The Experience of Picking Litter - a First-Person Experiment for Environmental & Sustainability Education

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Preface

Summary

Plastic production steadily increased over the past decades and with it the amount of waste. Part of this waste ends up in the environment as litter, where it threatens wildlife populations, e.g., through entanglement or ingestion. In the Netherlands, approximately 102 metric tonnes of waste end up as litter on riverbanks and beaches each year. Next to the work of municipalities and waste management companies we are relying on volunteers to clean up this litter. Many schools take part in clean-up actions, but it is not known how pupils or students experience voluntary litter picking. This study aimed to explore litter picking from a first-person perspective to find out what characterizes the activity and what influence it has on everyday life when done regularly. This was achieved through the use of phenomenological and microphenomenological self-inquiries and interpretative phenomenological analysis. The results informed a reflection on the possibilities and challenges of litter picking as an educational activity. The analysis resulted in six themes: (1) I experienced unpleasant emotions in relation to the confrontation with litter; (2) I experienced mixed emotions in relation to nature connectedness; (3) the mental and bodily exhaustion led to avoidance of the experiences; (4) I feared being socially judged and felt insecure about moments in which I received positive feedback from strangers; (5) litter picking led to an unpredictable confrontation with other societal challenges (e.g., fast fashion) based on the items that I found; (6) I experienced effects related to litter picking in everyday life. I described the first five themes in a short narrative example. The emotional reactions I experienced fit previous descriptions of anxiety and empathy in relation to environmental crises. In everyday life nine effects associated with litter picking were found. The most important ones are: (1) an increased awareness of litter in the environment; (2) guilt for not picking it up; (3) a negative impact on my mental health; (4) an increased appreciation for people working in waste management jobs and (5) a limited influence on my consumption behavior.

From a pedagogical perspective, litter picking in combination with microphenomenological self-inquiry can teach students about their values and purpose, whether they prefer physical or mental work and - if implemented by the educator - how to deal with wicked problems like the sustainability crisis. Students can gain a sense of connection to the places that they clean. Educators should be aware that litter picking can elicit strong emotions around the different crises (e.g., global pollution, climate change, biodiversity loss), that humanity is currently facing. I advise educators to make space for their students to process these emotions together. Further research is needed to understand what kind of support students need to make litter picking an empowering experience for them.

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List of Abbreviations

Abbreviation	Definition
ESD	Education for Sustainable Development
ESE	Environmental & Sustainability Education
IPA	Interpretative Phenomenological Analysis
MPSI	Microphenomenological Self-Inquiry
SDG	Sustainable Development Goals

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1 Introduction

1.1 The Ubiquitous Problem of Litter

1.1.1 Environmental Effects of Litter

In the past decades, litter has become ubiquitous. It can be found anywhere from cities, natural landscapes, beaches and in all oceans (Barnes et al., 2009). Plastic litter has even been found in the waters surrounding the Arctic (Kanhai et al., 2018, Tekman et al., 2016) and the Antarctic (Caruso et al., 2022). In 2015, the amount of plastic waste ever generated has risen to 6300 million metric tonnes. Geyer et al. (2017) found that 79% of all plastic ever produced is building up in landfills or openly dumped in the natural environment. Only 9% has gone through a round of recycling and the remaining 12% were incinerated. It is estimated that 4.8 to 12.7 million metric tonnes of plastics have gone from coastal lands into the oceans in 2010 alone. The authors expected that this number would rise significantly in the next decades (Jambeck et al., 2015).

While other forms of litter, like cardboard or organic waste, naturally degrade over time, plastic litter persist. Therefore, we cannot expect the plastic pollution to solve itself through natural degradation. Little is known about how long it takes for plastics to degrade, and estimations vary between a few and hundreds of years depending on the type of plastic, the chemicals added to it, the structure of the item and the environmental conditions (Chamas et al., 2020). The plastic either breaks down into smaller pieces until it eventually becomes microplastic, once it is smaller than 0.5 millimetres (Andrady, 2011), or is split into small molecules (Chamas et al., 2020).

Litter has several negative effects when it ends up in natural environments. Marine animals such as fish, turtles and sea birds have been shown to try eating plastic particles as they confuse them with food (Cadée, 2002, Bugoni et al., 2001). In many cases, this does not have a direct consequence, but over time there is an increased risk of choking on an item, or plastic fragments accumulating in their stomachs, causing them to starve to death (Blight & Burger, 1997, Kühn et al., 2022). Høiberg et al. (2021) found that in 4% of cases of ingestion, animals were reported to suffer from direct harm or death. Another threat to marine life is getting entangled in plastic pieces like fishing nets, which can end deadly. In a review, Gall and Thompson (2015) found that most often sea turtles, marine mammals and sea birds were reported to get entangled and that 79% of the found animals were either harmed directly or suffered death. Overall, they found reports of entanglement for 243 species. Moreover, species that get transported throughout the ocean on floating plastic debris, pose a threat to biodiversity. Through this mechanism, called rafting, invasive species can be introduced to new ecosystems, where they can disturb the composition, structure and balance of these ecosystems (Thushari & Senevirathna, 2020).

Next to plastic litter, cigarette butts pose a threat to the natural environment as well. In the ocean conservancy report of 2024, cigarette butts were the most abundant item (Ocean Conservancy, 2024). In standing waters, it is estimated that one cigarette butt can contaminate 1000 L of water. The nicotine and toxic chemicals from cigarettes leach into water in a short period of time (Green et al., 2014). The direct effects of cigarette butts are still unclear, but there are early studies indicating that they inhibit plant growth (Green et al., 2019). Thus, they pose a threat directly where they are thrown away.

Generally, studies on the impact of litter on land are lagging behind compared to studies on the impact on the marine environment, especially when it comes to larger animals. On soil level, a meta-analysis found that plastic residues and microplastics had negative effects on plant growth

and on growth and development of soil animals (e.g., earthworms). Basic soil properties were altered and effects on soil microorganisms were ambiguous (Zhang et al., 2022). Asian elephants in India as well as small mammals in the UK have been found to ingest plastic particles (Katlam et al., 2022, Thrift et al., 2022). Different land bird species are incorporating plastic waste into their nests. Apart from the danger of entanglement for nestlings, the impacts this has on the birds has not been widely studied yet (Janic et al., 2023). Overall, there are more and more studies researching different impacts on land ecosystems, but they are not as clear as the impacts on marine environments.

1.1.2 Global and Local Dynamics

High waste countries like the Netherlands tend to export a significant portion of their waste to lower-income countries where they consequently pose the biggest problems. Since China banned the import of plastic waste in 2018, other developing countries have increased their plastic imports, even though they do not have the facilities needed to properly handle the waste or recycle it (Wang et al., 2019, Ferronato & Torretta, 2019). A significant amount accumulates in landfills or in random places of the environment, where it often weighs the heaviest on the poorest of the population (Kaza et al., 2018, p. 130). A study done in a controlled landfill in Poland found that after five years of plastic being deposited, the soil was contaminated with toxic and carcinogenic compounds, as well as compounds that negatively affect the human endocrine system. Rates of fungi and bacteria were elevated and the soil inhibited seed germination (Redko et al., 2023). As people are living and working around landfills in developing countries, it must be expected that they are exposed directly to these negative effects. Between 1988 and 2017, the Netherlands were within the top 10 waste exporting countries 27 out of 29 years. Along the waste trade chains, illegal actions are common, thus it is to be expected that the Netherlands contributes at least to a part of the problem in the affected developing countries (Wang et al., 2019).

Within the Netherlands, litter is a serious problem as well, even though it has highly developed management mechanisms for waste. Lobelle et al. (2023) estimated that per year, 102 tonnes of waste find their way to Dutch riverbanks and beaches. How litter gets into the environment in the Netherlands is understudied. I have personally come across individuals throwing waste on the street deliberately, citizens searching waste bins for refundable bottles or cans, animals scavenging waste bags for food and wind scattering bags that eventually tear open.

Once litter is in the environment, conditions like wind and rain have been shown to contribute to the further distribution of litter as well as human foot traffic (Kachef et al., 2025). The Netherlands is highly urbanized, interspersed by rivers and bordered by coastlines along the north sea to the west and north. Urban rivers have been shown to contribute substantially to the distribution of litter from terrestrial towards marine environments (INBO, 2024, Meijer et al., 2021). Given the estimated amounts reaching Dutch riverbanks and beaches, measures must be taken to reduce the litter problem in the Netherlands.

With the plethora of materials that end up as litter and the plethora of actors on multiple levels involved in the generation and management of it, litter can be defined as a "wicked problem" (Loonstra & Tassone, 2023). There is neither a shared understanding of what the problem is exactly, nor a straightforward path to finding a solution. Approaches include improvement of waste management, incentivizing citizens not to litter and adding or adjusting regulations, as well as municipalities and waste management companies supporting volunteers in picking up litter.

In most municipalities there is at least one day a year that is organized to motivate the biggest possible number of citizens to go litter picking. Schools and associations often take part in these events as well. However, little research has been done about the impact litter picking has on volunteers, pupils, and students.

The remaining part of the paper proceeds as follows: first the research questions and the theoretical background on which this thesis build will be established, then the methodology that was used will be described followed by the results and a discussion. Lastly, the thesis will be wrapped up with conclusions that can be drawn from the research.

1.2 Aim and Research Questions

This research aims to explore the lived experience of litter picking from a first-person perspective of a student and to give a first account of what educators could expect when they incorporate litter picking into their curriculum. This is done by connecting phenomenological and microphenomenological self-inquiry with the cycle of experiential learning. As there is little previous research about the experience of picking litter, a first-person perspective builds a necessary foundation for future research. Based on the previously introduced problem, the following questions aim to guide the research:

1. *What do I learn about what characterizes the experience of picking litter for me?*
2. *What influence has picking litter and the corresponding research on other parts of my life?*

Lastly, the findings from the first two research questions will inform the answer of the third one, which will be answered in the discussion.

3. *Could litter picking be used as an experiential learning activity for education and if so, what would teachers have to expect and account for?*

2 Theoretical Background

2.1 Education

As this thesis is intended to set the first steps in exploring litter picking as an educational activity, I will give a short overview of the history of environmental and sustainability education and the concept of experiential learning in this chapter.

2.1.1 Environmental and Sustainability Education

Education gained widespread attention on international level through the Sustainable Development Goals (SDGs). The SDGs phrased education as a deep leverage point for achieving all of the 17 goals established in 2015. "Quality Education" is defined as the goal to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" ("Education for Sustainable Development Goals: Learning Objectives," 2017). The approach utilized to work towards the goal of quality education is called Education for Sustainable Development (ESD). It is intended to be a holistic and transformational way of learning which aims to give students the knowledge, skills, values and attitudes needed to handle complex situations and make changes happen ("Education for Sustainable Development Goals: Learning Objectives," 2017).

The ESD approach builds on different historical waves of educational fields relating to environment and sustainability. These waves show the developments that the educational field has undergone in the past century; all of which still coexist today in different forms. Wals & Benavot (2017) distinguish four waves: The first wave called Nature Conservation Education rose during the late 19th century and lays its focus upon strengthening people's connection to nature and the protection of species. In the late 1960s Environmental Education emerged with the focus on achieving change in individual's behavior to address the increasing pollution of the environment. From the early 1990s on Sustainability Education widened the field with a more holistic approach to increase citizen engagement and lead towards more sustainable development. This third approach does not only focus on issues around polluted soil, water and air, but also extends to issues of poverty, biodiversity, energy, education, business, and governance. To achieve this, emphasis is placed on the collaboration of multiple stakeholders. Most recently, Environmental and Sustainability Education (ESE) broadened the goals of Sustainability Education through an emphasis on building connection between humans, the place they live and the non-human world. ESE focusses on changing unsustainable structures towards sustainable ones. Within ESE, it is intended to come to a point at which sustainable living is the standard (Wals & Benavot, 2017).

Teaching about sustainability issues cannot solely rely on knowledge transfer. This is because many sustainability issues are so-called wicked problems. With a wicked problem different actors have a different understanding of what the actual problem is. As wicked problems are embedded in complex contexts, there is no clear pathway to one solution. Rather, there are many possible solutions with different advantages and disadvantages (Loonstra & Tassone, 2023). When it comes to sustainability approaches, many people feel discouraged or overwhelmed when they are only given theoretical information. However, they feel more inspired to change their behavior when they get to see practical examples, e.g., eco-villages (Woiwode et al., 2021). In accordance with this, the educational approach of head, hands and heart aims to organize

learning into a cognitive domain (head), a practical skill development domain (hands) and an affective domain (heart), that enables students to translate their values into behavior (Sipos et al., 2008). In other words, the head-domain focuses on academic studying and understanding while the hands-domain includes physical labour and the development of practical skills. The heart-domain emphasizes understanding of one's own values and attitudes to facilitate behavioral changes accordingly. Educational approaches that want to transform learners worldview on sustainability should engage all three domains if they want to encourage lasting change.

2.1.2 Experiential Learning

Experiential learning was already developed before the sustainability issues became more known. It could be a very practical approach to answer the difficulties that go along with learning about the complex field of sustainability. Within experiential learning, experience is seen as knowledge in itself and the focus lies on the process of knowledge-creation through doing (Chan, 2022). In 1984 Kolb (1984, as cited in Chan, 2022) described the theoretical basis of experiential learning. Kolb defined a four-step process of learning which starts with a concrete experience, e.g., picking up a piece of litter. It is followed by reflecting on one´s observations, e.g., through the use of a written diary. The third step is to conceptualize the experience more abstractly, e.g., through forming theories about the experience. In an ideal situation the last step of actively experimenting with the previously made experiences and theories makes this process an ongoing circle. Building on this circle, Kolb derived four learning types, each leaning more towards one of the previously described steps. For example, one type of learner may prefer learning from observations, reflecting on them and drawing conclusions from this process. Another type of learner may lean more towards actively experimenting, failing and succeeding. Experiential learning can be divided in two types of teaching settings: field-based and classroom-based learning. The first combines what is learned in theory with doing activities in real-life settings, e.g., through internships or community-based learning. The latter engages students in hands-on scenarios while staying within a hypothetical situation. Generally, research suggests that experiential learning is more effective in field-based learning (Chan, 2022). Field-based experiential learning can be the hands-on approach that education for sustainability needs (Wals & Benavot, 2017).

However, recent studies on ESE have asserted that educational practices need to support students in acknowledging emotional reactions and processing them together in a safe space (Grund et al., 2023). Experiential learning theory itself does not specifically acknowledge the importance of emotional processing. Because sustainability issues are usually wicked problems, students that engage in projects with them can be left with feelings of little control. At the same time their active engagement can give them a sense that their doing has a high value (Grund et al., 2023). According to the control-value achievement theory, the emotions that learners experience when working towards an achievement depend on their subjective control over the activities and outcomes that lead to the anticipated achievement as well as the subjective values of these activities and outcomes (Pekrun, 2006). If the added value does not balance the perception of missing control, it can actually lead students to disengage from the activities. Grund and Brock (2019) also found that hopelessness can cause people to not engage in activities that work towards a more sustainable future, especially when their expectancy that a desirable outcome actually happens is low.

Thus, if experiential learning is meant to be employed to learn about sustainability issues, focus must also be laid on guiding students in perceiving their bodily reactions and emotions and in processing possible feelings of loss of control and hopelessness.

2.2 Research Approach

To better understand the subjective experience of picking litter, this thesis is done from the first-person perspective as a qualitative approach. It builds upon the concepts of phenomenology and microphenomenological self-inquiries. The collected data is analyzed using interpretative phenomenological analysis. Drawing on the autoethnographical approach, the experiences of picking litter are put into a broader perspective and are used to make a short narrative story. In the following, I will give an overview of what characterizes these scientific approaches.

2.2.1 Phenomenology and Interpretative Phenomenological Analysis

Phenomenology is based in philosophy as well as scientific research (O´Hara, 2020). Phenomenology investigates the essence of a phenomenon as it is experienced and described through individuals (Creswell, 2013). Usually, participants are interviewed and their descriptions are then reflectively and structurally analyzed to get as close as possible to the what and how of the phenomenon (Moustakas, 1994). It has been most used in psychology, but is increasingly being adopted by other disciplines. Usually, phenomenological studies are done with small sample sizes to ensure that researchers have enough time to thoroughly get to know the life-world of every participant (Eatough & Smith, 2017). In some cases, researchers choose to base their studies on a single-case. Examples of this are studies about the experience of living with Parkinson's disease (Bramley & Eatough, 2005) and the interaction between masculine identity and health-related behavior (De Visser & Smith, 2006). As an advantage, single-case studies "offer a personally unique perspective on their [the participant's] relationship to, or involvement in, various phenomena of interest." (Smith et al, 2009, p. 29, as cited in Eatough & Smith, 2017).

To analyze the data gathered through interviews, interpretative phenomenological analysis (IPA) can be used. In this form of analysis the researcher understands the participant as the "experiential expert" (Eatough & Smith, 2017, p. 9) and investigates wishes, desires, feelings, motivations, belief systems and how these translate into behavior. As it is an idiographic approach, the starting point is always the particular and from the particular generalizations can be made in steps building on another. The researcher aims to develop interpretive layers going from the small parts that make up the experience towards the meaning the experience has for the participant in the context of their whole life (Eatough & Smith, 2017). Usually, several themes are found at the end of this analysis. The use of an idiographic approach has the advantage that a premature selection of categories and methods is avoided. Consequently, the risk is lower that researchers miss out on important parts of the phenomenon they intend to study (Moustakas, 1994).

Next to the idiographic basis of IPA, the method is grounded in the concept of hermeneutics as well. On a philosophical basis hermeneutics is the understanding that humans are always interpretating their subjective experiences on a conscious and unconscious level (Eatough & Smith, 2017). In the scientific context hermeneutics acknowledges that it is not possible to directly access a participant's experience. Instead the researcher is always interpretating the accounts that they get from the participant and is trying to be as close to the experience as possible. When doing research, there is even a double hermeneutic present: "The researcher is

trying to make sense of the participant trying to make sense of what is happening to them." (Smith et al, 2009, p. 3, as cited in Eatough & Smith, 2017).

IPA of good quality tries to find convergence and divergence within the themes that have been found to characterize the phenomenon of interest, showing how the themes present across several participants, as well as how they present for the individuals of the research sample (Smith, 2010). In the case of a first-person research with only one participant, convergence and divergence are based on how the themes vary throughout the number of experiences.

2.2.2 Microphenomenology

Microphenomenology was recently build upon phenomenology and looks at short specific moments in time. It is either done with a trained interviewer and untrained interviewee or in the form of a self-inquiry. Microphenomenological inquiries produce thick data compared to other research methods as they are purely qualitative and directly investigate the first-person experience (Frank et al., 2024). Similarly to arguments made by proponents of phenomenology, Sparby (2024) argues that limiting studies to external observations misses the exact phenomenon one aims to investigate. Thus, if one wants to understand how the human brain works, it makes sense to not only focus on quantitative methods, e.g., by measuring brain activity with electroencephalography, but to also interview participants themselves. Through microphenomenological inquiries pre-reflective facets of experience can be revealed. Thus, participants and researchers can uncover aspects that the participants previously were not aware of (Petitmengin et al., 2017). The detailed exploration of the experience - accomplished through the repeated evocation of the experience - makes the research results much more reliable than initial reports (Petitmengin et al., 2013).

The moment investigated with a microphenomenological inquiry is understood as a singular experience with different layers in two dimensions. The diachronic dimension describes how the experience unfolds in time. On this dimension the experience can be seen as a series of moments following one after another from the start to the end. The synchronic dimension is non-temporal and is made up of the simultaneous aspects of the experience like the perception of the senses, emotions and attention (Petitmengin, 2006). However, microphenomenology is not interested in so-called satellite dimensions. This is everything that surrounds the experience such as the context, theoretical knowledge, judgements and motives of individuals.

After establishing an agreement between researcher and participant about how the inquiry will take shape, the first step in an interview is usually to evoke the experience. Thus, the participant is either asked to do a specific task (e.g., to solve the equation 15+17) or asked to remember the moment of interest. Afterwards, the interviewer helps the interviewee to evoke the experience through different techniques such as asking questions about the sensory perception of the experience and reformulating the accounts given by the participant. The latter also functions as a check whether the researcher has understood the participant correctly (Sparby, 2024). Typically asked questions include:

- How did you know that...?
- How did [previously described phenomenon] happen?
- What happens then?
- When you experience [previously described phenomenon], what do you do?

These questions are devoid of content themselves and therefore avoid that the interviewee is primed by the interviewer. This also helps the interviewee to stay in the evoked moment.

Researchers can observe when participants go back into the moment of interest and uncover pre-reflective aspects, when they switch to describing their experience in present tense, hesitate while speaking, go silent for longer moments and start gesturing while talking (Petitmengin et al., 2019). After the interview the recording is usually transcribed and systematically analyzed (Sparby, 2024).

2.2.3 Self-Inquiry as a Research Method

In recent years methods based on self-inquiry, such as microphenomenological self-inquiry (MPSI) and autoethnography, have seen an increase in usage again. MPSI builds on all the principles of microphenomenology with the distinction that the role of the interviewer and interviewee are both acted out by the same person. MPSI should only be done by participants who have been trained in it as studies with untrained people did not show reliable results (Sparby, 2022). Combining the role of researcher and participant in one person gives the opportunity to produce data that can go even deeper than interviewing others, as it gives one the opportunity to look at everyday-moments even closer and directly when they occur. This broadens the possibility of what one can research. Furthermore, it also gives the researcher the opportunity to grow as a human as the understanding of oneself can be deepened through the self-inquiries.

Researches that want to look at experiences from a broader perspective, can make use of autoethnography. This method is used to describe and analyze personal experiences and to understand how experience relates to culture. Within autoethnography, it is recognized that research is shaped by subjective experiences, emotions and researcher's decision-making. These aspects are actively and openly reflected on during the research. Autoethnography matches up autobiography, ethnography and analysis based on social sciences. Autobiographers write about the past through selecting "epiphanies" – moments they subjectively experienced as influential or transformative. Ethnography intends to deepen understanding of a specific culture through participating in and observing the culture at the same time. To keep it a scientific endeavor, the experience and culture must be analyzed and set into relation to existing literature. The product of this process then intends to be made of "aesthetic and thick descriptions of personal and interpersonal experience" which brings art and science together (Ellis et al., 2010, p. 5). These descriptions can include poems, narrative storytelling, drawings and many more.

3 Methodology

3.1 Participant

In acknowledgement of the influence my perspective as researcher and participant has and for reasons of transparency a short outline of my person and factors influencing my interpretative framework within the IPA will be given now.

I am a master student in the Netherlands, currently 26 years old. I am white. I migrated from Germany to the Netherlands for this study. My interpretative framework has been influenced by a previous study of biology, private and study-related interest in topics of sustainability and climate change as well as personal experience with picking litter dating back into my childhood. My first memory of picking litter stems from my early teens where I took part in a public litter-picking event together with friends. Shortly after, I went litter picking alone and demonstrated with the collected bag of litter and a self-written sign in the small-town city I was living in, as I was in utter dismay at the amount of litter I had found in a short time. Later on, I sometimes took part in public yearly clean-ups together with friends. After having moved to Nijmegen I planned on picking litter on my own through the local waste management company's initiative, but never actually did until making it my master thesis topic. I have come into contact with and practiced introspective self-inquiries similar to MPSI in a prior university course.

3.2 Procedure

The experiences of picking litter were based on going outside with a garbage bag, grab tongs (a tool to pick up garbage more easily) and working gloves to pick up litter lying on streets and the surrounding environment. The garbage bags and grab tongs were provided by the local waste management company "Dar" which supports volunteers in picking litter. During these experiences I made an effort to be aware of my own behavior, thoughts and feelings.

In total I went out to pick litter 14 times and recorded 13 independent inquiries. Apart from one last try in April, these experiences took place between October 14th of 2024 and January 13th of 2025. Due to the effects discussed later I had to stop going on litter picking walks by mid-January. The experiences usually took around 30 to 90 minutes during some of which I was almost stationary due to the amount of litter while others resembled more of a walk during which I picked up something from the ground every few meters. Even though I did not walk much during quite some of the experiences I will further use the words walk and experience interchangeably to describe the act of me picking litter. A few times I came upon a larger collection of litter in one place, like a box full of clothes, a collection of campsite items or a pile of leaves blown together by municipality-staff which was full of litter. All experiences took place in Nijmegen, the Netherlands. I mostly collected litter in my extended neighbourhood and sometimes in nature-based recreational areas of Nijmegen, like the riverside of the Waal (the river that flows through the city Nijmegen).

3.3 Data Collection

During the research process I made audio-recorded self-inquiries prior to, after or temporally independent from picking litter. The abbreviations used to describe the temporal relation of a recording to an experience can be found in Table 1. The temporally independent recordings were done when a phenomenon related to picking litter emerged in everyday life. To begin with, the

focus during these self-inquiries was broad to gain a general sense of what picking litter meant to me and how I perceived it. In the style of an microphenomenological self-inquiry, moments or aspects that appeared as important to me were looked at more deeply and thoroughly. Here, cognitive, somatic and sensory perceptions that made up my inner experience were in focus. As microphenomenological inquiries usually focus on experiences lasting only a few seconds (Sparby, 2022), I had to choose particular moments of walks that I perceived as moments of change, deepened understanding, awareness or particular importance. These chosen moments were then evoked several times through asking myself questions of what happened and how it happened within me. The inquiries were recorded in my native language German. The audio-recordings were transcribed with the help of the transcription option of Microsoft® Word for Microsoft 365 MSO and then imported to and analyzed with the help of Atlas.ti. Furthermore, I had the possibility to take several pictures while picking litter when an object, landscape or something similar stood out to me. These pictures allowed for another level of investigating what the experiences were made of and were an additional part of the analysis. Table 2 gives an overview of when the experiences and independent inquiries took place and how long the recordings prior to, during or after the walks were as well as the duration of the independent recordings.

Table 1: Abbreviations used to distinguish the temporal relation of the recordings to the litter picking experiences.

Abbreviation	Meaning
Pre	Recording made prior to an experience
On	Recording made during an experience
Post	Recording made after an experience
Ind	Recording made temporally independent of an experience
A / B	First / Second recording that were taken directly after each other
1 / 2	First / Second recording of a day; thematically different

Table 2: Overview of litter picking experiences, inquiries and inquiry-duration.

Date of experience	Inquiry-duration: Pre A/B (in mm:ss)	Inquiry-duration: Post A/B (in mm:ss)	Date of independent inquiry	Inquiry-duration (in mm:ss)
2024-10-14	13:23 / 03:45	15:46		
2024-10-21	05:28	00:41 / 18:00		
2024-11-07	03:13	15:11		
2024-11-15	10:12	06:26* /02:43		
			2024-11-18	04:17
2024-11-19	02:03	14:24		
			2024-11-22	14:19
2024-11-26	12:17	23:26		
2024-12-03	02:57	26:52		
2024-12-05	-	21:27		
			2024-12-11	08:27
			2024-12-12	03:55
			2024-12-13 (1)	01:44
			2024-12-13 (2)	07:34
2024-12-13		06:40		
2024-12-16	03:16	06:09*		
2024-12-17		04:42		
			2024-12-18 (1)	04:01
			2024-12-18 (2)	06:12
			2024-12-19	04:47
2025-01-02	08:04	06:14		
			2025-01-06	01:45
			2025-01-07 (1)	03:58
			2025-01-07 (2)	07:38
			2025-01-09	06:38
2025-01-13	06:09	07:18		
2025-04-23	05:44	15:22		

Note: The inquiries marked with an asterisk (*) were taken during the walks. The inquiry taken during the walk of the 16th December 2024 was inaudible due to bypassing cars and other loud noises.

3.4 Data Analysis

As discussed earlier the data was analyzed using interpretative phenomenological analysis. All inquiries were coded inductively using Atlas.ti. After going through all inquiries twice, there were 75 codes and 268 quotations. The codes were ordered in a network with two major points: educational aspect & feeling. This network was then used to search for 4 to 6 major themes which were perceived as capturing the essence of the experiences. These preliminary themes were controlled through the arrangement of a new network with them as central points. The goal of this network was to see whether all important codes were represented by these themes. The resulting network as well as the interview data in Atlas.ti were used to facilitate the creation of the written analysis. Throughout the writing process of the results the themes directly

surrounding emotions were blended together as one. Direct citations from the self-inquiries are included in the results as is usual for IPA. The citations are marked by being formatted in *italic* and the date and temporal relation of the recording (e.g., "2024-11-07 Post") are given at the end of the citation for increased transparency.

3.5 Translation

Parts of inquiries that were chosen to be included in the text as supporting evidence for the analysis were translated from German to English using the free version of the translation programme 'DeepL'. These translations were checked personally for accuracy and trueness to the original meaning and where needed the program's suggestions were changed.

4   Results

Five distinctive themes were found that describe how litter picking itself was characterized in my personal experience. These themes were 'unpleasant emotions in relation to the confrontation with litter', 'mixed emotions in relation to nature connectedness', 'exhaustion leading to avoidance', 'fear of social judgement and mixed feelings about interactions with strangers' and an 'unpredictable confrontation with other societal challenges' (Table 3). The sixth theme 'effects associated with litter picking in everyday life' has its focus on the effects that weren´t happening during the experiences but timely independent of them and is comprised of nine sub-themes.

Table 3: Themes that characterize the personal litter picking experience

Unpleasant emotions in relation to the confrontation with litter
Mixed Emotions in relation to nature connectedness
Exhaustion leading to avoidance
Fear of social judgement and mixed feelings about interactions
Unpredictable confrontation with other societal challenges
Effects associated with litter picking in everyday life

In the following, the first five themes will be described and illustrated with citations from the inquiries and selected pictures from the experiences (chapter 0 - 4.5). In chapter 4.6, leaning on the principles of autoethnography, one story will be told to show how the first five themes emerged in a specific experience. To answer the second research question, I will discuss the sixth theme, the effects that the experiences had on my everyday life in chapter 4.7. Lastly, I will reflect on what I have learned from the experience as a whole in chapter 4.8.
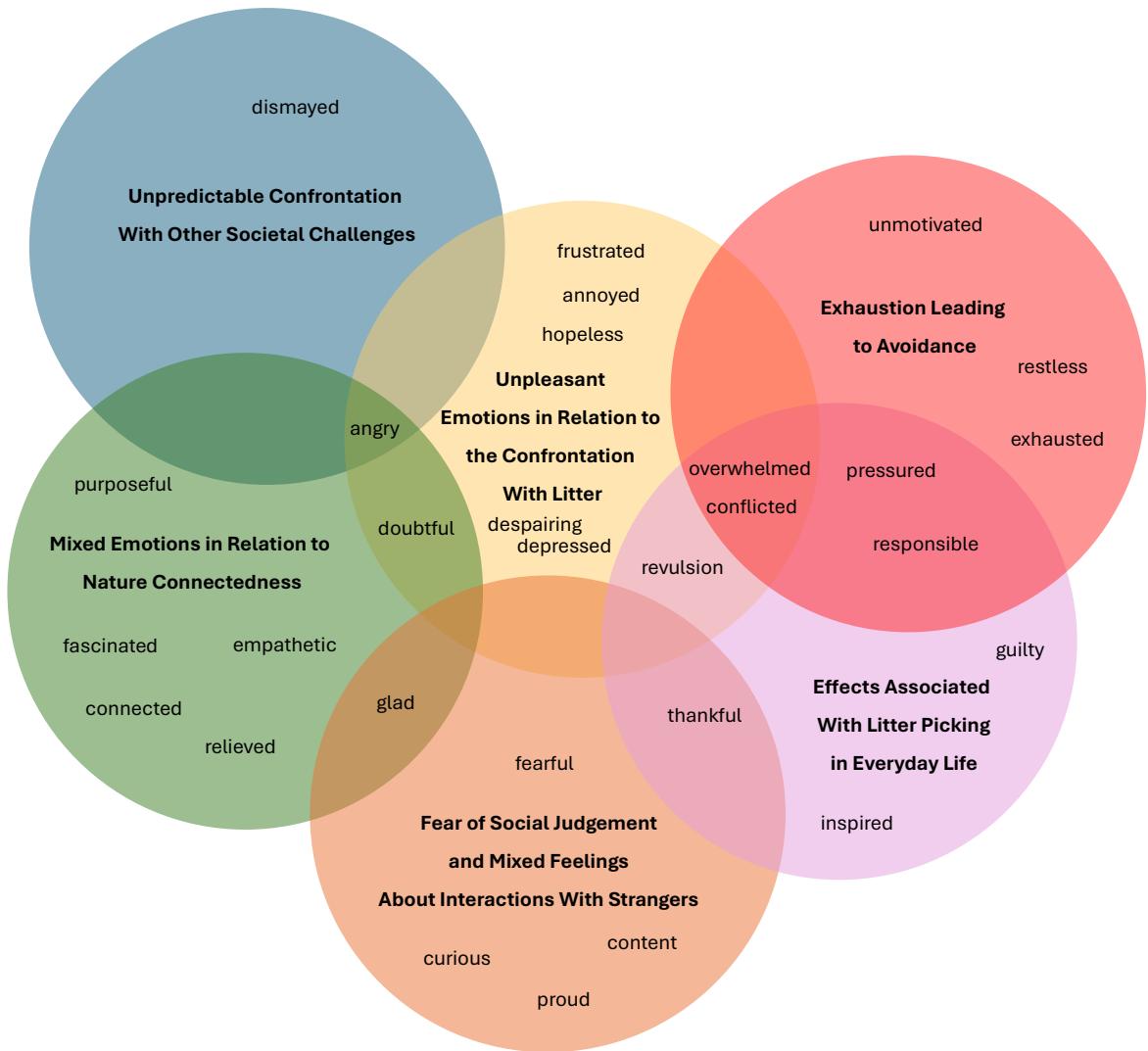
Figure 1: Emotions that I experienced repeatedly connected to the six themes. Emotions in overlapping parts of the circles are related to all circles that they are in.

As emotions lie at the basis of human experience and are one focus-point of microphenomenological inquiries in the synchropic dimension, Figure 1 shows an overview of the emotions that I identified repeatedly during the duration of the experiment and therefore coded during the analysis. The emotions are grouped to the themes that they are most connected to and will be found back in the description of the themes directly or indirectly. The identified emotions ranged from unpleasant feelings such as anger, overwhelm and hopelessness to more pleasant feelings such as being glad or relieved. Figure 1 also shows that the fourth theme (unpredictable confrontation with other societal challenges) was a theme that was less connected to specific emotions but rather build upon observations of litter picking over time.

4.1 Theme 1: Unpleasant Emotions in Relation to the Confrontation With Litter

Five sub-themes were found that together characterize the emotions I experienced in relation to the confrontation with litter (Table 4). I'll go into more detail about these sub-themes and how they impacted the experiences in this section.

Table 4: Sub-themes characterizing the theme unpleasant emotions in relation to the confrontation with litter

Constant inner monologue
Trying to understand others reasoning for littering
Frustration due to perfectionistic tendencies
Overwhelm from amount of litter found
Trying out mitigation strategies
•   Humour & curiosity
•   Presencing

Constant Inner Monologue

Firstly, it is of interest that there was a constant inner monologue going on in my head that was busy with analyzing the situation, my behavior and possible consequences. I recognized being in inner conflicts about what to pick and what not. Over time these conflicts became overwhelming and had a deteriorating impact on my emotional state: *I've just thought a lot about how much is lying here. Do I pick it up, do I not pick it up? For example, tissues. I often thought: Oh, I can't reach it, there are so many thorns and then I nevertheless tried to get hold of it somehow, because I still didn't want to leave it lying around. Through this I began to feel gradually worse and more and more mentally exhausted and horrified and disappointed* (2024-10-14 Post). I was actively processing how much litter I encountered at various places and how much time it took to gather. It was like I was constantly keeping score. Finding what I counted as a lot of litter sent me into despair and made me doubt several times whether my actions even have a significant impact. Together with this doubt feelings of hopelessness came up. *I became really horrified at how much it [a box of littered clothing] is and not necessarily that one can throw it away, but simply that it's there* (2024-11-26 Post).

Trying to Understand Others Reasoning for Littering

My initial reactions to finding items that someone must have consciously thrown away was often anger: *And the first thing I saw at the point where I entered this "natural area", was that there were suddenly two shoes lying where I had already tidied up. And they still looked pretty good. I was annoyed. Anger arose in me* (2024-10-21 Post B). Similarly, when I came to a place that made the impression of a left camp my initial emotion was anger at this person: *When I got to the spot, the first thing I found was a half-destroyed - [I mean] completely destroyed, but it was still one piece - umbrella. And a camping cooker and a tin, a small tin of peas. And these three things triggered anger in me. The story formed in my head that someone had just camped here and left their shit like an asshole (*2024-12-03 Post). Later on I questioned this story as I found an unused pregnancy test and got the idea that it might have been an underage women who fled her parents' home in fear of their reaction to a possible pregnancy. I was aware that I was just assuming and interpreting a lot based on a few objects. Nevertheless, the idea of a young and scared women camping at this place in the middle of November shocked me. The new interpretation transformed my anger and frustration into empathy. Even though anger was often my initial

reaction I consciously tried to not judge others for littering and went through thought processes of finding acceptance and understanding for the life circumstances that lead others to littering: *I can understand somehow that someone might throw it away if they don't know what the consequences are and perhaps have other worries in life and need to get rid of it and just say [to themselves] I'm going to put it here now. I can understand that somehow, even though I still find it totally crap* (2024-11-26 Post).

Frustration Due to Perfectionistic Tendencies

On the other side, finding pieces of plastic which had already fallen apart into smaller pieces was associated with frustration due to perfectionistic tendencies. Picking these up felt like a tedious and impossible task to do: *I spent the last fifteen minutes pulling out some fibrous cloth from bushes that had disintegrated into a thousand pieces - which is very obstinate. And I got maybe half of it out and I'm just sick of it now (*2024-11-15 On). My descriptions here show that there was a need for perfectionism. There was a wish to gather everything I encountered and the impossibility to do so resulted in a gradual incline of feeling frustrated. *I also collected halfway in the thorns again, was frustrated again that I couldn't get everything out or just couldn't reach it (*2025-01-13 Post). While anger was a feeling that was triggered directly and had a sudden onset, frustration tended to rise slowly throughout the experiences.

Overwhelm From Amount of Litter Found

During one walk along the Waal (river in Nijmegen) I had to take a break from collecting as the emotions became too overwhelming and the thoughts I recorded then show nicely how doubting and hopeless I was while still trying to see the bigger perspective: *With the amount of litter lying around, I'm just wondering what difference it makes that I spend an hour collecting litter here. The area is relatively clean. But there's still a lot lying around. And I mean the bag that I'm taking out now, isn´t here any longer. It's out of here. It no longer goes into the water. But it still feels like a drop in the ocean. I'm just thinking that there must be a better way* (2024-11-15 On).

While talking about an incidence outside of the experiences in which I picked up a few pieces of litter during a regular trip to the city centre I slowly became aware of how much sadness is connected to the topic: *When I talk about it like that, it actually makes me sad. Not the health issue, but the whole plastic problem. There's a sadness in me that we're in such a mess. That we have polluted our planet so much* (2024-11-22 Ind).

Trying out Mitigation Strategies

I tried to mitigate the unpleasant emotions by viewing the experiences and the litter I found through a lens of curiosity and humor. This way, I tried to make space for a state of wonder about how items might have gotten into the places where I found them. *And apart from that, this walk was different to the first one in that I didn't fall so much into depressing thoughts. That came up once at the beginning. Because I kind of knew that was coming and therefore I was a bit prepared. I knew I didn't want it to be like that this time. Instead, I focused a bit on what kind of stories the waste actually tells* (2024-10-21 Post B). I wondered how several CDs got into a dog walking area and who had put a dose of tobacco onto a fly amanita (Figure 2)

Figure 2: Picture taken during one of the experiences; showing a fly amanita on which somebody had placed a tobacco box.

Unfortunately, this strategy only lifted my mood during the second walk and did not seem to work afterwards anymore as the unpleasant emotions I experienced were too overwhelming.

Next to this, I tried to stay with pleasant emotions when they emerged and to actively notice them. This mostly happened in relation to seeing natural phenomena (chapter 4.2) or when a stranger interacted positively with me (chapter 4.4). Even though I tried to find positive ways of seeing the experiences the unpleasant emotions overshadowed them. Towards the end of the experimental phase I came to a point where the emotions connected to picking litter were too much to handle and process: *I'd rather not even talk about it. I have just had enough... OK, role of the scientist. Collecting the rubbish was just kind of depressing. And frustrating because it's just so damn much (*2025-01-02 Post). After this experience I was not really capable of doing a proper inquiry anymore and only gave short descriptions of what happened. Even though two women separately talked to me in a positive manner, I still felt hopeless: *It's nice to get the recognition and to know that there are other people there too [who pick litter], but the feeling that the problem is just too big and that what I'm doing is actually pointless is just too strong* (2025-01-02 Post).

A few days later I made the decision to take a break from the walks and from working on my master thesis in general. Once I started working on it again in April, I was already quite clear on the fact that I did not want to continue doing the experiences. Nevertheless I wanted to do one last try, mainly out of curiosity about how it would be to collect litter in weather conditions that I did not equate to feeling cold and whether it would have a negative influence on my mental

wellbeing again. I allowed myself to listen to a podcast or music during that experience to mitigate the risk of being overwhelmed by my mental monologue and the unpleasant emotions I experienced during earlier walks. Nevertheless, I struggled with both: *Yes, and somewhere along the walk an unpleasant feeling settled in again. A bit like an emptiness. I also realized when my podcast was coming to an end that I thought, do I just let it fade out now? Or do I start something new, or music? And I thought, OK, no, by no means just silence now. I don't want that. I don't want to think about it now. And toss all these thoughts around in my head which somehow were already there anyway* (2025-04-23 Post).

4.2 Theme 2: Mixed Emotions in Relation to Nature Connectedness

This chapter outlines how I experienced mixed emotions in relation to nature connectedness through five sub-themes that I have found to characterize this theme (Table 5).

Table 5: Sub-themes characterizing the theme mixed emotions in relation to nature connectedness

Caring for nature and finding purpose
Joy from the perception of nature
Shared suffering
Hope for relief
Developing a more nuanced view of nature-related values

Caring for Nature and Finding Purpose
Even though the strong unpleasant emotions were overwhelming for me they also showed that I deeply care for the surrounding world and its non-human inhabitants. At the beginning of these experiences I did not necessarily know or think about what the driving factors behind my desire to work on the litter problem were. Several instances showed me that it was this deep love and feeling of connection to the natural world that gave purpose to my actions. During the first walk hearing and then seeing a woodpecker took me out of the growing mood of devastation. *Then I realized: yes, that's what I'm doing this for, so that this woodpecker and the sparrows, and all the snails, the mice - I haven't seen any mice, but they're on my mind too - so that they can live there without being poisoned. Without choking on bits of plastic or anything like that. That gave me hope again* (2024-10-14 Post).

Joy From the Perception of Nature
Similarly, after the second walk I described the influence of a natural scene which struck me (Figure 3). It was a pathway leading up a hill which was overgrown with young tree-saplings whose leaf colors were changing to yellow, orange and red: *It really looked like a magical passageway, somehow. And it filled me with profound joy to see that* (2024-10-21 Post B). Furthermore, I characterized the experience of seeing and walking through this pathway as *a bit like balm for the soul* (2024-10-21 Post B).

Figure 3: Picture taken during one of the experiences; showing trees with colouring leaves that induced feelings of joy and calm.

During my last experience in April, I walked through my street to a dog park and was pleasantly surprised to find quite few items of litter. This gave me a feeling of relief as I could give more of my attention to the flowers and plants that were growing there. I recognized how much more pleasant this was as I felt less overwhelmed by the amount of litter and could instead focus on collecting small pieces like cigarette butts that I had to leave lying around during previous walks.

Shared Suffering

When I gathered a cardboard box full of moldy clothing items (see chapter 4.6 for a narrative description) I came across a mouse and instantly felt bad that I might just have destroyed its home. Or at least disturbed it. My descriptions of the situation show how I perceive nature to deal with the changed circumstances of the past decades. How I see them as innocent and unknowing victims of human activities: *And the mouse doesn't care that it's a pile of clothes. It seems to be a suitable place for her. And in another pair of shoes were old snail shells. Somehow snails had lived in them. So, nature still lives in it anyway. It doesn't make a distinction, maybe it cannot tell the difference* (2024-11-26 Post). As a consequence of my empathy for non-human

beings and my idea of their unjust suffering, I did not only experience relief and joy but was deeply affected by the possibility of their suffering. This perception led to feelings of hopelessness, depression and doubt: *It's really depressing to think that they, the seagulls and the geese and the cows and everything else that lives here that I don't even see, just eat this piece of plastic. This fibrous material or crown cap, and that they might choke on it or that their stomachs will slowly fill up and they'll always be full - but will still starve to death. That's cruel. It's heartbreaking* (2024-11-15 On). My descriptions make apparent the vivid imagination I have of animals suffering from the influence of plastic pollution. Pictures of dead birds or fish with their stomach full of plastic particles and reports I have read about the increased contamination of wild life animals with plastics seem to have left their imprint on me.

Hope for Relief

Several times, I had hoped to find a sense of relief from being outside and seeing plants and animals, just like it had occurred during some of the first walks. *And then I thought, oh, I could just go collecting by the Waal, by the river. I know there's something [litter] there from a trip a few weeks ago. And then I really started to look forward to it. So now I still just look forward to going out into nature where there are hardly any people* (2024-11-15 Pre). But more often than not, the feelings of despair and overwhelm were overshadowing the pleasant emotions I expected to be evoked. Mostly, feeling connected and glad occurred coincidentally when I unexpectedly encountered a wildlife animal or recognized a specific aspect of the landscape surrounding me. Still, this was a strategy I tried to employ to mitigate the strong emotions by actively shifting my focus to what brings me joy when I see it. *And then I found my cheerfulness again somewhere. Oh yes, and I think it also came from the fact that I just tried to take in my surroundings a bit, to recognize that it was a really nice day. And not just to stare at the ground, but to raise my eyes for a moment and notice some of the plants or simply the road. And then I heard a bird singing and saw it up in the empty treetop. I stopped there too, looked at the bird and sort of greeted it internally (*2024-12-03 Post).

Developing a More Nuanced View of Nature-related Values

Through my reflection on the experiences I came to understand that what I perceive as nature connectedness does not equally relate to all natural phenomena but is nuanced based on how I relate to specific phenomena. Aspects of the weather like cold temperatures and rain were mostly unpleasant to me. While I often am happy for the plants when it rains, I personally still avoided going litter picking then. During an inquiry prior to a walk I remarked how it looks '*pretty gray outside*' (2024-10-21 Pre) and that I wanted to challenge my initial reaction to that by going outside and trying to enjoy this rainy weather as well. I see the value in earth and dirt and still I avoided getting it on my shoes and clothes as there was a sense of disgust to it. Theoretically, I hold the ethical stance that everything natural in our world - for me this is loosely defined as everything that is not completely synthesized by humans - has its value on its own independent of the value we humans give to it. Practically, my observations show that I still have preferences based on my relation to the matter in question.

4.3   Theme 3: Exhaustion Leading to Avoidance

Seven sub-themes led to a sense of exhaustion during and after the experiences, which in consequence led to an avoidance-reaction to the experiences; see Table 6 for an overview. In the following I will further elaborate what these sub-themes were made of and how they affected the experiences.

Inner conflicts
Difficulty with stopping
Physical manifestation of emotional reactions
Coldness
Physical exertion
Inner resistance
Struggling with avoidance behavior

Inner Conflicts

As already described in chapter 4.1 I experienced inner conflicts about the constant need to decide what I want to pick up and what I leave lying around. I was confronted with the impossibility to pick up everything that I see as it was (a) an overwhelming amount of litter and I had to prioritize what I could pick and (b) some pieces of litter were out of reach, e.g., when they were in a thorned bush or high up in a tree (Figure 4).

Figure 4: Picture taken in everyday life; showing pieces of plastic in the crown of a tree that were unreachable for me.

Furthermore, there were some inner conflicts about how I should behave in relation to other people which will be further elaborated in chapter 4.4. These inner conflicts were part of my inner monologue and contributed to a feeling of exhaustion throughout the experiences. After a few experiences I recognized this mental monologue as a normal part of how my brain works and noted the lessening of it when I felt exhausted: *And in general, I thought a little less than usual - at least I had more pauses from thinking. In general, my thoughts were similar to the last few times. So, a lot of it centred around what I was picking up, what it was like to pick it up* (2024-11-07 Post).

Difficulty With Stopping

Close to the inner conflicts was a difficulty to stop collecting litter even when I had already decided to stop and go home. I recognized this as a recurring pattern after the third experience. While I was feeling bodily cold due to the temperatures and had the urge to go home, I noted: *And yet my eyes were glued to the floor, always looking left, right and forwards* (2024-11-07 Post) in the search of more litter which had to be picked up. Later on I described this phenomenon and its drivers a second time: *I come across more pieces that I then pick up, even though I've actually already decided that I don't want to anymore. But not picking them up would just feel very wrong. After all, I'm here right now and it's on my way, at least half of the time* (2024-12-05 Post).

Physical Manifestation of Emotional Reactions

Chapter 4.1 and 4.2 already described my emotional reactions to the experiences, therefore the focus here lays on the physical manifestation of exhaustion caused by the emotions. After one particularly moving walk I reflected on the signs that showed me what I was feeling: *I don't just feel it in my head, I also sense it in my body. I know this because I keep my eyes closed a lot, put my hands in front of my face and move them over my face. I can feel in my chest that there is some kind of agitation in there. That there is still some sense of dismay (*2024-11-26 Post). In reaction to the relief felt after seeing a woodpecker during the first walk, the bodily reaction was one of almost crying: *After that I was simply done. Yes, I actually felt the impulse to cry a little. I didn't cry, but I had this feeling of tears in my eyes... Just because all the tension fell away a bit* (2024-10-14 Post).

Coldness

As a result from picking litter during the winter months I struggled with feeling cold due to the low temperatures. The coldness presented within the body and sometimes ended in me shivering. Apart from that I especially noticed the coldness in my hands, feet and legs. *And over time, the cold has also crept into my hands through the working gloves. And I didn't notice it at first on the right hand that was carrying the bag, only on the left, which was always moving. When I took a break halfway through and moved my fingers, I realised 'Uh, that hurts. They're really cold too.'*(2024-11-07 Post). Except from the last walk in April I struggled with being too cold during all experiences. The anticipation of feeling cold and having to adapt to it contributed to the growing resistance towards litter picking: *There's a feeling of 'then I have to put on my jacket and hat and everything so that I'm not cold.' So that becomes such a big hurdle - which I don't necessarily think about, it's more of a feeling that it's going to be strenuous* (2024-11-26 Pre). I tried to mitigate the effects of coldness through wearing warmer clothes, planning my actions to be on days that were warmer and without rain as well as collecting closer to my home, so that I could stop more immediately and through shortening the duration of the experiences. During the inquiries prior to the experiences I often had a moment where my gaze went outside the window to inspect the weather outside and based on what I was seeing my motivation rose or fell.

Physical Exertion

Apart from the coldness I also felt physically exhausted from carrying the increasingly heavy bag and the repetitive lifting of litter with the grab tongue. *If I now stick to the question of what it was like to go for such a walk, I can say it was physically exhausting. In the sense of carrying the increasingly heavy bag. And the gripping movement with the other hand over and over again* (2024-11-15 Post). This even resulted in feelings of shakiness: *When I hold my hands up, they are barely not trembling* (2024-11-15 Post) and pain: *Then I tied up my bag, went home and the bag was heavy. So, what it also consists of is pain in the hands from carrying* (2024-11-26 Post). For the challenge of the heavy collection bag, it took me some time to realize the problem it posed and eventually I switched to taking smaller bags and not taking them home to store them for the garbage-pick-up-day, but rather disposing of them in public bins. After the first walk with this new strategy, I mentioned how inconvenient the previous strategy was: *And then at some point the thought occurred to me that it's no wonder that my motivation to do the experiences had dropped so much. Because I've finished them with the worst part almost every time. With the bag being the heaviest, heavier than it's actually comfortable to carry and then having to drag it home and put it in my cellar, knowing that my cellar stinks of it* (2024-12-13 Post).

Inner Resistance

In consequence I started to struggle with a kind of resistance prior to and at the beginning of the walks. I had to actively decide to not give into this resistance up until the point where I was actually outside: *I had indeed forgotten to take the bag down with me, which I then realised downstairs when I left the house. And the whole way up I thought I might as well just not do it now. And I could just get myself changed again and do something else. And I just had to say 'no, I'm really going now.' Yes, so I had another huge surge of inner resistance* (2024-11-26 Post). Another time I recognized how my general willingness to conduct the experiences was in conflict with the present difficulty to get started: *This wanting was very clear until the moment when I really have to go. So I still find it difficult to go out now, to get ready. I don't quite know how, what all the steps are that have to happen. [...] And now I have this unease inside me, like a magical barrier to going out* (2025-01-02 Pre).

Struggling With Avoidance Behavior

As a result of the exhaustion and increasing resistance I experienced, I started to avoid going litter picking. While I originally planned to do two actions a week, I almost never reached this goal. Instead, I struggled with a bad conscience and with showing avoidance behavior. At first, I realized how this avoidance happened on a cognitive basis: *Because the street in front of my house looks very, very disgusting and it just triggers me. But after the walk last week, I don't have that much motivation to clean it up. I've planned it for tomorrow, but it's actually something I'm avoiding in my head, something I'm avoiding* (2025-01-06 Ind). Then it translated into an actual change in behavior: *And I didn't do it on Tuesday and then I thought, OK, maybe Wednesday. And I woke up in the morning and went straight back to avoidant behavior by not getting up and just going back to sleep. But that was also because I was relatively exhausted. And when I actually... Why I know that this has something to do with the walk is because I was half awake thinking about the fact that if I get up now, I'll have to go for a walk soon, and the conclusion was that I'll just turn around now* (2025-01-09 Ind). Once I realized that I was avoiding doing the experiences I could actively perceive my behavior. While I was aware of what I was doing I was still unable to change my behavior: *And it means that I do everything more slowly. That by doing sport this morning, I sit at the PC for longer and still google something here, something there and then it's 10 to 9 and I*

think to myself that I should actually make breakfast now if I want to make it on time. And being fully aware of this, I sat down on the couch and crocheted instead. So I know I should be doing something else to make it work, but I just so desperately don't want to that I do something else instead. I know I have to get up now and make breakfast so I can still make it. I hope I can do it, but it's just hard. It's like a barrier in my body that says 'no, we're not going to do that now, we don't want to' (2025-01-07 Ind 1). Once I had made the decision to not go anymore on that day I reflected back on how this morning had felt: *It was a very, very unpleasant morning. Very, very stressful for me. Compared to yesterday, when I had 2 meetings in the morning, had a blood sample taken and then worked with a friend for 3-4 hours, this morning was worse. Although I basically only did things that I like. But it was much more unpleasant because I didn't necessarily do these things because I just wanted to do them, but out of avoidance behavior and with a bad conscience* (2025-01-07 Ind 2).

The initial sense of contentment and pride I felt after the first few experiences got gradually overshadowed by all the negative effects and at last doing the experiences felt mostly like a responsibility I had to fulfil but was not able to. Consequently, I came to a point where there was an inner discrepancy between being motivated in theory and not wanting to get active in the moment. *And of course I wanted to go for a walk on a meta-level, because that's what I set out to do. That's my project. I know that there won't be so much rubbish lying around on my doorstep and that it will trigger me less. But on a very practical level right now, I just don't want it at all* (2025-01-07 Ind 2).

4.4 Theme 4: Fear of Social Judgement and Mixed Feelings About Interactions With Strangers

Three factors characterized my perception of social interactions and how others might see me (Table 7). In the following I will further elaborate what these factors were made of and how they affected the experiences.

Table 7: Sub-themes characterizing the theme fear of social judgement and mixed feelings about interactions with strangers

(Initial & continuous) fear of being judged
Receiving positive feedback & feelings of pride
Mixed feelings during and after interactions

Initial Fear of Being Judged
Already before the first experience I mentioned a fear of being judged negatively by passers-by. In this first inquiry I talked about the fear that people will *associate me with rubbish and think I´m dirty* (2024-10-14 Pre A) and *this fear of being labelled somehow* (2024-10-14 Pre A). Due to these fears, I was actively relieved to begin the first experience at a somewhat hidden place: *When I started, I was quite happy to be in a bit of a separate area so that people couldn't see me as much* (2024-10-14 Post).

Receiving Positive Feedback & Feelings of Pride
Throughout the experiences several people approached me, giving positive feedback. During the second experience a women passed by me and said the Dutch expression "wat fijn" towards me which translates to "how nice". I expressed feeling insecure during this interaction in my inquiry afterwards: *So there was also some uncertainty as to whether it was something nice which had been said to me, but I somehow analyzed it at that moment and said to myself 'OK, yes, it must*

have been something good' (2024-10-21 Post). At the same time feelings of pride and doing the right thing emerged, which are reactions that come back again and again in the context of social interactions: *And at the moment it made me feel a bit proud that I'm doing this. [...] It was a feeling of joy and also a feeling that what I'm doing here is right* (2024-10-21 Post). About a second interaction which happened during the same walk I noted feeling a similar way: *Somehow, I was just happy to hear that and then started to smile a little. I tried to hold on to that smile for a moment and enjoy the feeling that I had just been complimented. It feels good somehow to be acknowledged by other people* (2024-11-07 Post).

Mixed Feelings During and After Interactions

A pattern can be seen in my reactions to the interactions with strangers. During the interactions I felt somewhat insecure and was afraid to misunderstand people and to react not appropriately, afterwards I was left with a mixture of feelings ranging from pride, thankfulness and content to an underlying insecurity which led me to analysing the situation and replaying it in my head. I reflected on this tendency to ponder after one encounter: *And at the same time, it's also a bit of a stressful situation because it's such an abrupt interaction and I have to decide very quickly what I'm going to answer. And I recognise that, because afterwards I think about what just happened and go through the conversation again, partly because I want to remember it for the interview, but also because that's just what my head does somehow. And then I think, did he really say what I understood or was it perhaps meant differently? Should I have answered differently? Thinking about the fact that "Dank je" isn't really a Dutch word. Normally you say "dank je wel", but I like to say it so briefly. Then I think about whether it all really works (*2024-11-19 Post).

After some time the positive feedback from strangers gave me a sense of confidence and trust that my doing was generally well-perceived. I recall answering *confidently* (2024-12-03 Post) and no longer having *as much uncertainty as the last few times* (2024-12-03 Post) during a later interaction.

Continuous Fear of Being Judged

Yet, during specific instances I was still afraid to be perceived wrongly, just as I had expressed before the first experience. This fear revolved especially around people thinking that I am littering myself or on a meta-level that I am contributing to the litter problem rather than helping in resolving it. *And just at the end, when I threw the full Albert Heijn bag [bag from a supermarket brand that I used for collecting] into a public rubbish bin, my heart was really pounding and I was breathing really agitatedly because there was also an older child around. Yes, and I just felt very strange putting the Albert Heijn bag in there now and didn't want to give the wrong impression, because I don't want to give the impression that I'm someone who disposes of their personal rubbish in public, but not having to take it home with me was more important to me* (2024-12-13 Post). This fear of being perceived as a person who contributes to litter lying around rather than a person doing something against it persisted until the very last experience. While I was walking around with the grab tongues and the bag, I had gained a feeling of safety and the trust that people do not misperceive it. But when I went to throw away the collected litter in public bins, I was very aware of the impression it could possibly make and actively made an effort to still collect litter around the bin to make it clear that I am not littering myself. *Someone was standing there too and I thought to myself, 'Oh yes, now make sure that you still pick something up so that it doesn't look like you're throwing away your household waste'* (2025-04-23 Post).

These conflicting feelings towards social interaction are an interesting finding as I was not aware of the extent of them prior to starting the experiment. Even though I did mention a fear of being

misperceived right from the beginning I would not have identified as a person who is stressed out by social interactions or even insecure about reacting correctly. I would have understood myself as a person who is not afraid of social judgement, but my reactions show that I am rather a person who acts despite being afraid of social judgement.

4.5 Theme 5: Unpredictable Confrontation With Other Societal Challenges

During the experiences I was confronted with several other topics based on the items that I found. Specific items induced associations based on my prior knowledge. For example, I found a path were around 30 beer caps were pushed into the ground in an almost aesthetical way (Figure 5).

Figure 5: Picture taken during one of the experiences; showing beer caps that were pushed into the path and made me think about EU-regulations.

I associated these with the EU-regulations on single-use plastics that I had heard about a few years ago and that had brought up discussions between my friends over plastic bottle caps that had to be attached to the bottles instead of being separate (Council of the European Union, 2019). Consequently, I pondered whether similar regulations would be useful for beer caps. *What stands out for me on the walks is that I am confronted with different topics without being able to choose. So when I'm on the internet, I can decide a bit what I want to read, what I want to watch, why I want to watch documentaries or which articles I want to read and which I don't want to read. And I can also hide things. […] And here it's actually by chance what I'm confronted with. And it's also much more real, because it's not some text that someone has written or a film that someone has made, but it's here, in real life. And that perhaps doesn't show the full extent of the horror, because I don't have a figure for how many beer caps are lying around anywhere else in the Netherlands. But it shows that they're lying around everywhere* (2024-12-03 Post).

Similarly, I associated the remains of a camp I found during one of the experiences in combination with the pregnancy test with youth pregnancy and the implications it has for the affected person: *[A girl] who is afraid, who thinks she has to stay there for a night or several nights because she could be pregnant and so in my head I sort of spun the story further, interpreted things differently and thought, okay, this is probably a young girl, [who] is afraid of her parents' reaction* (2024-12-03 Post). I discussed this event with another friend, and she had a very different interpretation of it and thought that it had probably been a homeless person who had camped there.

In another instance I found containers for what I assumed to be medical prescription joints. I did not think much of these, but for others this might have opened a whole topic about drug usage and cannabis as a medicinal plant. When I found a box full of clothing items it made me dwell on the topic of fast fashion.

Consequently, I had no influence on the topics I was confronted with other than my own framework through which I experience the world. I could not choose to exclude certain topics from my view as I might be able with other forms of perceiving the world such as the internet, television or books.

4.6   Five Themes Shown in a Narrative Example

In the following section I will depict one incidence in the form of a short narration to demonstrate how the five themes emerged throughout experiences. This incidence is meant to be an example leaning on autoethnography, that shows all five themes in a comprehensible and more relatable way. Teachers could use this narration to bring the experience of picking litter closer to their students and to discuss the experiences students made themselves. A picture of the found items is included at the end of the narration (Figure 6).

As I thought that I was already coming to an end of today's experience of litter picking I approached a children's playground. I decided to see this as a last step before heading home. As I picked up another piece of plastic, I automatically gazed around in search for the next item to gather. In between the bare branches of the bushes surrounding the playground I spotted something. It appeared that somebody had left a cardboard box in there. Nicely hidden away during summer, but now the bare branches revealed what was left behind. I wondered whether I could get to it and explore what it might contain. Did these bushes have thorns? I brushed against one with my leg and was relieved to find that they did not. I stepped two meters in, looked at the box and found that it was full of clothing items. The cardboard was already rotting

away with mold, but the clothing seemed still very much intact. A conflict arose in my mind. Would I be able to gather all this? Would it fit into the bag I brought? Did I really want to gather it up or was it too much? Was it too disgusting? Ridden by my inner conflicts I stood there for a moment, looking at the box and looking around, searching for solutions. I saw the public bin just a few meters away and pondered whether I could put the items in there. Maybe a part of it. I decided to take on the challenge anyway and just get started with throwing a few items at a time out of the bushes onto the lawn. Picking up the whole box was not an option, because I doubted whether it would hold up at all and I also really did not want it to touch the whole front of my jacket, which was too disgusting for me. While picking out the pieces I was struck with curiosity about what I would find. Pretty high up laid a big red heart-shaped pillow with two arms, just like the ones you would get at a funfair. It was followed by pieces of clothing, cloths and some shoes. With some amusement I discovered the same kind of shoes I had worn for prom when I finished high school. This felt weird.

When lifting up an old sock I suddenly saw a mouse run away out of the pile. I was struck with empathy for it and felt a sense of guilt that I was probably destroying its home. Still, I knew that I did not know whether this was actually the mouse's home or whether it was just there by chance. I disturbed it and I felt sorry for that. I found a pair of shoes filled with house shells from snails and pondered on how they must have lived in there at some point. After having thrown out all of the items I needed a short break. There I stood on the grass, looking at the amount of clothing which seemed to have doubled now. Dismay started to fill me. At the same time, I was not feeling angry at the person who had left their belongings there instead of disposing of it properly. I felt empathy and guessed that this person maybe was just not in a place where they could worry about the environment. Maybe they had other, more pressing problems. What I knew, was that I did not know what led this person to litter. And that I still did not know what to do with it now. I began putting the stuff into the public bin, but after three rows of carrying stuff there, I began to doubt whether this was reasonable. The fabric items were heavy and if I filled the public bin to the brim, people would throw their waste next to it or just somewhere else. And the people collecting the waste would probably face a torn bag and would have to gather it all over again. Instead, I started filling my own bag with the items as much as I trusted it to hold up to the weight without tearing apart. I was still filled with a mix of astonishment and dismay. Unfortunately, my bag was not big enough to fit all the remaining items and so I was left with the problem of where to put the rest. I could go home and grab another bag. But by this point in time, I was already pretty exhausted and doing so would have felt past my threshold of what I considered healthy for myself. With a sense of guilt, I decided to carry the items over to the public bin and leave them next to it. While doing so a mental dialog was happening in my mind. I thought of what I would say if somebody asked me why I was putting these clothes there. In my head I was rehearsing defensive explanations that made clear that I was not the person who caused this mess. The fear of being perceived as the person who has caused this mess led me to prepare mentally for being accused. Nothing happened. I carried the rest of the items over there and put it into a pile next to the bin. Once I was finished, I took a short break and then gathered my bag and my grab tongues and carried it home. My head was filled with racing thoughts about what just happened. My hands were hurting from the heavy bag. I had to take another short break. I got home and put the bag into the cellar. Back upstairs I set down to do my inquiry of the experience. The rest of the day I still had this sense that I should go back and put the rest of the items into a second bag. But I couldn´t get myself to do it. I was too exhausted

- mentally and physically. Somehow the garbage of another person had become mine the moment I decided to take care of it. And I felt like I had not taken care sufficiently. And still, I could not force myself to go back there. This feeling only subsided after two or three days.

Figure 6: Picture taken during one of the experiences; showing clothing items that I had taken out of a rotting box hidden in bushes, my grab tongue and the collection bag (on the right).

4.7   Theme 6: Effects Associated With Litter Picking in Everyday Life

Table 8 shows an overview of the effects I experienced outside of the walks themselves and interpreted to be connected to the experiment. These effects will be described now.

Table 8: Sub-themes characterizing the theme effects associated with litter picking in everyday life

Increased awareness of litter
Sense of guilt for not picking up litter
Occasionally picking up litter
Negative impact on mental health
Limited influence on consumption behavior
Creative inspiration
Increased appreciation for people working in the garbage collection service
Discussing my interpretations with friends
Dreaming of litter picking

Increased Awareness of Litter

Before I started with the litter picking I already began scanning my surroundings for places where it would be useful to get active. This led to an increased awareness of the places where litter can be found: *Since the first walk, and even before that, I've seen waste everywhere and I'm shocked to discover it everywhere* (2024-10-21 Post B). I started to see my environment, the city I live in, differently and with an automatic focus on litter: *I've trained my eyes so much to see litter and then I walk around and I see it everywhere. So what used to be just a street is now just cigarette ends, packaging, cans lying on the sides and suddenly you see it all. And actually you don't want to see it, you just want to go about your daily life and not notice it at all. And then suddenly it's everywhere* (2024-10-14 Post). This phenomenon occurred while taking regular walks, during visits to the city centre as well as while riding the bicycle. Every time I left the house I started registering whether there was litter lying around. This became completely normal to me. How burdening the increased awareness of litter lying around was, only became clear to me once I was relieved from it by external circumstances: *I woke up at night, 20 to 6 and it was snowing, and then I persuaded my boyfriend to go out with me and we just went outside. And I realised how good it was for me not to see any waste because it was covered in snow. I was really excited about the snow anyway, but I also just realised that I felt relieved not to be confronted with it for once* (2025-01-06 Ind).

Sense of Guilt for not Picking up Litter

Consequently, I developed a sense of guilt when I saw pieces of litter during everyday life but did not pick them up. There was a kind of inner conflict whether I wanted to pick up items or leave them there: *And when I see it and have the chance to take it with me, I somehow feel bad that I don't do it. Because it doesn't cost me much. There are also things that stop me in various situations. For example, in everyday life, the item I see lying around might look disgusting and I don't see a bin right nearby. Or that I don't want to start picking up waste everywhere all the time. Even if I don't know what would be so bad about it. Actually, it would be a good thing. It might annoy the people around me. But it's also an issue in which I want to be annoying. Because it's so overlooked and just ignored and somehow not addressed* (2024-10-21 Post B). This guilt came from a sense of responsibility for the litter lying around. My recordings show that often when I saw litter in the areas that are important to me I immediately saw myself as the person who had to handle it: *And today at lunchtime, about a quarter past 11 as I was cycling to university, I was driving down the hill and saw some white plastic fluttering in the treetop to my right. Several large pieces. And my first reaction was: How the hell am I supposed to pick that up? And then the second: [...] how the hell did it get there?* (2024-12-11 Ind). Therefore, my decisions to not pick up litter where always in conflict with my sense of responsibility.

Occasionally Picking up Litter

In a few instances I did however pick litter up outside of the planned experiences. After a visit to the city centre of my hometown with my mother I described how I picked something up: *Then I saw that there was a soft drink cup like the ones sold at McDonald's and I knew immediately that there was a bin nearby, I knew the bin and I didn't think about it for long, I just bent down and picked it up. I also realised 'ok, it's a bit soggy', so it's already been rained on and I just took it to the bin. Even if it wasn't completely on my way, 4 metres detour or so. Yes, but I just did it without really thinking about whether it was dirty or not.* I attributed this readiness to pick litter in an everyday situation to my prior exposure to articles about environmental pollution caused by litter: *And what happened before that, was that I was researching about waste this morning. I*

read about how much waste is produced and how little of it is actually recycled and ends up somewhere where it can be reused. And how big the problems are. And I couldn't really get that out of my head all day. I kept thinking about it when we were in the supermarket and when I saw all the packaging. When we bought oranges in a [plastic] net (2024-11-22 Ind). Another time I had a direct idea of what my reasoning was that made me decide to pick up a piece of litter: *And then later, when I was at the university, after I got off the bus, I walked the little path to the university and I had to cross a little mini bridge and right under there, 10 centimetres under there, was the water, the ditch and next to it was a piece of plastic packaging. I think it was corn wafers, I can't quite remember now. Yes, and I didn't think much about it, I just picked it up… And I think I just picked it up because it looked dry and clean and it was right next to the water. Very, very little was missing for it to end up in the water and be lost, so to speak* (2024-12-11 Ind).

Negative Impact on Mental Health

Next to the increased focus on litter whenever I was outside, the pressure to conduct experiences and my failure to do so had a deteriorating effect on my mental health status. This effect has already been presented sufficiently throughout chapter 4.1 and 4.3.

Limited Influence on Consumption Behavior

Apart from a few specific incidences the influence on my consumption behavior was limited. I am not the person doing the grocery shopping in our household. Therefore I could not observe any changes regarding everyday products. However, when we had to get new garbage bins for our kitchen I found it very important to at least try to find a sustainable solution with limited plastic use. I spend several hours researching possible options that would fit my need for sustainability as well as the simple functional and aesthetical needs of our kitchen. Unfortunately, I did not do a self-inquiry, but I do remember that it would have felt off to just buy a regular bin out of plastic while picking litter and researching about the problems of plastic waste at the same time.

In another instance I planned on crocheting socks and while looking for sock yarn I learned that it is typically made out of 75% of a natural fibre and 25% acrylics. This made me question whether I still wanted to do the project. I recorded my conflicting interests after I went to a yarn shop: *I was like 'hmm, maybe I'll buy them then'. But somehow I didn't want to, but somehow I also wanted a simple solution. Yes, then I looked outside again for the woollen yarns that were a bit cheaper. Together with my mum. Then she said it´s quite small to crochet, so thin, and then I thought yes. And I thought about it and said, no, I won't do it for now, I won't buy it for now.* In the end I did not end up buying yarn for socks at all and let go of that project (2024-11-22 Ind).

Creative Inspiration

Creatively, I got inspired by the experiences to think of possibilities to do art projects that increase awareness of the problem. I recorded one idea in an independent inquiry: *Or rather, a few minutes ago, while working on my research proposal, it occurred to me that I could also make a collage or several collages. Um. [with] nature photographs that are very, very pretty, that others have taken and then I could stick pieces of plastic rubbish in them, so to speak. To, yes, disturb the viewer a bit and draw attention to it. To do that as a form of art* (2024-11-18 Ind).

Almost one month later I felt creative prior to going on a litter picking walk and developed the idea in my head: *Generally speaking, I had a feeling of creativity this afternoon or this morning. I thought about how I could depict the whole thing artistically and had one or two new ideas that I then developed a bit in my head* (2024-12-16 Pre). However, I did not bring these ideas to completion. I did not know where to get used magazines for collages. I went to the library to ask

whether they were selling old ones and got a no. After that the idea sort of died. The other ideas went through similar processes of having an early obstacle that kept me from going further.

Increased Appreciation for People Working in the Garbage Collection Service

Doing the experiences increased my appreciation for people working in the field of garbage collection. I did not only recognize this in thoughts I had during the experiences but also in a change in my behavior. I expressed my thankfulness to the workers directly: *The waste collectors were already picking up the paper [waste] and I just ran as fast as I could to take the things [paper waste] out of our flat and then the things from the cellar. And when I took the things out of the cellar, one of the three came up to me and said 'goede morgen', so 'good morning'. And then I spontaneously decided that I want to thank them and said good morning as well and thank you for your work, in Dutch of course and in a cheerful way* (2024-12-18 Ind).

Discussing my Interpretations With Friends

I discussed some of the experiences with my friends. I joked with them about the question of 'what was there first' based on the tobacco dose lying on the fly amanita and I told them the story of the possibly pregnant teenager whose camp I had found. We discussed how the items that I found could be interpreted and one of them interpreted them very differently. For her, my description sounded more like a homeless person had stayed there. These discussions made me aware of how much of my experiences is determined by my own interpretations.

Dreaming of Litter Picking

Lastly, it should be shortly noted that I dreamt about picking litter once. I described this dream in the morning in an independent inquiry. In the dream I was at a crossroad close to where I lived as a child and noticed that there was litter lying around and had the urge to pick it up. Only to realize that I did not have my picking gear with me and to decide to first get that. After that the dream moved on and I did not get back to that place or to picking litter.

4.8   Take-Aways From a Pedagogical Perspective

The prior sections gave quite a detailed account of how I have experienced this experiment. This chapter gives a short overview of the five most important take-aways for myself.

Firstly, the most important skill that I have learned during the experiment and writing of this thesis is the introspective reflection of given experiences. I learned to shift the focus more onto what is happening directly, to analyze moments and how I reacted to them. Through this I also gained a deeper understanding of when I am actually interpreting situations based on few indications without a proper basis. The spoken reflections also taught me to put more attention to what is happening in my body and how this is in relation with my experiences, emotions and thoughts.

Secondly, I went through a learning process that taught me that actively going litter picking is not beneficial for my mental state. I struggled largely with accepting this insight as I started out with the expectation that I find litter picking to be meditative and fulfilling. Only through the direct inquiries and through the gathering of the data was I able to see the general effect it had on me and to slowly realize that my initial assumption was wrong. Even though the walks had some positive effects - like feeling content after some of them or connecting to my surroundings - the negative effects outweighed these. However, I also learned that seeing litter in the streets and doing nothing about it is similarly burdening, but easier to live with for now.

Thirdly, on a value basis I came to understand that I was driven to do this experiment through the purpose of doing good for the non-human beings, thus our environment. This became especially

clear in the moments I encountered wildlife animals. Based on this I can know put my focus on steering towards that purpose with other methods that fit better to me.

Lastly, I learned more about how I function in relation to other humans, e.g., about my thought processes during and after conversations and about how it looks like when I am avoiding something. This gives me the opportunity to react differently in such situations and to understand when something is difficult to me and to reflect on what possibilities I have to change the situation.

5 Discussion

This study explored through a single case study what litter picking as a voluntary activity for sustainability was made of and how this affected my everyday life. Shortly summarized, I found that I had been strongly emotionally affected during litter picking walks and the unpleasant emotions were outweighing the pleasant emotions. I found that feeling connected to nature was a source of purpose and joy but also of shared suffering with animals. The experiences left me mentally exhausted and over time led to avoidance behavior. I uncovered a fear of being judged socially of which I was previously not aware. Litter picking brought to mind other societal issues in an unpredictable manner. In my everyday life I observed an increased awareness of litter lying around and guilt about my inaction. Furthermore, I increasingly appreciated the work that people in waste management jobs are doing and there was a limited influence on my consumption behavior.

This section discusses the main findings and relates them to other studies. It also explores implications which these findings have for the use of litter picking as an educational activity. The limitations of this study will be pointed out and recommendations for future research will be given.

5.1 Emotions Towards Sustainability in Other Studies

Many of the unpleasant emotions that I experienced during the walks (like anger, hopelessness, guilt and depression) relate to what Hickman (2020) refers to as eco-anxiety: "[eco-anxiety] is not just an emotional response to the facts and experience of environmental crisis and threat; it includes a relationship between these emotional responses and the cognitive knowledge that we have both caused the threat and are failing to sufficiently act to reduce it". Hickman argues that the strong emotional responses that young people experience, can be seen from a perspective of eco-empathy as well. That is, they experience anxiety and distress because they care for or love the environment.

This understanding is similar to the emotional model in "the work that reconnects" by Joanna Macy, which is a group-based transformative learning approach. Here, emotions like sadness, fear and anger towards the world are understood as a sign of compassion and love as well as a desire for justice (Jones & Johnstone, 2024). Anger is not understood as something negative that needs to go away, but as a possible driver for passion.

Through the lens of eco-emotions by Hickman (2020) and the work that reconnects, the mixture of emotions that I experienced make sense. While I gained a sense of joy from interacting with natural elements I also suffered from strong unpleasant feelings because of my connection to nature. The empathy I felt for non-human beings meant that I experienced shared suffering when I thought that they are suffering.

This study shows that eco-emotions are not a vague concept connected to global change. My experiences show that they can shape everyday life. Emotions related to threats to the environment can come up when you see that a neighbor has changed their garden from green plants to a terrace with no greenery. They can come up every time that you see a piece of litter on your way to work, which might be 30 times on a 10-minute walk. They can come up when you walk past a river and see a mysterious oily substance on its surface. Only when we recognize how eco-emotions affect people directly in their everyday life, can we acknowledge the responsibility

educators carry to guide their students in finding constructive ways to deal with the global crises we all face.

Tam et al. (2013) investigated the relation between anthropomorphism of nature and feeling connected to nature as well as being protective of it. Anthropomorphism is the tendency to ascribe human attributes to non-human beings or objects (Epley et al., 2007). An example of this is to assume that animals have feelings similar to human feelings based on behavior that is similar to human behavior. Or giving the household printer a name and jokingly implying that it has malicious intend when printing does not work. They found that anthropomorphism of nature was connected with nature connectedness as well as conservation behavior (Tam et al., 2013).

My reactions during and after the experiences show that I heavily anthropomorphise nature. I recognize animals and plants as living beings. I think animals can suffer pain and maybe plants too in their own way. The nature connectedness I experienced seems to be related to the anthropomorphism of nature. In this way, my study is a thick description of the prior findings by Tam et al. (2013).

In a later study, Tam (2019) found that those humans who perceive nature as able to feel and to suffer (thus, anthropomorphise nature) are more likely to feel guilt for human impacts on it and to engage in pro-environmental behavior. They further speculated that guilt towards the environment could be a mixture of different types of guilt. Possible forms they distinguished were guilt orientated towards the environment, guilt oriented towards humans and non-interpersonal guilt. Non-interpersonal guilt is not directed at another person, e.g., one feels guilty for not meeting one's own expectation of pro-environmental behavior (Tam, 2019). The anthropomorphism that Tam (2019) has investigated through the use of questionnaires has been thickly described through my qualitative study. In my study the guilt that I have described correlates most closely with the category of guilt towards the environment. I even made it clear in one inquiry that I was not motivated by feeling guilt towards the humans currently living at the places that I cleaned. That does, however not exclude that I may have felt guilt towards future generations or based on my own lifestyle. The guilt that I experienced for not going as often as I initially planned to do fits to Tam's (2019) description of non-interpersonal guilt.

5.2   Pedagogic Implications

The section below provides an overview of what can be inferred from my experiment for educators based on the combination of litter picking experiences and (micro-)phenomenological self-inquiries as a reflection method. The section starts with the possibilities this form of experiment provides, then moves on to the challenges one might face, provides four strategies for addressing these challenges and lastly, gives an overview of organizational considerations.

5.2.1   Possibilities and Strengths

Most students (in western systems) have plenty of experience of working inside in a sitting position, but this experience gives them an idea whether working outside (being exposed to weather) is something for them and whether they are able to work with filthy objects. It can also show them whether doing repetitive bodily tasks is something that gives them joy or boredom. In this way, litter picking and reflecting on the experience engages the hands- and heart-domains of the head, hands and heart approach.

Along the way students are prompted to explore their values. Throughout a course they might find answers to questions such as:

- Am I more motivated to clean the environment for my own sake, the other humans living in it or for the environment itself? Or something else?
- Is litter something I care about? Does litter lying around disturb me?
- What value do I give to the environment?
- Which environments are worth cleaning up from my perspective? (e.g., do I feel more motivated to clean city centres vs natural areas?)
- Are there other problems in the world that I find way more pressing or that I would rather work on?
- Do I mind what others think of me?

Furthermore, litter picking is good for building a sense of connection to the places students visit. Wals and Benavot (2017, p. 409) stressed the importance of "providing opportunities to create personal and emotional connections to nature through lived experiences and hands-on engagement with environmental issues" for education for sustainability. When students are outside to pick litter, they walk pretty slowly through the places where they pick and will likely see these places from a new perspective. There is also a good chance that they see areas of their city that they have never seen before. I described this phenomenon like this: *This coming into contact with the real world, with the society around you. With your neighbours, so to speak. Without necessarily talking to them. Without anyone showing you their world view. Simply through what you find or don't find* (2024-12-03 Post). Similarly, in her visual essay Luo (2025, p. 387) found that collective litter picking "offers a feeling of being oriented at a place".

Additionally, it can be a solid basis for letting students discuss the status of the world and how they feel about it. As the worldwide litter problem is a wicked problem (Loonstra & Tassone, 2023), it can also be used to teach students the concept of wicked problems and give them the opportunity to practice envisioning different futures. It can be an opportunity to reflect together on the emotions students (and educators) experience in relation to sustainability issues and how these affect their behavior and decisions.

5.2.2 Challenges

For some students the act of picking litter might induce strong emotional reactions as it is interwoven with many other societal and sustainability issues. Educators cannot know beforehand how their students will react and what might be triggering aspects for individual students. There should be room and support to process these feelings.

Similarly, picking litter could lead some students into a state of rumination, especially because they're asked to stay aware of what is going on within them. Staying in this mode of heightened awareness for a prolonged period of time can be exhausting.

Based on the extend of personal anthropomorphism of nature and their perception of ecological and social responsibility students might react differently. These are two factors that I found to be driving in my motivation to do the experiences and if students are less driven by these factors they might also be less motivated to take part. Of course, other factors that my research have not shown, could be just as important.

Another challenge of litter picking is that you are never done. There are always small pieces like cigarette ends that you have to leave and there are always other places that would need cleaning as well. Therefore, picking litter can feel like an impossible, never ending task: *It's like I'm painting a picture and at the same time I have a cupboard full of 10000 other pictures that other people put in there that I also have to finish and it's never this feeling of 'I've finished a painting now' but*

there's still this cupboard full that has to be finished and I have no influence on how many people put pictures in there (2025-04-23 Post). Seen through the lens of the control-value achievement emotion theory, I did perceive that my actions had little to no control on changing the situation and at the same time I was unsure about the value of my actions. This can be a challenge for other students as well.

Finally, some students might fear social judgement while others expect to get compliments and others expect people not to recognize them at all. This can have an effect on how comfortable students are with going out to pick litter.

5.2.3 Strategies for Addressing Challenges

Firstly, addressing the experiences from a perspective of curiosity and humour might help students to find a positive twist and mitigate tendencies to ruminate or to get lost in negative thought loops.

Secondly, educators can give students the opportunity to make a (analog or digital) wall of compliments. There they can write down positive feedback they have gotten during the walks and collect them as a group. This can serve as a motivator and as a reminder that their actions are valuable.

Thirdly, I would advise to let students test different constellations. They can walk alone, in pairs or in groups as well as try picking in city centres, neighbourhoods and natural areas. This can mitigate fears of being perceived negatively and also dampen overwhelm from the amount of litter. The different experiences give students valuable information about how and where they prefer to get active and therefore about their values.

Lastly, educators can discuss clear end goals with their students. When have they collected enough as an individual and within the whole group? For the direct experiences end points can be a filled bag, having walked a predetermined route or having gone for a specific amount of time. Which end point is the most useful is dependent on the specific situation. For example, filling a 40L bag can take only half an hour in a heavily littered surrounding but also four hours in a lightly littered surrounding. In the latter case the other end points might be more useful indicators.

5.2.4 Organisational Considerations

From an organisational viewpoint students need at least gloves and garbage bags. Grab tongues would be nice for them to have but are not a necessity. Educators must coordinate where students can leave there filled litter bags based on the conditions of the municipality. If the course is set in a climate with different seasons it should take place during spring, summer or autumn. The two biggest security and health issues I see are from dangerous objects such as needles used for drug consumption or broken glass and from bypassing cars. Educators must decide based on their students capabilities whether they instruct students to collect broken glass or not. Needles should never be touched and in doubt educators should rather forbid students from taking them up. Streets with multiple car lanes tend to accumulate a lot of litter and are therefore an important place to pick litter, but the bypassing cars are also a security risk. Students need to be instructed to be careful of driving cars or educators could let their students gather litter at areas with less or no car traffic. Supplying students with high-visibility vests can mitigate this risk factor as well.

Moreover, educators should provide students with a background on why it is important to pick litter and some of the problems it poses as well as guide them through the process of doing microphenomenological self-inquiries.

If educators decide to do further activities to build something positive from the litter picking experiences (e.g., some form of art) materials for this must be organized.

The occasions where I found a box full of clothing or a one-night camp of a person show how picking litter can be the basis for discussions on other societal topics. Educators must be prepared to facilitate discussions brought up by students about topics they themselves might not have so much knowledge about. This is a common phenomenon of outdoor education and can be a great possibility to connect a course to other courses (Blenkinsop et al., 2016).

5.3   Limitations of the Study

As this study is a first-person account, it offers a unique view of litter picking as an activity for sustainability. However, it is not representative of how broader populations will react to litter picking. The findings can be used to inform future research and education, but they cannot be used to get a definitive understanding of how others will react to picking litter. Still, one can draw possible reactions that others might experience from my findings.

If a phenomenon was present for me (e.g., anger about litter on the streets), it opens the possibility that the phenomenon is present, absent or differently presented for others. Therefore, the findings build a basis of what one should look out for when working with this topic. As little is known about litter picking on a voluntary basis, other forms of research (e.g., questionnaires) would have come with the risk of overlooking essential parts of the experience.

Finding the balance between phenomenological and microphenomenological aspects of inquiries proved to be difficult. Usually, microphenomenolgical inquiries have been used for short phenomena of a few seconds only, like meditation or decision making (Petitmengin et al., 2019, Sparby et al., 2021). Here, I strived to employ the principles of microphenomenology to specific moments of longer periods of time (the duration of one walk). Especially, in the form of a self-inquiry it proved difficult to decide which moments were specifically important and when they started and ended. As the experiences were a continuous process, moments of interest also blended into the broader experience. The longer duration of the experiences required a back and forth between explaining the context and what was going on inside me. The combination of the inquiries prior to the walks, the walks and then immediately the inquiries afterwards, meant that I was exhausted by the time I did the inquiries after the walks. According to Sparby (2022), the initial agreement in a MPSI takes form of checking in with oneself whether one feels ready. Being fatigued is an indicator that contradicts being ready, but in my case, it could not be avoided. Due to the fatigue I struggled to evoke specific moments several times as it is usually done in a MPSI. I could have taken some rest between the experience and the inquiry, but I knew that my description of past experiences is less rich when more time has passed. The fatigue was a barrier to richer description, but time would have been as well.

On the other side, the combination of microphenomenological and phenomenological inquiry allowed for more concrete results and a deeper look at emotions, thoughts and perception of the senses than a solely phenomenological study would have. My interest had been in understanding litter picking experiences as a whole and in detail. The combination of the methodologies allowed to reach understanding of both whereas the methods alone would have given a clear picture for one of them only, the whole or the detail.

5.4   Suggestions for Future Research

A logical next step to this research would be to interview either volunteers who regularly pick litter or, if one is especially interested in the educational domain, to interview educators and students that have participated in litter picking events. Emotions have been identified as a major influence on the perception of the experiences. Therefore, a better understanding of how they affect other students experience of picking litter is key to gain an understanding whether students feel empowered or disempowered after taking part in litter picking activities. Further interesting focus points of future research could be the question of what is needed to make litter picking an empowering activity for students. As well as, the question to what extend students are hold back from doing sustainable activities by a fear of social judgement.

It could also be interesting to investigate whether nature connectedness can lead to less pro-environmental behavior because of a paralyzing effect of too strong negative emotions.

6 Conclusions

To conclude, elements that characterize litter picking and effects of litter picking on every-day life have been found through this first-person study. Through the use of phenomenological and microphenomenological self-inquiries and interpretative phenomenological analysis six themes have been identified. Firstly, I found that I was strongly emotionally affected by litter picking. A broad array of emotions was identified, and unpleasant emotions were outweighing the pleasant ones. I found that feeling connected to nature was a source of joy and purpose as well as a source of shared suffering with animals. Secondly, as a result of the mental and bodily exhaustion, I started experiencing an inner resistance to going litter picking. Consequently, I started showing avoidance behavior as well. This led to a point at which I had to decide to stop litter picking for a while. Thirdly, I discovered that I feared social judgements and acted despite this fear. Interactions with strangers, who expressed gratitude, left me with a mixture of feelings. Lastly, I observed that picking litter inevitably confronted me with other societal challenges like, e.g., fast fashion. In my everyday life, I observed nine effects due to the experiences of picking litter: an increased awareness of litter went along with a sense of guilt for not picking it up. Occasionally, I did pick up litter. There was a negative impact on my mental health and my consumption behavior was influenced towards buying less or nothing in a few instances. A few times I felt creatively inspired by the walks and I experienced an increased appreciation for people working in the garbage collection service. Lastly, I discussed my interpretations of what I had found with my friends and even dreamt of picking litter once. My personal take-away from this experiment is that I have learned to reflect more closely on experiences I have in my life, am better able to recognize signs of my body and that litter picking is not a suitable action for sustainability for me. From a pedagogical point of view, I found that the combination of litter picking & introspective reflection has the potential to teach students about their values and purpose, the kind of work they like to do and how to deal with complex societal problems. Students can gain a sense of connection to the places that they clean. They should be supplied with the right tools (waste bags, grab tongue, high visibility west) and instructed on how to handle dangerous objects to ensure their safety. The pictures and the short narration of one experience given in this thesis can be a resource for educators to introduce students to the topic. Educators should be aware that litter picking can elicit strong emotions around the different crises (e.g., climate change, biodiversity loss, global pollution), that humanity are currently facing. Therefore, I advise educators to organize their actions with the principle of head, hands and heart in mind and make space for their students to process these emotions together. How other students react to litter picking as an educational activity and which additional activities would support them in processing the experiences could be interesting questions for future research.

7 References

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8 Appendix – On the Use of Generative Artificial Intelligence

The internet-website "DeepL" has been used to translate parts of the recorded inquiries from German to English as described in the methodology section. DeepL uses a Large Language Model for their translation service. Apart from that no artificial intelligence has been used.