces on the website of Coworker.com, which, as shown in (Figure 1-1), forecasted to reach about 42,000 in 2024 (Coworker. com, 2022). The data depicted in the graph suggests that the coworking industry experienced a downturn in 2020 due to the Covid-19 pandemic but has since regained momentum and is flourishing with continued growth. Many of the world's largest landlords are investing heavily in these places because entrepreneurs -especially millennials- (Howell, 2022) show interest in these spaces. However, this desire is not limited to entrepreneurs, startups, freelancers, and remote workers. According to Cabral & van Winden (2022), after covid-19, large companies also show more interest in renting offices from coworking spaces. These benefits employees, such as less travel time and more efficient working hours due to working closer to home. Therefore, at the same time, companies can reduce office space (Cabral & van Winden, 2022) and increase networking opportunities and employee satisfaction (Spritzer et al., 2015). In recent years, the number of articles in this area has increased, which shows the importance of the topic. However, due to the rapid growth, there are still many gaps in research and review. More research is needed to inform providers, investors, and entrepreneurs about this new organizational form (Howell, 2022).

Sustainability is one of the most critical challenges that humanity is currently facing because it is the environment that is at risk now more than ever (Süssenbach & Kamleitner, 2018). This year, Earth Overshoot Day - the date when humanity has used all the biological resources that Earth regenerates during the entire year- is July 28 (Global Footprint Network, 2022a). Moreover, it is getting worse yearly, as the Earth Overshoot Day was August 8 in 2016 and November 19 in

1976 (Global Footprint Network, 2022b). Countries try to establish laws and rules for it, but this is a challenge that is ultimately on the shoulders of consumers and can be achieved with their sustainable behavior.

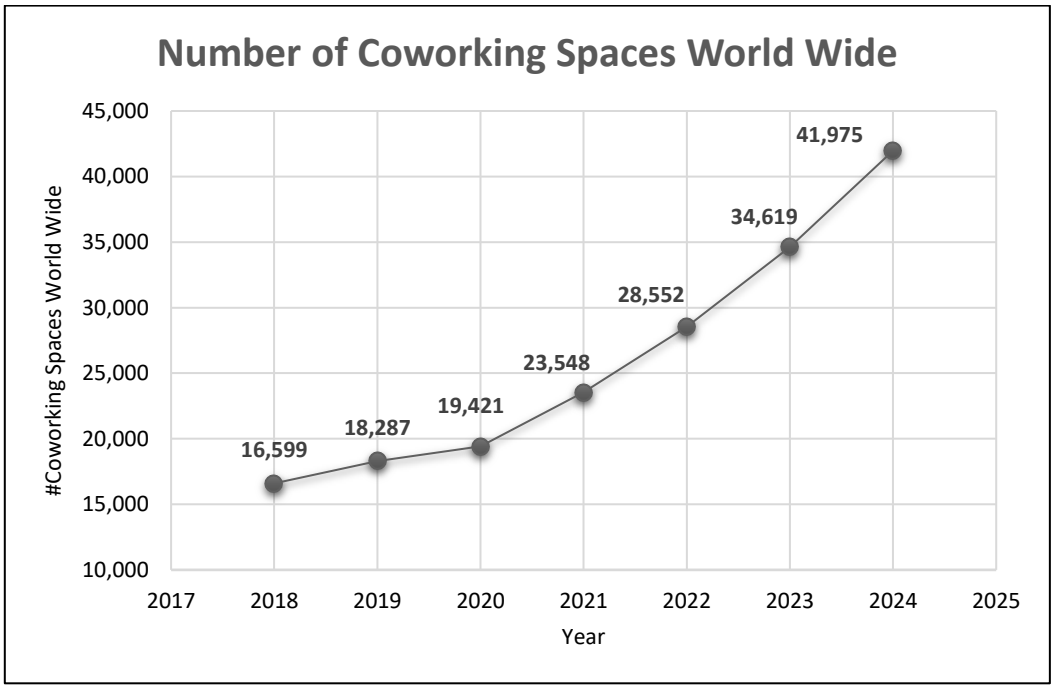

Figure 1-1 Number of coworking spaces worldwide

Note: Adapted from "4 Coworking Trends To Watch In 2022," by Loew I., Coworker.com, (https://coworkinginsights.com/4-coworking-trends-to-watch-in-2022/).

The importance of sustainability in coworking spaces has also been noticed by researchers (Magnusson et al., 2022; Kraus et al., 2022; Fuzi et al., 2014). Nevertheless, the views on sustainability among scholars are different. According to Elkington (1999), the triple bottom lines of sustainability are 'profit,' 'people,' and 'planet,' which includes all three aspects of economic, social, and environmental sustainability. However, most sustainability literature in coworking spaces focuses on the environmental (e.g., Bouncken et al., 2023; Dong et al., 2019) or economical (Cruz et al., 2021) aspect of sustainability.

Only a few researchers (e.g., Magnusson et al., 2022; Cabral & van Winden, 2022) take all three aspects into consideration**.** Magnusson et al. (2022) have examined the perspectives of "profit," "people," and "planet," i.e., economic, social, and environmental sustainability in coworking space and defining the sustainable behavior of the members in the coworking space. In this way, they conceptualized a model to understand all three aspects of coworking spaces' members sustainable behavior which are economic sustainability to increase profits for themselves

and their organization, social sustainability for the well-being of other members of the coworking space, and environmental sustainability as responsible interaction with the environment. Magnusson et al. (2022) state that most coworking members in the three investigated spaces are aware of economic sustainability and act on it. For example, members state that they prioritize increasing their own and the company's profits. However, this is not the case with the other two aspects of sustainability. Their empirical data shows that there is still room for social and environmental sustainability growth. This gap is even more severe in social sustainability, indicating the need for research to understand members' sustainable behavior. In this study, the author tries to fill this gap by proposing hypotheses using psychological ownership theory to find out factors that may affect the improvement of all three aspects of sustainable behavior in coworking spaces.

Scholars also have different opinions about who/what is responsible for achieving sustainability or has a more substantial role in enhancing sustainable behavior. To achieve sustainability in coworking spaces, some researchers have focused on the component of sustainable coworking spaces (e.g., Oswald & Zhao, 2020; Cruz et al., 2021; Dong et al., 2019), and some have paid attention to the importance of the owner's role (Bouncken et al., 2023). So far, studies have yet to be done to understand the role of members. However, as Cabral & van Winden (2022) mentioned: "*The uniqueness of coworking spaces is that the community is both the paying customer and it is an integral part of the coworking value proposition*." Rådman et al. (2022), by conducting a study on members' basic needs in coworking spaces, found out that in a coworking space, satisfying one need can cause other needs to be withholding, which causes tension between and among coworking members. Magnusson et al. (2022) have prepared a model to describe sustainable behavior in a coworking space in line with the importance of sustainable behavior. However, so far, no research has been conducted to examine the factors influencing the creation and enhancement of sustainable coworking behavior (SCB) as described by Magnusson et al. (2022). Therefore, the results of this study enrich the literature in both fields of sustainable behavior in coworking spaces and psychological ownership by finding possible influential factors on sustainable coworking behavior with a perspective of psychological ownership.

1.2 Why psychological ownership?

In this section, it is supposed to answer the question why psychological ownership has been chosen as a possible candidate to explain the factors affecting sustainable coworking behavior (SCB)? SCB has two main aspects of *coworking space* and *behavior* - specifically sustainable behavior. In the following, documents are presented showing that, 1) Psychological ownership can affect behavior in general, and 2) Psychological ownership and coworking spaces have similar aspects with respect to the field of sharing economy as both concepts involve a sense of communal ownership and the willingness to share resources. Psychological ownership and coworking spaces share similar aspects with the sharing economy because they involve individuals utilizing shared resources. These shared resources, such as coworking spaces, create a sense of belonging and

control, similar to the sense of ownership individuals may feel over goods and services in the sharing economy. Finally, the success of both psychological ownership and coworking spaces relies on trust, cooperation, and social norms to maintain a shared environment. Therefore, it can be assumed that psychological ownership has the potential to influence sustainable behavior in the coworking environment.

1.2.1 Can psychological ownership affect behavior?

To address this question, it is beneficial to examine the definition of behavior and identify the triggers that may elicit particular behavior. According to Oxford advanced learners dictionary (2022), behavior is "*the way that somebody behaves, especially towards other people*." Furthermore, "*[It] is driven by genetic and environmental factors that affect an individual*." (Wikipedia, 2022). which brings the question that: which one is more important? Genetic or environmental factors? The researchers have different opinions, but some, including Ehrlich & Feldman (2003), believe that the influence of environmental conditions is not less, if not more, than genetics. They state: "*Information from twin studies, cross fostering, sexual behavior, and the Human Genome Project makes it abundantly clear that most interesting aspects of the human behavioral phenome are programmed into the brain by the environment*." This result means that human behavior -including sustainable behavior- is not captive in the genetic chain and can be improved by changing environmental conditions.

Based on observation and empirical analysis, Van Dyne and Pierce (2004) proposed that psychological ownership positively influences individual attitudes and behavior. Also, Dawkins et al. (2017) draw attention to the fact that "*In recent years, there has been an expansion of research linking psychological ownership with a range of desirable employee attitudes and behaviors*." Their primary focus has been on understanding the ways that employees feel psychologically "*attached*" to their organization or work, and they believe psychological ownership is "*a key emerging construct*".

According to Pierce et al. (2003), several findings show that people tend to behave sustainably when they experience psychological ownership facing something they feel they own. Hernandez (2012) used psychological ownership to explain why some businesses are run more with an orientation towards long-term and sustainable success. Süssenbach & Kamleitner (2018) state: "*Continued enjoyment of any good or system requires sustainable behavior.*" They suggest that "*instigating psychological ownership may be a successful mechanism for triggering behaviors that help maintain the environment.*" Furthermore, they argue that "*psychological ownership helps combat most systematic barriers to sustainability…*".

Previous studies have generally established a positive relationship between psychological ownership and extra-role behaviors (e.g., helping behavior). For example, Van Dyne and Pierce (2004) argued that feelings of ownership are likely to be highly relevant to extra-role behaviors that require employees to go beyond what is required of them in their job description. They found

that the effect of psychological ownership in explaining employees' helping behaviors is even more significant than the effects of organizational commitment and job satisfaction. Empirical works also show the relationship between psychological ownership and some SCB-related behaviors. Han et al. (2010) found that psychological ownership increases the level of knowledge-sharing behavior or, to describe precisely, "*Organizational commitment mediated the relationship between psychological ownership and knowledge-sharing behavior*." In the same direction, Peng and Pierce (2015) observed "*a negative relationship between organization-based psychological ownership and knowledge withholding*."

Psychological ownership is associated with efficacy, self-identity, and belongingness (Pierce et al., 2004), and people tend to experience the target of ownership as their own and part of their extended self (Pierce et al., 2003). Pierce et al. (2009) state that organizational citizenship behavior (e.g., helping, whistle-blowing, criticizing the status quo, and offering suggestions) is another behavioral consequence of psychological ownership. Moreover, according to Jussila et al. (2015), it is also valid for customers with a sense of psychological ownership: "*these behaviors could involve, for example, the customer's use of voice and word-of-mouth…. customers may sometimes see a need to improve particular products and services. Instead of staying quiet and waiting for the business to offer those improvements, they may take the initiative themselves and communicate their ideas*…". They also add: "*Given the intrinsic motivation and experienced personal sense of responsibility associated with psychological ownership, it is likely that customers who feel like owners of particular products or services will also use their voice to improve them (i.e., engage in voluntary, reactive, or proactive feedback to develop the services or products)*."

1.2.2 Psychological ownership, coworking spaces, and sharing economy

Another reason that made the author believe that psychological ownership might be a unified theory to explain sustainable coworking behavior was that psychological ownership and coworking spaces have an essential common feature: sharing economy. According to Belk (2014), the sharing economy is about the perceived value of ownership, where consumers enjoy goods and services only when needed or desired without acquiring ownership and its related obligations. And psychological ownership is the feeling that something is mine, even though you may not legally own it (Avey et al., 2009).

The context of this study is the coworking space. As Bouncken & Reuschl (2018) said, this context is close to the ideal of the sharing economy, while Pasimeni (2020) identifies psychological ownership as one of three aspects of sharing economy, and Wang & Zhang (2022)'s findings "*highlight the importance of psychological ownership in promoting customer citizenship behaviour in the sharing economy*."

Moreover, Babapour et al. (2018), who have studied Activity-based Flexible Offices (A-FOs), believe that psychological ownership in shared workplaces can increase the acceptance of this work method. They wrote: "*Involving employees, especially in early phases of planning A-FOs,*

can lead to a collective sense of ownership and therefore may minimize rejection of the new system." Also, in the same direction, Ansio et al. (2020), in a qualitative case study of a shared office with six companies, to answer the question of "*why did these organizations create a shared office*?" stated: "*One theme that emerged from the interview material was ownership. Some of the directors expressed psychological ownership of the office space, which originated from the planning period of the office*." They noted that involving members in planning time enhances the sense of psychological ownership, leading to keeping with other companies in a shared office.

1.3 Aim and research questions

This study aims to explore factors that may affect sustainable member behaviors in a coworking space, which, according to Magnusson et al. (2022), comprised of three aspects: productivity, prosociality, and responsibility. Moreover, since working conditions in coworking spaces are different from traditional workplaces, this study attempts to contextualize a befitting questionnaire to measure these factors in the context of coworking spaces. This study has, therefore, the following research questions:

1. What affects sustainable coworking behavior (SCB) in coworking spaces?
2. How to measure these factors in the context of coworking space?

Psychological ownership theory (Van Dyne & Pierce, 2004) will be used as a theoretical framework.

1.4 Scope and delimitations

The present study focuses on the working conditions within coworking spaces, explicitly examining the relationships between members who are not colleagues. It is important to note that this study does not address the various other social relationships that may exist within coworking spaces, such as those between members and the owner or among the employees of a large company. It should also be noted that coworking spaces may include a diverse range of members, including self-employed individuals, small companies consisting of two or three employees, and large companies with one or more coworking space offices to accommodate a number of their personnel.

Several theories in the area of organizational behavior can be used to analyze and identify factors affecting the sustainable behavior of the members in a coworking space. In this master's thesis, after the initial review of the literature related to three theories of "Psychological ownership theory," "Self-determination theory," and "Need to belong," psychological ownership was deemed more relevant and selected for further investigation. Moreover, some studies show that the relationship between psychological ownership and some constructs of sustainable coworking behavior, such as social participation, can be a two-way relationship, which means that customer participation positively influences psychological ownership (Joo, 2020; Joo & Marakhimov,

2018). However, since the aim of this study is finding the factors affecting sustainable coworking behavior, such relationships are not considered.

1.5 Disposition of the thesis

Introduction: Introduces the readers to the research topics, the research aim, research questions, and delimitations.

Theoretical backgrounds: Summarize the literature review of coworking spaces, sustainability and sustainable behavior in these spaces, and sustainable coworking behavior (SCB). This chapter also introduces the theoretical background of psychological ownership upon which this thesis is built.

Method: Describing the methods used for gathering information and collecting the literature used for this study. This chapter also contains the ethical aspects of the research.

Results: This chapter highlights and describes the hypotheses, their theoretical reasonings, and the research model. This chapter also presents different ways of evaluating psychological ownership and how to choose the most appropriate measurement to be used in a coworking context.

Discussion and conclusion: This chapter discusses the findings concerning the theoretical framework, proposes the research hypothesis, summarizes the results, and answers the research questions of this study and future research directions.

2 Theoretical background

2.1 Coworking and coworking spaces, advantages, and drawbacks

Coworking, which is defined as a new way of working, was initially created with economic goals (Bouncken et al., 2023; Blagoev et al., 2019; Bouncken, 2018; Bouncken et al., 2016) and accelerated with the advancement of technology (Kraus et al., 2022). Many researchers have tried to define coworking. One of the first definitions belongs to Jones et al. (2009), which states: "*Coworking is the burgeoning movement of people coming together to work in a shared workspace*." Moriset (2013) interestingly states: *"Beyond the room layout, coworking is first an atmosphere, a spirit, and even a lifestyle."* Waters & Duff (2021) define: *"Coworking describes the varied practices of a heterogeneous collection of independent knowledge workers (Rather than employees of the same organization) sharing physical space, interacting and sometimes collaborating on shared projects."*

Since this new way of working has advantages, such as sharing resources (DeGuzman & Tang, 2011), networking (Spinuzzi, 2012), sharing information and wisdom (Uda, 2013), flexibility (Merkel, 2015), and collaborative learning (Šebestová et al., 2017), the number of people choosing such working constantly growing (Kraus et al., 2022). Bouncken et al. (2023) state: *"New Work, such as coworking, offers greater task autonomy alongside permeable spatial, task, team, and leadership boundaries as compared to traditional work structures."*

A coworking space, in simple words, is a place where coworking happens. These places were created to answer the increasing demand for a more flexible workplace and growing work-individualization, such as self-employment, freelance, or on-demand work (Rådman et al., (2022). That is why they were primarily focused on start-ups, freelancers, and entrepreneurs, but in recent years, more extensive and established firms are also using coworking spaces (Rådman et al., 2022; Kraus et al., 2022; Orel & Bennis, 2021).

Researchers have tried to develop categories for coworking spaces: From the perspective of types of coworking, Bouncken et al. (2018) classified them into four different types, namely, corporate, open corporate, consultancy, and independent coworking spaces. From the perspective of coworking models, Orel and Bennis (2021) categorized them into four different models (a) the individual-purposed space in which freelancers and location-independent professionals work alongside, (b) the creation-purposed space focusing on jointly creating like a makerspace, (c) a group-purposed space focusing on teams often of larger firms, and (d) a startup-purposed.

Researchers have also paid attention to the classification of coworking spaces regarding hosting diversity. Some spaces host various communities, which supports the exchange of knowledge in problem-solving and synthesis (Bouncken & Aslam, 2019) and increases inspiration and new idea generation, while some other coworking spaces prefer to host specific group of members (e.g., technology), occupational group (e.g., artists), or company (e.g., Microsoft)

(Bouncken et al., 2023). People with the same background can easily exchange domain-related knowledge, but creativity may be limited (Bouncken, Islam, & Qiu, 2021).

From the perspective of membership fee payer, Magnusson et al. (2022) divide them into two categories of "by-choice" or "by-default." They argue that the needs of these two groups can be completely different, so the group by-choice, who joined the coworking space voluntarily and at their own expense, like freelancers and entrepreneurs, show more desire for social behavior and welcome it. In contrast, the by-default group, who are employees of a large company, attended the coworking space based on the decision and at the expense of the main company, consider it more as one of their company's branches and showed less desire to have a social connection with other members of the coworking space that is outside of their company, they do not want to be disturbed and rather inclined to focus on the productivity side of the sustainability comparing the ones who join the coworking space by choice which like to socialize and engage with other people as well. They found that the willingness to volunteer is higher in the by-choice group; they are less concerned about being focused.

On the other hand, like any other phenomenon, coworking can also have negative aspects. Rådman et al. (2022) point to tensions that can arise between members, within individual members, and challenges members face while coworking in terms of privacy versus openness or transparency. Bouncken et al. (2023) mention the risk of competition and knowledge leakage and highlight the importance of cognition and how “New work” can foster sustainability while facilitating knowledge sharing in coworking spaces. Several researchers (Howell, 2022; Rådman et al., 2022; Magnusson et al., 2022) point out the problems that members face regarding distraction and loss of productivity due to the noisy and crowded place.

2.2 Sustainability and sustainable behavior in a coworking space

Sustainability can be considered one of the core values of a coworking space (Fuzi et al., 2014). The relationship between coworking spaces and sustainability is well-established. According to Oswald & Zhao (2020), "*Coworking is a trend that is becoming increasingly popular and is often associated with sustainability*." Bouncken et al. (2023) *concluded that "coworking-spaces not only provide freedom to the users to work autonomously in shared office … but also increase sustainability by reducing costs for commuting, heating costs, and efficient use of the space."* In the same direction, Sposato et al. (2017) note that coworking spaces are among the "*physical places where communities are experimenting the potential of collaborative and innovative solutions*" which they believe by promoting sharing business models instead of old private propriety and a consumerist model "*is strongly connected with circular economy strategies, particularly referred to waste prevention, reduction and resources valorisation European goals*."

However, the concept of sustainability is considered by researchers in different ways. Oswald & Zhao (2020) showed no consensus on what constitutes sustainability in a coworking space. There are different opinions about who/what is responsible for implementing sustainability in the

coworking space. Some researchers (e.g., Milošević et al., 2021; Cruz et al., 2021) consider the role of coworking space design and furniture to be effective. Some others (e.g., Bouncken et al., 2023; Cabral & van Winden, 2022) have considered the role of coworking space owners to be more prominent in this context.

Nevertheless, the role of members is often overlooked. It is as if the members only receive services without responsibilities other than paying the membership fee. The customers of the coworking space also play an essential role in creating sustainability because "*The uniqueness of coworking spaces is that the community is both the paying customer and it is an integral part of the coworking value proposition*." (Cabral & van Winden, 2022). As sustainability in coworking spaces can be thought of as having three dimensions: economic, social, and environmental, the members (customers), can play an essential role in creating sustainability because they are an integral part of the community within the space. For example, members can contribute to the economic sustainability of the space by paying their membership fees on time, ensuring that the space remains financially viable. They can also contribute to social sustainability by building and participating in a strong, engaged community within the space, which can lead to increased collaboration and innovation. Additionally, members can contribute to environmental sustainability by using resources in an efficient manner, recycling and supporting environmentally friendly practices within the space. As members are not just paying customers but also active partakers in the coworking experience, they have a direct impact on the sustainability of the space and can influence the effectiveness and impact of the space's sustainability efforts.

It appears, in accordance with the findings of Magnusson et al. (2022), that within the context of research on coworking spaces, only a limited number of studies have adopted a comprehensive perspective on sustainability. Many studies have primarily focused on one aspect of sustainability, such as the economic dimension (e.g., Bueno et al. 2018; Bouncken et al., 2020), the social dimension (e.g., Spinuzzi et al. 2019; Rese et al., 2021), or the environmental dimension (e.g., Bouncken et al. 2023; Lejoux et al., 2019; Durante & Turvani, 2018). Another way of looking at sustainability which is the basis used in this study is through the triple bottom line of 'profit,' 'people,' and 'planet' by Elkington (1999), which includes all three aspects of economic, social, and environmental sustainability. In the same way, Corral-Verdugo et al. (2010: p.8) define sustainable behavior as "*actions aimed at conserving the integrity of the socio-physical resources of this planet*", including all three bottom lines, e.g., the study by Corral-Verdugo et al. (2021) presented sustainable behavior with a three-factor model organized around three perspectives of sustainable behaviors directed at the self (self-care behaviors), other people (social behaviors), and the environment (pro-environmental behaviors), which can be compared with the three perspectives of "profit," "people" and "planet" by Elkington (1999).

Magnusson et al. (2022) are among the few who not only have paid attention to the role of members in creating sustainability in the coworking space but also consider all three aspects of sustainability in coworking spaces and conceptualized sustainable coworking behavior for the first time. Their research, therefore, has been chosen by the author as the basis for this study.

2.3 Sustainable coworking behavior (SCB)

In the coworking literature, Magnusson et al. (2022) have presented a comprehensive view of sustainability that includes the three bottom lines of economic, social, and environmental sustainability. Their article "*Understanding Sustainable Coworking*" presented a model for measuring sustainable behavior in the coworking space used in this study. To develop this model, they conducted a multi-case study on three coworking space owners in Sweden. For this study, more than 1000 hours of work - using interviews, observations, and workshops -were done over more than one year (March 2021 - June 2022), allowing them to collect significant data and validate them. In the same study, Magnusson et al. (2022) identified 15 dimensions from the collected data that coworking members perceive as sustainable coworking behavior (SCB). They proposed three constructs for SCB, which are: productive behavior, prosocial behavior, and environmentally responsible behavior, which correspond to the economic, social, and environmental perspectives of sustainability (Corral-Verdugo et al., 2021; Elkington, 1999), respectively, as it is shown in (Figure 2-1).

The construct of productive behavior- The first aspect of sustainability or "self" expresses behaviors aimed at maintaining and enhancing people's interests and priorities. Undoubtedly, paying attention to one's own interests is a broad concept. However, Magnusson et al. (2022) have expressed this aspect of sustainable behavior in the context of coworking spaces. Being productive in the eyes of coworking members means that they need to be able to focus on their work and finish it on time with the best quality. At the same time, it is important for them to be creative and innovative. Therefore, the productive behavior of coworking members comprises four dimensions of "Remain focused," "Be efficient," "Meet targets," and "Generate new ideas":

The construct of prosocial behavior-Despite the importance of productivity, escaping from social isolation, and having social relationships (Spinuzzi, 2012) are among the main reasons why people come to a coworking space. This second aspect of sustainability or "others" refers to behaviors that are done to benefit and help others without self-interest. Magnusson et al. (2022) have expressed this aspect of sustainable behavior in the context of coworking spaces as prosocial behavior of coworking members comprises six dimensions of "Social engagement," "Share resources," "Instrumental support," "Emotional support," "Volunteer for additional tasks," and "Suggest improvements."

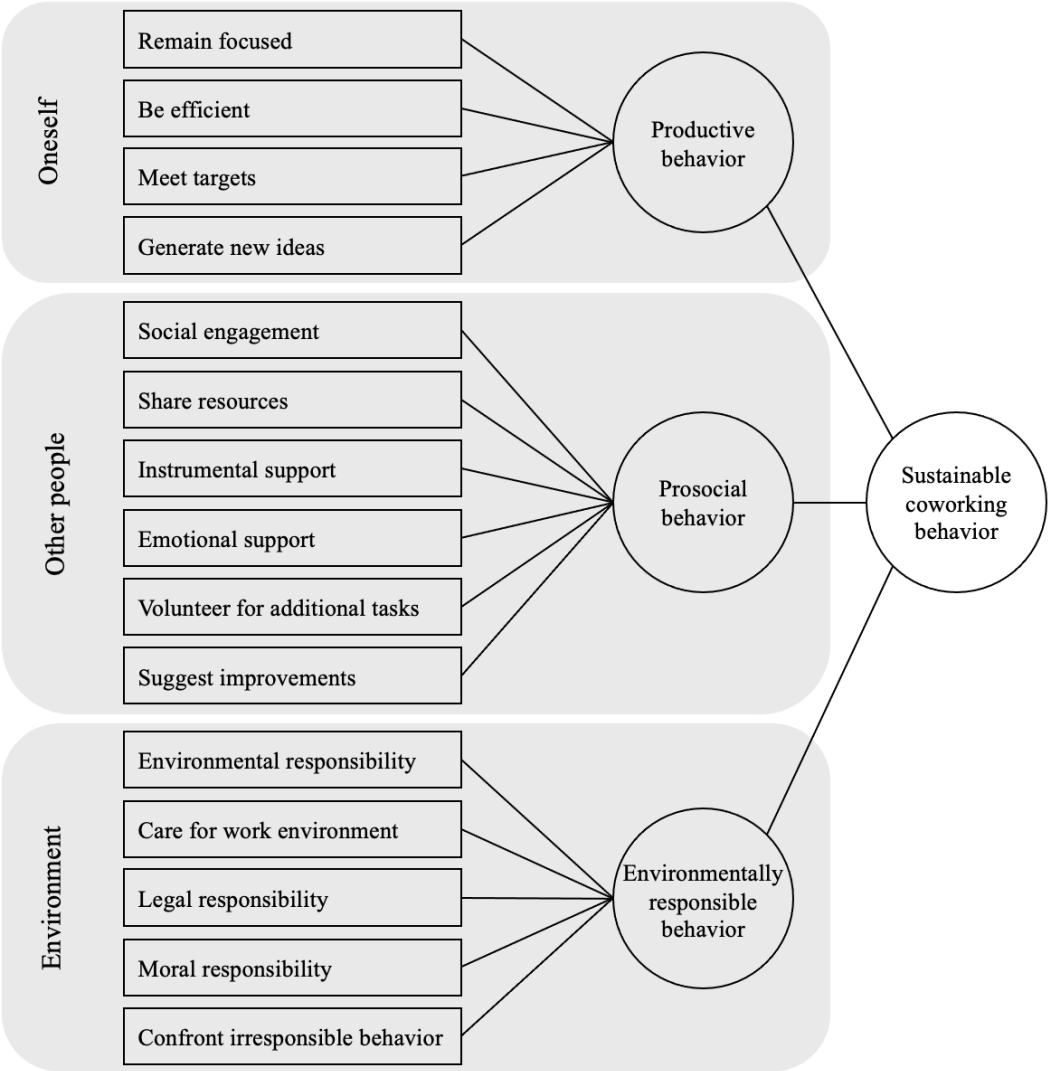

Figure 2-1 Sustainable coworking behavior as described in Magnusson et al. (2022)

Note: Adopted from "Understanding Sustainable Coworking," by Magnusson, D., Raharjo, H., Bosch-Sijtsema, P. (2022). In Proceedings of the 3rd Transdisciplinary Workplace Research Conference, Milan, September 7-10, 2022. Italy, 2022. Fig 2.

The construct of environmentally responsible behavior-This third aspect of sustainability, or "planet," is the most famous one, as in most sources, sustainable behavior is equated with green (e.g., Bouncken et al., 2023). This is a behavior that is in line with the preservation of the earth as the home of all of us. However, Magnusson et al. (2022) have expressed this aspect of sustainable behavior more precisely in the context of coworking spaces. Therefore, they defined the environmentally responsible behavior of coworking members comprises of "Environmental responsibility," "Care for work environment," "Legal responsibility," "Moral responsibility," and "Confront irresponsible behavior."

2.4 Psychological ownership theory (PO)

In psychology, ownership is the feeling that something is mine. You may not legally own it, but you feel like it is yours (Avey et al., 2009). Like your favorite place in a café. You do not legally own it, but you feel like it is your place. Psychological ownership is a state in which individuals feel as though the target of ownership or a piece of that target is "theirs" (i.e., "It is mine") (Pierce et al., 2003). Pierce et al. (2001) indicate: "*the sense of ownership is a part of human conditions. People can feel ownership towards both material and non-material things. This sense of ownership has important behavioral, emotional, and psychological consequences*."

People can feel ownership of many things: organizations or jobs (Joo, 2022), products, places (Asatryan & Oh, 2008), ideas, artistic creations, and other people (Pierce et al., 2001). According to Van Dyne & Pierce (2004), the roots of psychological ownership can be found in three main motives: 1) *self-efficacy*, which stresses that individuals can obtain a strong sense of power to achieve something by controlling, influencing, and altering the objects of psychological ownership; 2) *self-identity*, which emphasizes that the affective connections between the subjects and the objects of psychological ownership help individuals know themselves, define themselves, and express their self-identity to others; and 3) *sense of belonging*, which highlights that the sense of psychological ownership helps fulfill individuals' territorial needs by making them feel safe and comfortable as though they have a stable and warm "home" to dwell (Pierce et al., 2001, 2003).

Jami et al. (2021) note, "*Psychological ownership has been shown to influence an individual's attitudes, values, and behaviors toward the target entity*." Likewise, it affects organizational commitment, job satisfaction, and citizenship (Avey et al., 2009; Van Dyne & Pierce, 2004). Many scholars have used the psychological ownership theory to define employee perceptions of ownership in an organization.

However, the use of this theory is wider than just employee behavior in an organization. Customers can also feel that psychological ownership and participation are essential to competitive advantage (Joo, 2022). According to Jussila et al. (2015) "*As sense of possession for a target is also associated with a more positive evaluation of the target (i.e., more positive than that of other similar targets), a consumer's psychological ownership of a product or service is also likely to be associated with a favorable assessment of product (attribute) performance.*" Therefore, customers with feelings of ownership for a product/service are likely to experience fulfillment when consuming that particular product/service instead of an alternative one. Sometimes, customers with a high level of satisfaction feel a sense of ownership towards the company. They become so attached to a company that they think of themselves as stock owners and support the company's sustainable development (Asatryan & Oh, 2008).

Carrington et al. (2014) say that people feel positive about what they consider desirable, such as sustainable behaviors, they adopt pro-environmental attitudes, but do not have pro-environmental behavior. Süssenbach & Kamleitner (2018) believe that the main reason that these

attitudes do not turn into behavior are some mental or real obstacles, including lack of perceived efficacy, lack of perceived responsibility, immediate costs, and lack of relevance and immediate benefits. They continue: "*One potential way to do so is to strengthen the bond between an individual and the environment. Doing so could bridge the gap between attitudes and behaviors, enhance the sense of efficacy and responsibility, increase the perceived benefits of pro-environmental behavior, and make outcomes of pro-environmental actions more relevant. We suggest that psychological ownership for the environment could fit this bill*." Moreover, Süssenbach & Kamleitner (2015) found that "*people report feelings of ownership for the environment.*"

Recent literature suggests that psychological ownership can be a collective experience (Gray et al., 2020; Pierce et al., 2019; Süssenbach & Kamleitner, 2018; Dawkins et al., 2017; Pierce et al., 2017; Babapour et al., 2018; Kamleitner, 2014; Pierce & Jussila, 2011; Pierce & Jussila, 2010). Initial studies have suggested that collective ownership may have similar effects as individual ownership in promoting sustainable behaviors (Pasimeni, 2020; Ansio et al., 2020; Aryee et al., 2015; Kamleitner & Rabinovich, 2010). According to Baker et al. (2021): "*A user experiencing collective engagement enacts behaviors that aim to benefit not just themselves and the platform but also the broader user community, e.g. through community-oriented sharing of recommendations, reviews, assistance, expertise, and knowledge.*" This is especially relevant in the case of places (e.g., coworking spaces) that need to be shared with multiple members.

2.4.1 Different scales for measuring psychological ownership

The very first scale for measuring psychological ownership was introduced by Pierce et al. (1992). This 5-item measurement instrument was developed and validated by a team of researchers led by Jon Pierce at the University of Minnesota. Later, Van Dyne and Pierce (2004) developed and validated a 7-item measure of psychological ownership, see Table 2-1. This scale has been recognized as the primary method of measuring psychological ownership. Many researchers have reported using a complete or partial form of this scale both in English and translated form; however, a criticism of this scale is how the items relate to each of the psychological ownership subcomponents (efficacy, self-identity, and belongingness) (Dawkins et al., 2017).

Table 2-1 The 7-item Van Dyne and Pierce (2004) scale for measuring psychological ownership

This is MY organization.
I sense that this organization is OUR company.
I feel a very high degree of personal ownership for this organization.
I sense that this is MY company.
This is OUR company.
Most of the people that work for this organization feel as though they own the company.
It is hard for me to think about this organization as MINE. (reversed)

Avey et al. (2009) extended Pierce et al.'s conceptualization by including the dimension of accountability. Using the theory of regulatory focus (Higgins, 1998), they proposed two distinct and independent forms of psychological ownership: promotive and preventive. The theory of regulatory focus suggests that people have two self-regulatory systems. The promotional self-regulatory system is related to achievements and aspirations, while the preventive self-regulatory system is related to duties and obligations. Avey et al. (2009) developed a 16-item psychological ownership scale including four promotive constructs (efficacy, accountability, belongingness, and self-identity) and one preventive psychological ownership construct (territoriality), as shown in Table 2-2 One of the advantages of the Avey et al. (2009) scale is that it specifically measures the psychological ownership sub-components. However, on the other hand, some researchers (Brown et al., 2005; Pierce et al., 2001) define territorial behavior as the result of psychological ownership, not the basis of PO constructs. Brown et al. (2005, p. 578) defined territoriality as "*an individual's behavioral expression of his or her feelings of ownership towards a physical or social object*". More work is needed to validate the measurement of psychological ownership Avey et al. (2009)'s scale (Dawkins et al., 2017).

Table 2-2 The 16-item Avey et al. (2009)'s scale for measuring psychological ownership

Promotion items
Self-Efficacy E1: I am confident in my ability to contribute to my organization's success. E2: I am confident I can make a positive difference in this organization E3: * Accountability A1: I would challenge anyone in my organization if I thought something was done wrong. A2: I would not hesitate to tell my organization if I saw something that was done wrong. A3: * Sense of Place or Belongingness PL1: I feel I belong in this organization. PL2: I am totally comfortable being in this organization PL3: * Self-Identity I1: I feel this organization's success is my success. I2: I feel being a member in this organization helps define who I am I3: *
Prevention items
Territoriality T1: I feel I need to protect my ideas from being used by others in my organization. T2: I feel that people I work with in my organization should not invade my workspace T3: * T4: * *- The full scale for psychological ownership can be obtained from the first author

Joo (2022) uses a 10-item scale with two constructs of “Sense of mine” and “sense of compassion” for measuring psychological ownership in a third place. On the one hand, this scale was fascinating because the context of a third place, to some extent, is like a coworking space. However, on the other hand, this scale is relatively new, and it is not yet widely used or tested. See Table 2-3.

Table 2-3 The Joo (2022) 10-item scale for measuring psychological ownership

Sense of mine items
I have the feeling that the third place is mine while I stay in there. I have the feeling that the third place is ours while I stay there with friends. I have a sense of accountability, as if I am an owner of the third place, while I stay in there. I have a sense of autonomy, as if I am an owner of the third place, while I stay in there. I have a sense of control over the situations in the third place while I stay in there. I have a sense of ownership toward the third place as if it is like home or a workplace.
Sense of compassion items
If the third place faces serious problems, I will be very concerned about them, as if they are mine If someone criticizes the third place, I feel bad as if I am being criticized. I feel pleased when someone praises the third place. I feel that the third place’s success is my success.

3 Method

3.1 Literature review methodology

A qualitative research method, and literature review were used to answer the research questions. Web of Science was used to identify the sources using the keywords of:

sustainable OR behavi* OR "sharing economy" OR productiv* OR focused OR efficient OR creativ* OR "new idea" OR social* OR suggest* OR “emotional support” OR volunteer* OR help* OR shar* OR “social platform” OR confront OR “speak up” OR promote OR moral OR responsibl* OR protect OR recycle OR reuse OR waste OR environment* OR coworking OR co-working

in the article’s title, abstract or keywords. The search query after excluding unrelated categories (e.g., nursing, neuro scanning, security, etc.) is as the following string:

"psychological ownership" AND (sustainable OR behavi* OR "sharing economy" OR productiv* OR focused OR efficient OR creativ* OR "new idea" OR social* OR suggest* OR “emotional support” OR volunteer* OR help* OR shar* OR “social platform” OR confront OR “speak up” OR promote OR moral OR responsibl* OR protect OR recycle OR reuse OR waste OR environment* OR coworking OR co-working) (Title) OR "psychological ownership" AND (sustainable OR behavi* OR "sharing economy" OR productiv* OR focused OR efficient OR creativ* OR "new idea" OR social* OR suggest* OR “emotional support” OR volunteer* OR help* OR shar* OR “social platform” OR confront OR “speak up” OR promote OR moral OR responsibl* OR protect OR recycle OR reuse OR waste OR environment* OR coworking OR co-working) (Abstract) OR "psychological ownership" AND (sustainable OR behavi* OR "sharing economy" OR productiv* OR focused OR efficient OR creativ* OR "new idea" OR social* OR suggest* OR “emotional support” OR volunteer* OR help* OR shar* OR “social platform” OR confront OR “speak up” OR promote OR moral OR responsibl* OR protect OR recycle OR reuse OR waste OR environment* OR coworking OR co-working) (Author Keywords) and Article (Document Types) and Zoology or Water Resources or Transportation Science Technology or Transportation or Regional Urban Planning or Mathematics Interdisciplinary Applications or Materials Science Textiles or Humanities Multidisciplinary or Engineering Manufacturing or Education Scientific Disciplines or Ecology or Construction Building Technology or Computer Science Theory Methods or Computer Science Software Engineering or Biotechnology Applied Microbiology or Biology or Biodiversity Conservation or Social Sciences Biomedical or Nursing or Medical Informatics or Forestry or Food Science Technology or Ergonomics or Engineering Civil or Agricultural Economics Policy or Multidisciplinary Sciences or Health Policy Services or Health Care Sciences Services or Ethics or Computer Science Interdisciplinary Applications or Computer Science Cybernetics or Business Finance or Public Environmental Occupational Health or Education Educational Research or Computer Science Information Systems or Information Science Library Science (Exclude – Web of Science Categories) and English (Languages)

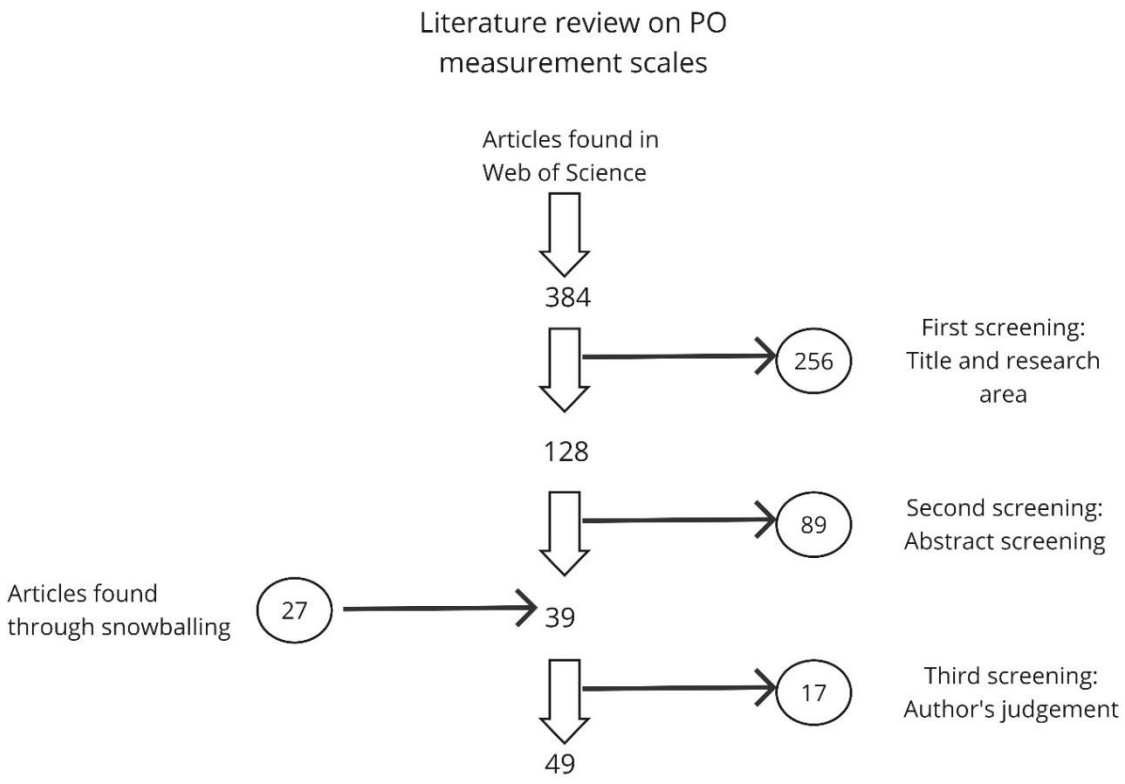

Figure 2-1 Research method

As it shows in **Error! Reference source not found.**, the result containing of 384 record of data was exported to an excel file to screen. In the first stage of screening, 256 cases of irrelevant literature were removed according to the titles or research area, and 128 articles remained. In the second stage, 89 articles were screened by reviewing the abstracts so that 39 articles remained. A total of 348 articles were screened. Table 3-1 shows the reasons for them being excluded.

Table 3-1 Reasons for screening articles

Reason	**#**
Investigating employee/supervisor relationship	54
Not answering the research questions	49
Branding	29
Family business	24
Tourism	24
Finance	18
Organizational justice	8
Education/Schools	8
Healthcare	6
Safety/Security	5
Social working	5
Insufficient information	3
Music	2
Sport	2
Total	**348**

Before the third and last screening, a snowball search was conducted to find more relevant literature. The snowballing search was conducted backward through the reference list of academic articles and forward using cited references that will provide a list of publications that have referenced the document to find more relevant results. This continued until no article with a new topic was found. Moreover, the same method was used by focusing on publishing famous authors in each area, the ones who developed the theory for the first time, or with highly-cited articles (articles with more than 1000 citation are considered as highly-cited). In this way, 27 articles were added to the results. The author's judgment was used in the third and last screening by reading the entire articles. At this stage of the study, a total of 17 articles were screened, from which 49 articles were selected as the basis for the current research. It is pertinent to note that the chosen 49 articles correspond to the primary objective of the research and provide responses to the research questions. Moreover, to develop a comprehensive understanding of the theoretical framework and other related fields that do not directly respond to the research questions (e.g., the historical evolution of coworking spaces), the author consulted an additional 44 articles. As a result, a total of 93 articles were studied in this research. The literature review took place from September 2022 to January 2023.

The thesis supervisor was also consulted to assist in selecting search terms and keywords or choosing the correct articles during the snowball step. During the study, the author collaborated closely with the researchers who first conceptualized sustainable coworking behavior.

In addition to the research methods mentioned above, the author visited two coworking spaces in Gothenburg, Sweden as an outsider to understand the space and how the work is done there. Moreover, during the research period, the author was involved in ongoing research meetings on creating quality in coworking at TME department of Chalmers University of Technology.

3.2 Ethics

Following the ethical principles ensures that the study is conducted in a manner that upheld the highest ethical standards. According to Bell et al. (2022), ethical principle are: Informed consent, confidentiality and privacy, avoiding harm, and preventing deception. They also point out other ethical and legal considerations such as: Data management, copyright, reciprocity and trust, and affiliation and conflicts of interests. However, since this literature review did not involve human participants, ethical approval was not required. The following, outlines the ethical principles that guided this literature review:

Informed consent- Since this literature review does not involve human participants, obtaining informed consent is not necessary.

Confidentiality and privacy- Confidentiality and privacy are important considerations when conducting a literature review. In this study, the author ensured that the data used were publicly available and did not disclose any confidential or personal information.

Integrity and accuracy- Maintaining integrity and accuracy is a fundamental ethical principle in any research. In this study, the author made sure to accurately represent the work of others and avoid plagiarism. To ensure the credibility and validity of the study, a systematic approach to selecting and evaluating sources was used. The accurate representation of the work of others had an important role in this study since the meaning of constructs and dimensions were very specific. The three constructs of SCB, productivity, prosociality, and responsibility have broad meanings. However, what Magnusson et al. (2022) meant by each one was precise and specific, which was specified through the dimensions and items. For example, one of the items related to prosociality dimension of *volunteer for additional task* is: "*voluntarily promote this coworking space*", and the author used "*word-of-mouth (WOM)*"to search to show its true meaning in the same way that it was meant by Magnusson et al. (2022). Similar care and attention were paid to ensure that all the used articles meaning of each construct, dimension, and item is in accordance with Magnusson et al. (2022)'s.

Avoiding harm- Although this literature review did not involve human participants, there is a potential for harm to authors or publishers if their work is misrepresented. To minimize this risk, the author ensured that accurately represented the work of others and gave credit where credit was due.

Bias and objectivity- Maintaining objectivity and avoiding bias is crucial in any research. In this literature review, the author made sure to approach the literature with an open mind and critically evaluated sources, such a way that do not include only the sources that confirm the hypotheses but consider the counter ones as well.

Acknowledgment and attribution- Giving proper acknowledgment and attribution to the work of others is essential in a literature review. The author made sure to cite sources correctly and give credit where it was due.

Conflicts of interests- The author had no competing interests, loyalties or obligations with any part of the research area- like coworking spaces- that may influence the decisions, actions or judgment, resulting in potential biases, unfair advantages or disadvantages, or perceived impropriety.

Data management- Since this study did not involve data gathering, data management is not necessary.

4 Results

Out of 93 articles studied in this research, the basic body of literature identified directly related the possible effect of psychological ownership on sustainable coworking behavior comprises 49 papers. The allocation of the publication in the research period is shown in Figure 4-1. The year 1992 is the first year that Pierce, Van Dyne, and Cummings wrote their article "*Psychological ownership: A construct validation study*". This paper is taken as the starting point. The years 2003 and 2004 are the time when the theory is completed, and a valid measurement scale is developed to measure. Subsequently, the year 2011 witnessed the emergence of the phenomenon of collective psychological ownership (CPO). This concept refers to the shared sense of ownership experienced by a group of individuals (such as a team), who are motivated to take actions that benefit not only themselves or their organization, but also the wider user community. It is also when the application of this theory is extended from its exclusive influence in the scope of increasing organizational performance to other areas such as services and customers and it seems that it is still expanding.

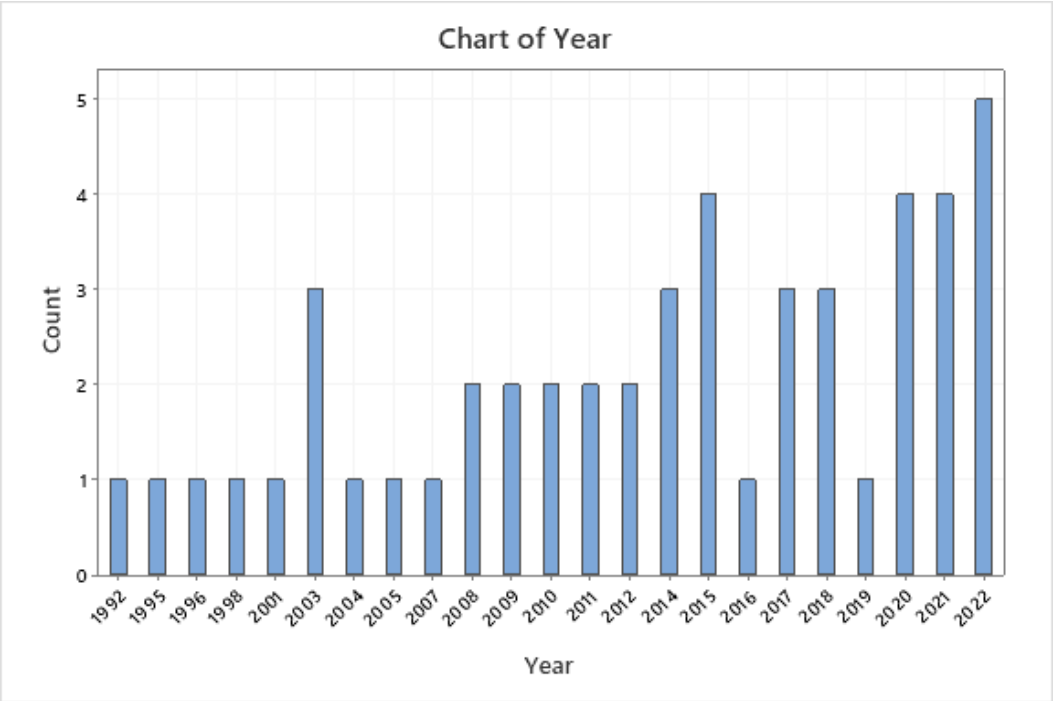

Figure 4-1 Distribution of publications per year across the period studied

Visiting the two coworking spaces in Gothenburg provided the author the opportunity to get acquainted knowledge of how the work is done in coworking spaces, thereby gaining a better understanding of what was stated in the previous research. One of the two visits, accompanying some of the coworking space owners, gave the author valuable experiences of their views and concerns. The visits and involvement in the research team of quality in the coworking space, gave

the author necessary background and understanding for what sustainability means in a coworking space.

4.1 Hypothesis formulation

4.1.1 Psychological ownership and productivity construct of SCB

According to Dawkins et al. (2017), few researchers have investigated the relationship between psychological ownership and productivity/job performance (Brown et al., 2014; Mayhew et al., 2007; Van Dyne & Pierce, 2004). Furthermore, they generally reported this relationship to be insignificant. Certainly, as seen, these researches have often been about employees of organizations, and the result for customers could be different. Brown et al. (2014)'s findings "*highlight the importance of psychological ownership as it is significantly related to an objective indicator of* [sales] *employee performance.*" They admit: "*Although the statistical effect size of psychological ownership on sales performance did not appear to be large, when extrapolating this effect across the entire organization, a one scale-unit increase in psychological ownership corresponds with $13.5m in sales volumes.*" Although Van Dyne & Pierce (2004) found a "*positive links between psychological ownership for the organization and employee attitudes (organizational commitment, job satisfaction, organization-based self-esteem), and work behavior (performance and organizational citizenship).*" However, they admit: "*Contrary to prior theoretical work on psychological ownership, results, however, fail to show an incremental value of psychological ownership in predicting employee performance*." Furthermore, the results of Mayhew et al. (2007)'s empirical study suggest that "*psychological ownership is not associated with manager ratings of in-role behavior* [what is necessary to gain organizational rewards and retain employment]" in their sample.

Jussila et al. (2015) state, "*Psychological ownership is associated with job performance*," given that "*Job performance is directly related to the execution of one's job/task duties*" (Pierce & Jussila, 2011). Pierce et al. (2001) also stated sense of psychological ownership results in an enhanced sense of responsibility for work outputs. They quote Dipboye (1977) that says: "*When an employee's sense of self is closely linked to the organization, as in the case of psychological ownership, a desire to maintain, and protect, results in an enhanced sense of responsibility for work outputs.*"

In a more recent article, Pierce et al. (2019) suggest that "*feelings of ownership … positively affect team performance effectiveness*", knowing that they assess team performance effectiveness with "*Campion et al.'s (1996) nine items (e.g., quality of work done, productivity, completing work within budget)*". Therefore, psychological ownership could be related to SCB's productivity construct.

However, coworking spaces can be busy and noisy, and people call, talk, move around or eat. For this reason, in the literature related to coworking spaces, distraction and loss of productivity are drawbacks and one of the main concerns of the members (Magnusson et al., 2022; Howell, 2022). The author could not find any relationship between psychological ownership and the SCB's dimension "Remain focused" in the literature. Therefore, the result can be interesting from this point of view. Table 4-1 summarizes the evidence in the literature showing the relationship between psychological ownership and productive behavior. While Table 4-2 shows the articles which did not support this relationship. Note that absence of evidence is not the same of evidence of absence. Based on these arguments, this study proposes the following:

H1: The higher the extent of psychological ownership, the higher the extent of engagement in productive behavior will be.

Table 4-1 Supporing positive relationship between psychlogical ownership and productive behavior

Relationship	Source (Year)	Method used/N*	Evidence
PO→ Meet targets, Be efficient, and Generate new ideas	Pierce et al. (2019)	Survey/277 members and 54 teams from 26 companies	"*Feelings of ownership ... positively affect team performance effectiveness*" knowing that they assess team performance effectiveness with "*Campion et al.'s (1996) nine items (e.g., quality of work done, productivity, completing work within budget).*"
PO→ Meet targets, Be efficient, and Generate new ideas	Jussila et al. (2015), Pierce & Jussila (2011)	2 Literature reviews	"*Psychological ownership is associated with job performance*," while "*Job performance is directly related to the execution of one's job/task duties*"
PO→ Meet targets, Be efficient, and Generate new ideas	Pierce et al. (2001)	Literature review	"*When an employee's sense of self is closely linked to the organization, as in the case of psychological ownership, a desire to maintain, and protect, results in an enhanced sense of responsibility for work outputs.*" (Dipboye, 1977).

***-Number of participants**

Table 4-2 Unsupportive relationship between psychlogical ownership and productive behavior

Source (Year)	Method used/N*	Evidence
Mayhew et al. (2007)	Cross-sectional survey/67 manager–employee dyads & 3 employee-only responses	"*The results of our research suggest that psychological ownership is not associated with manager ratings of in-role behavior in this sample.*"
Dawkins et al. (2017)	Literature review	few researchers have investigated the relationship between psychological ownership and Productivity/job performance… they generally reported this relationship to be insignificant. (rephrased)
Brown et al. (2014)	Survey/424	"*... the statistical effect size of psychological ownership on sales performance did not appear to be large...*"
Van Dyne & Pierce (2004)	3 field study surveys/ 186, 409 and 227, then 3 months later test–retest data for 184	"*Contrary to prior theoretical work on psychological ownership, results, however, fail to show an incremental value of psychological ownership in predicting employee performance*."

***-Number of participants**

4.1.2 Psychological ownership and prosociality construct of SCB

According to Li et al. (2021), "*Customers' social influence engagement and knowledge-sharing engagement are two crucial types of customer engagement; the former stresses that customers positively influence others during their social activities, while the latter emphasizes that customers actively provide their ideas and feedback to firms to improve products/services*." In their article, they investigate the importance of encouraging customers to act as value co-creators, along with the role of CPO in predicting customer engagement and result that *"customers' psychological ownership (CPO) significantly drives customers' social influence engagement and knowledge-sharing engagement*."

Van Dyne & Pierce (2004) stated*, "members with a sense of psychological ownership over their jobs or organizations experience more positive work-related attitudes, …, and contribute more in terms of their in-role and extra-role performance."* In the same article, they explain that "*Extra-role refers to a task which is not formally rewarded by the organization.*" Pierce and Jussila (2011) mentioned some related behavioral effects of employees' psychological ownership toward their job/organization (e.g., extra-role behaviors, protecting).

Jami et al. (2021), in their article "*I own, so I help out*," state: "*psychological ownership leads to a boost in self-esteem, which encourages individuals to be more altruistic*." Through their seven studies on hundreds of participants, they found that feeling ownership leads to prosocial behavior in the form of either helping others or making a donation to charities, but also makes people more generous toward others, even beyond those directed toward the target of ownership, as they note: "*the experience of psychological ownership made people more inclined to engage in prosocial behaviors toward beneficiaries other than the targets of ownership*." In other words, potentially inducing a sense of psychological ownership in consumers can benefit society and help people benefit others. Therefore, it is hypothesized that psychological ownership could be related to SCB's prosociality construct. Table 4-3 summarizes the evidence in the literature showing the relationship between psychological ownership and prosocial behavior.

Meanwhile, the author found an article by Mayhew et al. (2007) naming " *A study of the antecedents and consequences of psychological ownership in organizational settings* " that did not seem to support the relationship between psychological ownership and prosociality. See Table 4-4. They conducted a cross-sectional survey to test several hypotheses, including: " *H5: Organization-based and job-based psychological ownership is positively related to helping and voice extra-role behaviors.* ", knowing the helping behavior as they describe, is part of what is called prosocial behavior in this study. In Mayhew et al. (2007), the results obtained do not confirm their hypothesis meaning that they did not find no strong evidence to support the relationship between psychological ownership and helping (prosocial) behavior. However, since the author's focus in this study is on relationships between coworkers, perhaps the results obtained by Mayhew 2007

cannot be considered a completely relevant opposite result because the purpose of their article is to examine the relationship between employees and supervisors. Based on these arguments, this study proposes the following:

H2: The higher the extent of psychological ownership, the higher the extent of engagement in prosocial behavior will be

Table 4-3 Supporting positive relationship between psychological ownership and prosocial behavior

Relationship	Source (Year)	Method used/N*	Evidence
PO→ Social engagement, and Share resources	Li et al. (2021)	Survey/433	*"customers' psychological ownership (CPO) significantly drives customers' social influence engagement and knowledge-sharing engagement*."
PO→ Instrumental support, Volunteer for additional tasks	Jami et al. (2021)	7 experimental studies using surveys and interventions/135, 217, 398, 281, 184, 194, 406.	"*Activating a sense of psychological ownership increases individuals' likelihood of engaging in prosocial behavior in unrelated domains*."
PO→ Emotional support	SEMERCİ & Ergeneli (2018)	Survey/277	Co-workers' emotional support is positively related to psychological ownership of employees. (rephrased)
PO→ Share resources	Wu et al. (2017)	Survey/326	"*Psychological ownership can affect not only the knowledge sharing behavior through the knowledge sharing willingness, but also the behavior directly*"
PO→ Suggest improvement, Volunteer for additional tasks	Jussila et al. (2015)	Literature review	"*Given the ... experienced personal sense of responsibility associated with psychological ownership, it is likely that customers who feel like owners of particular products or services will also use their voice to improve them (i.e., engage in voluntary, reactive, or proactive feedback to develop the services or products) …[and] will share positive word-of-mouth concerning the product or service.*"
PO→ Share resources, Volunteer for additional tasks	Asatryan and Oh, (2008)	Survey, Visual and verbal measuring of customer–company identification/1045	*"Psychological ownership is positively related to word-of-mouth communication… to share his or her experiences with colleagues, relatives, and friends"*
PO→ Share resources	Han et al. (2008)	Survey/260	"*There is a linkage between psychological ownership and knowledge-sharing behavior*."
PO→ Volunteer for additional tasks	Van Dyne & Pierce, (2004)	3 field study surveys/ 186, 409 and 227, then 3 months later test–retest data for 184	*"Members with a sense of psychological ownership over their jobs or organizations experience more positive work-related attitudes, …, and contribute more in terms of their in-role and extra-role performance"*

***-Number of participants**

Table 4-4 Unsupporting the relationship between psychlogical ownership and prosocial behavior

Source (Year)	Method used/N*	Evidence

Mayhew et al. (2007)	Cross-sectional survey/67 manager–employee dyads & 3 employee-only responses	"…*results did not support a relationship between extra-role behavior* [helping] *and job-based or organization-based psychological ownership*."

***-Number of participants**

4.1.3 Psychological ownership and environmental responsibility construct of SCB

Among the three constructs of SCB, the relationship between psychological ownership and the sense of responsibility has received more attention from researchers. There is substantial evidence in the literature showing that enhancing the sense of ownership in people is accompanied by the feeling of responsibility, whether they are employees or customers. The sense of ownership leads to a positive emotional attachment to the target (Shu & Peck, 2011). Therefore, it is natural to imagine that this sense of ownership leads to an increased sense of responsibility towards the target. Pierce and Jussila (2011) mentioned some related behavioral effects of employees' psychological ownership toward their job/organization (e.g., experienced responsibility).

According to Pierce et al. (2001), "*Feelings of ownership are accompanied by … a felt responsibility… for the organization*", and "*Employees who feel like owners of the organization believe that they have the right to influence the direction taken by the organization and that they have a deeper responsibility than those who do not feel ownership*." They also state that this feeling of responsibility for the target of ownership does not stop only by just doing things to benefit the target. It can grow to the extent that one takes risks for the benefit of the target and act if they feel something goes wrong: "*There are several responsibility-related organizational effects that may be the outgrowth of psychological ownership, including stewardship, citizenship behaviors, personal sacrifice, and the assumption of risk on behalf of the target*." Vandewalle et al. (1995) also point to empirical evidence has been found "*showing that organizational effects such as to protect, to care and make sacrifices for, to nurture and develop the target of ownership, can be thought of as responsibilities*." In the same direction, Avey et al. (2009) say: "*When employees feel ownership in an organization, they tend to engage in positive behaviors driven by the sense of responsibility accompanying feelings of ownership*."

Even though the above statements concern employees' sense of ownership toward their organization, customers can also develop psychological ownership toward products and services they do not legally own (Jami et al., 2021; Jussila et al., 2015; Asatryan and Oh, 2008). Li et al. (2021), in their research regarding antecedents and consequences of customer psychological ownership (CPO) in the hotel business, state: "*CPO can activate customers' sense of responsibility toward a hotel. Driven by this sense, customers are inclined to do something beyond transaction (e.g., convincing others to buy, providing feedback to firms, and helping develop new products/services) to benefit the hotel.*" Pierce and Jussila (2011) state: "*Psychological ownership is associated with an increased sense of personal responsibility for the target of possession*", and Jussila et al. (2015) believe: "*Responsibility is generally associated with ownership...In service*

production, the customer participates in the production process. Therefore, it seems reasonable to assume that it makes a big difference whether a customer feels responsible for service outcomes or not, since a sense of responsibility is likely to be associated with many desirable consumer behaviors (e.g., customer engagement behavior)." Therefore, it is hypothesized that psychological ownership could be related to SCB's responsibility construct. Table 4-5 summarizes the evidence in the literature showing the relationship between psychological ownership and responsible behavior.

Table 4-5 Supporting positive relationship between psychological ownership and responsible behavior

Relationship	Source (Year)	Method used/N*	Evidence
PO→ Care for work environment, Confront irresponsible behavior	Li et al. (2021)	Survey/433	"*Customer psychological ownership can activate customers' sense of responsibility toward a hotel. Driven by this sense, customers are inclined to do something beyond transaction (e.g., convincing others to buy, providing feedback to firms, and helping develop new products/services) to benefit the hotel.*"
PO→ Environmental responsibility	Süssenbach & Kamleitner (2015; 2018)	Literature review	*"People report feelings of ownership for the environment."* *"The stronger feelings of ownership become, the stronger one feels beholden toward the target object and obligated to protect it."*
PO→ Care for work environment, Legal responsibility, Moral responsibility	Jussila et al. (2015)	Literature review	"*Responsibility is associated with ownership in general.*"
PO→ Care for work environment, Legal responsibility, Moral responsibility	Pierce and Jussila (2011)	Literature review	"*Psychological ownership is associated with an increased sense of personal responsibility for the target of possession*"
PO→ Care for work environment, Legal responsibility, Moral responsibility	Pierce et al. (2001)	Literature review	"*Feelings of ownership are accompanied by … a felt oresponsibility and a sense of burden sharing for the organization*." (Druskat & Kubzan- sky, 1995; Kubzansky & Druskat, 1993) "*Employees who feel like owners of the organization believe that they have the right to influence the direction taken by the organization and that they have a deeper responsibility than those who do not feel ownership*." (Rodgers & Freundlich, 1998) "*There are several responsibility-related organizational effects that may be the outgrowth of psychological ownership, including stewardship, citizenship behaviors, personal sacrifice, and the assumption of risk on behalf of the target*." (Vandewalle et al., 1995).
PO→ Confront irresponsible behavior, and Environmental responsibility	Vandewalle et al. (1995)	Survey/797	"O*rganizational effects such as to protect, to care and make sacrifices for, to nurture and develop the target of ownership, can be thought of as responsibilities*."

***-Number of participants**

Again, Mayhew et al. (2007) do not seem to support the relationship between psychological ownership and responsible behavior. See Table 4-6. They conducted a cross-sectional survey to test several hypotheses, including: " *H5: Organization-based and job-based psychological ownership is positively related to helping and voice extra-role behaviors.* ", knowing the voice extra-role behavior as they describe, is part of what is called responsible behavior in this study. In Mayhew et al. (2007), the results obtained do not confirm their hypothesis meaning that they did not find sufficient evidence to support the relationship between psychological ownership and voice extra-role (responsible) behavior, note again that absence of evidence is not the same of evidence of absence. However, since the author's focus in this study is on relationships between coworkers, perhaps the results obtained by Mayhew et al. (2007) cannot be considered a completely relevant opposite result because the purpose of their article is to examine the relationship between employees and supervisors. Based on these arguments, this study proposes the following:

H3: The higher the extent of psychological ownership, the higher the extent of engagement in responsible behavior will be.

Table 4-6 Unsupportive relationship between psychlogical ownership and responsible behavior

Source (Year)	Method used/N*	Evidence
Mayhew et al. (2007)	Cross-sectional survey/67 manager–employee dyads & 3 employee-only responses	"*Results did not support a relationship between extra-role behavior* [voice] *and job-based or organization-based psychological ownership.*"

***-Number of participants**

4.2 Contextualizing psychological ownership scale for coworking spaces

Among all mentioned scales for measuring psychological ownership, the 7-item Van Dyne & Pierce (2004) scale was found to be the most reliable and appropriate for this study. According to Dawkins et al. (2017), it is the most used scale by scholars. However, "*Without accurate information about reliability and validity, it is difficult to know whether the measurement scales are stable and accurate and whether they truly measure what they set out to measure.*" (Flynn et al., 1990). A panel of organizational behavior researchers have tested the validity of the seven items. Their results showed that these items are free from contamination with other theoretical domains or deficiency concerning the psychological ownership domain (Dawkins et al., 2017).

Van Dyne & Pierce (2004) developed this 7-item scale to measure employees' psychological ownership in an organization. Therefore, for using this scale in the context of a coworking space in Sweden, it was necessary to rewrite the items and translate them into Swedish as shown in Table 4-7.

After rewriting the items, its correctness was checked with some experts who were coworking members and/or had done research in the past. Based on those experts' opinions, in the context of coworking item 1, *"... is MINE*." and item 4, "*I sense that ... is MY coworking space.*" were very similar to each other, and it was possible that the respondents would not be able to distinguish between them correctly. Among these two, item 4 was recognized as more compatible with coworking space than item 1. So, item 4 was kept in the measurement scale, and item 1 was removed. In a similar comparison between item 2, "*I sense that ... is OURs*." and item 5, "*... is OUR coworking space*." Item 2 was found to be more suitable, and item 5 was removed from the scale. They also found item 6, "*Most of the people that work in this coworking space feel as though they own it.*" judgmental, therefore that item was deleted as well,see Table 4-8Table 4-8.

Table 4-7 Rewriting psychological ownership items in coworking context and translating to Swedish

Item	Van Dyne and Pierce (2004)	Coworking items	Coworking items in Swedish
1	This is MY organization	This coworking space is MINE.	Detta är MIN coworking-yta
2	I sense that this organization is OUR company.	I sense that this coworking space is OURs.	Jag känner att denna arbetsplats är VÅR coworking-yta
3	I feel a very high degree of personal	I feel a very high degree of personal ownership for this coworking space.	Jag känner en väldigt hög nivå av personligt ägandeskap över denna coworking-yta
4	I sense that this is MY company.	I sense that this is MY coworking space.	Jag känner att detta är MIN coworking-yta
5	This is OUR company.	This is OUR coworking space.	Detta är VÅR coworking-yta
6	Most of the people that work for this organization feel as though they own the company.	Most of the people that work in this coworking space feel as though they own it.	För de flesta som arbetar på denna arbetsplats känns det som att de äger denna coworking-yta
7	It is hard for me to think about this organization as MINE. (reversed)	It is hard for me to think about this coworking space as MINE. (reversed)	Det är svårt att föreställa mig denna coworking-yta som MIN

Table 4-8 choosing the appropriate items for the coworking context

Item	Van Dyne and Pierce (2004)	Coworking items	Coworking items in Swedish	Decision
1	This is MY organization	This coworking space is MINE.	Detta är MIN coworking-yta	Like item 4
2	I sense that this organization is OUR company.	I sense that this coworking space is OURs.	ag känner att denna arbetsplats är VÅR coworking-yta	*
3	I feel a very high degree of personal	I feel a very high degree of personal ownership for this coworking space.	Jag känner en väldigt hög nivå av personligt ägandeskap över denna coworking-yta	*
4	I sense that this is MY company.	I sense that this is MY coworking space.	Jag känner att detta är MIN coworking-yta	*
5	This is OUR company.	This is OUR coworking space.	Detta är VÅR coworking-yta	Like item 2

6	Most of the people that work for this organization feel as though they own the company.	Most of the people that work in this coworking space feel as though they own it.	För de flesta som arbetar på denna arbetsplats känns det som att de äger denna coworking-yta	Judgmental
7	It is hard for me to think about this organization as MINE. (reversed)	It is hard for me to think about this coworking space as MINE. (reversed)	Det är svårt att föreställa mig denna coworking-yta som MIN	*

In this way, in the end, a 4-item scale was contextualized to assess psychological ownership in a coworking space, see Table 4-9.

Table 4-9 The final 4-item psychological ownership scale for coworking context

Item	Coworking items	Coworking items in Swedish
1	I sense that this coworking space is OURs.	Jag känner att denna arbetsplats är VÅR coworking-yta
2	I feel a very high degree of personal ownership for this coworking space.	Jag känner en väldigt hög nivå av personligt ägandeskap över denna coworking-yta
3	I sense that this is MY coworking space.	Jag känner att detta är MIN coworking-yta
4	It is hard for me to think about this coworking space as MINE. (reversed)	Det är svårt att föreställa mig denna coworking-yta som MIN

5 Discussion and conclusion

5.1 Research model and discussion

Based on the literature review, Figure 5-1 shows the research model integrating the constructs of the sustainable coworking behavior (SCB) and psychological ownership..

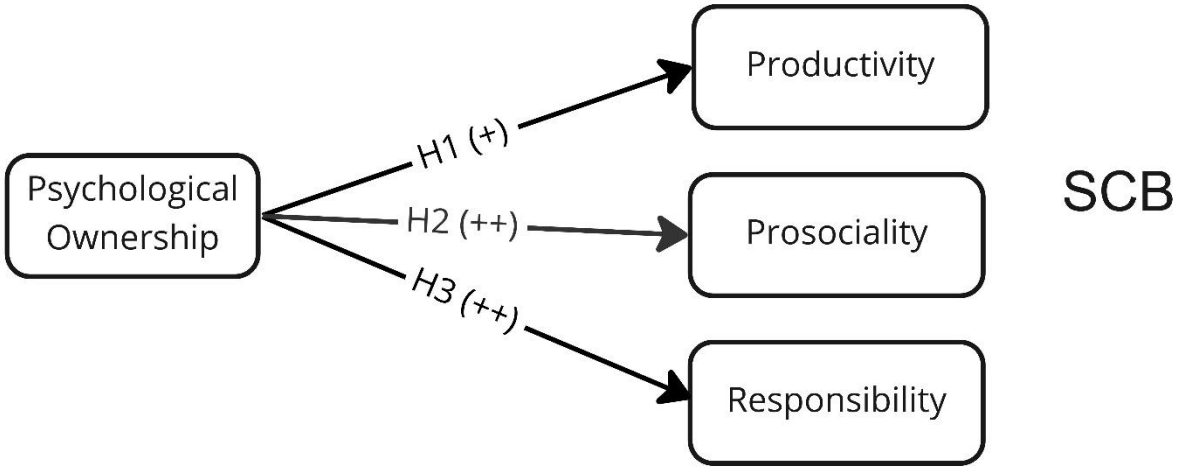

Figure 5-1 Research model

In this study, following Magnusson et al. (2022)'s research of sustainable coworking behavior (SCB), an attempt was made to investigate possible factors affecting SCB. To answer the first research question, the psychological ownership theory is taken to consideration due to the existence of sufficient documentation in the literature regarding the existence of a link between psychological ownership and the creation of desired behaviors (including sustainable behavior), along with the advantage of simplicity and affordability of creating a sense of ownership with methods such as advertising (Folse et al., 2012) or touching an object and imagining using it (Jami et al., 2022) which can be used in conducting interventions in future researches. By reviewing the relevant literature, the following three hypotheses were proposed for investigation in future research:

H1: The higher the extent of psychological ownership, the higher the extent of engagement in productive behavior will be.

H2: The higher the extent of psychological ownership, the higher the extent of engagement in prosocial behavior will be

H3: The higher the extent of psychological ownership, the higher the extent of engagement in responsible behavior will be.

Regarding (H1), literature supported the relationship between psychological ownership and the dimensions of "*Be efficient*" and "*Generate new ideas*." However, there are the same number of literature supporting and opposing this hypothesis. Moreover, although it seems that it is quite natural for people to feel more focused when they work in their favorite place (desk or office), there is little evidence in the literature to support the relationship between psychological ownership and productivity dimension of "Remain focused". Therefore, this hypothesis in Figure 4-1 is shown only with one plus (+). Investigating this relationship through an empirical study may produce exciting results and add to the relevant literature.

Studies show that the possible relationship between psychological ownership and both constructs of prosociality and responsibility (H2 and H3) seems promising. The literature supported both dimensions of prosociality and responsibility constructs. The number of supporting literature is promising and clearly more than H1. There is only one opposing article that focuses on supervisor/employee relationship. While the scope of this study is about the relationship between members. Therefore, strong relationships between psychological ownership and these two constructs are assumed to be probable. Psychological ownership increases interest in the target of ownership, so it looks natural to increase the sense of responsibility towards the target. Table 5-1 shows the summary of the results.

Table 5-1 Summary of results

Construct	#Supported dimensions	unsupported dimensions	Supporting literature	Methods*	Opposing literature	Methods
Productivity	Be efficient, Meet targets, Generate new ideas	Remain focused	4	3 Literature review (75%), 1 Survey (25%)	4	3 Surveys (75%), 1 Literature review (25%)
Prosociality	Social engagement, Share resources, Instrumental support, Emotional support, Suggest improvement, Volunteer for additional tasks,	-	8	16 Surveys (88%), 1 Observation (6%), 1 Literature review (6%)	1	Cross-sectional survey
Responsibility	Environmental responsibility, Care for work environment, Legal responsibility, Moral responsibility, Confront irresponsible behavior	-	7	5 Literature review (71%), 2 Surveys (19%)	1	Cross-sectional survey

***The number of literature is not equal to sum of methods because literatures used different methods or multiple experiments in the same article**

Moreover, the dimensions have not been uniformly investigated in the literature. Table 5-2 shows that more research has been done on some dimensions such as *generating new ideas* - especially knowledge sharing- and on the other hand, there is less evidence for some dimensions such as *remain focused*.

Table 5-2 Frequency of articles founded for each dimension

Construct	dimensions	#Supporting literature	Methods
Productivity	Remain focused	0	
	Meet targets	4	3 Literature reviews, 1 Survey
	Be efficient	4	3 Literature reviews, 1 Survey
	Generate new ideas	4	3 Literature reviews, 1 Survey
Prosociality	Social engagement	1	1 Survey
	Share resources	3	3 Surveys
	Instrumental support	1	1 Survey
	Emotional support	1	1 Survey
	Suggest improvement	1	1 Literature review
	Volunteer for additional tasks	4	1 Literature review, 3 Surveys
Responsibility	Environmental responsibility	2	1 Literature review, 1 Survey
	Care for work environment	4	3 Literature reviews, 1 Survey
	Legal responsibility	3	3 Literature reviews
	Moral responsibility	3	3 Literature reviews
	Confront irresponsible behavior	2	2 Surveys

Since any research in the future will need a suitable scale and measurement method to check these hypotheses in the context of coworking spaces, to answer the second research question, after reviewing the relevant literature, a questionnaire was contextualized and pre-tested for use in coworking spaces.

5.2 Theoretical contribution

This study makes contributions to the literature on sustainable coworking behavior which are: Identifying the factors that can potentially affect the sustainable behavior of coworking members. Prior work on sustainability in the coworking space has primarily studied the role of design (e.g., Milošević et al., 2021; Cruz et al., 2021) or the owner (e.g., Bouncken et al., 2023; Cabral & van Winden, 2022) to create and maintain sustainability. In this study, inspired by the model prepared by Magnusson et al. (2022), the author tried to find ways to understand what affects the sustainable behavior of the members. For this purpose, the theory of psychological ownership was used because this theory, on the one hand, from the aspect of sharing economy, has something in common with both coworking space (Pasimeni, 2020; Bouncken & Reuschl, 2018) and on the other hand, from the psychological aspect, it is effective on behavior in general (Jussila et al., 2015; Van Dyne & Pierce, 2004), which could include sustainable behavior (Süssenbach & Kamleitner, 2018). Having reviewed the literature, the author showed that this theory could be a good candidate for explaining what affects the three aspects of the sustainable behavior of members in the coworking space, namely, productivity (self), prosociality (others), and responsibility (planet).

Finally, This study adapted a psychological ownership scale to measure members' sense of ownership in coworking spaces. The adapted scale is based on a previously established scale by Van Dyne and Pierce (2004) and can be used in future research on coworking spaces.

5.3 Managerial implication

This study shows that there is a good possibility that psychological ownership can explain the sustainable coworking behavior as described by Magnusson et al. (2022). If future researchers use the scale proposed in this research to measure the level of psychological ownership of members at the same time as the measuring the SCB scale prepared by Magnuson, the results of the survey can prove the existence or non-existence of such a relationship.

Literature shows that creating or enhancing the sense of ownership in people is relatively easy and doable. According to Folse et al. (2012), psychological ownership can be created in people through advertising. Jami et al. (2022), in their experiments, used things like touching the object and imagining using it to create a sense of ownership. They also add that even using phrases like "my…" or "our …" when communicating with customers or advertising effectively increases the sense of psychological ownership. In an empirical study, Peck & Shu (2009) showed that "*nonowners, or buyers, perceived ownership can be increased with either mere touch or imagery encouraging touch*." This simplicity of creating a sense of psychological ownership in people can make it easy and reasonable to test and make interventions for future empirical studies and research.

Since the literature review has found promising evidence of a positive relationship between psychological ownership and SCB, we can hope that the hypotheses raised in this study will be confirmed after conducting a further study such as survey. In this way, the coworking providers can hope to enhance the sustainable behavior in their members by increasing psychological ownership. In addition to the above, the author believes that coworking providers can enhance sustainable behavior in their members by increasing psychological ownership. They can achieve this by providing opportunities for personalization, fostering a sense of community, encouraging feedback and input, offering flexible membership options, and recognizing and rewarding contributions. Allowing members to personalize their workspace, encouraging social interaction and networking, soliciting feedback and using it to make improvements, providing flexible membership options, and recognizing members' contributions can all increase members' sense of control and investment in the space.

5.4 Limitations and future research

One of the limitations of this study can be the author's limited relationship with coworking spaces. Although involvement in the research team of quality, two visits to two different coworking spaces and meting the owners greatly helped to increase the author's understanding of the context and needs of members and the concept of sustainability, the possibility of membership in these spaces or having more visits would have been useful. Moreover, although the author attempted to make the reference search as systematic and reproducible as possible, the third screening was performed at the author's discretion. Finally, although Web of science is one of the most reliable databases for reference searches, using more databases would probably have resulted in more articles being found.

For this future research, it is recommended to consider the type of membership as a control variable in two categories of *by choice* and *by default*, as Magnusson et al. (2022) and Rådman et al. (2022) have shown their importance. Moreover, there are studies showing that psychological ownership and social participation can be a two-way relationship, which means that customer participation positively influences psychological ownership (Joo, 2020; Joo & Marakhimov, 2018). In his study of the third place context, which in many ways resembles a coworking space, Joo (2020) found that *Customer participation* inclusive of *Feedback* (the degree to which an individual attentively communicates with managers or employees of the third place by providing feedback and suggestions), and *Cooperation* (the degree to which an individual engages in voluntary activities that are helpful or beneficial to the third place) has a positive influence on psychological ownership. In the same direction, Joo & Marakhimov (2018) found that *Customer participation*, inclusive of Content *creation* (the extent to which a customer actively creates and disseminates content, shares information, and provides emotional support to others in an online community), and *Feedback* (the extent to which a customer attentively communicates with the firm by providing feedback and suggestions) positively influences psychological ownership. There is a possibility that such a dual relationship exists regarding productivity and responsibility as well. These bidirectional relationships have not been considered in this study and can be the subject of future research.

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OF SERVICE MANAGEMENT AND LOGISTICS
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