LUND UNIVERSITY

Department of Service Management and Service Studies

The "hidden" motivations of (un)sustainable laundry practices

A case study at a shared laundry facility in Sweden

Master's thesis: 30 credits

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2020

Abstract

Laundry as a household activity has been subject to (un) sustainable consumption studies. The majority of those studies are rooted in mainstream approaches to (un) sustainable consumption focusing on either changing individuals (e.g., their decisions, behaviors, habits) or system (e.g., infrastructure, technology). Moreover, the laundry has been predominantly studied as a washing activity. This research contributes to (un)sustainable consumption stock by applying a practice theory perspective to laundry. The study focuses on mapping laundry practice holistically by observing it in a real-life situation in a shared laundry facility and interviewing practitioners using those to find out its both sustainable and unsustainable motivations. Using zooming in and zooming out as a theoretical framework, the author proposes a Laundry Mapping Model for spotting different elements and practices linked to laundry. The research shows booking practice and the right strategy for storing as sustainable, while increased machine capacity, availability of various machines, sorting dirty laundry, white laundry, shirts, formal clothing as unsustainable motivations. Laundry bags can be both sustainable and unsustainable motivation, depending on their size, while automatic detergent dosing machines have rebound effect potential. Drying cabinets that reduce the ironing frequency need further research to be assessed. The author's Laundry Mapping Models, combined with practice theory, explains how different laundering phases can be as important as washing when it comes to resource consumption.

Key words: sustainable consumption, unsustainable consumption, mainstream approaches, laundry, laundry practice, practice theory, shared laundry facility, zooming in, and zooming out.

Acknowledgment

I want to take this chance to thank, first and foremost, the Swedish Institute for the valuable opportunity and life-changing experiences in Sweden. It would never happen without being honored as one of the SI Visby scholarship holders. I cannot express how honored I am for being part of the SI network and looking forward to starting a new page as a SI Alumni. A thousand thanks for making us all feel so welcomed in such a warm family atmosphere!

Of course, a special thanks should go to my supervisor Malin Zillinger for valuable contributions to my thesis writing period and fascinating lectures and classes during my master's program. Also, a huge thanks to my groupmates and all other professors who had incredible input in my two-year study period in Sweden.

Finally, I should definitely be grateful for always having amazing people around me - my family, friends, and colleagues. I would never succeed in anything without you.

Table of Contents

1. Introduction

1.1 Background

Sustainable consumption is avoiding high consumption that impacts the environment and other people (Middlemiss, 2018). The current consumption patterns are considered unsustainable because of intensive resource usage (Piscicelli, Moreno, Cooper, & Fisher, 2016; Warde, 2014); however, everyone consumes, and it does not seem realistic to stop it (Murphy & Cohen, 2011). Sustainable consumption studies and policymakers aim to address the unsustainable aspects of the consumption pattern (Seyfang, 2009).

Laundry has been subject to different sustainable consumption studies as a resource-consuming activity (Kruschwitz, Karle, Schmitz, & Stamminger, 2014). It negatively impacts the environment due to water, energy, and chemical usage (Jack, 2013b; Laitala, Boks, & Klepp, 2011; Laitala, Klepp, & Boks, 2012; Pakula & Stamminger, 2010, 2015), and accounts for being the most resource-intensive phase in the garment life-cycle (Jack, 2013a, 2013b; Kruschwitz et al., 2014; Laitala et al., 2011; Laitala et al., 2012; Pakula & Stamminger, 2010; Yates & Evans, 2016). The existing laundry research has predominantly focused on the washing part of laundering (Conrady, Kruschwitz, & Stamminger, 2014; Pakula & Stamminger, 2010; Yates & Evans, 2016). Washing machines (Pakula & Stamminger, 2015; Stamminger, 2011), temperature (Laitala et al., 2011), load size, and frequency of wash (Kruschwitz et al., 2014; Stamminger, 2011) have been referred to as the source of unsustainable laundry activity. The laundry consumption studies and policymakers attempt to find ways of addressing those unsustainable factors via technological innovations, intervening consumer behavior, or closing the “knowledge gap” (Alborzi, Schmitz, & Stamminger, 2017; Gustavsson & Elander, 2013; Mylan & Southerton, 2018; Pakula & Stamminger, 2015).

These strategies are rooted either in individualist or structuralist approaches to (un)sustainable consumption, where either individual (the decisions and drivers of behavior) or structure (e.g., system, infrastructure, technology, policy) are taken as a source of the problem. These two approaches are viewed as mainstreams in (un)sustainable consumption studies, and the research shows that both are not successful in changing the consumption patterns as they only address one side of the problem (Davies, Fahy, & Rau, 2014; Geels,

McMeekin, Mylan, & Southerton, 2015; Middlemiss, 2018; Murphy & Cohen, 2011; Seyfang, 2009; Soron, 2019).

Sustainable consumption studies have started to apply *the practice theory* approach from the early 2000s (Welch & Warde, 2015) as an alternative framework to overcome the shortcomings of the mainstream approaches (Breadsell, Eon, & Morrison, 2019; Røpke, 2009; Soron, 2019). The theory focuses on practices - a routinized type of behavior, consisting of elements (material, competence, and meaning) integrated by practitioners at a particular space and time (Hui, 2016; Middlemiss, 2018; Reckwitz, 2002; Shove, 2016; Shove, Pantzar, & Watson, 2012). Practice theory argues that people are not reflexive on their consumption activities (Mylan, 2015; Røpke, 2009; Shove et al., 2012) because they are not consuming resources “per se”(Welch & Warde, 2015, p. 88). Individuals use those to perform some practices; for example, they “consume” energy, water, and detergent to do laundry; meat, vegetables, fruits, energy, and water for cooking (Mylan, 2015; Shove et al., 2012). Accordingly, it is not the individuals that are unsustainable, but the practices. So, the unit of analysis should be shifted from individuals and structures to practices (Southerton & Ulph, 2014) and their unsustainable elements (Shove et al., 2012; Spurling & McMeekin, 2015; Spurling, McMeekin, Shove, Southerton, & Welch, 2013).

There are only a few laundry studies with the practice theory approach, and those mainly evaluate laundry practice in the light of historical evolution. The elements’ (material, competence, meaning) alterations are mainly related to technological or societal developments (Shove, 2003a; Shove et al., 2012). Although those studies provide valuable insight to understand the trajectory of the practice and conventions (Shove, 2003a, 2003b), they are not easy to operationalize outside academia. The same critiques can be applied to one of the very successful laundry studies from a practice theory perspective conducted by Tullia Jack (2013a, 2013b). Her experiment with 31 Australian who wore their jeans without washing for three months showed how people develop alternative practices (such as airing, brushing, freezing, leaving those in the direct sunlight) when they are not “allowed” to carry the practice (washing in the current study) (Jack, 2013a, 2013b). Jack’s study addresses practice and collective convention change without waiting for historical transformation; however, the study was conducted as an experiment, where participants knew that the “disruption” is temporal. They were aware that once the experiment ended, they could continue laundering their jeans, and there were no restrictions on laundering other items throughout the study (Jack, 2013a, 2013b). The broader application and success of this type

of disruption is questionable. For example, wearing the same underwear for three months or stopping washing all laundry for three months (or completely) may not help develop sustainable alternative practices as successfully, as in Jack’s (2013a, 2013b) experiment.

Despite practice theory proponents’ successful contribution to the stock of (un)sustainable consumption literature, policymakers still find it challenging to frame the strategies and campaigns around this theory where noticeable alterations of the practices result from long-term historical transformations and societal developments. Even within academia, the application of this theory is questioned and challenged for having a vague focus - practice, instead of having more concrete and precise target such as individuals or structures (Breadsell et al., 2019; Higginson, McKenna, Hargreaves, Chilvers, & Thomson, 2015; Shove, 2015; Shove et al., 2012; Walker, 2015). As a result, the policymaking and research in laundry continue viewing the core of the unsustainability problems from the mainstream approach and addressing those with the traditional strategies, e.g., creating new and “sustainable” machines, changing the infrastructure, trying to go out with informational or social marketing campaigns.

1.2 Research Aim and Research Question

The only comprehensive framework for changing practices intentionally without waiting for historical or societal transformations is proposed by Spurling et al. (2013). The authors offer three different ways of intervening in unsustainable practices; however, those require to detect unsustainable elements/practice and replace or substitute those with sustainable alternatives. Accordingly, spotting the (un)sustainable motivations of the practices should become the ultimate task of research in order to change or alter the practices.

Laundering is not only washing the dirty clothes in the machine by adding detergent, choosing the programs, and temperature (Conrady et al., 2014; Pakula & Stamminger, 2010). It is a set of different activities (Conrady et al., 2014; Pakula & Stamminger, 2010; Yates & Evans, 2016), such as sorting, storing, washing, drying, ironing, and using the clean laundry (Mylan & Southerton, 2018; Yates & Evans, 2016). Each activity involves different elements and is connected to different practices (Nicolini, 2012; Shove, 2015, 2016; Shove et al., 2012; Spurling & McMeekin, 2015; Spurling et al., 2013), and focusing only on the washing part of laundry means to study or address it from one aspect. The fragmented approach can never successfully solve unsustainable consumption problems of laundering, as it does not

allow to spot and address ‘hidden” motivations of the practice (Yates & Evans, 2016).
The author’s extensive literature review on (un)sustainable consumption, laundry, and practice theory showed that the only holistic laundry research from a practice theory perspective that gives an in-depth explanation of why and how practice theory framework can be successful both in research and policymakers was conducted by Yates and Evans (2016). Based on quantitative data collected from 1502 UK respondents in 2013, the study argues that except the washing machines, other activities such as separating, sorting, drying has implications for the way energy is consumed (Yates & Evans, 2016). Besides its priceless contribution to the literature and policymaking, the research can be criticized from three perspectives:
Firstly, Yates and Evans (2016) take a holistic approach to laundering as a set of different activities, while ironing activity has been neglected and only referred once as “heavily gendered” activity (p. 110).
Secondly, the study touches upon the laundry’s interconnectedness with other practices, but the research does not elaborate further (which can be related to the final critique).
Finally, the study was quantitative, and the data has been collected via a survey, which is not one of the suitable strategies and methods to explore the practices (Nicolini, 2012). Because of the complex nature of practices, one method is not enough to map those.

This thesis aims to contribute to the (un)sustainable consumption literature stock by studying laundry from a practice theory perspective and spotting the “hidden” (un)sustainable laundry motivations. The researcher uses the notion “(un)sustainable” (instead of “sustainable” or “unsustainable”) as intended to spot both sustainable and unsustainable motivations of laundry practice. To avoid repetition, (un) is used as a prefix; however, when sustainable or unsustainable sides are explicitly highlighted, the prefix is added or removed accordingly.

As the previous studies have been carried at households with privately-owned machines and shared laundry facilities are viewed as a (potential) way of reducing laundry resource-consumption (Borg & Högberg, 2014; Jack, 2018; Mont & Plepys, 2007; Wasserbaur, Sakao, Ljunggren Söderman, Plepys, & Dalhammar, 2020; Yates & Evans, 2016), this thesis focuses on the laundry practices at the shared laundry facility. Another reason for carrying the study at a shared laundry facility is the possibility to overcome one of the critical problems - collecting data in the field without purposeful intervening in the practices. So, the research

carried at shared laundry rooms can portray the practice in a real-life situation. Accordingly, the below main research question has been formulated:

RQ: What are the (un)sustainable motivations of laundry practices at a shared laundry facility?

To answer this research question, one needs to have a holistic map of laundry practice. Due to this reason, below two sub-questions have been developed that would help to answer the main research question:
RQ1: How do the practitioners accomplish laundry practices at a shared laundry facility?
RQ2: What elements and practices are involved in this accomplishment?

This thesis is structured in the following way: the present introduction chapter is followed by a literature review on mainstream approaches to (un)sustainable consumption, practice theory, and laundry. Nicolini’s (2012) Theory-Method-Package of zooming in and zooming out has been discussed as the theoretical framework for studying the laundry practice and mapping it holistically. After that, in the methodology chapter, the chosen research strategy and methods will be presented in connection to research philosophy, approach, design, and research questions. The fourth chapter will present and analyze the collected data by zooming in the link among laundry practice’s elements and zooming out to trace the link between laundry and other practices. The thesis ends with a discussion and conclusion chapter, where the main research question is answered by the author’s Laundry Mapping Model built on answering the sub-questions. The contributions and limitations of the current study and suggestions for future research will be discussed in the same chapter.

2. Literature review

The literature review chapter presents the mainstreams in (un)sustainable consumption studies and their limitations. Practice theory is introduced as an alternative framework in sustainable consumption studies. The background of the theory, its approach to variances, and changes are reviewed. The chapter also critically discusses the previous laundry studies from the mainstream and practice theory perspectives. Nicolini’s (2012) Theory-Method Package is presented as a suitable theoretical framework for this research.

2.1. Mainstreams in (un)Sustainable Consumption Studies

(Un)sustainable consumption is an inseparable part of the sustainable development and environmental problem discussions (do Amaral Junior, de Almeida, & Klein Vieira, 2020; Jackson, 2014; Middlemiss, 2018;). Oslo Roundtable (1994) has defined sustainable consumption as:

“the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.”

The current consumption is unsustainable as resources are used extensively (Piscicelli et al., 2016; Tukker, 2015; Warde, 2014). Although some may consume less than others, everyone consumes, mostly with a negative impact on the environment (Middlemiss, 2018). A “zero-consumption” is not even a subject to discussion (Murphy & Cohen, 2011), as one stops consuming only when dead (Seyfang, 2009). Due to this reason, (un)sustainable consumption studies should target and change the unsustainable aspects of consumption (Seyfang, 2009). As consumption is a social category, its study brings together social scientists (Middlemiss, 2018). Different disciplines such as economics, sociology, psychology, anthropology, and political science have contributed to sustainable consumption studies (Beattie & McGuire, 2014; do Amaral Junior et al., 2020; Tom Hargreaves, 2019; Jackson, 2014; Middlemiss, 2018; Reisch & Thøgersen, 2015; Seyfang, 2009; Southerton & Ulph, 2014). Due to several disciplines’ involvement, an extensive range of concepts and theories have been used to study (un)sustainable consumption (do Amaral Junior et al., 2020; Jackson, 2014; Middlemiss, 2018; Seyfang, 2009). Based on what is problematized and who should take responsibility for solutions or change, (un)sustainable consumption research has been polarized by *individualist and structuralist/system* approaches (Corsini, Laurenti, Meinherz, Appio, & Mora, 2019;

Tom Hargreaves, 2011; Jackson, 2014; Middlemiss, 2018; Røpke, 2009; Seyfang, 2009; Spaargaren, 2011). Because of the extensive application in (un)sustainable consumption studies, these approaches are referred to as mainstream (approaches) in the literature (Davies et al., 2014; Geels et al., 2015; Middlemiss, 2018; Murphy & Cohen, 2011; Seyfang, 2009; Soron, 2019).

2.1.1 The Individualist Approach

The individualist approach to (un)sustainable consumption is rooted in *the economic and socio-psychological motivations* of the consumption and focuses either on individuals' cognitive decision making or the drivers of behaviors accordingly (Corsini et al., 2019; Geels et al., 2015; Tom Hargreaves, 2019; Iveroth & Bengtsson, 2014; Jackson, 2014; Liu, Oosterveer, & Spaargaren, 2016; Middlemiss, 2018; Piscicelli et al., 2016; Seyfang, 2009; Spaargaren, 2011; Welch, 2017).

The *individualist approach with economic motivation* takes its root from neoclassical economics, and the individuals' actions are viewed as rational decisions (making different choices) based on knowledge and available information. Sustainable consumption is viewed as an outcome of the linear relationship between knowledge and action/behavior; people are expected to make more sustainable choices and act more sustainable if they had have enough knowledge (Corsini et al., 2019; Middlemiss, 2018; Piscicelli et al., 2016; Seyfang, 2009). Accordingly, the focus is to provide information so that consumers become knowledgeable.

The *individualist approach with socio-psychological motives* focuses mainly on how people's thoughts and feelings affect their consumption patterns (Tom Hargreaves, 2011; Middlemiss, 2018), and aims for a better explanation of the drivers of (un)sustainable behavior and target those for change (Corsini et al., 2019; Liu et al., 2016; Seyfang, 2009). Different drivers, e.g., attitude, intention, norms, moral beliefs, and normative; attitude-behavior-context (see details in (Liu et al., 2016; Middlemiss, 2018; Piscicelli et al., 2016) have been listed by different socio-psychological models as a motivation of the behavior. The latest researchers have focused on non-rational drivers, such as individuals' habits and routines (Middlemiss, 2018).

The individualistic approach with both economic and socio-psychological motives has been subject to critiques. The *economic motivation was questioned*, as knowledge alone is not the predictor of any behavior, including consumption (Middlemiss, 2018; Schäfer, Jaeger-Erben, & Bamberg, 2011). Moreover, the behavior is not always based on rational choice - people

do not reason their inconspicuous and habitual consumptions (Middlemiss, 2018; Southerton & Ulph, 2014).

Socio-psychological motivation is not successful in (un)sustainable consumption studies, either, as research showed that increasing awareness does not necessarily result in behavioral change (Schäfer et al., 2011; Spaargaren, 2011). People do not always keep their promises (Spaargaren, 2011). Consumers may have a positive attitude but not perform any action, or their values and actions can vary. As a result, there is a gap between what the consumer says and does (Beattie & McGuire, 2014; Seyfang, 2009). The term is used as an attitude-behavior or value-to-action gap (Middlemiss, 2018; Seyfang, 2009; Warde, 2014). In general, there are always factors affecting the behavior that is not considered with an individualistic approach (Middlemiss, 2018), and the approach puts more responsibility on individuals than they can carry (Spaargaren, 2011).

2.1.2 The Structuralist or System Approach

Although the individualist approach has dominated in (un)sustainable consumption studies, the structuralist approach is still considered another mainstream, primarily focusing on the advantages of the technology, infrastructure, and social structure (Liu et al., 2016; Spaargaren, 2011). Individuals and their behavior are viewed as locked in within the available system or technology with little room for the choices, attitudes, beliefs, or habits (Geels et al., 2015; Jackson, 2014; Liu et al., 2016; Middlemiss, 2018; Reisch & Thøgersen, 2015; Seyfang, 2009). Accordingly, the target for the change and interventions for sustainable consumption becomes the productions, structures, governments, institutions, and strategies, not individuals (Schäfer et al., 2011). The structural changes are expected to force the consumer to become sustainable, as people will not have any other alternative (Spaargaren, 2011). Systemic change urges that sustainable consumption is impossible without governments and influential actors’ involvement (Lorek & Vergragt, 2015). The change should be rooted deep into the system, without focusing on individuals’ actions (Iveroth & Bengtsson, 2014; Lorek & Vergragt, 2015).

The system approach has been criticized from the individualistic perspective for neglecting individual actors and their roles in the environmental changes. When technology and infrastructure are not designed for the users, individuals always fail, which shows that the actors and systems are interdependent (Yates & Evans, 2016). The system approach is not working because the actors do not accept what has been offered without conflict or objection (Spaargaren, 2011).

2.2 Bridging the gap: Practice Theory

As both individualist and structural approaches have shortcomings, (un)sustainable consumption (problems) needs a balanced approach (Breadsell et al., 2019; Gram-Hanssen, 2015; Schäfer et al., 2011; Spaargaren, 2011). The theory of social practices or practice theory is brought as an alternative approach in (un)sustainable consumption studies to solve this debate (Liu et al., 2016; Mylan, 2015; Mylan & Southerton, 2018; Reckwitz, 2002; Reisch & Thøgersen, 2015; Røpke, 2009; Shove et al., 2012; Spaargaren, 2011; Welch & Warde, 2015). It is a cultural theory that focuses on the dynamics of everyday life and views the world as a range of recurrent practices performed by competent agents (Geels et al., 2015; Nicolini, 2012; Reckwitz, 2002; Shove et al., 2012; Spaargaren, 2011). Initially, the theory was developed by authors such as Bourdieu, Giddens, Foucault, Talyor, Schatzki, and Reckwitz (Nicolini, 2012; Reckwitz, 2002; Sahakian & Wilhite, 2013), but Warde, Røpke, Shove, Spaargaren, and Nicolini are among those who frequently cited for bringing this theory to (un)sustainable consumption studies (Sahakian & Wilhite, 2013). The practice literature essentially refers to Reckwitz’s definition of practices, which is *“…a routinized type of behavior which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, ‘things’ and their use, background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge”* (Reckwitz, 2002, p. 249).

The practice theory shifts the unit of analysis to what people do to fulfill different everyday practices such as washing, bathing, eating, cooking, laundry (Beattie & McGuire, 2014; Geels et al., 2015; Røpke, 2009; Sahakian & Wilhite, 2013; Shove, 2003a, 2003b; Southerton & Ulph, 2014), and individuals are viewed as the carriers of the practices (Mylan, 2015; Nicolini, 2012; Shove et al., 2012; Soron, 2019). These daily practices are directly related to environmental problems as they are engaged in resources and counted for the primary energy, water, and material consumption (Connolly & Prothero, 2008; Røpke, 2009; Shove, 2003a). In other words, individuals use resources to perform different practices (Breadsell et al., 2019; Connolly & Prothero, 2008; Mylan, 2015; Piscicelli et al., 2016; Røpke, 2009). Focusing on practices and their changes, instead of individuals or structures, seems to be more promising for shifting consumption patterns towards a sustainable direction (Jack, 2013a).

2.2.1 Variations and Changes in Practices

Practices are complex physical and mental activities glued together by different elements (Reckwitz, 2002). Reckwitz’s (2002) original list of elements (bodily and mental activities, things and their use, background knowledge, know-how, states of emotion and motivational knowledge) have been merged and simplified *to material, competence, and meaning* by Shove et al. (2012), and this version is extensively used within the practice theory studies (Breadsell et al., 2019; Morley, 2016; Mylan, 2015; Røpke, 2009; Spurling & McMeekin, 2015; Walker, 2015). *The material* element covers all the objects, things, appliances, and the body that needs to perform the practice (Røpke, 2009; Shove et al., 2012). *The competence* element includes knowledge, skill, and experience to perform the practice (Røpke, 2009; Shove et al., 2012). *The meaning* element is the practice’s ideology, which includes the assumption, perception, and sentimental expressions (Røpke, 2009; Shove et al., 2012).

Practitioners link the elements at a particular time and space to create *practice-as-performance* (Breadsell et al., 2019; Piscicelli et al., 2016; Røpke, 2009; Shove et al., 2012). For example, laundry-as-performance may have material elements such as washing machine, detergent, dirty laundry; competences such as skill, and knowledge of how to do the laundry, how to use the machines or dosage the detergent; and meaning - cleanliness or freshness (Røpke, 2009; Shove et al., 2012). The practice is performed when a practitioner actively connects all these three elements of laundry. One can do laundry on Sunday at 19:00 at their kitchen using washing machines, laundry detergent, dirty linens, towels, water, and energy. When different practitioners at different times and spaces perform this laundry practice in the same or similar way, it becomes *practice-as-entity* (Røpke, 2009). Practice-as-entity is a mutual historical creation of the groups and exists exceptionally when the activities are continuously carried out by a larger group of people/individuals (Røpke, 2009). It is a recognizable set of elements (Breadsell et al., 2019) and building blocks of any practices (Reckwitz, 2002). For example, laundry-as-performance may have several variations (Hui, 2016) - one may do laundry at a shared laundry room, while others in their bathrooms; one may use a liquid detergent while others capsuled or powdered detergents. Independent of variations, those performances are still identified as laundry practice (Breadsell et al., 2019; Higginson et al., 2015; Hui, 2016), not as, e.g., driving or traveling practices. Accordingly, every practice-as-entity encompasses multiple versions of practice-as-performance (see Figure 1).

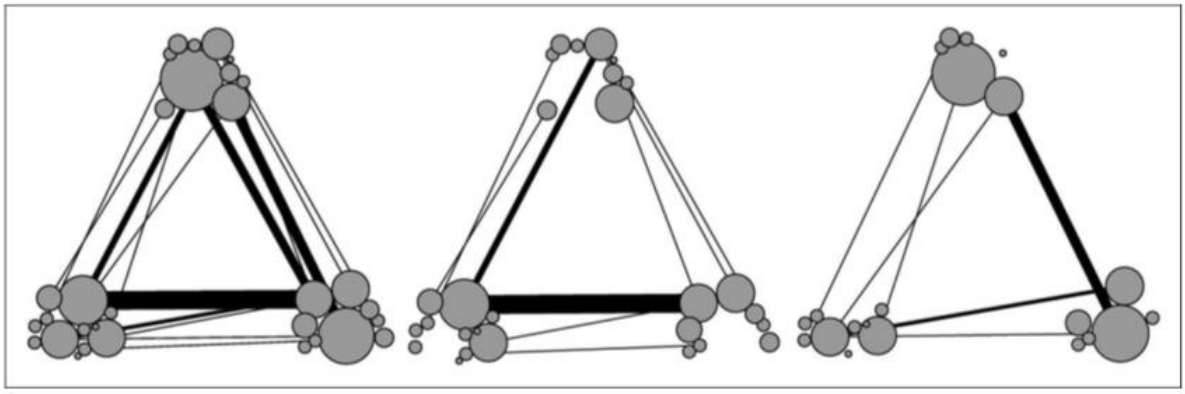

Figure 1. Practice an entity (left) and two different performances (center and right) (Higginson et al., 2015, p. 954).

How practice-as-performances are carried can develop, dismiss, and transform practice-as-entities (Feldman & Worline, 2016; Higginson et al., 2015; Mylan, 2015; Røpke, 2009). Still, the dynamic (performance) and more or less static (entity) nature of the practice makes it challenging to picture how unsustainable aspects of the particular practice can be addressed and changed (Feldman & Worline, 2016; Middlemiss, 2018; Shove et al., 2012). For example, the change in laundry practice has mainly been viewed under the historical transformation of the practice, which related to the vital technological and societal changes (Laitala et al., 2011; Laitala et al., 2012; Shove, 2003a, 2003b). The literature on laundry from a practice theory perspective sheds light on how the practice is changed from brushing, boiling, soaking, beating to washing in a machine, spinning, and using another or the same machine for drying (Laitala et al., 2011; Laitala et al., 2012; Pakula & Stamminger, 2010; Yates & Evans, 2016). The drastic change in the concept of cleanliness over history (Shove, 2003a, 2003b) explains why laundry today is performed for freshness and not cleanliness or hygiene only (Jack, 2013b; Kruschwitz et al., 2014; Mylan, 2015; Yates & Evans, 2016). The trajectories of these changes are mainly concerned with the formulation of the laundry-as-entity, and practice theory is claimed to be unpractical in the application and addressing the “in-situ” (un)sustainable aspects of the consumption. The researchers and policymakers find it difficult to intervene in the practice without focusing on someone (individuals) or something (system) (Breadsell et al., 2019; Higginson et al., 2015; Shove, 2015; Shove et al., 2012; Walker, 2015).

The proponents of the practice theory assert that reconfiguring practice elements (material, competence, and meaning) would enable to alter the practice without waiting for the significant historical or societal change (Breadsell et al., 2019; Laitala & Klepp, 2016;

Middlemiss, 2018; Piscicelli et al., 2016; Shove et al., 2012). Because the elements are interrelated, the change in one element, may also require alteration in other element(s), so they co-evaluate (Breadsell et al., 2019; Middlemiss, 2018; Shove et al., 2012). To the author’s knowledge, Spurling et al.’s (2013) framework is the only model that contributes to the operationalization of the intended changes in practice. By adapting Shove et al. (2012) elements, they offer three alternatives ways to intervene the practices: 1) changing the resources intensive element of practice with more sustainable alternatives, 2) substituting resource-intensive practices with less resource-intensive alternatives, 3) changing how different practices are interlocked together (Breadsell et al., 2019; Mylan & Southerton, 2018; Spurling & McMeekin, 2015). The most challenging task in the application of this framework remains to detect the “right” unsustainable elements/practices and find the “right” sustainable substitutions (Tukker, 2015).

2.3 Laundry as (un)sustainable consumption – Mainstreams Perspective

The laundry's resource consumption is inconspicuous, as in many other household activities (Mylan & Southerton, 2018; Shove, 2003b). People are not reflexive on the energy or water they consume every time they do laundry; accordingly, the statistics of energy and water consumption expressed in numbers may not mean anything to them. Although there is continuous work on decreasing the resource consumption in laundering, the results are still environmentally unsatisfying (Yates & Evans, 2016).

Technology has undoubtedly contributed significantly to the improvements of washing machines and detergents that address intensive resource consumption in laundering (Conrady et al., 2014; Stamminger, 2011; Stamminger, Barth, & Dörr, 2005). The water utility of laundry machines has decreased by more than 60% compared to three decades ago, and the energy consumption is almost halved (Conrady et al., 2014; Pakula & Stamminger, 2010). With the technological advancements, nowadays, the *detergents* are effective even at the low-temperature wash (Laitala et al., 2011): however, adjusting the detergent dosage needs to consider the water hardness, laundry quantity, and type of fabric. The users do not always consider all these when dosing the detergent, and in most scenarios, they dose with eye measurement (Kruschwitz et al., 2014). Incorrect detergent dosage results mainly in more chemical usage, creating a need for extra rinse (Conrady et al., 2014; Laitala et al., 2011), which neutralizes the water-saving improvement the washing machine industry aims today. Not surprisingly, the solution is expected to come with the technology; the automatic

detergent dosing machines are advised to solve the detergent dosage problem (Laitala et al., 2011). Nevertheless, what is obvious, the advancement in detergent technology creates only a potential for more sustainable chemical usage, and this potential is not always deployed successfully by users. The wrong utilization of one technological advancement can even block or reduce the potential of other improvements (as in the case of overdosed detergent and water saving).

Washing machines with *low degree wash programs* and the *increased loading capacity* also create a potential for resource-saving but are not integrated into laundering as successfully as expected. The studies have reported that the most frequent washing degree in Europe is 40°C (Kruschwitz et al., 2014; Laitala et al., 2012; Yates & Evans, 2016), followed by 60°C, 30°C, 90°C in 2012 (Laitala et al., 2012) and 30°C, 60°C in 2016 (Yates & Evans, 2016). The research in 10 European countries showed that the average washing degree is 43,3°C (Schmitz & Stamminger, 2014), while the results from the study in 2015 with 11 EU countries showed 42,3°C (Alborzi et al., 2017). The current target for laundry is to reduce the washing temperature to 30°C or frequent use of the eco-wash program (Laitala et al., 2011). Although the vast majority of modern machine programs enable washing at a lower degree, the eco-programs and low washing temperatures are still not the most frequently used options (Mylan, 2015). Washing at a *low degree* consumes less energy, as the main proportion of energy is used to heat the water (Laitala et al., 2011; Laitala et al., 2012; Pakula & Stamminger, 2010). The tests have proved that washing at 30°C and 20 °C consumes 50% (Laitala et al., 2011) and 70% (Alborzi et al., 2017) less energy than washing at 60°C. Nevertheless, to get the desired level of cleanness in low degree wash, the washing time must be increased (Alborzi, Schmitz, & Stamminger, 2016; Laitala et al., 2011; Laitala et al., 2012; Mylan, 2015; Pakula & Stamminger, 2015). As the users do not know all the technical details and how the energy usage is distributed throughout the wash session, it is challenging for them to relate the energy-saving to long wash cycles (Pakula & Stamminger, 2015). In the survey in 2015 from more than 5000 households in 11 European countries (Czech Republic, Finland, France, Germany, Hungary, Italy, Poland, Romania, Spain, Sweden, and the UK), around 40 % of the respondents answered that they choose short programs in order to save energy and water, and only 14 % wash in short programs because of the time limit. The same study showed that 38% of the respondents do not believe that long washes are energy efficient (Alborzi et al., 2016).

The number of *wash cycles (or frequency of laundry)* is related to the household sizes, amount of clothes people have, and how frequently those get “dirty” (Laitala et al., 2011; Laitala & Klepp, 2016; Laitala et al., 2012; Schmitz, Alborzi, & Stamminger, 2016). The average wash cycle per week per person varies between 1,2-1,5, with an average of 1,3 and 3,8 cycles per household/week (Schmitz & Stamminger, 2014). The machines’ loading is an essential part of the laundry energy consumption, as half-loaded washings still consume 80-95% of energy (depending on the machine) and 79% of water compared to full load machines (Lasic, 2014; Schmitz et al., 2016). The *capacity of washing machines* has been increased to reduce the number of wash cycles to contribute to energy efficiency and provide the possibility to clean bulky laundry items, e.g., duvet (Alborzi et al., 2017; Conrady et al., 2014; Laitala & Klepp, 2016; Pakula & Stamminger, 2015; Schmitz et al., 2016). Between 2010-2015, the average laundry machine capacity raised from 5 kg to 7-8 kg (Alborzi et al., 2017; Laitala & Klepp, 2016; Pakula & Stamminger, 2015; Schmitz et al., 2016). The previous studies have different results on whether users utilize the washing machine’s increased capacity or not. Some studies showed that full capacity was used (Alborzi et al., 2017; Schmitz et al., 2016; Schmitz & Stamminger, 2014), while others proved that the users underload the machines (Kruschwitz et al., 2014; Pakula & Stamminger, 2015). The reason for underloaded wash cycles can be the household size (Kruschwitz et al., 2014), an incorrect assessment of the laundry weight, as well as, presence of different textile types and colors (Laitala et al., 2012; Pakula & Stamminger, 2015; Yates & Evans, 2016). So, it is not clear from previous studies whether the increased machine capacity has been successfully integrated and utilized by users or not.

2.4 Laundry as (un)sustainable practice – Practice Theory Perspective

The technological advancement alone will not necessarily lead to a sustainable way of performing a laundry practice (Conrady et al., 2014; Gram-Hanssen, 2015; Pakula & Stamminger, 2010). The environmental impact of laundry does not depend only on the machines’ technology, detergent, and sustainable energy and water supply (Jack, 2013b, 2018), which are the material elements of the practice. As discussed in section 2.3, the availability of sustainable elements “out there” without being integrated creates only a “proto-practice” (see Figure 2) – a potential or possibility to perform laundry sustainably (Shove et al., 2012, p. 24). Thus, a sustainable laundry practice is the successful and active integration of available sustainable elements to perform the practice. Because practitioners link the elements to perform the practice, an inequality in their capabilities cannot be

excluded from practice studies, either (Breadsell et al., 2019; Middlemiss, 2018; Røpke, 2009; Spaargaren, 2011; Walker, 2015). Some practitioners may have more capability (competence, skill, experience, know-how) to put (new) elements of practice together than others (Breadsell et al., 2019; Walker, 2015).

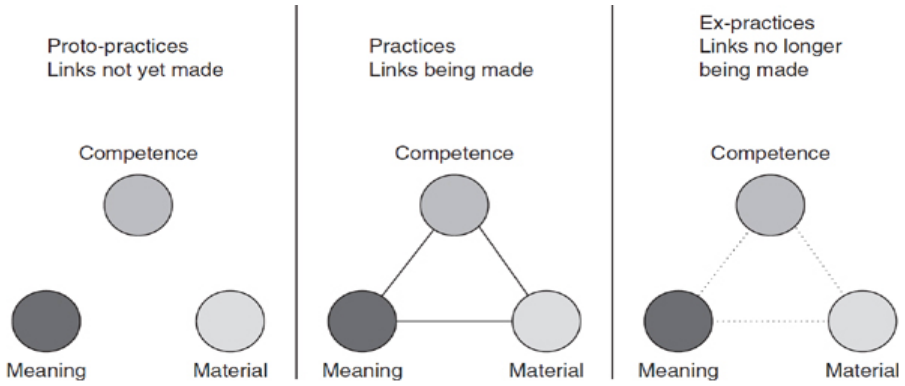

Figure 2. Proto-practices, practices and ex-practices (Shove et al., 2012, p. 25)

Shove (2003a, 2003b) states that conventions such as cleanliness, comfort, and convenience play a crucial role in adapting and stabilizing the change in laundry practice. In a social context, the standards of these conventions dictate how the resource is used to keep up with the “normality” (Jack, 2018). Jack (2018) explains social normality as the most common and frequent actions that reoccur in a specific context. It is not easy to distinguish between norms and conventions as their borders are blurred; they may overlap in many ways, co-exist, compete, and reshape each other (Jack, 2018). There is still a difference in the level they function; norms are “...accepted ways of doing for individual performances… “ while conventions are “…accepted ways of doing for practice entities…” (Jack, 2018, p. 18). Despite the strong motivation, the conventions and norms can still prevent the carriers from the sustainable way of performing the laundry (Hui, 2016; Jack, 2013a, 2017, 2018; Shove, 2003a; Shove et al., 2012; Walker, 2015). For example, people collectively feel uncomfortable wearing clothes with body odor, although there is no clear social prompt (Jack, 2013a, 2013b).

The social arrangements create a network of practices, as different practices are connected casually, temporarily, or continuously via mutual elements (Higginson et al., 2015; Nicolini, 2012; Shove et al., 2012). The natural dynamic of these networks and the strength of the links across the practices are as important as the links within the particular practice’s elements

(Mylan, 2015).

Because of the focus on the washing part, other sets of activities essential for laundry practice, either ignored or less studied both from mainstream and practice theory approaches (Gooijer & Stamminger, 2016; Schmitz & Stamminger, 2014; Stamminger, 2011). Practices such as sorting and storing dirty laundry, drying, ironing, and using clean laundry can also contribute to how resources are consumed in laundry practice (Gooijer & Stamminger, 2016; Mylan & Southerton, 2018; Schmitz & Stamminger, 2014; Stamminger, 2011; Yates & Evans, 2016). For example, available studies show that drying consumes more energy than washing (Alborzi et al., 2017; Schmitz & Stamminger, 2014) while ironing accounts for the same amount of energy consumption (Alborzi et al., 2017). Gooijer and Stamminger (2016) research revealed that Scandinavia’s energy consumption was high due to tumble-dryer usage and Eastern Europe’s due to drying inside the heated room (during winter). The online survey with over 2000 European household’s drying behavior and Alborzi et al.’s (2017) study has reported on the most frequent tumble-dryer usage in Swedish, British and German households (Schmitz & Stamminger, 2014). How laundry is dried can also be crucial to whether the laundry will be ironed or not (Alborzi et al., 2017; Stamminger, 2011). In Alborzi et al.’s (2017) study, the least ironing was reported in Sweden and Finland, while Italy accounted for the most frequent ironing (Alborzi et al., 2017). These studies show that energy consumption can be significantly reduced if people stop using tumble dryers and iron (Laitala et al., 2011). These are more regular activities that laundry is linked to, although there might be other practices with casual and/or temporal links to laundry practices that contribute to its accomplishment (un)sustainably (Schatzki, 2015).

2.5 Theoretical Framework - “Theory-Method Package”

The practice is part of daily life that makes it challenging to identify those as a separate unit for analysis and in-depth understanding. Practices, e.g., laundry, eating, studying, listening to music, can be viewed as doing “normal things.” Nicolini (2012) states that for “noticing” practices, research needs to spotlight them with a “package” approach (p. 217). A Theory-Method Package proposed by Nicolini (2012) is a toolkit that provides a scheme to study practices by changing the theoretical lenses.

Nicolini (2012) outlines two steps in practice study: zooming in how the practices are performed “here and now” and zooming out to position those in space and time to see the link with other practices. The researcher should get closer to the practice by zooming in to its elements and different aspects. The focus here is a practice in a particular place and time to

discover local performances and differences. Once the practice can be described, the researcher stops zooming in and changes the lenses to start the next step - zooming out. Here the focus is to see how the practice in question is connected to the other practices and their elements - zooming out ends when it enables one to describe the practice from a broader perspective (Nicolini, 2012). Nicolini (2012) has created palettes that the researcher can refer to for zooming in and zooming out. Zooming in palette (see Figure 3) includes doings and sayings, their location and sequence, techniques practitioners use to perform the practice and their challenges, tools and artifacts, variations, and stabilization of the practices. In other words, zooming in is focusing on equally valuable aspects of the practice. This way, the focus is shifted from individuals to their competences to accomplish the practice (Nicolini, 2012).

Focus	Examples of sensitizing research questions
Sayings and doings	What are people doing and saying? What are they trying to do when they speak? What is said and done? How do the patterns of doing and saying flow in time? What temporal sequences do they conjure? With what effects? Through which moves, strategies, methods, and discursive practical devices do practitioners accomplish their work?
Interactional order	What sort of interactional order is performed by this specific practice? How does this differ from similar practices performed elsewhere? What positions does this specific practice make available? How are these positions negotiated or resisted? What type of collective interests are sustained and perpetuated by the specific practice? How are asymmetries and inequalities produced or reproduced in the process?
Timing and tempo	How are the saying and actions temporally organized? How do the patterns of doing and saying flow in time? What temporal sequences do they conjure? With what effect? What temporality/rhythm is produced by the practice? What is the relationship between the different temporalities and rhythms brought to bear on the scene of action by different practices?
Bodily choreography	What is the material and symbolic landscape in which the practice is carried out? How is practice accomplishes through the body? What sorts of things are made present in the scenes of action through the bodies? How are bodies configured by the practice?
Tools, artefacts, and mediation work	What artefacts are used in the practice? How are the artefacts used in the practice? What visible and invisible work do they perform? In which way do they contribute to giving sense to the practice itself? What connections do they establish with other practices? What sort of things do they carry into and make present in the scene of action? Which type of practical concerns or sense do artefacts convey to the actual practising? What is the intermediation work they perform?
Practical concerns	What are the mundane practical concerns, which ostensibly orient the daily work of the practitioners? What matters to them? What do they care about? What do they worry about in practice? What do they see as their main objects of activity? Where do they direct their efforts? What do they see as the things to do next? When would they say the practice has been accomplished?
Tensions between creativity and normativity	How are mundane breakdowns addressed? What are the main ways in which practitioners make themselves accountable in practice? What do they do? How do they talk about it? What discursive resources do they use to sustain the local regime of accountability? Where and how are the disputes between right and wrong played out? What are the contentious areas of the practice? Where are the main tensions? For example, are the tools and the practice actually aligned or are there conflicts and tensions between them? And what about the formal and informal rules? In which directions is the practice being stretched?
Processes of legitimation and stabilizations	How are novices socialized? What are they told? What stories are used in this process? Do the practitioners use the practice to identify themselves as a community? How is the difference between insiders and outsiders brought to bear? How are practices made durable? What doings, saying, and artefacts are employed for the purpose?

Figure 3. A palette for zooming in (Nicolini, 2012, p. 220)

Zooming in is only one side of studying or describing the practices. The practices are not performed in a vacuum, and they are linked to other practices, which can block, motivate, interfere, challenge the practice under study. The horizon of practice should be widened from

performance to the connection between the practices (Nicolini, 2012).
The zooming out starts with tracing the practice under study and finding its casual and material relations with other practices. To zoom out the practices, one should first “shadow” the current practice through intermediates (carriers, artefacts) to see its link with other practices and discover how they are held together (Nicolini, 2012). Zooming out palette (see Figure 4) includes focusing on how trough intermediates the practices, or their results appear in different places, what link has “here and now” of the practice in focus with “there and then” of other practices, the broader connection, and the possible trajectory of the practice progress (Nicolini, 2012, p. 230).

The advantage of this approach is that it does not take practices as static, instead “…refer to “practising” real-time doing and saying something in a specific place and time” (Nicolini, 2012, p. 219) and maps the practices holistically (which is essential for the aim of this research). Although zooming in and zooming out is distinguished as two steps, the theoretical lenses need to be changed (re-changed) regularly. The researcher can start with zooming in, and before all aspects are “zoomed in”, zooming out could be needed. Also, during zooming out, the researcher may need to (re)perform zooming in and then continue with zooming out (Nicolini, 2012).

Focus of Attention
What are the connections between the ‘here and now’ of the practicing and the ‘then and there’ of other practices? Which other practices affect, enable, constrain, conflict, and interfere, etc., with the practice under consideration? How are configurations, assemblages, bundles, and confederations of practices kept together?
How does the practice under consideration contribute to the ‘wider picture’? In which ways does the practice reproduce existing social arrangements or generate tension and conflict? How do different arrangements of practice establish the social world of interactions, scene of action, organizations, and institutions in which we live? What worlds do they conjure for the practitioners?
How did we get to where we are? What are the interests, projects, hopes, and maneuvers, etc., that led us to the current state of affairs? How could that world be otherwise?

Figure 4. A palette for zooming out (Nicolini, 2012, p. 230)

3. Methodology

This chapter introduces the research philosophy (constructivist ontology and interpretivist epistemology), research approach (abductive), strategy (qualitative), design (case study), sampling (purposive and snowball), methods used for data collection (observation and semi-structured interview) and analyses.

3.1 Research Philosophy – Constructionist ontology and Interpretivist epistemology

Ontology and epistemology together are named a research philosophy as they both are based on the philosophical assumption about the social world. Research philosophy deals with the nature of the phenomenon and how it is studied (May, 2011). Ontology is the nature of reality and how the research accepts that reality (Bryman, 2012; May, 2011; Silvermen, 2013). Whether the existing reality is accepted as one or multiple, whether people are left outside or involved in the construction of the social world, makes the distinction between objectivist and constructionist ontologies. The epistemology is related to how the social world or reality should be studied, what knowledge is acceptable, where its limitations and sources are (Bryman, 2012; May, 2011; Silvermen, 2013).

The current research aims to discover the motivations of (un)sustainable laundry practices by mapping the practice holistically in a real-life situation. Because laundry-as-entity is produced and reproduced by practitioners’ active integration of elements (laundry-as-performance), the existing reality is constructed by the practitioners (people). Also, the varied and dynamic nature of the practices can create multiple realities (Bryman, 2012; May, 2011); laundry practices can be accomplished differently at different places and by different actors. The reality is accepted from *constructionist ontology* (Bryman, 2012; May, 2011), as practice theory focuses on the dynamic of everyday life, and practices (including laundry) are evolving by societal and historical developments. It also has an *interpretivist epistemological* position, as reality has subjective meaning, how the practices performed at shared laundry facilities need to be interpreted in the context and cannot be studied until the researcher is immersed in the study.

3.2 Research Approach – Abductive

The relationship between the theory and research can be inductive or deductive. When the research is deductive, it formulates some hypotheses and collects data to test those. The approach is inductive when the theory or concepts are an outcome of the research (Bryman, 2012; May, 2011). It is essential to mention that these two processes (deduction and

induction) are not mutually exclusive (Bryman, 2012). All research starts with some theories and concepts that help frame and narrow down the research topic (Bryman, 2012), so it is challenging to conduct purely inductive research. Although both approaches have advantages and disadvantages, it is impossible to choose one over the other (Silvermen, 2013). The only criteria for each approach’s applicability are relatedness to the research objective (Bryman, 2012).

This research deducts from some theory - laundry, (un)sustainable consumption, and practice theory; however, the limited number of previous studies have integrated these theories, which does not allow the researcher to build data collection based on it. Accordingly, the relationship between this research and theory is not deductive (Bryman, 2012; May, 2011). Because the study aims to bridge practice theory, sustainable consumption from a laundry perspective, the best suitable approach is considered to be - *abductive* rather than inductive. The abductive approach is the third approach, and has more in common with the inductive, but mediates between theories and research, where they both co-evolve (Bryman, 2012). The abductive approach could be the most suitable to address everyday life, meanings, and interpretations (Ong, 2012). As the research focuses on laundry practice in a real-life situation, without any intervention, and tries to describe how practitioners accomplish those, the abductive approach is used.

3.3 Research Strategy – Qualitative

The theory and research relationship dictate the research strategy. A deductive approach to theory results in quantitative, while an inductive approach (also, an abductive, as it has the characteristics of the inductive approach) calls for applying qualitative strategies (Bryman, 2012). It is not only the quantification that contrasts the quantitative and qualitative strategies, but the difference starts from the ontology and epistemology (May, 2011; Silvermen, 2013). So, the quantitative or qualitative research strategy follows the general orientation in terms of ontology, epistemology, and approach to the theory (Bryman, 2012; Silvermen, 2013). As the study has constructionist ontology and interpretivist epistemology (explained in section 3.1), also, the abductive theory-research approach (explained in section 3.2), the appropriate *research strategy is qualitative.* Because the qualitative strategy explores the meaning in the context and describes the processes (Bryman, 2012; Silvermen, 2013), it is the most suitable strategy to study practices. The complex and dynamic nature of practices (laundry practice in the current study), especially the competences and meaning

elements of the practices and how they are interlinked during the performance, cannot be studied without knowing their dynamic in a real-life situation.

3.4 Research Design and Sampling – Case study with purposive and snowball sampling

The research strategy decision is not enough to carry out the study; a researcher needs to create a framework for conducting research, collecting, and analyzing data (May, 2011). These tactical questions are related to research design and methods. The formulated research question usually guides and leads to the appropriate research design and data collection methods (Silvermen, 2013).

This research aims to find (un)sustainable laundry practice motivations in a shared laundry facility. To be able to spot those motivations, the researcher needs to get closer to the practice and see the accomplishment of laundry practice in a real-life situation. Unfortunately, in this context, to study the whole society will not be possible (May, 2011). Based on the aim and research question, *a case study* was considered a suitable design because of the possibility of investigating a particular setting in detail (Bryman, 2012). However, selecting the case is usually one of the challenging tasks of the researcher (Bryman, 2012; Flyvbjerg, 2006; May, 2011; Silvermen, 2013).

As mentioned earlier, previous studies have mainly been carried at households with privately-owned machines by collecting data either via survey, dairy keeping, or interviews. It is quite understandable; there are only a few countries (Germany, Finland, Sweden, Switzerland are usually stated in literature) where shared laundry is (was) a practice (Borg & Högberg, 2014; Mont, 2004; Wasserbaur et al., 2020; Yates & Evans, 2016). For this research, a shared laundry facility in Sweden was chosen. The reason behind choosing Sweden, as a case study, was the geographical location being convenient to the researcher, compared to other countries named in the literature with a shared laundry facility. Moreover, the shared laundry concept is the heritage of political and societal construction in Sweden, which started with the housing sector reform in the post-war period (Borg & Högberg, 2014; Jack, 2017; Wasserbaur et al., 2020). The concept of a shared laundry facility has been introduced to improve the living conditions and hygiene in Sweden from the 1920s, as a part of the Folkhem (or Folkhemmet)(translated as people’s home), Swedish welfare model started by social democrats (Borg & Högberg, 2014; Grundström & Molina, 2016; Mont, 2004; Mont & Plepys, 2007; Norocel, 2016). Although a shared laundry facility was prevailing in multi-family buildings, starting from the 1990s, the number of those declines (Borg & Högberg,

2014; Wasserbaur et al., 2020). Still, it is natural to book a laundry in a shared laundry facility in Sweden, which is mainly located in basements of the apartments (Borg & Högberg, 2014; Jack, 2017; Wasserbaur et al., 2020).

This case study could be regarded as a unique or extreme case due to the limited availability of shared laundry facilities. However, the researcher believes that it can be classified as an exemplifying case (Bryman, 2012), as it creates a context to answer the research question and, with the increasing interest in a shared economy (Amasawa et al., 2018; Borg & Högberg, 2014; Mont & Plepys, 2007; Wasserbaur et al., 2020; Yates & Evans, 2016) has a room for broader application (May, 2011).

Based on the research design, the sampling needs to have some specific characteristics (May, 2011), which is using a shared laundry facility in the current study. As sampling needs to fit the research purpose, *purposive and snowball samplings* have been used (Bryman, 2012; May, 2011).

3.5 Research Methods – Observation and Semi-structured Interview

A method is the data collections techniques (Bryman, 2012; May, 2011). The ontology of the study and formulated research question always shows suitable ways of collecting data (Nicolini, 2012; Silvermen, 2013). The main research question aims to discover (un)sustainable motivations for the laundry practices in a shared laundry facility. The researcher needs to explore how the practices are accomplished and how different elements and practices contribute to this accomplishment. Using and adopting the focus palettes proposed by Nicolini (2012) to the laundry practice, the researcher can collect data, and by zooming in and zooming out to different elements and practices links’ map it holistically. Only after mapping the practice this way it will be possible to spot those motivations.

Nicolini (2012) highlights that practices cannot be studied only by survey or interview, as those alone will not show how practices are performed. It is also impossible to study practices using ethnography only, as it will not allow one to understand the meaning practitioner attached to practices (Nicolini, 2012). May (2011) also states that in the case studies, triangulation (more than one method) is very common to apply. Due to these reasons, more than one method was used to collect the laundry practice-related data from different sources and increase the validity (Bryman, 2012). None of the research questions is answered by one method, as it would be partially covered or incomplete. For example, the interview could answer all questions related to the practices; however, the research would not see the

difference between doing and sayings without observation. Observation, in its turn, can provide a perspective that the researcher would not think about without seeing the action in the “field”; yet, the meaning and other insights cannot be explored by observation (Bryman, 2012; May, 2011). Besides these two techniques, the researcher also used document analysis, though that was for getting background information on the setting and finding out facility-related rules and regulations. Due to this reason, document analysis is considered as a part of observation preparation and is not discussed separately.

The data was collected by covering the elements of practices and the focus areas of zooming in and zooming out palettes (Nicolini, 2012). All the methods together answer the research questions by mapping the holistic picture of laundering and helping to spot its (un)sustainable aspects.

3.5.1 Observation – Data collection and Analysis

May (2011) states that to understand reality, the researcher should experience reality. The observation or ethnography (Bryman, 2012; May, 2011; Silvermen, 2013) enables the researcher to immerse to the reality with less risk “to impose their own reality on the social world they seek to understand” (May, 2011, p.169).

3.5.1.1 Preparations for Observation

Despite its advantages, the observation always starts with a difficult decision – choosing the relevant setting. As it is still common in Sweden to use the communal laundry rooms (Borg & Högberg, 2014; Jack, 2017; Wasserbaur et al., 2020), there were different potential cases for this study. Nevertheless, shared laundry rooms are closed, and private settings, and gaining access to them is challenging (Bryman, 2012; May, 2011; Silvermen, 2013). This research aims to map laundry practice without purposeful intervention and study it in its natural, real-life setting (Silvermen, 2013). Accordingly, the researcher wanted to adapt a covert role (when researcher status is not known to the group) and leave minimum room for participants to adjust their actions (Bryman, 2012; May, 2011). The researcher’s decision on covert role could problematize the access issue even further (Bryman, 2012; May, 2011).

Because of these difficulties, Bryman (2012) and Silverman (2013) advise covert ethnographers to start looking for possibilities within their networks and contacts, instead of accessing a new field. Following their line, the access problem was solved as the researcher had access to the shared laundry facilities of two different student housing providers in Lund,

Sweden. The researcher was an employee in one and a tenant at the second student housing provider. The decision was made to conduct observation at the laundry facility of the second, as the researcher’s status as an employee was known to the first housing provider’s tenants. The covert observation in the first company’s laundry facilities would have created a “halo” effect (May, 2011, p. 112) where the tenants may act differently in the presence of “housing company’s employee”. The challenge with the second housing provider was the researcher being “native” to the setting, as Bryman (2012, p. 445) puts it. Being aware of this shortcoming, throughout the study, the researcher distanced herself/himself in order to cover all the “native” and “nonnative” aspects. The researchers’ easy access to the setting using their contacts (even position) can create difficulty to replicate a study (Bryman, 2012; Flyvbjerg, 2006). As replicability is related to external reliability, it is essential to mention that social studies’ exact replication is not possible, as the social world has its dynamic (Bryman, 2012). Considering that observation, rooted in the constructionist ontology and interpretivist epistemology, while replicating the researchers accept the potential of multiple realities. To that extent, this research is replicable as by contacting the student housing provider, one would get access, yet it may take more time.

Before the observation, document analysis has been used to collect information on the setting, rules, regulations, and preparing observation protocol. The housing-related information was essential to understand how many tenants share the laundry rooms and get infrastructural information (if available) on water and energy supply, which is a material element of the practice. Any rules and information on using the laundry facility and equipment were expected to shed light on the skill and know-how requirements (competence element) of laundry performance at the shared facility. The document analysis can also contribute to understanding the potential (de)link among the practices.

Data was collected between 17-20 April 2020 from the English version of AF Bostäder’s (a housing provider) website https://www.afbostader.se/en/. Laundry practice-related materials on the website were accepted as the preliminary information available to the practitioners (students), so it has been classified as a primary document based on May’s criteria (2011). Also, the document is public as there is no restriction - everyone can access those online and solicit - they have been published without being asked to do so (May, 2011). Although the validity and reliability of document analysis from the website could be questioned, this method was the easiest and the most operative way to collect background information about

the housing area, laundry facility, and existing rules and regulations related to the setting, within the scope of time and resources limitations (May, 2011; Rose, 2001).

Data collection by document analysis was carried in two steps. As the researcher was looking for specific information (housing area and laundry practice-related) the first step was searching the information using keywords such as “Vildanden,” “laundry,” “washing,” “washing clothes,” “clothes,” “energy,” “water,” “detergent” as those expected to direct the researcher to the related information subsection on the website. Once the document was collected, the second step was to look for laundry related information from tenant perspectives by browsing the website’s tenant-related section to understand how different information was accessible to practitioners. The collect documents were analyzed by qualitative content analysis with a hermeneutic approach (May, 2011; Bryman 2012). As the aim was to get information on facility, rules, and regulations, it was essential to understand the text in its specific social and historical context by bringing out the meaning from the author’s perspective (Bryman, 2012). During document analysis, the researcher also considered the intertextuality and tried to understand the meaning the author wanted to communicate, the one audience would get, and the internal meaning (May, 2011). The authors looked for the key themes related to laundry practice elements and possible connection to other practices and paid attention to what was visible and invisible on those documents (Rose, 2001).

Once the researcher had preliminary information about the housing area, laundry facility, and general rules, a laundry room in the housing area with more devices was chosen as an observation site (laundry room at building 9D). A pilot observation was conducted for preparing the observation protocol. For pilot observation, the researcher booked two laundry sessions to see how notes could be taken, what should be in the observation protocol, how the researcher could position to be less “visible” and “noticeable” by participants.

3.5.1.2 Data collection and analysis

After pilot observation, an observation protocol was created based on the adopted focus areas of palettes of zooming in and zooming (see appendix 2) and laundry practice elements. Once fieldwork started, the researcher’s initial plan was to act as a full covert observer (Bryman, 2012); however, there was a need to book a laundry session to access the facility. As booked sessions gave a researcher two and half hours of access to the laundry facility (AF Bostäder, 2020a) the researcher booked every second session. Because of covert observation, the

tenants treated the researcher as a groupmember (Bryman, 2012) and asked for help to open the laundry room door if they forgot their laundry inside the facility. These occasions result in the researcher to mediate between covert and minimal participant-observer roles (Bryman, 2012; May, 2011) during the observation periods.

The observer also found out that the practitioners were not waiting in the laundry room, which created a chance to get closer and inspect washings and drying machines, wash temperature, programs, and loadings. Although the aim was not to conduct quantitative observation (Bryman, 2012; May, 2011), the researcher decided that focusing on these aspects would give an insight into the real-life frequencies; thus, they were added to the observation protocol as extra focus areas. It is essential to mention here that the observer was using only an eye measurement for detecting the loading capacity. The adapted strategy was to divide the drum of washing and drying machines into two sections - lower and upper half- and decided to have sections as below:
1/4 - only a few items in the machine,
1/3 - less than a half-filled machine,
1/2 - half-filled machine,
3/4 - moderately filled machine,
4/4 - fully loaded machine.

Data collection of observation is closely related to the field notes and note-taking strategy, as the researcher cannot remember everything (Bryman, 2012; Silvermen, 2013). The researcher followed Bryman’s (2012) advice, and the notes were taken immediately without waiting for the observation day to end. As it is not easy to stay around with pen, papers, notebooks in the laundry room without being “visible,” the researcher strategy was making “mental” and “jotted” notes immediately (Bryman, 2012, p. 450), and recording detailed field notes on the phone when there was no one at the laundry facility. The observer had a paper for taking jotted notes “hidden” inside a book to mask and look “busy with reading the book while waiting for laundry.” Because the observation was covert, it was undesirable to interview or ask a question when a researcher had one. Those were written down, and later, the decision was made whether they should be asked during the interview or not.

As Bryman (2012) states, when to end an ethnography is a critical decision. The primary aim was to conduct two weeks of ethnographic study at the shared laundry room. However, the researcher found it challenging to conduct a two-week observation due to laundering

schedules and machines’ noise impact on daily life and routines (Bryman, 2012; May, 2011). The researcher decided to withdraw from the field when new things stop to appear. The observation had a saturation of ethnographic notes (Bryman, 2012; May, 2011) after three days which was equal to around 40 hours of full observation (excluding pilot observation and breaks) and 200 observed machine cycles.

As May (2011) states, to end the fieldwork is just a start for researchers. The actual work starts after leaving the field. It was easy for the researcher to analyze the data, as all detailed field notes were listened to, transcribed, and reflected daily during the observation period following Silvermen’s (2013) advice. The data was analyzed by zooming in and zooming out repeatedly to the elements and practice links to map the laundry practice. An area that needs more deep explanation has been included in interview questions.

3.5.2 Interview – Data collection and Analysis

An interview was chosen as a technique because it could provide insight into the practice details and enable the possibility to compare practitioners’ doings (observation) and sayings (interviews). Also, as Nicolini (2012) states, the practice needs combined methods for holistic mapping; interviews allowed addressing the gaps and questions raised from observation and document analysis (carried for observation preparation), and cover some aspects of the practice (such as a meaning element), which could not be discovered with other data collection techniques.

Even though the researcher aimed to conduct at least ten interviews, it was not possible because of the Covid-19 pandemic outbreak around the world and in Sweden (WHO, 2020). Many students moved back to their home countries either temporarily or permanently, as universities started online education in Sweden (The Public Health Agency of Sweden, 2020; Lund University, 2020). An online interviewing was an option, yet, the researcher did not want to get data retrieved from memories when the interviewee was not using a shared laundry room. Unquestionably, all interviews have these characteristics - the interviewee narrates memorized events. Still, the chance of getting more appropriate data from participants currently using the shared laundry room was high and more suitable to the aim of the research. As a result, the interviews were delayed until students were back for the new semester and used a shared laundry facility. Due to time and resource limitations, only eight semi-structured have been conducted at the housing area named Vildanden in Lund, Sweden (where the observation also took place); however, starting from the sixth interview, the

repetitiveness of the data was clearly visible, which also was the sign of theoretical saturation (May, 2011). The semi-structured interview has been chosen as those allow the researcher to start with pre-set questions, with the latitude to probe beyond the interviewees’ answers with follow-up and sum-up questions (May, 2011). The questions were grouped based on the focus palettes of zooming in and zooming out and practice elements, to be able to follow the clear division during the interview and cover areas of interest. The same interview guideline (see appendix 9) has been used for all eight interviews. One of those interviews was conducted as a pilot to probe internal validity (Bryman, 2012; May, 2011). As the interviewee had valuable insight, and the only feedback was to merge some questions to avoid duplication, the author decided to include that interview data also in the analysis.

The interviews were carried at different places, such as shared kitchens, balconies, and outside sitting areas. The location choice was not planned as interviewees “expect” the interviewer to come to their place at the agreed time, and sitting outside was offered to “to enjoy” the sun or avoiding any disturbance. It turned out to work because the tenant could point to and show the different laundry facilities while talking; however, it still had some limitations. At some parts of the interview, the voice recording quality was low (still clear enough to transcribe) due to wind or other people’s voices, and external interventions such as flying bees, music from other apartments, other tenants passing by and greeting were distracting during the interview. Another limitation of the interview was a language barrier (Bryman, 2012; May 2011). The interviewees might need to look for a word on their phone or explain with their hands or say the word in different languages they knew. The interviewer had to join and help by expressing the word that the interviewee was trying to explain or show (such as shrink, when showing how clothes get smaller, or wrinkle, when the interviewees were trying to wrinkle some parts of their garment to show what they mean) or translating. The cabinet dryers and tumble dryers were referred to differently by interviewees, where the researcher had to clarify.

All interviewees were using the shared laundry rooms; thus, the researcher assumed that the information needed for the study was accessible to them. They were informed about research in advance, either by the researcher or a third person (due to snowballing). Because the researcher was not in contact with some interviewees in person before the actual interview, he/she ensured that every interviewee was re-informed about the research before the interview started. The interviewer mentioned shared laundry facility experience and

practices; however, (un)sustainable consumption part was purposefully omitted to avoid any adjustment in the interviewees’ answers. All interviewers were informed about anonymity and confidentiality, the right to withdraw, and not answer the question if they feel uncomfortable. Also, they all gave their consent to be audio recorded and use the data for analysis. The length of interviews varies between 35-50 minutes, with an average of 40 minutes. All interviews were recorded with two devices (computer and mobile phone) to avoid any accidental data loss.

The researcher sometimes commented on interviewees’ answers to keep the interview more in a conversational tone. The interviewees seemed quite engaged with the interview and were even very interested in answering some questions they had never thought of before. The researcher also summarized or reformulated the interviewees’ answers to ensure that the statements were not misinterpreted.

After each interview, the author played and transcribed the record the same day to avoid data accumulation. The researcher coded interviewees with numbers, as anonymity was guaranteed. Once transcribed, the author read and reflected on those by highlighting the relevant parts to research and the research questions. The answers were categorized and grouped by zooming in and zooming out areas and practice elements, but not coded, as the number of interviews was not large.

3.6 Ethical Considerations

Ethical consideration is inevitable for the legitimization of the research (May, 2011). As social research includes human participation, it is essential to ensure that no parties are harmed during the research or after its publication (Bryman, 2012; May, 2011; Silvermen, 2013). Also, the ethics of research requires to take into consideration the voluntary participation and having a right to withdraw, informed consent, guaranteed confidentially, and anonymity of the participants (Bryman, 2012; May, 2011; Silvermen, 2013).
During the document analysis, all these aspects have been addressed successfully, as those were public; their re-publication in the thesis does not create any ethical concern.

During the interview, all participants get research information, hence without its (un)sustainable aspect. This lack of information may create an ethical concern (Bryman, 2012), however, this silence about (un)sustainability does not impose any harm to individuals, and the researcher clearly explained to participants the scope of research as

laundry practices. Other ethical aspects have been addressed successfully (see details in chapter 3.5.2).

The inevitable ethical concerns of this research are related to covert observation. In line with covert observation, the research did not study any sensitive topic from the participants’ perspective that would harm them (Bryman, 2012; Silvermen, 2013); the focus was on how practice elements were integrated to perform laundry. The researcher has not found any ethical conflict to conduct the research covertly, yet, all covert observations are somehow subject to ethical limitations discussed in the literature for “lack of informed consent” (Bryman, 2012, p. 138). Due to covert nature, the participants did not get information about research in advance, and their participation was not voluntary (Bryman, 2012; May, 2011; Silvermen, 2013). As a result, the violation of privacy (Bryman, 2012) becomes an important issue. To address some part of this ethical limitation, the researcher left a letter at the laundry facility once the observation ended. The letter content intended to inform the tenants about the research, dates of observations, and had the researcher’s contact details in case of concerns or rejections (see appendix 1). The letter was on the information board for a month, and any tenant did not contact the researcher.

Another and more critical ethical concern of this research is related to setting access during observation. As the researcher already had access to the setting, the observation was done without informing AF Bostäder and getting their consent to observe their laundry facility and tenants (Bryman, 2012; Silvermen, 2013). Unfortunately, the researcher has not coordinated this with her/his supervisor before doing the observation, so the decision was made to contact AF Bostäder after the observation, explain the situation, and use collected data only if AF Bostäder allows. This communication was critical to research, as observation data had a valuable insight (see chapters 4 and 5). The researcher was lucky that AF Bostäder was interested in research and results, allowing the researcher to use data. However, the researcher is aware and reflects with the critique that it was one of the fundamental limitations of the thesis, as the study would need to be done differently if AF Bostäder refused the researcher to use data. This experience shows again that ethical considerations are as important as the data itself (Bryman, 2012).

4. Data description and Analysis

In this section, the collected data from documents, observation, and interviews will be analyzed. As practices are active integration of the elements (Shove, 2015; Shove et al., 2012), zooming in is performed to find out links between material, competence, and meaning elements, while zooming out examines and describes the connections among laundry and other practices. As mentioned earlier in the theoretical framework, zooming in and zooming out are interrelated (Nicolini, 2012). Due to this reason, after zooming in each element and link, the related zooming out is performed. The presentation and discussion of data will also be performed, as Nicolini (2012) states, by changing and re-changing the theoretical lenses.

4.1 Zooming In - Material and Competence link

Data collected from the document (housing provider website), observation, and interviews show that there are rules and regulations that the practitioners (tenants) need to follow when they perform laundry practice at the shared facility. The shared laundry rooms at Vildanden (the name of the observed student housing) are exclusively for the tenants staying at this housing area and should be booked in advance (AF Bostäder, 2020d). The booking could be made either on the website or at the booking boards (see appendix 3 and 4) available at different buildings (AF Bostäder, 2020a). The facility-related rules and regulations were available on the website both in English and Swedish (AF Bostäder, 2020a). A printed English version was on the laundry room’s information board during observation (see appendix 5). The observed shared laundry room in building 9 was operating between 07:00-22:00 every day, with extra opening hours between 23:00 - 00:00 for forgotten laundry collections (AF Bostäder, 2020a). A booked session allowed the tenant to access the washing machine for one and a half hours, and there was an extra one hour for drying the laundry. A tenant could book a maximum of three washing machines at a time, and the laundry session automatically would be canceled if it was not activated in 15 minutes (AF Bostäder, 2020a).

Laundry in the observed facility was mainly booked via the online booking system as it was easy and convenient. Interviews were occasionally using the onsite booking boards, e.g., when they were already in the laundry rooms. Interviewee 7 mentioned using booking panels until the online booking option was activated in the housing account.

Interviewee 7: “[..]You can also book, laundry machine if you are already in the common laundry room. […] I came [moved in] here earlier than my agreement [start date], and so, I could not book it from the website. So I had to go downstairs and book it from the board.”

In line with Shove’s (2003a; 2003b) approach to conventions, the convenience convention can dictate which of the available materials (booking systems) should be linked with the competence to perform laundry.

Observation showed that access to the laundry room and the session’s activation were not challenging for the practitioners, which gave the impression that the material element - booking systems, and the competence - know how to book and access the laundry room was actively (re)linked (Shove, 2016; Shove et al., 2012). The interviews also validated this result, but all interviewees commented on how challenging it was to perform the practice when they were new. Interviewee 5 said that laundering was not performed almost for a month after moving in, as the interviewee did not know where the laundry room was, how one should book, access it, and use washing machines. The same problem has been mentioned by other interviewees also:

Interviewee 3: “The first thing is where the laundry room is? ..[…] Because there is no map or something and you do not know [...] And then how to open the door because that is something people do not know. I mean, the first time here, I just did not know that I had to [put a tag]… that is not on the website. It says that open the door with a key, but I thought it was a key, not a tag.”

Interviewee 2: “[…] when I moved to Vildanden [the student housing area name], [the] first time when I went to the laundry room, first of all, I could not find the door, and after that, I could not find the locker where I can screen my key and go inside.”

During the observation, although all available machines’ (eight washing, five tumble dryers, and two cabinet dryers) language settings were in Swedish, the tenant did not seem to have any tension or conflict using those. The practitioners’ bodily choreography was well-coordinated, which did not show any practical concern between linking the material (washing/drying machines and different programs) and competence (how to use those programs for differently sorted laundry). The interviewees stated that although they were

quite competent at the time of interviewee, using the devices was very challenging when they arrived.

Interviewee 1: “It was difficult for the first time because the machines do not have English instruction, and sometimes it is in Swedish. So, for the first time, I just guessed how to use it. […]there were also symbols [on the machine] that I knew.”

Interviewee 4: “[…] We had to figure out ourselves how to use [the machines] exactly because everything is in Swedish. […]…once you do laundry one or two times, then you know what to do even if you do not know the language, but when you arrived, you kind of afraid to mess up with all your clothes, and I did not want to make them shrink.”

Zooming in material and competence link shows that the novice had less capability to link the available new material and competence elements together, while the experienced practitioner successfully integrated those (Nicolini, 2012; Walker, 2015). This aspect of the practice shows asymmetry in practitioners’ capabilities as Nicolini (2012) states. This result shows that if the practices should be shifted intentionally by changing the (material) element which is the first alternative in Spurling et al., (2013) framework, its successful integration into the practice may require an alteration or development of other elements as Breadsell et al. (2019), Middlemiss (2018), and Shove et al. (2012) stated. The absence of this mutual co-evaluation will challenge the possible legitimization and stabilization of the new (material) element (Nicolini, 2012; Shove et al., 2012). In this study, the tenants’ practical concerns and asymmetry were essentially solved by other practitioners (community). For example, Interviewee 5 had joined another tenant who also had a problem with the activation of sessions and using the machines, and they figured it out together. Interviewee 2 got help from the person who was already in the laundry room and explained all practical aspects; interviewee 1, interviewee 7, and interviewee 8 were guided by a friend, when interviewee 4 asked a corridor contact. Interestingly, when asked, *“How would you describe doing laundry in a shared laundry facility to newcomers? What would be your advice to them?”* all interviewees mentioned that they would first refer them to the website and offer help if those did not understand.

Interviewee 2: “I would advise him or her to read the website [laughs]. If it is not clear to him or her simply, I can say that first of all, you need to activate your booking yeah by

putting [your key] into the lock. Then put your clothes into the washing machine, and then you can select which degree you need white or colorful, and you do not need any detergent.”

Only, interviewee 6 stressed that there would be an organic adjustment, and new tenants could always ask others as it is easier and quicker than looking on the website:

Interviewee 6: “[…]you have to get adjusted to it […] and just ask people who live there.[…] I mean, you can, of course, look it up on the website, [but] it takes a long time.”

Zooming in the legitimization and stabilization of the practice shows that the more practitioner “native” with the practice, the more it would seem natural and easy to perform those (Nicolini 2012). The available new material may challenge the competence directly in the period of integration (link and de-link) (Nicolini, 2012; Shove et al., 2012). In the presence of alternatives, the most convenient element is integrated; in the absence of those alternatives, the practitioner is forced to develop a new competence or alter the existing one. Once material and competence are linked and re-linked successfully, the practice stabilizes. Zooming in also shows that competence can develop differently; it can progress with peers’ support, use information, practice, or find the most convenient option. Based on interviews, a peer contribution to practical matters was more valuable and convenient for novice practitioners in the current shared laundry room study. The interview data also reveals that when practices are established and stabilized, things look different and more straightforward than at the beginning. The interviewees who had struggled as a novice themselves would still advise other novices to get information from the website. Becoming “native” and forgetting the challenges and using different sources for developing competencies also explains why information companies as one of the mainstream strategies that are more like “one size fit all” may not always succeed.

4.2 Zooming out - Booking as a New Practice

Zooming out on laundry from the material competence link perspective shows how varied the performances can be across different spaces and based on the available material arrangements as claimed by Røpke (2009), Shove et al. (2012), Breadsell et al. (2019); Higginson et al. (2015), and Hui (2016).

During the interview, it turned out that only 3 out of 8 interviewees had experience using shared laundry facilities before coming to Sweden. All three interviewees’ previous experience was at the student housing, and unlike in their current facility in Sweden, they had to pay for each laundry session. Interestingly, the interviewees mentioned that even though the charge was small, it could limit their washing frequency.

Interviewee 4: “ In France, I had to pay for every single time I used [the laundry facility], so I tried to control myself, maybe, more.”

None of the interviewees had previous laundry booking experience, and booking was referred to as the main challenge of laundering in the shared laundry facility. All eight interviewees mentioned that privately-owned machines, even when shared with family members or other cohabitants, enable more flexible laundering. Also, two of them complained about difficulties in coordination when the device is shared with non-family cohabitants.

During the observation, the practitioners were not waiting in the laundry room for the whole session. They were setting the machines and then leaving the laundry room, coming back once washing machines stopped, transporting their clean laundry to drying machines, and then leaving again, coming back before their two and half hour session ended. The interviewees shed more light on this aspect of the practice. The interviewees explained that they were coordinating the time by setting the alarm on their phones and were involved in different activities such as walking (but not going far), cooking, studying, watching Netflix, and social media until it was time to go back.

Interviewee 3: “[…]basically, you can do anything, but you just need to know that you will stop at some point. [….]sometimes I am going for a run because it seems likely the perfect 30-40 minutes; you can go and come back. […] It is [like] cleaning and relaxing.”

The data collected from interviews and observation shows that booking practice changes laundry from household chores to leisure and pleasure. Due to booking practice, laundry shifts from being a practice that could be done in-between other activities to the dominant practice that demands its own time. Because the practices are competing for practitioners’ time (Shove et al., 2012; Schatzki 2015; Nicolini, 2012), booking laundry in advance requires coordination with other practices. Planned coordination of laundry with other practices

dictates when laundry would be performed and decrease the level of flexibility or the possibility of laundering anytime. When compared in-unit and shared laundry facilities Borg & Högberg (2014) also concluded that easy access to the equipment increases the frequency wash.

When talking about their wash frequencies, only interviewee 2 mentioned having a specific laundry day each week. The rest of the interviews highlighted that they wash when the pile is big enough; run out of underwear and sock; two or three times a month, or a minimum once a week; however, they stated that it should be orchestrated with their schedule and other activities.

Interviewee 1: “During the first year, there were so many activities, especially, I had to go to campus, but in the second semester [I] do not need to go very often to the campus…[…]there are a few morning classes, so I can do my laundry in the morning.”

The interviews also showed that different activities such as going to the gym, beach and cycling directly contribute to the wash frequency, as they pile up the dirty laundry.

Interviewee 2: “I am going to the gym three times a week; it means that I need three sporting clothes per week.[…] I am biking to my faculty, which is [located] in another part of Sweden (laughs ironically).[…] I need to cycle upwards, […] clothes are getting sweaty.”

Interviewee 4: “[…] if I go to the beach or [...] if I fall somewhere, then I really have to do it [laundry] right away.”

It is essential to mention that booking-as-practice enters the laundry with its elements such as internet access, private and shared devices (laptops, computers, phones for booking, and booking board), and their usage, contributing incrementally to the energy consumption in laundering, but still with the great potential to reduce the washing frequency.

4.3 Zooming In - Competence and Material link

During the observation, the student laundry facility had six washing machines with 5 kg (the production year 2003, further referred to as “old”) and two with 8 kg capacity (the production year 2018, further referred to as “new”). The facility also had three drying machines with

10,5 kg (the production year 2012 and 2013, further referred to as “new”) and two with 9 kg capacity (the year 2007, further referred to as “old”). The author could not retrieve cabinet dryers’ capacity and production year as those were embedded into the wall. However, the observation clearly shows the tendency of capacity increase that has been mentioned by different authors earlier (Alborzi et al., 2017; Laitala & Klepp, 2016; Pakula & Stamminger, 2015; Schmitz et al., 2016).

The observation notes revealed that the wash cycles were mainly run half-loaded (1/2 of the drum), less than half-loaded (1/3 drum), and with single or few items (1/4 drum). Although old machines had a half-load machine washing option, those were not chosen as a wash program when the machines were underloaded. Because the observer was not doing quantitative observation, it was not possible to see the proportional distribution of the loading in detail, but moderately loaded machines (3/4 drum) cycles were noticeable less. In contrast, only three fully-loaded machines were observed during a three-day observation. Considering that there were ten-session per day with eight washing machines, around 200 washing machine cycles have been observed during a three-day observation. Three full load machines were quite noticeable among these 200 cycles, and the observer could make extra field notes on those. Interestingly, the content of two full machines were duvet, pillows, bed covers, and the third one was a parka, proving that the increased capacity enabled the bulky garment wash as it was aimed (Alborzi et al., 2017; Conrady et al., 2014; Laitala & Klepp, 2016; Pakula & Stamminger, 2015; Schmitz et al., 2016). However, the data also reveal that until practitioners have something bulky and big to wash, the machines are almost always underloaded.

When it comes to the loading capacity of the drying machines, the scenario was even more dramatic. It was predominantly less than half loaded, especially if the laundry washed in different machines were not mixed. It was not even moderately filled (3/4) when the contents of different machines were mixed.
The observation of laundering in a real-life setting disclosed that both washing machines and drying machines were drastically underloaded(!). Considering that six out of eight washing machines were 5 kg capacity, the observation unquestionably showed that even 5 kg capacity washing machines were not successfully filled. A similar result was in Kruschwitz et al.’s (2014) study when a single-person household with 5 kg machine capacity reported in their diary only an average 2.8 kg loading per wash cycle. Kruschwitz et al.’s (2014) and the

current research clearly shows that increased machine capacities do not lead to a sustainable way of doing laundry and even creates a rebound effect as the cycles are running with half and less than half load cycles.
Drying machine capacities in this study were almost twice as big as those of washing machines. Because the washing machines were underloaded, even the mixed content from two or three washing machines did not fill the drying machines even to the third quarter.

Other studies that agree on washing machines’ full capacity utilization, such as Schmitz & Stamminger (2014), Schmitz et al. (2016), and Alborzi et al. (2017), had collected data via survey from 2000 and 5000 European households. The current research tried to study the practice in natural settings through observation, and its result is analogous to Kruschwitz et al.’s (2014) study, where data was collected from 236 German households by the 28-days dairy keeping method. As previous studies had no agreed conclusion for the loading capacity, the current study’s loading-related finding is significant because of reflecting real-life data. The author had a chance to examine the washing machines during the observation closely and discover that the washing machine loading visually looks more when dry laundry was placed, but the content becomes smaller once they get wet; for example, three quarters filled washing machine with dry laundry could become half-filled after ten minutes. This observation note is critical as it sheds light on how data collected from surveys or interviews might not be reliable because of the incorrect visual assessment of the laundry loading. Also, the information retrieved from memory may not be precise. As interviewee 1 states, one may not pay attention to loading capacity, or the loading capacity can vary seasonally, as interviewee 2 claimed.

Interviewee 1: “[…]I do not put much attention on the loading because I just put the things into the machine, then I press the button, and then [I] go.”

Interviewee 2: “[…] it is half [loaded], but sometimes, especially during summertime, it is less than half, as we are not using big clothes.”

When asked, interviewees did not precisely remember the washing temperatures either; some even referred to 45°C, which was not an option in washing machines at all. When the machine was examined, it turned out that 30°C wash was only available on the new two machines (8 kg). So, it should not be surprising that the commonly used temperature was

40°C and 60°C; there were relatively few occasions when the practitioners washed in 30°C, 95°C, and hand wash. However, as the observation was not quantitative, it is impossible to provide the distribution of those washing degrees.
Interviews showed that 60°C wash was mainly for whites, beddings, and towels, while fabric types were barriers to the high wash temperature. Interviewee 2 described that they would prefer to wash white clothes even at 90°C; however, the fabric types did not allow, and clothes shrank. Interviewee 3 and interviewee 6 also mentioned fabric-related concerns, which showed that labels or clothes’ deformation could be an active barrier for the high-temperature wash.

Interviewee 2: “60°C for whites. To make it [whites] more clean, that is why I am using 60°C. Actually, I can use 90°C as well, but […] If I use 90°C, those [white clothes] will shrink.”

Interviewee 3: “[…]the clothes I washed them at 30°C or 40°C because some, I mean, most of them, they do not work with something more, or warmer. It just says on the label 30°C or 40°C, not more, because I think otherwise they shrink.”

Data analysis in this section provides a background to state that the data retrieved from participants’ memory cannot always reflect a real-life situation. The analysis also illustrates a gap between the competence (to load a washing machine) and material (the machines’ real loading capacity) link. When zooming out was performed, this gap was closely linked to the sorting practice.

4.4 Zooming out – Sorting as a Mediating Practice

Sorting and washing. The observation showed that participants were booking either two or three machines (only on five occasions, there was a single machine booked, and the researcher noted those down as it was such a visible aspect). The practitioners were coming mainly with one, occasionally two bags of dirty laundry. It was visible that the tenants were doing some sorting, as they would either quickly put a batch of clothes into different machines in one go, or sort them by taking single clothes and piling up those in their hand or putting directly into different machines. During the interview, the researcher touched upon this aspect of the practice. It turned out, despite the variances in the strategies, all

interviewees were sorting, which was the main reason behind booking more than one machine.

The interviewed practitioners had different sorting strategies – separating whites, and colorful clothes, beddings, towels, the garment that needs a delicate wash, underwear, socks, and shoes were mainly named. For Borg and Högberg (2014) these sorting criteria increase the washing frequency and result in underloaded washing sessions.

Interviewee 2: “[...] White clothes to the first machine, and underwear to the second machine. If I had towels, it goes to the third machine, or if I have colored clothes, they are also going to the third machine but not with the towels they are on the separate days, I have strict rules on those.[…] the fifth category is shoes, sporting shoes. So, I have five categories. […] beddings are [the] sixth category or together with the colored clothes.”

Interviewee 4: “I am separating colored and white, and it is [two machines] enough. […]Also, if I have some gym clothes that need a delicate [wash], then I separate them.”

Although they had different combinations for sorting, the main “not mix” criteria for six out of eight interviewees were white and colored laundry because practitioners were concerned about keeping white clothes’ color. Only interviewee 6 and interviewee 8 did not mention whites as a separate category. Interviewee 6 would sort the laundry as wool or sweaters (that needed either wool or handwashing program), special clothes (that had some prints and could not be washed over 40°C), and the ones “no one care” (that could be washed at any degree).

Interviewee 7: “[…] I am trying to book two - for colored clothes and white or bright colors. So two are more than enough because they [washing machines] are quite big and they keep a lot.”

Although, Yates and Evan’s (2016) quantitative study in the UK states that “...people who live alone are over twice as likely to not separate by any criteria than multiple-person households” (p 110), this study showed that even single-person houses are at least sorting based on two criteria- whites and colored laundry. Observation data also supports this as the practitioners were booking two or three machines.

Sorting and drying. The sorting was also performed for drying, though, here, the sorting methodology was straightforward. The practitioners could transport the contents of different

machines into one drying machine or place them in different machines to keep the same sorted wash content. Some practitioners even re-sorted the contents of washed laundry before placing it in the drying machines. Interviewee 2 and interviewee 5 have also mentioned that they usually try to follow the sorting they did during wash, and dry the contents of different machines separately, but if the machines were not available, the contents could be mixed. The data analysis showed one more time that when there were more available alternatives, the practice was stretched toward more convenient variation. Even though the practitioner could mix the contents (when machines were not available), they would prefer to keep those separate when there is an extra drying machine available. Interviewee 3 mentioned also experiencing when other users were using several machines both for washing and drying.

Interviewee 3: “They [other users] have like four white clothes and four or five black [clothes]. And they have two or three [washing] machines depending on what they are washing. And then, they do the same with the dryers![…]”

The drying temperature has been set differently, and there was no particular noticeable frequency that the observer could report without doing a quantitative observation. All possible combinations of drying temperature of the machines (low, medium, normal, high, dry, extra dry) have been used.

When talking about their previous laundry practice, four interviewees mentioned that they were air drying before moving to Sweden, which was very common for their countries (Azerbaijan, Ghana, Indonesia, and Romina). Previous studies also showed that Sweden was one of the countries using drying machines more than others (Alborzi et al., 2017; Schmitz et al., 2016). The interviewees highlighted the climate and price as a trigger for not using a dryer earlier.

Interviewee 2: “I think they are selling drying machines like in the stores. Maybe people do not want to spend money on it, maybe it is useless.”

Interviewee 1: “The major differences are [that] Indonesia is like a sunny country, …[when] you want to dry your clothes, you just go outside, and in the second floor or the front yard or home you dry it yourself,[…] air dry, not using the drying machines [...] it is not common to have a dry machine.”

Interviewee 3: “In Romania, you do not really use a dryer.[…] it is not common. It is expensive, and you do not have many places in the apartment.”

Sorting and storing. Sorting could also be performed while storing dirty or clean laundry. The interviewees sorted and stored their clean laundry in wardrobes or cupboards. Interviewee 2 also mentioned sorting the dirty laundry when those were piling up.

Interviewee 6: “I throw them on a bed, then I am sorting[…] pants with pants, t-shirts with t-shirts, a towel with towels. It is simple.”

Interviewee 2: “I have another special shelf for my dirty clothes, and I am sorting them day by day after each use. White one goes in one part underwear in one part, and colorful is in a separate one.”

Interviewee 3 mentioned that if clean clothes are folded in the laundry room while collected, those would immediately go to the wardrobe; otherwise, they could stay in a bag for a couple of days before going to the wardrobe.

Interviewee 3: “[…]but most of the time, I am just bringing them up, and then I will keep them there for two days until I become tired of that being there in my way”

Interviewees also claimed that the way dried clothes stored reduces the ironing frequency. If dried clothes would be stored in the bag and not placed in the cupboards or shelves immediately, they would need ironing as the material wrinkles because of warmth.

Sorting and ironing. During the observation, when washed laundry was re-sorted for drying, one part always was placed in a cabinet dryer if those were available. The interviewees also mentioned different sorting “strategies” for drying; however, most of them mentioned that they would prefer to use cabinet dryers as the clothes wrinkle less.

Interviewee 3: “[…] not really often […] the very nice shirts, I hang them [draws cabinet dryers with hands]. So, basically, because they are warm, they stay straight, but if I am not doing that, of course, I need to iron them.”

Interviewee 5: “That is what I normally use [cabinet dryer] [...] the whites will be [hanged] up, and maybe a space in between then the color would be down [...]. Another one [means tumble dryer], I normally use it for my blankets. But for normal clothing, I use the big one [cabinet].”

The observed setting did not have an ironing facility, and interviewees using laundry rooms in building 1 and 9 mentioned that the facility had an ironing board, but not iron. Except for Interviewee 6 and interviewee 8, all interviewees had their private irons, and there was also iron available in their corridors. Nevertheless, all interviewees stated that they were not ironing frequently, doing it occasionally with some clothes:

Interviewee 2: “[…] I am not ironing all the clothes.[…]but only my shirts need to be ironed. […] because I am a student here, I am trying to buy jeans or clothes that do not need to be ironed.”

Interviewee 8: “[…] I do not own one (means iron), but I saw one in the cleaning cabinet [at the corridor]. But, I hardly use it unless I have like proper dinner or […] for the shirts or like, you know, those tops that should not be crumpled. [I] use it [means the iron] very rarely.”

The results are very similar to what Stamminger (2011) stated - only wrinkled garments are usually ironed, and based on the drying, the level of “flattening” can vary (p 565).

All the interviewees mentioned that they were ironing less now (in Sweden). In Alborzi et al.’s (2017) study, ironing results were similar where Sweden and Finland were accounted for the less ironing. Interestingly, interview 5 relates ironing to the climate and weather, while interviewee 1 and interviewee 2 to the type of clothes they wore daily.

Interviewee 5: You know it is like a cold country; you just put your clothes on. So, no [not ironing all the clothes]. […] I iron shirts, long sleeve shirts... [and] during summer, I iron more.”

Interviewee 2: “[…] because I was working [back home], I need to wear a new shirt every day. White shirts every day, and then I need to change them every day.[…] So, I was ironing those on Saturdays, then I had it for the whole week.”

In general, the sorting seems to be a mediating practice – it happens when dirty laundry is stored, washed, also, during drying and storing of clean laundry. It contributes to how different competencies and materials in laundering would be linked. The practitioner may not have the competence to link successfully and integrate the washing machine full capacity due to sorting. At the same time, it could also enable the practitioner to perform two practices simultaneously drying-ironing, reducing resource usage, and making time available for other practices.

4.5 Zooming in Meaning , Material and Competence Link

Cleaning Convention. One of the main aims of conducting the interviews was understanding the motivation and meaning practitioner attached to laundering. The interviewees referred to an odor as the reason for laundering, and visible dirt was added as a possible alternative. Only interviewee 1 mentioned that doing laundry was an essential part of health:

Interviewee 2: “[…] If it smells, it is not clean; it is dirty. If you see a stain on it, it is dirty; those are two important things.”

Interviewee 4: “I think because otherwise, it would sting... what is the point of taking a shower if you do not wash your clothes? You will be clean, but your clothes would not. [...] I think we would stink.”

Interviewee 1: “Because it is mandatory, I think [laughs]. I mean, are there any people who do not do laundry? […] it is healthy to use clean clothes, I think.”

The interviews reaffirm how the concept of cleanliness changed over history and now, directly related to the freshness as Shove (2003a; 2003b) and Jack (2013a; 2013b; 2018) discussed. Both authors’ studies focus on the cleanliness convention and the way it prompts normality for laundering. The historical transformation of cleanliness and comfort conventions moved the dirty detection from being visual (visible stains) to olfactory (odor).

Very important to mention here that two interviewees also stated the environmental-related aspect of the dirty. Interviewees referred to air pollution and passing by industrial areas, air-drying washed clothes as the possibility of getting dirty.

Interviewee 1: “It is pollution. It is very bad there [in Jakarta] […] in Sweden, it is not very dirty, but in Indonesia when you pass the industrial area, you must wash your clothes more than here in Sweden.”

Although it is questionable if air pollution can add up to the meaning of the laundering and cleaning conventions, it still worth mentioning in this thesis as a hint.

The meaning attached to laundry was crucial for the way washing is performed. The observed laundry facility was equipped with automatic detergent dosing machines (AF Bostäder, 2020), that were referred to in the literature as one of the sustainable innovations (Laitala et al., 2011). When talking about those machines, some practitioners were not happy with the result or were neutral. The automatic detergent dosing machines at the facility had environmentally friendly detergent and did not have fabric softener (AF Bostäder 2020d; see also appendix 6). During the observation, the tenants were not using detergent, while some used fabric softener by directly adding over the laundry inside the drum before setting the programs. In contrast to the observation, two interviewees admitted using their own detergent because they were not satisfied with the automatic detergent results, or their own detergent smell was nicer than the automatic loading one. Interestingly, those adding detergent stayed at the housing area for over two years, while interviewee 2 stayed for five months following the rule, despite being unsatisfied.

Interviewee 5: “[…]I think washing machines [in AFB] do not wash things really well for me. […] I started using liquid soap (detergent) and like my perfumes [refers to conditioner] even though they said we should not use it… I just secretly do it.”

Interviewee 3: “I sometimes put my own [detergent] because I wash with that[automatic dosage detergent], and then I do not feel anything.[…] I know I should not put on myself.[…] I am putting the ones that are not leaving anything.[…]like capsules. Because they do not leave anything after themselves, and that smells nice.”

The main dissatisfaction was towards the white clothes; neither interviewee 2 nor interviewee 5 found the result of white clothes washing meeting their standard.

Interviewee 2: “[…] when you are washing your white clothes, it is not suitable, [it] does not clean properly.[…] because if I am washing white clothes, then it should be white.”

In contrast, interviewee 6 was quite happy with cutting the cost of the detergent. Interviewee 3, even though was using detergent, also mentioned cost-related advantages of automatic detergent dosing machines, while interviewee 7 and interviewee 8, who were staying only 3 months at the time of the interview, were quite satisfied and appreciated its environmental benefit.

Collected data indicates that the meaning element of laundry is very dominant in determining the frequency of wash. What is designated as clean and dirty results on how the laundry bag would be piled up. Cleanliness convention was detrimental to how the automatic detergent dosing machines were used in the observed facility and how practitioners distinguished between clean and dirty laundry as suggested by Shove (2003a; 2003b) and Jack (2013a; 2013b; 2018). Additionally, the cleanliness of white clothes was attached to the color rather than visible dirt. The meaning element can contribute to how the available new material element (automatic detergent dosage) would be integrated into the practice. The automatic detergent machines do not fit the practitioner’s cleanliness convention; thus, some started to add extra detergent. Taking into consideration that the detergent users were long term tenants, there is a potential risk that a new practitioner staying for five-month, at some point, would also break the rules and start using the detergent “secretly”. If it would be the case, one can clearly understand that the experiments, as done in Australia by Tullia Jack (Jack, 2013a; 2013b), will not be successful in the long run.

Convenience Convention. The analysis of the documents collected from the AF Bostäder website showed that in the observed housing area, there were seven shared laundry rooms (AF Bostäder, n.d.b; AF Bostäder 2020a; 2020b; 2020c) for around 774 students (AF Bostäder, n.d.a). Five laundry rooms were equipped with automatic detergent dosage machines, and two laundry rooms had washing only with ionized water, without any detergent (AF Bostäder, 2020d). The housing provider has joined the “100 % Fossil-free Skåne by 2020” initiative (AF Bostäder, 2017a), and starting from 1 January 2017, uses fossil-free energy for electricity (AF Bostäder, 2017b). Accordingly, the energy supply at the observed laundry facility was also only renewable and fossil-free. There was not any information available to the researcher about the water supply of the housing area. The researcher also could not derive further information on how access to different laundry rooms

was distributed among tenants from document analysis. However, during the interview, tenants have mentioned having access to the different laundry facilities, while the priority was to book the laundry room in the building that they live in as it was convenient.

Interviewee 7: “I am usually using just the one that is downstairs [shows the laundry room on the ground floor of the building 9B]. I am trying to use just this one cause it is easier for me to go and check [my laundry]. Because sometimes it is not done yet and then you have to come back. So if it is far, then it is inconvenient.”

Interviewee 4: “I think everyone has excess to two [laundry rooms]. I tried to use the one at building 1 because I live in building 1. […] [It is] very convenient, [as] it is close to my room. […] I have not even tried those [shows toward the laundry room at building 9].”

None of the interviewed practitioners washed with the detergent-free water-powered machines available in two other laundry rooms. Interviewee 7 clearly states the desire to try those, but it was not convenient to go and try because they were installed in other buildings. The data shows that practitioners do not prefer to go to another building for laundering, which means that the distance may decrease the washing frequency (Borg and Högberg, 2014), but it can also result in less exploration of the available sustainable potentials (as in the case of detergent-free water-powered machines), and those will stay as a proto-practice (Shove et al., 2012). The convenience convention will always push the practitioner to link the elements in a particular way, in the presence of alternatives.

4.6 Zooming out - Carrying as an old “New” Practice

Zooming out into collected data shows that shared laundry rooms are located in various housing areas (AF Bostäder, n.d.b), and practitioners need to carry their dirty laundry before washing those. The interviewees did not find it difficult or weird to carry their laundry, as carrying and laundry had a link before the practitioner started using a shared laundry facility.

Interviewee 6:” […] carrying your dirty laundry to the laundry [room], I do not think it is weird. Because you are going to wash it, walking and not going to the laundry room, maybe that would be weird [laughs].”

Observation field notes showed that the practitioners were carrying their laundry in different types of bags. The majority of those were blue IKEA shopping bags (see appendix 7). There were also durable or plastic grocery-store bags or shopping bags (see appendix 8). Only a few participants carried their laundry in the dedicated (ready-made) laundry bags during the observation. When talking about carrying and storing dirty clothes, all interviewees mentioned IKEA shopping bags as a reference, either to describe those blue IKEA bags as their laundry storage/carrying bag or refer to it to clarify that the bag they were talking about was not the shopping IKEA bags.

Interviewee 3: […] I wanted to buy a laundry box. […] I was like.. should I buy if I already have the IKEA or JUSK or some bag, which is very big? So, [no]. It is easier to carry [those bags] because you just put it on your shoulder[…][It is] just like going into the market.”

Interviewee 4: “I have an IKEA laundry bag, and it is very practical; they even have a place to put your hands and carry like a bag…[…] it is not one of those Ikea bags [shows big size with hands close to the shape of blue IKEA shopping bags]. It is an actual white thing that you can close, and you put your clothes [in].”

The interviewees stated that blue IKEA shopping bags were convenient to carry. It also turned out to be very “normal” and “common” (collective convention as stated in Shove 2003a, 2003b; Jack 2013a, 2013b, 2018) to use those for carrying laundry, which supports the observation. The collective usage of the shopping bags as a laundry bag stabilized it as a part of the practice.

Interviewee 3: “I was thinking I will change it [my blue IKEA bag]. […] I thought people will [would] use a very nice basket or something, but no. They had a bag [refers to shopping bags].” Then I just saw everyone using it. And I said, okay, this is nice. This is okay. I do not need another. It is a lot cheaper than the other [actual laundry bag].”

Interviewee 2: “[…] because it is big, and you can put all [clothes] together inside it. Otherwise, if it is ICA bags, you need two-three bags at the same time. That is why I want to buy an Ikea bag [laughs].”

Those carrying bags were also dirty laundry storing bags for some interviewees. Interviewee 8 commented on how weird it was to realize that they were using the same bag to store dirty laundry and carry both dirty and clean laundry. The bags could be stored in the wardrobe or the bathroom. Interviewee 1 and interviewee 2 were storing the dirty laundry in the box in the cupboard and transporting either in big or small plastic bags.

Interviewee 4: “I store [my dirty clothes] in this bag [refers to the white laundry bag bought from IKEA]. […] It is like furniture in the bathroom... like it stays open there standing still. I just take the cloth off, and I put it there. And then when I need to carry everything, I just grab it [the laundry bag], and I transport [dirty laundry to the laundry room and back].”

Interviewee 3: “I put it [big shopping bag] in the wardrobe and just put dirty clothes.[…] It is even better than the basket or bag [a real laundry], because […] the bag [shopping bag] is very big, so basically you can close it, and the smell does not go out [from the bag]”

Although carrying was already existing in laundry practice, it needed to develop and integrate a new element (something to carry). Accordingly, either the ready-made laundry bags become smaller to make it easy to carry laundry (as the case with interviewee 6), or big shopping bags were used, as it was easy to carry all laundry in one bag (convenience convention).

Because carrying bags are also used as storing bags, their size is crucial for washing machine loading capacity. Thus material elements, together with the collective and convenience conventions (Shove, 2003a, 2003b; Jack 2013a, 2013b) of the meaning element, reconfigure the competence (to carry the laundry). Because of convenience conventions, even non-laundry related elements (shopping bags) become part of the practice. This finding is valuable as it shows how practice theory application enables one to spot the elements and practices that would not otherwise get attention. The academia or policy-making focusing on loading capacity or frequency of wash would not target or consider shopping bags that could be such a critical element for laundering in a shared facility.

5. Discussion and Conclusion

This chapter discusses the results of the data analysis and answers the research question. “What are the (un)sustainable motivations of laundry practices at a shared laundry facility?” As formulated sub-questions are expected to help to map the laundry practice and spot both sustainable and unsustainable motivations, the discussion chapter starts answering “How do the practitioners accomplish laundry practices at a shared laundry facility?” and “What elements and practices are involved in this accomplishment?” for holistically mapping the laundry practice at a shared facility. Then, the main research question is answered, and the contributions and limitations of this study and future research directions will be proposed.

5.1 Laundry Mapping Model

Yate and Evans (2016) state that laundry practice has a sequence of different activities. Although agreed with Yate and Evans (2016), the study shows that the sequence is not always followed, and some of those can vary. The study showed that the laundry could be ironed and stored (as interviewee 2’s ex-practice), or stored and ironed (as interviewee 4’s current practice). Some activities can also mediate and change the sequences - the laundry can be sorted while storing (as interviewee 2’s current practice), or sort when loading the machines (as observed and other interviewees reported). Other activities are more or less stable, as Yate and Evans (2016) state; indeed, ironing is not performed when the laundry is dirty or drying should be performed immediately after washing. Due to this reason, the author of this thesis suggests studying laundry not as a sequenced action but as a practice with different phases (see Figure 5). Because laundry-as entity has multiple versions of the performances and bundled together with other practices through shared elements (Hui 2016; Shove et al., 2012; Shove 2016, Nicolini, 2012), mapping laundry in phases could help to spot not only obvious but also the hidden motivations.

The pre-washing phase - starts once the clothes are designated as dirty and not worn further and ends when the practitioner starts washing by interacting with the machine or washing basket (if hand wash).

As practitioners did not have previously shared laundry practice experience in this study, it requires them to link laundry with new practice - booking. The washing machines need to be booked and activated, bringing new extra elements into the practice such as technological gadgets, e.g., laptops, phones, and booking boards, and adding incrementally to energy usage. The research showed that when there are alternatives (different booking systems or laundry

rooms, available extra machines), the convenience convention dictates which direction the practice will be stretched. As a part of the pre-washing performance, the practitioners need to coordinate their time with other activities and have a dedicated and planned time for performing laundry practice, which influences the wash frequency.

Pre-washing also includes storing dirty laundry, which was not a new practice for practitioners. However, storing practice had adjusted an element (laundry or storing bag) due to its link to carrying. Carrying laundry to further distance with the “activation” of convenience conventions required a new material integration into the practice (shopping bags). This element transformation is crucial for laundry practice as some practitioners performed washing when their laundry bag is piled up. Depending on how the bag is chosen, the washing frequency can vary. The practice theory approach also shows how the practices’ broader spectrum can be linked to the industry or area, which initially will not be linked with practice. For example, big shopping bags will not be the policymakers’ first target when focusing on laundry from mainstream approaches. In some cases, the pre-wash phase also includes sorting the dirty laundry (which will be discussed in more detail in the wash phase).

The washing phase - includes the clothes’ physical cleaning irrespective of the result (pre-wash treatments, washing, rinse, spinning) until they are ready for drying.
In this study, the washing phase started at shared laundry rooms with practitioner machine interaction, after the laundry room was accessed. The phase usually starts with the sorting (or already pre-sorted) laundry, and the study showed that the main category for sorting was separating white and colorful laundry, which contributes to the frequency and loading capacity of the wash cycles (Borg and Högberg, 2014). In the current study, the washing machines were drastically underloaded (potentially due to sorting), even though their capacity was not huge (six machines, 5 kg, and two machines 8 kg).
Although the facility had environmentally friendly automatic detergent dosing, some practitioners used fabric softener and their own detergents, as interviewee 5 puts it “secretly.” The interviewees’ main concern was the detergent’s smell and the result of the washing not meeting their cleanliness standard. The dissatisfaction was mostly towards white clothes washing results.
Practitioners also seem to be concerned about the clothes’ physical condition, which makes them follow the labeling, and reduce high-temperature wash, despite practitioners’ motivation (as in the case with interviewee 2 and interviewee 3). In this study, the washing

temperature was not quantitatively observed; however, the shared laundry room was far from washing at 30°C average; the washing was at 40°C and 60°C, occasionally at 30°C and 95°C.

The shared laundry room had resulted in one more new element to be included in the laundry practice. As practitioners did not wait in the facility during the laundry session, mobile phones were used as timers to coordinate washing and drying sessions’ end time.
During this study, there was not any pre-wash treatment either observed or mentioned by interviewees.

The post-washing phase - includes only drying, because the laundry is physically ready for use after this phase; any other activity performed later is regarded as using phase.
In the current study, observation and interviewees’ answers showed that drying machines are used almost for each wash, as stated in Schmitz and Stamminger (2014) study. The practitioner was performing different sorting and resorting. The resorting was especially crucial for laundry that would be cabinet dried. The study could not comment on drying temperature and program as there was no frequency to spot without quantitative observation. However, during observation, it turned out that drying machines were significantly underloaded. Unlike the washing machines, even when the contents of different machines were mixed, the drying machines were not filled to a third-quarter (3/4). Still, the laundry dried in a cabinet dryer is ironed less.

The use phase - includes all activities, performances, and practices once the clothes are dried until (including) they are designated as dirty. Even those the sequence can differ here; the phase includes sorting, storing, ironing, using, and assessment of dirtiness.
This phase was not observable in the study, as it happened outside the shared laundry room. However, interviewees showed that some practitioners might perform sorting in the use phase also. The clean laundry could be sorted per usage area or category (e.g., underwear, winter wear, towel, pants) and then placed to the wardrobes or cupboards. The storing phase seems very naive; however, this practice could contribute to the ironing frequency. As interviewee 3 mentioned, if the clothes are placed in the wardrobes after some days, they get wrinkled, demanding ironing.
Ironing in this study has occasionally been used, as also stated by Alborzi et al. (2017), and was only used with specific items. The shirts and other “formal” clothes were named by interviewees as items that need to be ironed, while all practitioners (except interviewee 6)

stated that they iron less in Sweden due having more casual clothes, cabinet drying, and climate (there is always something to wear on the top of your clothes, e.g., coats).
When they asked what their daily activities were, as all interviewees were students, the answers were synchronized, such as studying, going to the library and university, meeting friends, and doing indoor or outdoor sports. These were areas where interviewees clean clothes were used and get dirty. Mainly, outdoor activities were evaluated as “getting dirty,” such as going to the beach, hiking, even biking (as one sweats when it is uphill), and training. The way laundry was designated as dirty was heavily olfactory (by smelling) activity than visual (stain). The meaning of laundry was associated firstly with the smell and then with visible dirt. Interviewee 1 and interviewee 2 had also referred to the environment as a source of the dirt. It would be a topic for thinking about whether environmental pollution could be a new meaning attached to the laundry cleanliness assessment.

The cleanliness and convenience conventions play a crucial role in the way the laundry elements are linked. Thus, all innovation, the change should be adapted to the cleanliness and convenience “standards” or block the available alternatives matching the cleanliness and convenience conventions of the practitioners. The study shows that otherwise, the rebound effect is unavoidable (as in automatic detergent dosing machines or availability of extra washing/drying machines).

If we summarize the answer - the laundry practice is accomplished in four interrelated phases by different activities and elements being involved in each phase, and some activities mediating within the phases (see Figure 5).

Figure 5. Author’s Laundry Mapping Model – with laundry practice accomplishment at shared facility

5.2 Answering the Main Research Question

Once the practice is mapped, the main research question *“What are the (un)sustainable motivations of laundry practices at a shared laundry facility?”* can be answered.

Booking as a practice in shared laundry rooms turned out to be a sustainable motivation as it challenges the practitioners’ competence, demands more coordination and forces laundry to compete with other practices for having its own time. In contrast, the large quantity of available washing and drying machines and unlimited booking sessions may create a rebound effect and be unsustainable motivation.
The labeling seems to stop practitioners from a high-temperature wash, which is sustainable, while white laundry, “formal” clothes, and shirts that need special care and treatments due to cleanliness and collective conventions are unsustainable motivations.
Neither washing nor drying machines’ full capacity was used in the current study, showing that the increased machine capacity tendency is unsustainable, especially for single-person households. It is related to sorting practice that turned out to be the most unsustainable motivation in laundering as sorting results in underloaded washing and drying machines. Nevertheless, the sorting for ironing and the right strategy for the clean laundry storage can be listed as sustainable motivation, as those reduce ironing frequency.

It is important to mention that despite being evaluated as sustainable innovation, automatic detergent dosing machines (especially in shared laundry facilities) can potentially cause the rebound effect. As laundry’s cleanliness is still associated with its smell, and whites are assessed based on the color, the detergent that does not fit the cleanliness and collective conventions may result in chemical overdosage.
The same can be said about laundry bags; depending on which side the laundry bag size is stretched, it can be both sustainable and unsustainable motivation. The smaller laundry bags will motivate frequent wash, while big laundry bags (as IKEA blue shopping bags) convenient to carry all laundry at once can become sustainable motivation, especially when piling up the dirty laundry is the indicator for the laundry time.

Drying cabinets reduce the number of ironed items, but as the energy consumption of different tumble-dryers and cabinet dryers was not assessed in the current study, it is difficult to answer whether cabinet dryers are sustainable or unsustainable motivation.

In general, the study showed that other laundry phases are as-resource demanding as the washing phase, and sometimes even more resource-intensive (as drying in underloaded machines). These hidden aspects should be studied, and addressed as all the phases are interrelated.

5.3 Contributions, Limitations and Future Research Directions

This research *contributes* to the (un)sustainable consumption and laundry studies from a practice theory perspective, which addresses three important literature critique:

1. The study shows the applicability and advantage of the practice theory approach in research; how the network of practices can be essential when studying consumption; and how other laundry-related and non-laundry related practices can contribute to the resource consumption.
2. The author proposes a Laundry Mapping Model that helps study laundry practice holistically (in a shared laundry facility in the current study) and can be adapted for other future laundry studies.
3. To the author’s knowledge, the current research is the only laundry study that collects real-life data by observation, suggesting that the differences in previous loading capacity studies can be due to data collection methods.

There is no perfect study, and all of those have *limitations*, as it is the nature of the research. There are always some exceptions and conditions that are the boundaries within which the research is carried.

Firstly, this research was conducted as a case study, and due to access, only a student shared laundry facility was observed, and students using those facilities were interviewed. Accordingly, the sampling is limited to students, and the application of the results to non-students and multi-family buildings can be questioned. This limitation can guide future research to observe a shared laundry facility for non-students and multi-family buildings. Future research also needs to focus on collecting more real-life data by observation (shared laundry facilities) or using the diary-keeping method as in Kruschwitz et al. (2014).

Also, the number of interviews and observation hours may not be enough for general application, even though it contributes to the theory. It is important to stress that because practitioners can link different combinations of elements and practices, there always will be variations in practice-as-performances, and to study all of them is impossible. The thesis

aimed not to make a generalization but to contribute to the laundry study from a practice perspective for mapping the practice.

Secondly, the study had not made any calculations; each washing and drying machine’s water and energy consumption was unknown, making it difficult to answer precisely how (un)sustainable those performances were; the previous studies were referred to assess the results. Also, the extra resource consumption to maintaining the shared laundry rooms was not considered. These limitations are potential areas for future research. Future research also needs to focus on the energy consumption of different tumble and cabinet dryers, including the comparative studies of the energy consumption in air-dried ironed and cabinet dried, not ironed laundry practices.

Finally, there might be a question of why the research in shared laundry facilities, carried at student housing, should be interesting to academia and policymaking, while the laundry is predominantly performed in privately-owned machines? Although it is a limitation of the study, the author of this thesis believes that shared laundry facilities could provide more real-life data, and this case study may have broader applications. The research has managerial implications as it can be attractive to the other student housing providers within and outside Sweden, while increased interest in a shared economy makes this study a valuable source from a theoretical perspective.

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Appendix

Appendix 1

Observation Information Letter

Dear Tenants,

This laundry room has been observed (covertly) between 25-27 April 2020, as a part of the master thesis study at Lund University, Service Management, Tourism program.

The observation was focused on the ways laundry practices were performed without any direct reference to the individuals using the facility, which guarantees all the tenants' anonymity. The study has been conducted to understand the laundry practices from the material side and discover competencies related to that performance.

In case the tenants who used the laundry room during observation have any concerns, the researcher carrying observation can be reached via email addressed (provided below). Also, detailed information regarding the study and observation can be obtained by contacting the researcher.

Even though we do know each other, I want to take this chance to express gratitude to those people who have a contribution to the collection of this observation data by just using the shared laundry room at Vildanden, building 9b during 25-27 April 2020.

Best regards,

Leyla

email: [redacted]

Appendix 2

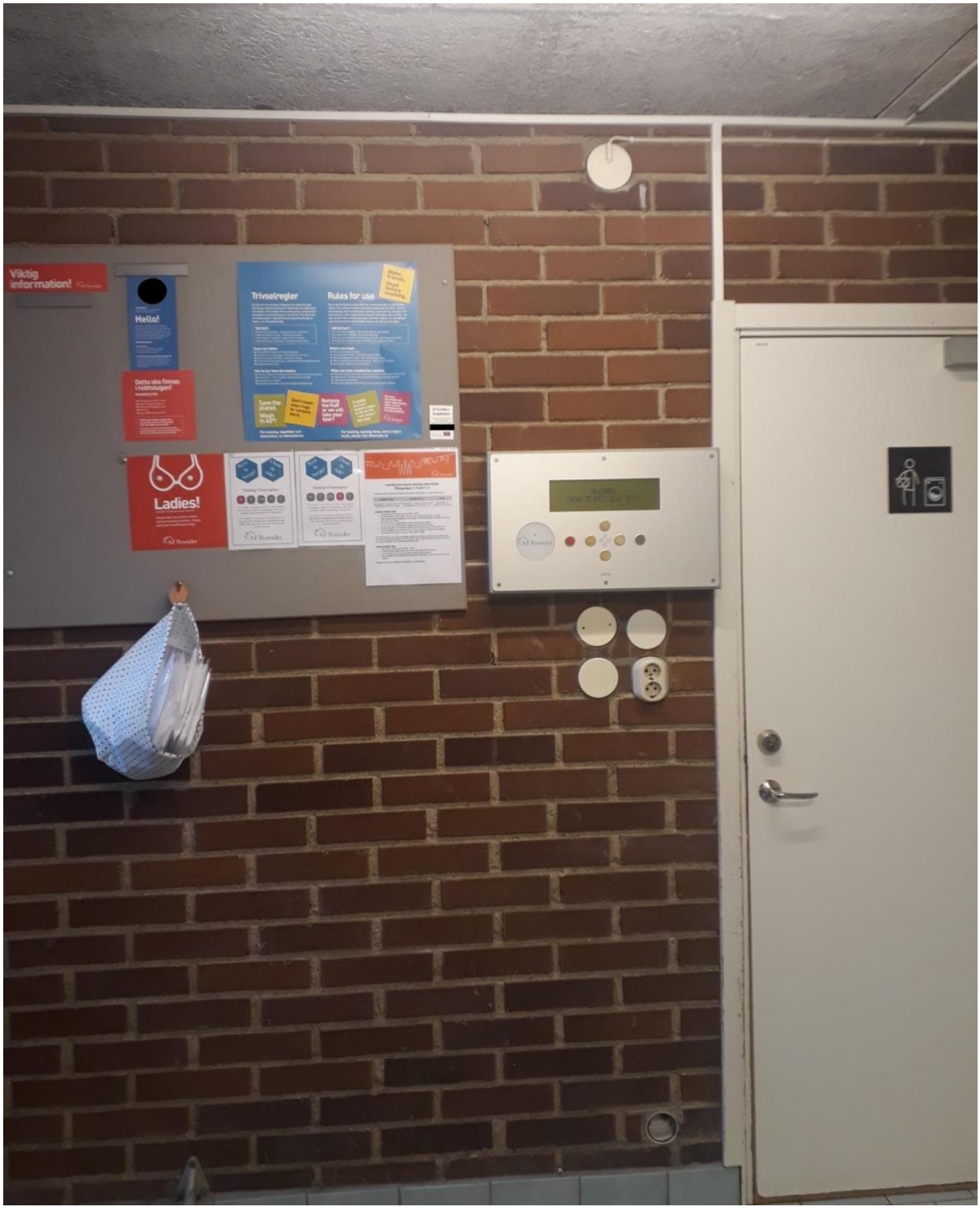
Observation Protocol

Zooming in & Out at Laundry Practices	Facility	Pre-washing	Washing	After-washing
How is the material element involved?				
How is the competence element involved?				
How is the meaning element involved?				
What and how rules are communicated (Competence Element)				
What and how rules are followed?				
What do practitioners do and say?				
What is the interactional order?				
What is the tempo, timing and sequence?				
How do tools and artefacts are used and how?				
What strategies or methods they are using?				
What matters to practitioners?				
What do they do next?				
How different are doings and sayings				
What are other practices involved?				
How do they decide that practice is accomplished?				
What is visible?				
What is invisible?				

***Extra focus: washing temperature, loading, sorting, drying temperature, drying loading, ironing

Appendix 3

Pictures from shared laundry room entrance - hallway

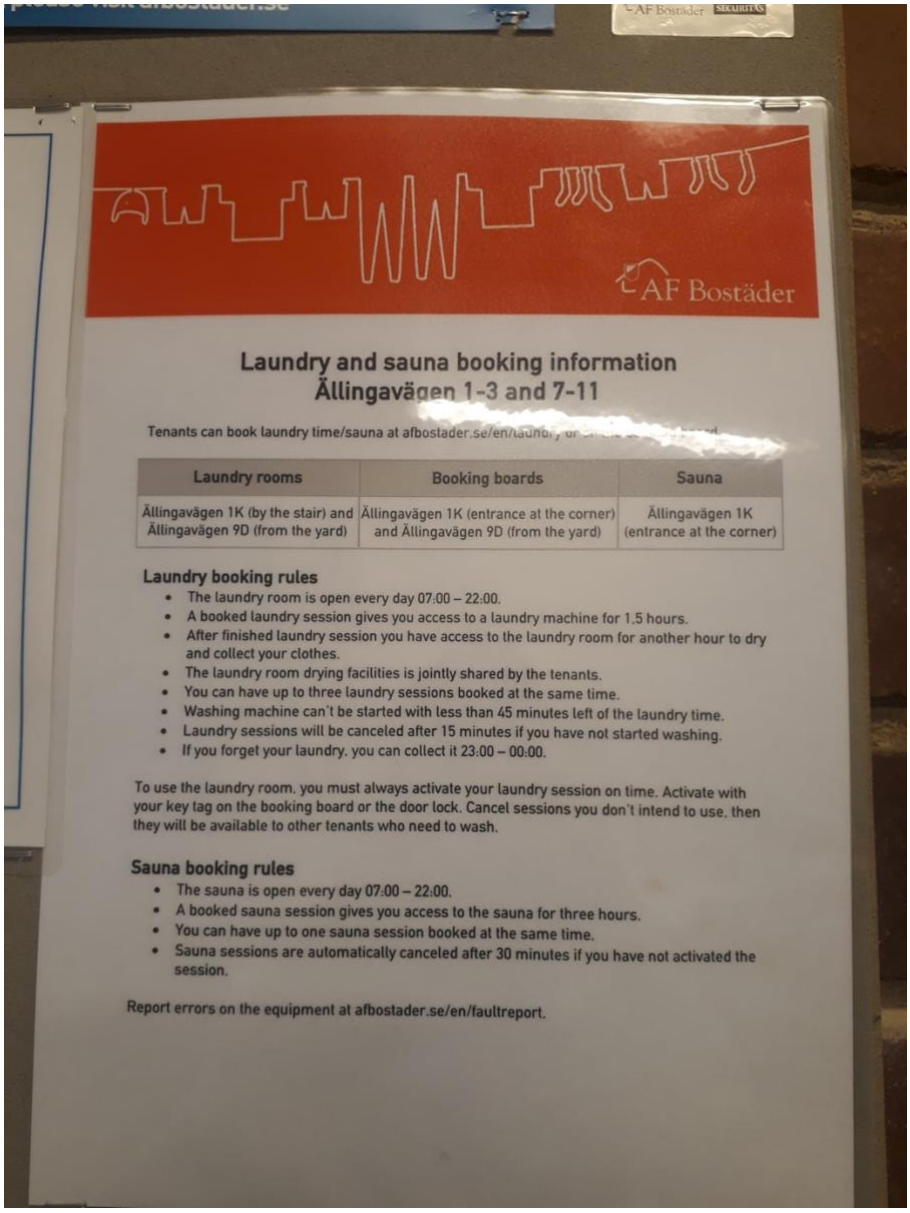


Appendix 4

Pictures from shared laundry room entrance - Booking Board

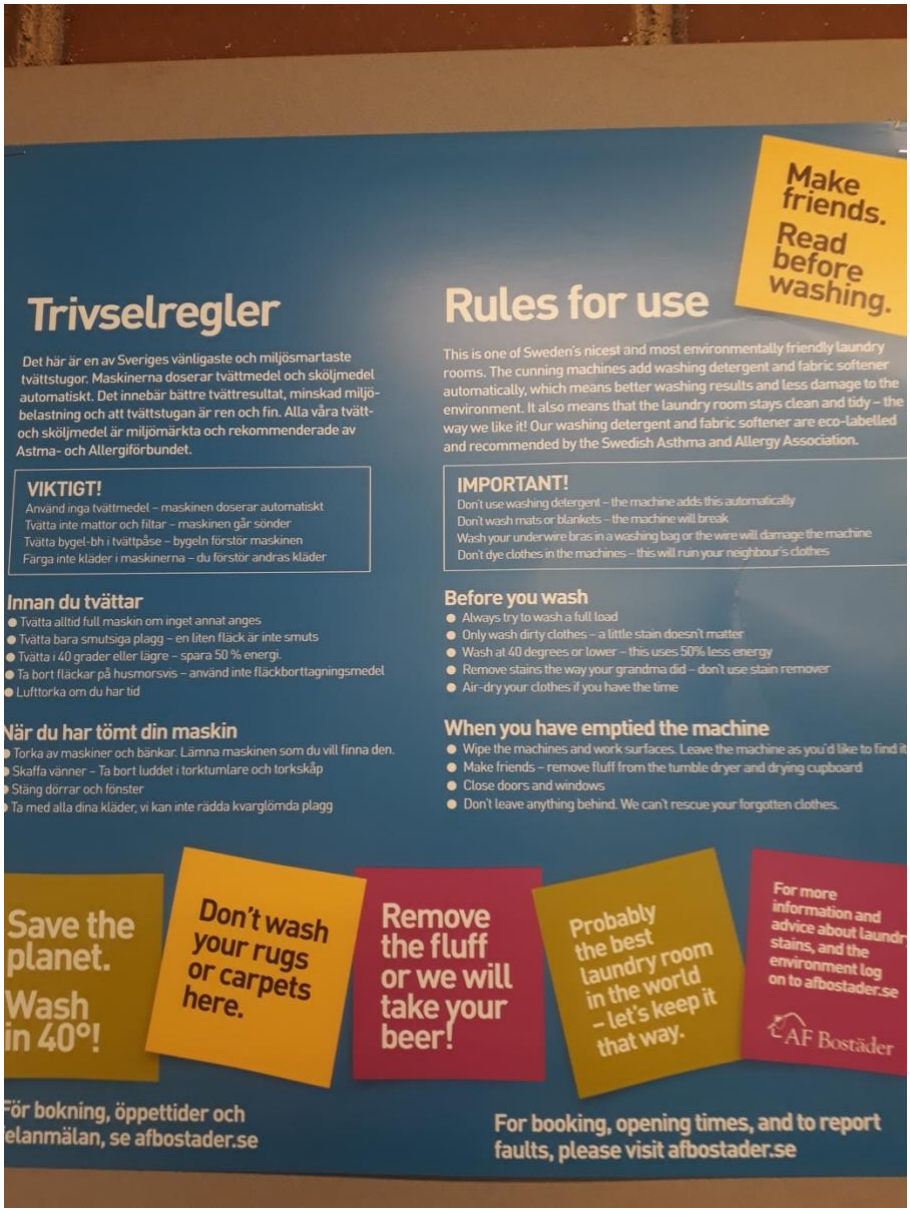
Appendix 5

Pictures from Information board at the shared laundry – Laundry and Sauna Booking information



Appendix 6

Pictures from Information board at the shared laundry – Rules for use



Appendix 7

Picture from washing-drying room – IKEA shopping (“laundry”) bags

Appendix 8

Picture from washing-drying room – Other “laundry” bags

Appendix 9

Interview Protocol

- Introduce the research topic, without mentioning (un)sustainable consumption part.
- Inform about *recording, anonymity, confidentiality, voluntary participation, withdraw right.*

Introduction - interviewee background, status (e.g., novice, learner, expert)

1. Can we start by knowing you and how you end up here in Sweden?
2. How long have you been in Sweden?
3. How long are you staying with AF Bostäder*?

Laundering - doing and saying, interactional order (how does it differ from the same practice elsewhere in focus)

4. Here at your student house, you are using a shared laundry facility. Have you used a shared laundry facility before moving to your current student house? (if yes, find out more, what are the difference between AFB laundry room and previously shared laundry room)
5. Can you tell me more about your previous laundry experience? How was your laundry been cleaned?
6. How is different doing laundry with a privately owned machine and shared a laundry facility?

Practical Concerns of practitioners, bodily choreography, tensions between creativity and normality, and competence element in a focus

7. How may laundry rooms can tenants use in Vildanden*? Which laundry rooms are you using? (wait for an answer, and ask why, if the answer is not covered)
8. Can you tell me about the rules and guidelines one has to follow in shared laundry rooms?
9. What is the most challenging part of laundering at the shared laundry facility?

*AF Bostäder – The name of **Student Housing Provider**

* Vildanden – The name of the **Student Housing Area**

Process of legitimation and stabilization and competence element in focus

10. How do new tenants know that they will use a shared laundry facility and rules related to those? How was your experience? How did you figure those out?
11. How different is it to do laundry now, and if you compare, how was it when you were new at Vildanden?
12. Do you know if other people are following those rules? How do you do that?
13. How would you describe doing laundry in a shared laundry facility to newcomers? What would be your advice to them?

Meaning element and practical concern in a focus

14. What are the reasons people may do laundry?
15. How do you think people decide what dirty and clean laundry is?

Timing and tempo, sequence, tools, artifacts and mediation, competence element in focus

16. Where can tenant store their dirty laundry? What are they using for storing their laundry?
17. How do tenants transport their laundry to the shared laundry room? What do you think about carrying the laundry?
18. How do you decide that it is time to do laundry? How many machines are you booking and why?

Practical, concern, timing and tempo, competence element and zooming out (coordination with other practices) in focus

19. Why do you only book (1,2,3) machines? Why don’t you book (more, less)
20. How do you separate your dirty clothes? What are the criteria for you?
21. How do you decide on the washing degree of those sorted laundries? Why?
22. Have you realized how the machine is loaded?
23. What do you think about using automatic detergent dosing machines?
24. What do you do once you have started the machines? (What can you do during your washing time? How you coordinate your time? How do you know that it is time to come back?)

Practical, concern, timing and tempo, competence element and zooming out (coordination with other practices) in focus

25. How do you dry your clothes? (How many drying machines do you usually use, and why?
26. What happens to your clean laundry once you have carried those from the laundry facility to your room?
27. I have not noticed any ironing facility at the shared laundry rooms. Where can the tenants iron? How do you decide what laundry should be ironed? How frequently do you iron?
28. How do all those clean laundries become dirty again? What do you do with them? What is your routine until it is next time to laundry?